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Institut d'Etudes Politiques de Paris
ECOLE DOCTORALE DE SCIENCES PO
Programme Doctoral Economie des Relations Internationales
Groupe d'Economie Mondiale de Sciences Po (GEM)

Doctorat en Sciences économiques

The Economics of Trade Facilitation

Thomas ORLIAC

*Thèse dirigée par M. Patrick Messerlin,
Professeur des Universités, Institut d'Etudes Politiques de Paris*

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Jury :

M^{me} Hildegunn Kyvik Nordås,
Professor of Economics at the University of Bergen (rapporteur)
M. Richard Pomfret,
Professor of Economics at the University of Adelaide (rapporteur)
M. Patrick Messerlin,
Professeur des Universités en économie à l'Institut d'Etudes Politiques de Paris

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Je dédie cette thèse à mon père
To my dad

Abstract

This dissertation explores the narrow dimensions of trade facilitation and their impact on trade. In the first part, I describe the various ways to measure trade facilitation. I explore the traditional indicators of trade facilitation as well as some specific surveys. I indicate several limitations of these commonly used indicators. I also review the role of international arrangements linked to trade facilitation which are rarely taken into account in related studies. Then, I build a composite indicator of trade facilitation which covers various narrow dimensions. It follows the WTO negotiations framework and draws on ninety nine variables. I show that several disparities remain across OECD countries and that information availability, advance rulings and formalities have an important impact on trade. In the second part, I review various trade facilitation dimensions across the World and particularly the European Union. It reveals several disparities and indicates the need to expand the TFIs to a wider set of countries. The European case study suggests that potential gains remain even in developed countries who share -similar- regulations. It underlines not only some implementation issues but also a path to follow to improve trade facilitation policies. Finally, I provide several insights on the methodology of EU trade facilitation performance.

Résumé

Cette thèse explore les dimensions spécifiques de la facilitation des échanges et leurs impacts sur le commerce. Dans une première partie, j'étudie les différentes façons de mesurer la facilitation des échanges. Je reviens sur les indicateurs traditionnellement utilisés, ainsi que sur une série d'études de cas. J'explique les nombreuses limitations à leur utilisation. Je regarde également le rôle joué par les accords internationaux et les conventions qui incluent de plus en plus de chapitres relatifs à la facilitation des échanges, ces derniers étant rarement pris en compte par la littérature. Constatant la nécessité de recourir à des indicateurs plus désagrégés, je construis un indicateur composite de la facilitation des échanges, couvrant plusieurs dimensions et constitué de 99 variables. Ces indicateurs suivent les négociations à l'OMC sur la facilitation des échanges. Je démontre qu'il subsiste de nombreuses disparités à travers les pays membres de l'OCDE, ainsi que l'accessibilité à l'information, les renseignements tarifaires contraignants et les formalités douanières ont un impact positif important sur le commerce. Dans une seconde partie, j'étends mon analyse au reste du monde et particulièrement à l'Union Européenne. Il apparaît que les disparités sont plus grandes à l'échelle mondiale et couvrent différents aspects. Ces résultats démontrent également l'intérêt de l'extension des indicateurs construits précédemment aux pays en développement. Enfin, l'étude de cas sur l'Union Européenne suggère qu'il reste des gains potentiels même dans des pays développés ayant pourtant un environnement réglementaire proche, voire identique. Cette étude souligne aussi que malgré les difficultés de mise en place de telles politiques, il existe un chemin vertueux conduisant à un système efficace des échanges, à travers l'intensification des initiatives développant la coopération entre tous les acteurs ainsi que le recours actif aux nouvelles technologies. Finalement, je propose plusieurs idées afin de mesurer la performance européenne en matière de facilitation des échanges.

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As I am writing the last sentences of my Ph.D. dissertation, all these years are now coming back to me. As many Ph.D. students, I have experienced ups and downs but I have always been supported by the people around me, from my supervisor to my family, my friends to my colleagues. I wish to express my gratitude to you all, hoping nobody will be forgotten.

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Chapter 1

General introduction

1.1 What is trade facilitation?

1.1.1 Historical background

The term trade facilitation was coined in the late sixties, but its purpose has existed since the beginning of trade. It is still alive and substantial gains remain. Vasco de Gama explorations in search of new trade routes were intended to facilitate trade by reducing distance (Staples, 1998). Since that time, trade facilitation has taken on many new forms. As described by Sengupta (2006), trade facilitation dimensions “*have changed over time as substantive improvements were brought in one area after another*”. Indeed, after a series of improvement in transport had been made, tariffs became the focus of trade facilitation, after tariffs were reduced, non-tariff barriers (such as quantitative restrictions) became the focus, followed by a shift towards other border issues such as the effectiveness of the clearance procedure systems. Current trends in trade facilitation are conducted by the use of Information and Communication Technologies (ICT) and the increasing cooperation between border operators. This movement is supported by several international organizations which aim to enhance international trade, by providing a series of guidelines and arrangements based on best practices as well as a growing number of trade agreements including dedicated provisions. It follows the constant increase of trade flows, the development of just-in-time delivery and the reorganization of production networks (Miroudot et al., 2009) as well as the recent trend in security.

Trade facilitation covers various areas over time according to successive emphases which follow a changing business environment, but also according to the convenience of researchers. What Staples (1998) called “*the plumbing of international trade*” and defined by using a reverse definition¹, encompasses many definitions. Thus, in 1993, the UNCTAD Compendium of Trade Facilitation Recommendations in preparation of the Columbus Ministerial Declaration on Trade Efficiency (1994) reviewed various components, including Customs, transport and transit issues, banking and insurance, information for trade, business practices, telecommunications, human resources development

¹He defined what is not covered by trade facilitation.

and legal issues, while others only refer on a narrower scope. The international community has increasingly studied the impact on trade flows of the lack of efficiency all along the supply chain, which became a higher issue than “classical” tariff barriers. Indeed, today, tariffs are lower than earlier and even more “predictable” than the whole import/export procedure². Since the Singapore Ministerial Conference of 1996, trade facilitation has become the subject of WTO discussions pushing forward trade facilitation developments and stimulating research.

Today, Customs administrations but also related border agencies are under the spotlights. They have to adapt their procedures to a challenging environment by facilitating legitimate trade, without reducing their traditional missions related to security and compliance issues (conformity to standards and regulatory requirements). In addition, they still play a major role in the collection of revenue in many developing countries. Finally, by acting as a focal point, Customs may determine the attractiveness of a country in a global context, what some called “the global village”.

1.1.2 Definition(s) of trade facilitation

As explained previously, various definitions of trade facilitation exist. Some are narrow, focusing mainly on public procedures, while others remain broader, including numerous private issues. In addition, trade facilitation may encompass areas *at* and *behind* the border as well as *soft* and *hard* infrastructures³. However, each trade facilitation definition covers areas where substantial gains remain by minimizing transaction costs and reducing unnecessary regulatory burdens. Several studies reviewed these various definitions of trade facilitation⁴.

The WTO definition is one of the most commonly used. In addition, the current negotiations provide the most agreed upon definition to date, which can be viewed as a baseline definition. According to it, trade facilitation is “*the simplification and harmonization of international trade procedures [including] activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in the international trade*”, Hoekman and Kostecki (2001). As stressed by the last negotiating draft (WTO, 2011), this definition remains restricted to the dimensions which directly depend on public sector involvement. It refers on GATT Articles V, VIII and X which deal with transit issues, formalities, fees and charges, the publication of related laws and the right of independent appeal⁵. The OECD definition presents trade facilitation as the “simplification and standardization of procedures and associated information flows required to move goods internationally from seller to the buyer and to pass payments in the other direction”, and the World Bank follows a broader approach including Customs reforms, regulatory frameworks and standards, but also logistic and infrastructure issues.

²However, some classification and valuation issues remain.

³This expression has been introduced by Portugal-Perez and Wilson (2010).

⁴Such as Staples (1998); UNESCAP (2002); Cosgrove-Sacks and Apostolov (2003); Sengupta (2006); UNESCAP (2008); ADB (2009). It is a non exhaustive list.

⁵The WTO negotiations on trade facilitation are detailed in Chapter 4. The UNCTAD (2005, 2011b), Duval (2006a) or Priya (2010) made a review on the trade facilitation dimensions under negotiation at the WTO.

The UNECE defines trade facilitation as a “comprehensive and integrated approach to reducing the complexity and cost of the trade transactions process, and ensuring that all these activities can take place in an efficient transparent and predictable manner based on internationally accepted norms, standards and best practices”, while the UN/CEFACT relies on “the simplification, standardization, and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payments”. For the Global Facilitation Partnership for Transportation and Trade (GFPTT), it encompasses “any measure, or set of measures, that aims to increase the cost effectiveness of international trade transactions”. APEC considers that “trade facilitation generally refers to the simplification, harmonization, use of new technologies and other measures to address procedural and administrative impediments to trade”. The WCO focuses on the elimination of unnecessary trade burdens by using modern technologies and improving international cooperation. Finally, the International Chamber of Commerce relies on the efficiency of the processes associated with trading in goods across national borders (ADB, 2009).

All definitions refer to a set of “universal” points such as the simplification, standardization and reduction of procedures. The differences lay down in the various components used to break down trade costs. Numerous activities make trade easier but they do not belong to trade facilitation *per se*. Thus, according to Staples (1998), physical infrastructures, non-tariff barriers or trade promotion activities are not part of trade facilitation. For him, “*trade facilitation is technical and detailed by nature*”. It may be referred today as the narrow definition of trade facilitation, as followed by the WTO. However, many researchers adopt a broader approach and include various components such as logistic and infrastructure factors (Wilson et al., 2004; Nordås and Piermartini, 2004; Duval, 2011), or broad proxies of transparency and ICT issues (Helble et al., 2007).

1.1.3 A component of trade costs

Depending on which definition you use, trade facilitation can contribute a small or a large amount to trade costs⁶. As stressed by Arvis et al. (2007), there is a large variety of effects that enable the flow of trade, from tariff and non-tariff barriers, to transportation issues and other considerations such as corruption or institutional costs. Earlier, Anderson and van Wincoop (2004) had shown that trade costs could account for a tax-equivalent of 170% for rich countries, where border-related trade barriers (policy, language, currency, information, security) accounted for 44% and transportation costs for 21%. The movement of goods from the exporter to the ultimate consumer involves numerous transaction costs and these various components should be taken into account in trade facilitation analysis. In addition, any bottlenecks in the trade chain may cancel the benefits of the other links of the chain, particularly in the area of trade facilitation (WB, 2003; Kommers, 2009).

⁶See Anderson and van Wincoop (2004), Jacks et al. (2006, 2011), Pomfret and Sourdin (2010a,b) or Novy (2010) for a review of the trade costs literature.

Transportation costs have still an important impact on trade costs and remain difficult to assess. As stressed by many studies, the impact of geography and particularly, being landlocked, continue to pose substantial difficulties⁷. The impact of distance remains high, despite a series of technological developments. What Disdier and Head (2008) called the puzzling persistence of the distance effect, have many explanations which are further developed in Chapter C in the appendix. As stressed by Behar and Venables (2010), transport costs have many components and are particularly sensitive to networks, reliability and predictability issues. Much of the literature relies on the impact of time and the cost of delays, especially on time-sensitive goods (Hummels, 2001, 2007; Harrigan and Venables, 2004; Evans and Harrigan, 2005; Nordås et al., 2006; Li and Wilson, 2009a; Djankov et al., 2010).

Non-Tariff Measures (NTMs) are closely related to trade facilitation too, as pointed out by the new definition proposed by the UNCTAD (2009) which states that “*non-tariff measures are policy measures, other than ordinary Customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both*”. However, in the “legal language” of the WTO trade negotiations, NTMs such as Sanitary and Phytosanitary Measures or Technical Barrier to Trade, are not dealt as a trade facilitation issue *per se*. Even if data are scarce⁸, several surveys show that NTMs are still important such as Manifold (2002), Donnelly and Manifold (2005), the OECD (2005e), Dee and Ferrantino (2005) or Martinez et al. (2009). Moreover, these surveys stress the importance of Customs procedures which in addition are often classified as horizontal, impacting all products. A recent study of Berden et al. (2009) indicates that even in developed countries there remains huge gains by reducing such measures⁹.

1.2 A global game with various challenges

1.2.1 International bodies

Long before the WTO, numerous international bodies have enhanced the multilateral cooperation between States in matters of trade related standards. As stressed by Hoekman and Kostecki (2001), several organizations related to infrastructure, standards, intellectual property and trade, were in place before 1914. Since then, numerous bodies -public or private- have pursued the harmonization and automation of trade procedures. Many studies provide an extensive review of these bodies¹⁰ which encompass various United Nations bodies, the WCO, the WTO and the World Bank as well

⁷According to Behar (2010), being landlocked increases trade costs by 50%.

⁸The most comprehensive database on NTMs was the UNCTAD TRAINS database, even if it suffers of many issues such as the transparent syndrome. Other inventories of NTMs rely directly or indirectly on concerns or complaints registered by traders such as the EU’s Market Access Database or the United States Trade Representative’s National Trade Estimate. The WTO Trade Policy Reviews (TPRs) combines official information, as collected by the Secretariat and provided by members under review, with concerns of traders expressed indirectly by means of other members’ queries in the review process. Finally, the CoReNTM database of (Martinez et al., 2009) provides a useful assembly of entries gathered from various sources.

⁹Thus, an ambitious scenario of NTM reduction between the USA and the EU would generate short-term real income gains of about US\$ 85 billion and longer-term gains of US\$ 210 billion.

¹⁰Such as ADB (1999), Staples (1998, 2002), Cosgrove-Sacks and Apostolov (2003), Mixe and Lianguang (2004), Orliac (2005), Sengupta (2006), the UN (2008), Kommers (2008, 2009).

as the International Chamber of Commerce, the Global Facilitation Partnership for Transportation and Trade, or the International Maritime Organization. The associations of trade operators, such as the Global Express Association, also contribute to this movement. Many agreements and conventions related to trade facilitation issues have been held by these bodies. Chapter 3 explores such arrangements which encompass some trade facilitation provisions. These organizations also provided dedicated aid programmes to develop trade facilitation policies in developing countries, based on best practices. It was a major concern raised during the WTO negotiations on trade facilitation by the developing countries who were afraid of several implementation costs (Bagai et al., 2004). This led to the aid for trade initiative. According to recent studies such as Helble et al. (2009) and OECD (2009a), trade facilitation seems one of the most efficient programmes¹¹.

1.2.2 Customs and other border agencies

Customs are a focal point in the trade chain. As explained previously, they are under the spotlights today and face a challenging environment (Keen, 2003; Wulf and Sokol, 2005). The following chapters show the heterogeneity of Customs performances around the World, even across the European Customs administrations where, despite common binding rules, we observe some disparities regarding broad and narrow trade facilitation dimensions (Chapter 6). Many factors explain the performance of this administration, from the effectiveness of the Customs policy, to the development of ICT and even the organization of the revenue authorities (Yasui, 2009). However, as stressed by Arvis et al. (2007), Customs performance tends to be better than that of other border agencies¹². Indeed, border issues are not only a matter of Customs diligence, but rely also on other agencies' performance. In addition, as stressed by several reviews, the private sector often attributes some delays to Customs which are directly due to their own operations (such as stock optimization) or other operators inefficiencies such as poor logistic services. These insights have been confirmed by several interviews with Customs officers. It underscores the role of the coordination between border agencies.

Export promotion initiatives, such as trade missions (Head and Ries, 2009) or specific agencies (Gil et al., 2008) provide significant impacts on the participation of firms to international trade. France has developed a wide network of help-desks, from the French Embassy, the Economic Missions or the Chamber of Commerce, to the COFACE, OSÉO and UBIFRANCE which has trade commissions in 47 countries to date (May 2011). According to a recent report of the French Court of Auditors (CC, 2011), almost 15% of the french exporting firms have been actively supported by this network (financial and technical assistance). As stressed by the French case study (section A.3 in the Appendix), french Customs are also active in this area by helping and providing a series of facilities to the major importers as well as recently to SMEs. Despite their great potential, the impact of

¹¹However, according to Delpuech et al. (2010) and Hynes and Hallaert (2010), evaluation reports (and programmes) are not well designed to assess the impact of each programme. Moreover, as explained in section 6.3.2, it is difficult to rely on accurate aid data.

¹²On average, Customs clearance accounts for a third of import time. In addition, as pointed out by Arvis et al. (2010), there is a generally higher level of satisfaction with Customs than with other border agencies.

such export promotion agencies are rarely taken into account in trade facilitation studies, either for definition or technical issues. Indeed, it raises the question of their measurement as well as endogeneity issues¹³. However, it stresses the role of the cooperation between border agencies and economic operators as well as the impact of the availability of information.

1.2.3 Economic operators

Transparency and predictability are key issues for private operators (Engman, 2005b). According to Arvis et al. (2007) *“professionals view the friendliness of border processes primarily in terms of the transparency and the predictability of clearance procedures”*¹⁴. They estimated the impact of unpredictability over logistics costs to 30% of factory price. Many trade facilitation policies aim to reduce such unpredictability by improving information availability (publications, advance rulings, trader involvement), fighting corruption (automation, code of conduct) and being consistent with international standard and conventions. Customs try to run smoothly their procedures too, by favoring pre-arrival information. Transparency is also an important factor for reducing compliance issues which are still a hot topic. Recent studies, surveys (Findlay, 2009; Dios, 2009a) and even compliance reports (Customs, 2009a) show that there remains many issues. Main concerns are related to classification and valuation issues¹⁵. It is confirmed by the review of the European trade facilitation policy done in Chapter 6. Finally, as stressed previously, the cooperation between each border agency and operator is essential, particularly to develop efficient clearance systems, such as the Single Windows concept. The performance of the supply chain depends also on the quality of services delivered by the private sector. That is why, most professionals remain concerned about the quality of physical infrastructure and logistic issues.

1.3 Costs and benefits of trade facilitation

As stressed previously, Customs and administrative procedures are still cited as barriers (OECD, 2005a). Several surveys pointed out the costs of regulation burdens, such as a recent review of Allen (2009) which evaluated that the burden of administering regulation in international trade costs to UK businesses £1.25 billion each year. Many studies have identified various trade facilitation needs across developing countries, such as Ghemar and Iotsova (2004), OECD (2005b,a,d), Moisé (2005), Duval (2006c). The Chapters 4, 5 and 6 show that developed countries also require some improvements, even if their needs are different. If trade facilitation policies generate substantial gains (see below), they also require implementation costs. Moisé (2004, 2005, 2006), and Djankov (2007) have shown that these induced costs may be significant in some cases. Another study of Duval (2006c), based on the replies of private experts who were asked to rank the most important

¹³There is a correlation between the geographic implementation of such agencies and the volume of existing trade flows or specific cultural links, such as former colonial ties.

¹⁴Note that the LPI measure predictability as the dispersion in time to import/export (Delivering on schedule).

¹⁵See Rosenow and O’Shea (2010) for a review of valuation history and methods. Note that even between the OECD countries, it remains differences in this area about the CIF/FOB basis, the availability of information or air transport discount rates.

barriers to the efficient movement of goods, provides additional information on the types of costs and the sequencing of several trade facilitation policies. It appears that Single Windows initiatives, risk management and post-audit policies were the most costly to implement. However, some policies are not so costly such as the availability of information. Moreover, each trade facilitation policy is expected to generate substantial gains in terms of trade, security and even revenue.

Indeed, despite such implementation costs, trade facilitation policies lead to considerable benefits, both for traders and Customs (Hellqvist, 2003). A growing literature has evaluated such gains. A review of past attempts can be found in Staples (1998), Hellqvist (2002), Wilson et al. (2002) or the OECD (2003a). This latter review stressed that trade facilitation components account between 1 and 10% of trade costs, according to the scope and the methodology of the studies. It also underscores the difficulty of comparing over time such studies due to the improvement of ICT and the different methodologies used. In addition to the net gains of trade facilitation policies, there are also costs of “non-trade facilitation”, *i.e.* the costs of being outside the trade facilitating trend, either for countries with poor Customs performances or traders identified as weak links in the supply chain. In this section I review the trade facilitation literature over the last decade, following a chronological order. As the empirical literature relies on various methodologies, I sum up the main points and results in the following table 1.1.

If Maskus and Wilson (2001) addressed some empirical methods and challenges in quantifying the gains of trade facilitation in the area of harmonized regulations, the first attempt to quantify the impact of trade facilitation on trade has been done by Wilson et al. (2003). In a series of papers Wilson et al. (2002, 2003, 2004) studied the environment in which transaction takes place. Thus, they quantified the impact of several indicators such as Port efficiency, Customs environment, Regulatory environment and E-business on trade flows by using a gravity augmented model. In their latter contribution, they show that trade facilitation generates huge benefits (about US\$ 377 billion) and stress the importance of port efficiency. Hellqvist (2002) described the gains of trade facilitation in terms of transparency and predictability, time, business opportunity, security and last but not least, financial gains. Moreover, Hellqvist (2003) stressed that gains are generated by chain effects, with a multiplicative impact. Following the WTO discussions on Trade facilitation, around the availability of information, advance rulings, consultation, and appeal procedures, Moïsé (2002) explored the issue of transparency at the borders. In the same time, in order to support the current negotiations at the WTO, the OECD (2002, 2003b,c,a) provided a series of comprehensive surveys of different costs and benefits estimates about trade facilitation, their studies show that such benefits vary with country-specific differences, sector-specific differences and also trader specific differences. They detailed the composition of transaction costs, between direct and indirect costs. Using a CGE model, they estimated the total gains from trade facilitation improvements (measured as a 1% reduction of transaction costs) to world economy of about US\$40 billion, with no losers.

Then, Kim et al. (2004) proposed a methodology for benchmarking the trade facilitation status in an economy and explored various possible indicators of trade facilitation in order to translate each measure into financial terms. Based on the methodology followed by Wilson et al. (2004), they find that an improvement of trade facilitation components by 10% could boost intra-APEC imports from 0.5% to 1.5%, according to the area¹⁶. Moïsé (2004, 2006) explored the costs of implementing trade facilitation policies (based on the WTO definition) and stressed that countries face different situations and present various implementation capacities. The OECD (2005b,a) studied the importance of non-tariff barriers and stressed that customs and administrative procedures are still an important trade impediment. Engman (2005a,b) reviewed a series of Customs issues such as unnecessary delays. He showed that trade facilitation has a significant positive impact on trade flows as well as on the collection of trade taxes and FDI. He also studied the different types of Customs fees and noted that they were often disconnected to the cost of the services rendered. The same year, the OECD (2005c) reviewed the impact of ICT on trade facilitation through the level of automation in WTO members. Finally, by studying the experience of four developing countries, Moïsé (2005) showed that reducing inspection rate lead to higher revenue collected by Customs authorities.

As the WTO negotiations on trade facilitation progressed, Finger and Wilson (2006) reviewed some implementation issues and Duval (2006a,b) provided a seminal work on compliance costs and sequencing issues related to trade facilitation dimensions based on the WTO framework. He also studied the role of trade agreements (Duval, 2007, 2011), focusing on the issues of rule of origin and Customs valuation. The same year Fliess and Busquets (2006) pointed out the SMEs constraints and stressed the role of the border agencies in assisting them and enhancing cooperation with traders. If the literature relied mainly on case studies and surveys, a new series of empirical papers, mainly gravity based, were provided since. Thus, Iwanow and Kirkpatrick (2007) using a broad definition of trade facilitation¹⁷ showed that a 10% improvement in trade facilitation would generate an increase in exports of about 5%. They also underlined the need of complementary policies. Using the new metrics provided by Doing Business, Wilson (2007a) examined the impact of trade procedures and delays¹⁸. He showed that a reduction of 1 to 4 days at the border could lead to an increase up to 10% of trade. Helble et al. (2007) explored transparency which is a common dimension of trade facilitation measures. They proposed a way to measure it and showed that improving it in APEC economies can lead to 7.5% increase in intra-regional trade¹⁹. While Hoekman and Nicita (2008) showed the importance of non-tariff measures in the distribution of trade by using an augmented gravity model including the World Bank's Logistic Performance Index, Doing Business indicators and a Trade Facilitation Index based on secondary sources, following the Wilson et al. (2003) methodology. They found that the quality of the regulatory environment matters for trade performance with an important part played by the Trade Facilitation Index. Albuero and Yi-Xun (2008) reviewed the

¹⁶Customs procedures (0.5%), standards and conformity (0.6%), business mobility (1.1%), and information and communication technology (1.5%).

¹⁷Note that in addition to the traditional indicators they build a business regulatory index.

¹⁸He also introduced a weighted distance with time in its model.

¹⁹They use factor analysis to generate indicators.

European and American integrated border management and pointed out the role of coordination to facilitate trade. A compilation of the most recent research of this period was provided by the UNESCAP (2008) and Moisé (2009a).

More recently, Duval and Utoktham (2009) underline that achieving similar performance levels across the range of trade and business facilitation dimensions could significantly increase trade competitiveness. They find that a 5% increase of trade facilitation performance could increase trade by 4 to 7%, according to the area. Shepherd and Wilson (2009); Shepherd (2010) show that ASEAN countries should improve their trade facilitation efforts on non-tariff trade costs. They also stress the need to develop clearer metrics against which progress can be assessed. They show that improving port facilities in the region could increase trade by up to 7.5% (US\$ 22 billion). Lesser and Moisé-Leeman (2009) stress the impact of trade facilitation on informal trade by diminishing the costs of formal trade and enhancing compliance levels. The research on trade facilitation has also been oriented toward SMEs particularities. Thus, Yang (2009) studies the impact of trade facilitation policies and particularly ICT on SMEs in Korea, showing that SMEs face various implementation issues regarding IT programmes. This ambiguous impact of IT on SMEs is also noted by Wijayasiri and Jayaratne (2009), Chaturvedi (2009), Hossain et al. (2009), Dios (2009b), Albuero (2010) even if it remains huge potentials for SMEs²⁰. Based on the World Bank Enterprises Surveys, Li and Wilson (2009b) show that trade facilitation increases the probability that SMEs export and point out the importance of the “soft” part of trade facilitation. Weerahewa (2009) and Ramasamy (2010) study the impact of trade facilitation using traditional indicator in a gravity models, pointing out the importance of ICT and several differences across raw indicators. In a case study on India, De (2011) uses a Business Process Analysis (BPA) and argues that bottlenecks in domestic transportation and customs clearance are key issues. In addition, these new case studies provide new insights such as the variable attitude of the official deployed for the custom clearance or the laboratory issues. Kharel and Belbase (2010) explore the impact of trade facilitation on landlocked developing countries and show that trade facilitation could generate benefits. Another group of studies investigate the impact on homogenous and differentiated products (Márquez-Ramos and Martínez-Zarzoso, 2008; Dat and Tien, 2010), while based on the methodology of Dennis and Shepherd (2007), Persson (2010) investigate the issue of the extensive/intensive margin by counting the number of exported products for differentiated and homogeneous. Persson find that a reduction of 1% of transaction costs would increase the number of exported differentiated goods by 0.7% and homogeneous products by 0.4%. Persson and Bourdet (2010) also study the impact of trade facilitation in the European Union through the “true” completion of the EU Customs Union. Finally, Moisé (2011) provides new insights on transparency mechanisms and Non-Tariff Measures.

²⁰See Albuero and Duval (2010) for a compilation on IT issues.

Table 1.1: Review of empirical studies on trade facilitation over the last decade

Papers	Geo Cov.	Time Cov.	Sector(s) Cov.	Rauch	TF Def.	TF Sources	RTA	Tariffs	Zero*	Robust Std. Err.	Panel FE/RE	Rem. FE/RE	Impact of TF improvement(s) on trade
Wilson and al. (2004)	75	2000	SITC, 1-digit (cat. 5 to 8**)	no	Broad	GCR	yes	yes	OLS	no	no	no	(1) add \$377.06 billion (+9.7%)
Kim and al. (2004)	15 (APEC)	1988-1999	<i>na.</i>	no	Broad	GCR	yes	yes	GLS	yes	yes	RE	(2) boosts intra-APEC imports between 0.5 and 1.5%
Wilson N. (2007a)	<i>na.</i>	2004	SITC (cat. 07, 65, 84)	no	Broad	DB	yes	no	OLS?	no	yes	FE	(3) increase trade flows by 10%
Iwanow and Kirkpatrick (2007)	78	2000-2004	SITC Rev.2 (cat. 5 to 8**)	no	Broad	GCR, DB, Kauffman	yes	yes	Heckman	yes	yes	Rem. FE	(2) raises manuf. exports by 6%
Helble and al. (2007)	APEC	2004	HS 2-digit	yes	Broad	LPI, DB, GCR, UN E-Gov	no	yes	PPML	yes	no	FE	Improving transparency add \$148 billion (+7.5%)
Dennis and Shepherd (2007)	118	2005	HS 2-8 digits	no	Broad	DB	no	yes	OLS+PPML	yes	no	FE	(4) with an export diversification gain of 0.3% or 0.4% respectively.
Hoekman and Nicita (2008)	104-115	2006	HS 6-digit	no	Broad	DB, LPI, WCY	no	no	PPML	no	no	Rem.	(5) Increases imports by 12.6%
Li and Wilson (2009b)	Asian			no	Broad	WBES			Probit			FE	Predictability and ICT are the most effective measures for SMEs
Duval and Utoktham (2009)	37	2006	no	no	Broad	BD, BtB	no	yes	OLS	no	no	no	Improved TP by 5%
Shepherd and Wilson (2009)	12 (Asian)	2000-2005	BEC 1-digit	no	Broad	GCR, DB	no	yes	OLS	yes	yes	FE	Port facilities could expand trade by up to 7.5% or \$22 billion.
Weerahewa (2009)	Asian	2005	HS cat. 1-24	no	Broad	GETR	yes	no	OLS	yes	no	no	(6) decrease trade costs by 17%
Kharel and Belbase (2010)	26 (LLDCs)	2008	SITC cat. 6	no	Broad	LPI, Kauffman	no	yes	OLS	yes	no	FE	(7) of LLDCs and transit countries increase exports by 3% and 1% various impacts of TFIs according the type of good
Dat and tien (2010)	East Asia	2006-2008	HS 4-digit	yes	Broad	DB, GCR	no	yes	HMR	yes	yes	Taylor	(8) would rise by 0.7% and 0.4% the number of exported products
Persson (2010)	EU25	2005	CN 8-digit	yes	Broad	DB	no	yes	OLS+PPML	yes	no	Rem.	Complete the EU customs union increase exports by 20%
Persson and Bourdet (2010)	EU27	2006-2008	no	no	Broad	DB	no	no	PPML	yes	yes	FE	natural (time-invariant) and non-tariff policy-related trade cost
Duval and Utoktham (2011)	92	2004-2007	no	no	Broad	LPI, UNCTAD, GETR	no	yes	OLS	yes	yes	FE	

All papers rely on gravity specifications with traditional core variables. They could encompass various specifications and robustness checks TF stands for Trade Facilitation, FE for Fixed Effect, RE for Random Effect, Rem. for Remoteness, and Taylor for Taylor's series for bilateral resistance. Data sources are detailed in chapter 2. Time coverage could include TF variables from different date according to their availability.

* Specification used to take into account of zero trade flows (OLS means that it is not taken into account)

** Except category 68

(1) Bring Below-Average Members Half-way up to the Global Average

(2) Improved TF by 10%

(3) Reduce time at the border by 1 to 4 days

(4) 1% reduction in the cost of exporting or transport is associated

(5) Convergence by low income countries to middle income average (TFI)

(6) Improving trade costs and time delays in South Asian countries up to the average values of best performer

(7) A 1% improvement in the LPI score

(8) A decline by 1% of transaction costs

Duval and Utoktham (2011) gave an important contribution to future trade facilitation research providing insights on the impact of trade facilitation components on a comprehensive measure of the non-tariff policy related trade costs in ASEAN countries. They show that access to information and communication technology facilities is essential to reducing trade costs. Finally, some researchers are started to study the effectiveness of aid for trade facilitation following the aid for trade initiative (OECD, 2009a; Helble et al., 2009; Hoekman and Wilson, 2010; Cali and te Velde, 2011). It appears that trade facilitation is one of the most effective and useful programmes.

Beyond surveys and general reviews, two models are commonly used by researchers to evaluate the impact of trade facilitation on trade flows and trade costs: the gravity model and the Computable General Equilibrium (CGE) model. Each model has its advantages and disadvantages: the gravity model is favoured for its simple data requirements while GCE models are more powerful for analyzing direct and indirect long run effects of policy measures. Whatever the theoretical framework of the model, the quality of the outcomes crucially depends on collecting good data. The gravity model is described in Chapter 4 and its widely used due to its simplicity. It usually relies on the Anderson and van Wincoop (2003, 2004) specification. This broader approach breaks down trade costs into various components and estimates their impact on trade. Recently, following the seminal work of Novy (2008) and Chen and Novy (2009), several studies have evaluated a comprehensive measure of trade costs (Miroudot et al., 2010) and the impact of trade facilitation on it (Shepherd, 2010; Duval and Utoktham, 2011). This measure of trade costs is theory-based and goes beyond the direct calculation of trade costs as calculated by Pomfret and Sourdin (2009, 2010a,b), by using cif and fob data. The CGE models, as used by the OECD (2003a), Francois et al. (2003) or recently Zaki (2010), are well suited “*to capture the full flavor of causal linkages*”, Minor and Tsigas (2008). However, they encompass several limitations. The models do not include specific trade facilitation components. Rather the shocks induced are associated with technical progress in transport sector, an increase of productivity or an iceberg parameter between fob and cif prices. In addition, some studies may refer to gravity estimates of ad-valorem equivalent of trade facilitation dimensions.

As showed in table 1.1, the majority of study rely on gravity analysis. However, the methodology adopted in each paper varies on several points. Firstly, the definition of trade facilitation is more or less broad (even if never narrow), covering *at* and *behind* the border measures. In addition, the trade facilitation indicators are not the same even if they are often based on the same providers, *i.e.* the Global Competitiveness Report, Doing Business or the Logistic Performance Index. Secondly, some papers refer only on aggregated trade flows whereas it seems that the impact of trade facilitation varies across sectors. Moreover, adopted sectors vary across studies. Thirdly, the econometric methodology differs by using various “augmented” variables²¹ and estimation techniques. Thus, some studies refer on panel analysis and others on cross section, while some issues such as zero trade flows, bilateral resistance, colinearity or endogeneity are not taken into account in the same way.

²¹In addition to distance, augmented gravity models include a series of traditional variable such as contiguity, language, RTAs, tariffs, colony ties...

Fourthly the counterparts also rely on various scenarios. Last but not least, the availability of data leads to various hypothesis²², and each study covers a different set of countries and period. All these issues make comparison difficult.

1.4 The remainder of the thesis

There are various definitions of trade facilitation and therefore, many ways to measure it. The first issue when studying trade facilitation is to establish an agreed upon definition and to access of reliable and accurate data. In the past decade, several indicators have been created in order to assess the development, needs and impacts of various components of trade facilitation. Researchers, but also governments, can choose from numerous indicators or proxies when measuring trade facilitation. However, not all of these measures encompass the same dimensions of trade facilitation. In fact, even the indicators which aim to measure the same area, *e.g.* time to import, have different assumptions and can provide conflicting results when analyzing their impact on trade facilitation policies.

Chapter 2 explores these main traditional indicators of trade facilitation, and details some of their key assumptions and limitations. It also covers some specific tools, such as Customs reports or Time Release Studies, which are particularly useful to provide precious insights on the narrow definition of trade facilitation, despite their limited geographical scope.

Chapter 3 studies the main international agreements related to trade facilitation. A growing number of arrangements include trade facilitating provisions either under trade agreements, conventions, or guidelines. This information is rarely taken into account in gravity models, even if many trade facilitation areas rely on such international arrangements. I build a series of databases which can be used in gravity models or to create dedicated indicators.

Chapter 4 aims to fill a gap in the literature by evaluating the impact on trade of the narrow components of trade facilitation. Several studies have explored the broad dimensions of trade facilitation, but only few rely on the narrowest approach of trade facilitation. Beyond the seminal work of Duval (2006c), I construct a composite indicator of trade facilitation which encompasses the different components under negotiations at the WTO. These Trade Facilitation Indicators (TFIs) are drawn on ninety-nine variables and cover twenty six OECD countries. Undertaken at the OECD with Evdokia Moïsé, this work provides several insights on trade facilitation issues related to public prerogatives and aims to become a baseline standard to measure *narrow* trade facilitation performance. First, it underlines that several disparities remain across OECD countries and even across the EU Members. Second, it shows that information availability, advance rulings and formalities have an important impact on trade. Third, it confirms the impact of these dimensions on trade costs using the recent development of Novy (2008). Fourth, it stresses that the impact of trade facilitation varies across

²²Different tricks are used, such as making average, dropping variables (and so maybe a crucial information), or supposed constant a variable for “empty” years, etc.

sectors, being stronger under the manufacturing sectors.

Chapter 5 provides an overview of trade facilitation performance around the world using the questionnaire developed by the Global Exchange Association (GEA). Regarding the TFIs, these surveys which follow closely the framework of the WTO negotiations, increase the geographic coverage as well as variability of trade facilitation proxies across Customs administrations. This world review points out some major differences between the developed countries and the developing countries, and underlines the necessity to extend the TFIs to a larger set of countries. For that purpose, I propose two extended indicators drawn from the GEA data. The first indicator follows the restricted Customs Services Index created by the Global Enabling Trade Report. This indicator seems consistent with various traditional indicators but covers complementary dimensions. The second indicator, the Extended Trade Facilitation Indicator, is an extension of the TFIs. I suggest several new proxies to develop it in a simple way, including question specific to the GEA questionnaire. However, these new TFIs may require reshaping vis a vis the original OECD TFIs.

Chapter 6 explores the effectiveness of Customs administrations across the European Union and studies the trade facilitation policies of the EC. Despite the fact that the European Union is one of the most developed regions in terms of trade facilitation policies, has a leading role in WTO negotiations, and has common and binding border regulations among its Members, many disparities between members' Customs administrations remain. This can be attributed to differences in trade patterns, implementation schedules, political will or Customs efficiency. The study of the European characteristics has also underlined a series of trade facilitation components such as compliance issues, appeal mechanisms, advance rulings or the recent security issues, and showed that the EU Customs administrations are still in fierce competition with each other to be the most attractive place to traders. The impact of such a lack of uniformity on several trade facilitation components is a hot topic for the Commission that has recently launched a programme to assess the trade facilitation performance at each border of its Member States. However, it should be noted that even within single countries, these disparities can still be observed. Therefore the discussion of trade facilitation policies should consider the multitude of Customs in each country and not simply refer to each country as a single Customs administration. Finally, I give some insights to evaluate the European trade facilitation performance.

Part I

The measure of Trade Facilitation

Chapter 2

Key performance indicators of trade facilitation

The definition of trade facilitation varies over time and across Institutions. That is why, researches in this area encompass various scopes, relying on a broad or narrow definition of trade facilitation. Traditional indicators on trade facilitation usually refer on a set of proxies measuring Customs clearance procedures, governance, ICT and transport infrastructures issues. They aim to evaluate the effectiveness of border management, but also infrastructure and logistic operators. The performance of border operators, both public and private, is a very sensitive issue. That is why, hard data are rarely publicly available, even if they exist. In consequence, indicators are often based on perception data. Moreover, they encompass various *-different-* assumptions. Other issues about trade facilitation indicators rely on their coverage (years and countries) and their scope. Narrow indicators remain scarce and generally, the more an indicator becomes narrow, the more the country coverage is limited.

In this chapter, I review the “traditional” indicators used in most of trade facilitation studies and then, some specific *-narrow-* indicators. I show that there are many disparities and inconsistencies across each traditional source, but also between broad and narrow indicators²³. Moreover, I also stress that there are some disparities across sectors, transport modes and even between border offices of the same country. Some of these indicators are used in the following study about the construction of a composite indicator of trade facilitation, as inputs or controls (chapter 4).

2.1 The usual indicators of trade facilitation

Past reviews of empirical studies related to trade facilitation (Staples, 1998; OECD, 2003a; Walkenhorst and Yasui, 2004) have shown that the majority of them were based on a series of business surveys. Since a decade, numerous indicators have been developed on various topics based on such regular surveys. They became a useful toolbox used by researchers to estimate the impact of several

²³A global picture of the main indicators is drawn in chapter 5.

trade facilitation dimensions. In a seminal work, Wilson et al. (2002) built seven indicators of trade facilitation based on a set of variables provided by the Global Competitiveness Report (WEF), the World Competitiveness Yearbook (IMD), the Economist Intelligence Unit and Transparency International²⁴. They used them in a gravity regression to estimate their impacts on trade, which were significant. Then, following the same methodology on a smaller set of indicators, Wilson et al. (2003, 2004) and Mann (2004) reported also significant impacts. In 2005, a new source -*Doing Business*- became available to measure some key elements of trading across the border. Finally, in 2007, the World Bank provided a measure of the performance of border operators, both Customs administrations and logistics operators. As stressed by Findlay (2009), these sources are still popular in many trade facilitation researches²⁵. Studies also refer to other traditional sources according to their scope, such as the Enterprise Surveys database²⁶.

With the growing need of data in the field of trade facilitation, Bagai and Wilson (2006) provided a first attempt to summarize main data and relevant indicators. Since, additional sources and indicators have appeared. These new sources mainly rely on existing data, but also include new ones. They are often a compilation of existing datasets on a specific topic. It is part of the new strategy of traditional providers who offer now a free access to their datasets²⁷. Recent studies rely increasingly on some of these new indicators, such as the UNCTAD connectivity and transshipment Indexes. This section reviews the current traditional databases and indicators used in trade facilitation studies.

2.1.1 A review of traditional indicators

World Governance Indicator The World Governance Indicator (WGI) is composed by six aggregate governance indicators, covering over 200 countries since 1996. These indicators of governance are based on different sources and reflect the perception of a diverse group of respondents. The six components as well as the individual indicators, are highly correlated and should be used carefully in a regression²⁸. Among the six broad dimensions of governance, the indicator measuring the control of corruption is particularly relevant. It captures the “*perceptions of the extent to which public power is exercised for private gain, including both petty and grand form of corruption as well as capture of the state by elites and private interests*”, Kaufmann et al. (2010). The methodology used to build these composite indicators is an Unobserved Components Model (UCM). The interpretation of the percentile ranks should be controlled by the confidence intervals. Finally, there is still some compar-

²⁴The indicators measured port logistics, Customs procedures, regulatory environment, standards harmonization, business mobility, e-business, and transparency issues.

²⁵Such as Helble et al. (2007), Wilson (2007a,b), Wilson and Otsuki (2007), Dennis and Shepherd (2007), Iwanow and Kirkpatrick (2007), Hoekman and Nicita (2008), Zaki (2009), Shepherd and Wilson (2009), Kharel and Belbase (2010), Portugal-Perez and Wilson (2010), Persson (2010) or Duval and Utoktham (2011), to quote some recent studies.

²⁶Such as Li and Wilson (2009b) who focus on firms data.

²⁷The World Bank and recently the OECD have opened most of their database to the public, without any fees requirements.

²⁸Individual indicators come from a wide variety of sources, such as the Global Competitiveness Report, the World Competitiveness Yearbook or the World Bank surveys.

isons issues over time and across countries since datasets are potentially unbalanced. The highest percentile indicates the highest performance.

World Competitiveness Yearbook Since 1989, the IMD World Competitiveness Yearbook (WCY) measures the competitiveness of several economies (57 in 2009), covering over 300 competitiveness criteria²⁹. Indicators are aggregated around four factors (economic performance, government efficiency, business efficiency and infrastructure) based on data provided by international, national and regional organizations and a network of 54 partner Institutes. Each of these four factors has been divided into five sub-factors which do not necessarily include the same number of criteria. Each sub-factor is equally weighted (5%) and composed by different types of data, from hard data to opinion surveys. Two-thirds of data used in the overall ranking are hard data. The sample of respondents to the Executive Opinion Surveys are proportional to the GDP of each economy³⁰. As most of the criteria are scaled differently, a comparable standard scale is used to compute the overall, factor and sub-factor results. Thus, every economy's performance is assessed for each criterion using the Standard Deviation Method (SDM). The standardized values for each criteria is then calculated by subtracting the average value of the 57 economies from the economy's original value and then dividing the result by the standard deviation. The sub-factor rankings are then determined by calculating the weighted average of the criteria standardized values that make up the sub-factor, excluding the background criteria. Hard data have a weight of 1 and the survey data are weighted so that the survey accounts for one-third in the determination of the overall ranking³¹. When data is unavailable for particular economies, the missing values are replaced by a standardized value equal to 0. The highest standardized values are usually attributed to the most competitive economies, but with some criteria the inverse may be true.

The WCY provides several potential proxies of different trade facilitation dimensions. There is a wide set of indicators. Main candidates are related to border policies, transparency and infrastructure:

- Protectionism does not impair the conduct of your business
- Customs authorities do facilitate the efficient transit of goods
- International transactions can be freely negotiated with foreign partners
- Justice is fairly administered
- Transparency of government policy is satisfactory
- Bureaucracy does not hinder business activity

²⁹Only two thirds of individual indicators are used to calculate the Overall Competitiveness rankings.

³⁰They assess the competitiveness issues by answering the questions on a scale of 1 to 6. Then, the average value for each economy is converted into a 0 to 10 scale. Finally, the survey responses are transformed into their standard deviation values, from which the rankings are calculated.

³¹Thus, each survey criterion has a weight of 0.55 in 2009.

- Bribing and corruption do not exist
- The distribution infrastructure of goods and services is generally efficient
- Water transportation (harbors, canals, etc.) meets business requirements

Logistic Performance Index The Logistics Performance Index (LPI) assesses different dimensions of the logistic performance, building profiles of logistics friendliness for 155 countries in its last release, at the international and domestic level. The LPI and its indicators are based on surveys conducted every two years³² from freight forwarders and express carriers, rating eight overseas markets. The LPI is mainly a perception index, rated on a scale from 1 (worst) to 5 (best). The LPI reports six sub-indexes and an overall index calculated by using principal components analysis. The sub-indexes are the following:

- Efficiency of the clearance process by border control agencies (*i.e. speed, simplicity and predictability of formalities*)
- Quality of trade and transport related infrastructure
- Ease of arranging competitively priced shipments
- Competence and quality of logistics services
- Ability to track and trace consignments
- Timeliness of shipments in reaching destination within the scheduled and expected delivery time

The World Bank provides the replies from logistics professionals to the domestic survey in a series of country reports available on its website. Among the detailed qualitative information on the logistics environment of each country, some variables are highly related to “public” trade facilitation issues, such as the perception of the competence and quality of service delivered by Customs, standards or health agencies, but also the evaluation of the clearance and delivery of imports and exports, the transparency of Customs clearance, the provision of adequate and timely information on regulatory changes or the expedited Customs clearance for traders with high compliance levels. The surveys also measure the sources of major delays and changes in the Customs clearance procedures since 2005. Finally, the LPI provides also a series of hard data about the clearance time with/without physical inspection (days), the percent of physical inspection and multiple inspection, the lead time to export/import for port/airport (days), the number of agencies, and the typical charge for a 40-foot export/import container or a semi-trailer (US\$). The LPI survey has been refined and the new release includes some changes. Arvis et al. (2010) provide additional information on the methodology used and the composition of respondents.

³²To date, there are two releases of the LPI (Arvis et al., 2007, 2010).

World Economic Forum The World Economic Forum (WEF) provides a series of indicators on the determinants driving productivity and competitiveness of different areas, particularly in its Global Competitiveness Report (GCR) since more than a decade and more recently with the Global Enabling Trade Reports (GETR). The GCR components are grouped into 12 pillars including numerous variables which could be useful in a trade facilitation analysis³³, even if time series are not always available³⁴. Variables are mainly based on the replies to the Executive Opinion Surveys, rated using a 1 to 7 scale. However, various external sources are also used³⁵. In general, the better the score is, the better the competitiveness is. The aggregate scheme of the composite sub-index and additional information are detailed in the last release of the GCR (Schwab, 2010). The WEF's Enabling Trade Index measures "*the extent to which individual economies have developed institutions, policies, and services facilitating the free flow of goods over borders and to destination*", Lawrence et al. (2010). It is a composite indicator built around four sub-indexes:

- The market access sub-index,
- The border administration sub-index³⁶,
- The transport and communications infrastructure sub-index
- The business environment sub-index

These areas are composed of nine pillars, the domestic and foreign market access, the efficiency of Customs administration, the efficiency of import-export procedures, the transparency of border administration, the availability and quality of transport infrastructure, the availability and quality of transport services, the availability and use of ICTs, the regulatory environment and the Physical security. It appears that several pillars are related to trade facilitation issues as well as individual variables³⁷. Data come from the Executive Opinion Surveys, but mainly from external sources such as the Global Express Association (GEA), the International Air Transport Association (IATA), the International Trade Center (ITC), the United Nations Conference on Trade and Development (UNCTAD), the World Bank and the WTO. Each variable is normalizing to a 1 to 7 scale and each sub-index (and pillar) is calculated as an unweighted average of its individual components.

³³The most trade facilitation related variables are: Burden of Customs procedures, Burden of Government regulation, Extent of Bureaucratic Red Tape, Irregular payments in export and imports, Judicial Independence, Prevalence of trade barriers, the control of international distribution and several infrastructure indicators such as the quality of port infrastructure. The GCR provides also a wide set of ICT indicators, mainly based on the International Telecommunication Union data.

³⁴Thus, the 2004-2005 Report which focused on Customs issues, provided a series of additional and specific indicators related to customs efficiency such as the Business impact of foreign trade barriers, the Business impact of Customs procedures, the Efficiency of Customs procedures and the level of hidden trade barriers. Unfortunately, these indicators are not available in the next releases.

³⁵Particularly, numerous data are provided by the World Bank (Doing Business and the World Development Indicators), the International Monetary Fund, the International Telecommunication Union or the UNESCO.

³⁶The border administration sub-index assesses the extent to which the administration at the border facilitates the entry and exit of goods.

³⁷Note that the Transshipment Connectivity Index and the Liner Shipping Connectivity Index, both provided by the UNCTAD, are available in the GETR.

Additional information on the methodology and the variable definitions are available in Lawrence et al. (2010).

Corruption Perception Index Transparency International’s Corruptions Perceptions Index (CPI) is a composite indicator ranking countries “*in terms of the degree to which corruption is perceived to exist among public officials and politicians*”, Lambsdorff (2010). This index is based on corruption-related surveys provided by several sources such as the Freedom House, the Economist Intelligence Unit, the Global Insights, the Institute for Management Development or the World Economic Forum. Data are rescaled, standardizing the scores using “matching percentiles” between 0 and 10, and then applying a beta-transformation to the matched scores. The final CPI score for a country is the average of these transformed values (only if, at least three sources are available).

Doing Business Since 2004, Doing Business measures “*the obstacles faced by an entrepreneur performing standardized tasks*”, WB (2004). The reports measure the degree of regulation and gauge regulatory outcomes, covering 183 countries in 2011³⁸. Data are collected from surveys of a variety of respondents following several rounds of interactions. Doing Business ranks the countries along various dimensions and the ease of doing business index is a composite ranking of each dimension, weighted equally. As pointed out by the WB (2010), the Doing Business methodology has various limitations³⁹. Moreover, as stressed by the IEG (2008), surveys collect information “*about a particular subset of a country’s private sector activity, the regulatory environment facing domestically owned firms operating in the formal sector*”. The indicators themselves cannot capture country context, precisely because they are designed to allow cross-country comparisons on the basis of uniform criteria. One of the core dimension measured by Doing Business since 2006, *trading across borders*, is highly related to trade facilitation issues. This component of Doing Business reports hard data on the time and cost to import (export) a standardized cargo by sea, excluding tariffs and ocean transport. It also measures the number of documents required for importing (exporting) a good. However, these specific indicators are not restricted to the role of Customs agencies, but also cover other regulatory agencies and, most importantly, the logistic chain. As explained previously, each indicator of the “trading across borders” category faces to a series of limited assumptions about business, traded goods, documents, but also the measure of cost and time. That is why, such indicators should be carefully chosen according to the scope of the study⁴⁰.

³⁸At the beginning, Doing Business covered 145 countries (in 2004). Note that data for all sets of indicators are lagging by one year, *i.e.* the 2011 report provides data for 2010, and so included with a lag of one year into stata databases.

³⁹First, the collected data refer to businesses in the country’s most populous city. Second, the data often focus on a specific business size. Third, transactions described in a standardized case study refer to a specific set of issues and may not represent the full set of issues a business encounters. Fourth, the measures of time involve an element of judgment by the expert respondents. Finally, the methodology assumes that a business has full information on what is required and does not waste time when completing procedures. The IEG (2008) also pointed out that “*changes in a country’s ranking depend importantly on where it sits on the distribution: small changes can produce large ratings jumps, and vice versa*”.

⁴⁰In a study focusing on a narrow trade facilitation definition, *e.g.* on public issues, such indicators could bias an estimation.

The assumptions used by Doing Business are the followings:

1. **ASSUMPTIONS ABOUT THE BUSINESS:** Has 60 or more employees; is located in the country's most populous city; is a private, limited liability company. It does not operate within an export processing zone or an industrial estate with special export or import privileges; is domestically owned with no foreign ownership; exports more than 10% of its sales.
2. **ASSUMPTIONS ABOUT THE TRADED GOODS:** The traded product travels in a dry-cargo, 20-foot, full container load. The product: is not hazardous nor does it include military items; does not require refrigeration or any other special environment; does not require any special phytosanitary or environmental safety standards other than accepted international standards.
3. **ASSUMPTIONS ABOUT DOCUMENTS:** all bank documents, Customs clearance documents, port and terminal handling documents, transport documents.
4. **ASSUMPTIONS ABOUT COST MEASURES:** Cost measures the fees levied on a 20-foot container in U.S. dollars. All the fees associated with completing the procedures to export or import the goods are included. These include costs for documents, administrative fees for Customs clearance and technical control, terminal handling charges and inland transport. The cost measure does not include tariffs or trade taxes. Only official costs are recorded.
5. **ASSUMPTIONS ABOUT TIME MEASURES:** Time is recorded in calendar days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. If a procedure can be accelerated for an additional cost, the fastest legal procedure is chosen. It is assumed that neither the exporter nor the importer wastes time and that each commits to completing each remaining procedure without delay. Procedures that can be completed in parallel are measured as simultaneous. The waiting time between procedures - for example, during unloading of the cargo - is included in the measure.

Economic Freedom Index The 2010 Index of Economic Freedom covers 183 countries around the world, ranking 179 of them with an economic freedom score based on 10 different aspects: business freedom, Trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, financial freedom, property rights, freedom from corruption and labor freedom. As states by Miller (2010), "*trade freedom reflects the openness of an economy to imports of goods and services from around the world and the ability of citizens to interact freely as buyers and sellers in the international marketplace*". Trade freedom is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services, based on the trade-weighted average tariff rate and Non-tariff barriers (NTBs).

The score is calculated according to the following formula:

$$TFreeom = \left(100 \times \frac{Tariff_{Max} - Tariff_i}{Tariff_{Max} - Tariff_{Min}} \right) - NTB_i$$

A Non-tariff barriers (NTB) penalty, assigned according to a specific scale, is subtracted from the base score. The extent of NTBs in a country's trade policy regime is evaluated using both qualitative and quantitative information. One of the six categories of NTBs refers to *Customs restrictions*, such as advance deposit requirements, Customs valuation procedures, Customs classification procedures or Customs clearance procedures⁴¹. Primary sources come from the World Bank (World Development Indicators, Doing Business), the World Trade Organization, the Economist Intelligence Unit, and official government publications of each country.

⁴¹Additional details are available in Miller (2010).

The World Trade Indicators The World Trade Indicators (WTI) is a compilation of the World Bank from various sources, measuring trade performance over more than 200 countries. The database is divided in 5 pillars: (i) Trade Policy, (ii) External Environment, (iii) Institutional Environment, (iv) Trade Facilitation, and (v) Trade Outcome. Obviously, the fourth pillar provides several individual indicators related to trade facilitation. This pillar is built around the LPI and its indicators, the DB Trading Across Borders indicators, some transportation related indicators⁴², ICT indicators, Trade Finance and other variables. The WTI is based on equal weights and the user can apply its own weight scheme.

The Enterprise Survey The World Bank Enterprise Survey (ES) is a firm-level survey of a representative sample of an economy's private sector, covering a broad range of business environment topics across 125 developing countries to date⁴³. Time series analysis are not easy to implement as the database is not updated on a regular basis, but every three years -in average- since 2002. Moreover many survey questions change between two reviews. However, the scope of respondents is higher than traditional indicators such as Doing Business⁴⁴. Some variables are relevant in the area of trade facilitation, such as (i) Average time to clear direct exports through Customs, (ii) Average time to clear imports from Customs⁴⁵, (iii) Firms expected to give gifts to get an import license, (iv) Firms identifying corruption as a major constraint, (v) Firms identifying transportation as a major constraint, and (vi) Firms identifying Customs and trade regulation as a major constraint⁴⁶. Unfortunately these data are not available for OECD countries and the majority of EU Members. Recently, Li and Wilson (2009b) investigate trade facilitation issues on SMEs using these surveys for a set of Asian countries.

The Customs reports of the Global Express Association The Global Express Association (GEA) is the global trade association of the express delivery industry. The GEA provides reports on standard trade facilitation measures for numerous countries, capturing different aspect of the services offered by Customs and related agencies. The framework of the survey is quite close to the WTO (2010) negotiations on trade facilitation, which made it a good candidate to fill the gap of the OECD Trade Facilitation Index project (Moisé and Orliac, 2010). The GEA collects information from their members who have local knowledge of the Customs services available in each country reviewed. Data was first collected in 2005 and are regularly updated as information becomes available. At the 31 January 2011, the Customs reports cover 139 countries. These surveys are highly relevant in Trade

⁴²This dimension is particularly interesting, as other areas provide data already available in other reports.

⁴³The Enterprise Survey is also known as the Business Environment and Enterprise Performance Surveys (BEEPS).

⁴⁴There is no restriction about the type and size of enterprises included in the surveys. Since 2002, the statistics on the number of firms surveyed show that the surveys have covered 43114 small enterprise (<20 employees), 30666 medium enterprise and 20551 large enterprise (over 100 employees). Moreover, 17.62% of these enterprises are exporters.

⁴⁵The question is “*in the [current] fiscal year, when [this] establishment imported material inputs or supplies, how many days did it take on average from the time these goods arrived to their point of entry (e.g. port, airport) until the time these goods could be claimed from Customs?*”

⁴⁶It is the “*percentage of firms identifying Customs and trade regulations as a major or very severe obstacle*”.

Facilitation analysis. The Global Enabling Trade Report already uses some of these questions (15) to build its “*Customs services index*”. The GETR aggregates each variable to obtain a maximum score of 12 in its last release⁴⁷. I have extracted the whole database from each Customs report. An overview of the database and an Extended version of the Customs Services Index are available in section 5.2. However, it remains a snapshot without time series⁴⁸.

Other Indicators Secondary sources are also used in trade facilitation studies, such as the United Nations E-Government Surveys, the Global E-Government Reports, the International Telecommunication Union indicators or the World Bank’s Word Development Indicators. Additional information on tariffs, NTBs, RTAs and gravity variables are provided by the World Trade Organization, COMTRADE, the CEPII or the UNESCAP (ARTNeT). The research Community also provides some specific databases⁴⁹. Another set of data is related to transport issues. The main sources on transport flows, performances and costs are provided by Containerization International (CI), the Baltic Exchange, the UNCTAD⁵⁰ and the OECD who recently provided a database on maritime transport costs⁵¹. Finally, Djankov et al. (2010) provide insights on the classification of goods according to their time sensitivity.

An overview of the scope, the coverage and the type of the traditional indicators listed previously is available in the Appendix (section A.1). As explained in the introduction, these indicators are relatively common in the field of trade facilitation and usual candidates regressors in gravity models⁵². However, they suffer from several issues and should be used carefully.

2.1.2 Limits of these databases

Firstly, indicators measuring the same characteristics do not follow the same definitions, assumptions or methodology. Recently Ramasamy (2010), Behar (2010) or De (2011) pointed out such divergences and lack of correlation between similar indicators from different sources, as earlier Bagai and Wilson (2006) when measuring the clearance at the border. Interviews with Customs officers as well as Customs reports or specific studies also indicate different measures⁵³. I provide a comparison

⁴⁷The aggregation scheme is not well documented. Additional information is available in the section *technical notes and sources* of the WEF, 2010.

⁴⁸Note that the GETR Customs services index could be used in time series studies.

⁴⁹Mayer et al. (2008) provide a useful gravity database including RTAs compiled by Baier and Bergstrand (2007), while Duval and Utoktham (2011) provide a database on gravity variables including trade costs evaluations.

⁵⁰The UNCTAD provides the *Liner Shipping Connectivity Index* which measures a series of quantitative services available, and the *Transshipment Connectivity Index* which measures the degree of connection between countries (direct connection, or higher order connection).

⁵¹Korinek and Sourdin (2009) have compiled a database on transport costs for 43 importing countries (including EU15 countries as a custom union) from 218 countries of origin, at the detailed commodity (6 digit) level. However, in reality data availability and accuracy are limited to a smaller set of importers.

⁵²I built a database including all these indicators related to trade facilitation, available on a STATA format on my website.

⁵³In its first Time Release Study (TRS) in 2007, Australia has tested *the time for import* provided by Doing Business. The TRS results were supplemented with data from a selection of importers meeting the World Bank’s criteria and the finding indicated that these importers received containers fewer than six days after arrival, which was

of the “*time to import*” from different sources in table 2.1, which confirms such divergences between indicators encompassing different assumptions and scopes. As explained by Behar (2010) “*the different data sources are drawing from different distributions or (...) different parts of the distribution*”. The values of the dispersion between each source (see table A.1 in the appendix) show the need to choose carefully an indicator according to its assumptions and its related “trade facilitation policy” coverage, particularly for low economies where the dispersion is higher.

Secondly, these indicators often rely on a mix of variables coming from various sources to build their own variables. It raises the question of the value added of each database. Moreover, such a “spaghetti bowl” raises also some questions about the validity of robustness analysis using alternative -but related by construction- proxies⁵⁴.

less than half the World Bank’s figure. Australia has also compared its intervals with the Logistic Performance Index which evaluates *the efficiency of the clearance process by Customs and other border agencies*, and found a difference of 0.4 days. In this case the measure seems more accurate.

⁵⁴Traditional sources encompass numerous cross-references. Thus, the CPI is based on several traditional sources such as the GCR or the WCY; the Economic Freedom Index uses DB, WDI, WTO, CPI; the Global E-Government Report follows DB, ITU or the IMF; the Global Enable Trade Report compile a wide set of indicators coming from DB, LPI, GCR, GEA, CPI, WDI, ITU or the UNEG, among other third sources; the UN E-Government Report uses the ITU; the WCY is based on surveys but also data from the WTO, DB, WDI, ITU or the OECD; the WDI and the WGI compile data provided by DB, LPI, IMF, WCY, GCR or the ES; and finally the World Trade Indicators also uses DB, LPI, ITU or the UNCTAD.

Table 2.1: Time to import/export by category, a comparison between different sources

	<i>DB, Time (days)</i>		<i>BEEPS, Time (days)</i>		<i>Clearance time</i>		<i>Lead Time (Sea and Air)</i>		<i>Lead Time (Land)</i>		
	Export	Import	Export (1)	Import (2)	LPI (3)	LPI (4)	LPI (import)	LPI (export)	LPI (import)	LPI (5)	
High income: OECD	11,09	11,82	4,12	6,16	0,60	1,52	2,46	3,16	2,42	2,67	2,03
High income: non-OECD	15,14	16,22	1,65	3,21	1,34	2,50	2,97	3,12	1,91	2,49	1,84
Low income	40,46	46,11	7,31	11,64	2,74	4,36	6,92	10,25	5,24	10,51	6,86
Lower middle income	27,21	31,16	6,73	14,02	1,78	3,17	4,59	4,94	4,72	7,25	3,21
Upper middle income	21,93	24,27	5,42	8,14	1,75	3,17	3,50	5,08	3,53	4,29	2,36
Africa	32,83	39,40	6,64	12,07	2,63	4,66	7,33	9,22	4,64	7,19	5,97
Americas	18,95	21,78	7,06	13,74	1,50	3,27	3,87	4,96	4,18	3,88	3,23
Asia	28,88	30,84	6,95	12,35	1,75	2,71	3,08	4,35	3,71	7,10	2,59
Europe	14,58	15,41	2,82	4,76	0,71	1,53	2,37	3,00	2,65	3,14	1,88
Oceania	22,13	24,52	9,64	10,66	0,49	1,51	4,55	5,34	1,72	2,26	2,97
Total	24,70	27,91	6,16	10,95	1,64	2,94	4,21	5,47	3,59	5,41	3,25

Source: own calculation based on available sources. Mean of time (days) since 2005, by income and region.
DB stands for Doing Business, *LPI* for Logistic Performance Index and *BEEPS* for the Enterprise Surveys.

(1) Average Time to Clear Direct Exports Through Customs (days)

(2) Average Time to Clear Imports from Customs (days)

(3) Clearance time (days), without physical inspection

(4) Clearance time (days), with physical inspection

(5) Lead time import, best case (days)

Thirdly, the country coverage and the scope of these indicators vary across sources, and even within the same source across the successive releases⁵⁵. Fourthly, some of them are based on perceptions (soft data) while other are factual (hard data). The interpretation of soft and hard data is not the same. The latter do not suffer of subjectivity issues but could omit a part of the situation if not correctly put in context. Moreover, these “hard” indicators are more or less accurate. About the former one -the soft data- the question of relativity is still an issue, leading to diverse interpretations. In the one hand, a score can be subject to “a pattern illusion”, *i.e. a long practice in a country modifies the perception of the respondent about the reality by omitting the experience effect*. In the other hand, a score can be subject to an over-estimation of a recent event⁵⁶. The relative stability of many indicators over time tends to confirm the former observation. In addition, the panel of respondents could be not representative and leads to biased replies and so, indicators⁵⁷.

Fifthly, indicators encompass different natures and rely on various methodological backgrounds⁵⁸. The standardized methods and weighting schemes can change significantly an indicator. Moreover, scores and ranks can also lead to misinterpretation. Country rankings retain only information on countries relative rank but not on the size of the gaps between countries. An indicator must be placed within the specific context and the development level of a country. In addition, one should look at its place in the distribution, particularly when using time series. Indeed, a poor score can known a significant jump. Finally, some indicators should be interpreted by using a threshold strategy rather than pure scores or ranks, especially for hard data. Indeed, is there a big difference when the clearance time differs by 10 minutes or should we consider another scale than the minutes? Last but not least, these traditional indicators are not specific to the date of publication of each report and should be lagged in a regression⁵⁹.

The scope -*the deepness*- of traditional indicators is another issue. As stressed by Holloway (2010), indicators of measurement of trade facilitation could be classified according to their scope, which is more or less narrow. Customs is a focal point in the border management, but are only a part of the whole supply chain. Many traditional indicators merge different steps of the clearance process and so different operators within the same variable. There is no clear distinctions between private and public sectors as well as between the different agencies involved. Moreover, traditional indicators do not investigate the impact of the size of each operator or their characteristics (SMEs/MNEs, goods perishable or not), providing a common measure for different operators who do not face the

⁵⁵Some data providers are aware of this kind of issue and try to provide comparable time series by back-calculating the data set to adjust for changes in methodology and revisions in data. It is the methodology followed by Doing Business. That is why, for several indicators and particularly *Time to import*, the current downloadable data set is far away from the original data set published in the *pdf* reports. See the Australian case study in appendix, table A.3.

⁵⁶It is a known issue in quality of life surveys, when the reality of each day differ, following daily events and mood.

⁵⁷Arvis et al. (2010) accounts for the standard errors of the replies to the LPI survey.

⁵⁸See Hoffmann et al. (2008) for a review of methodological issues related to composite indicators.

⁵⁹Data presented are for the immediately preceding year(s)

same issues⁶⁰. In addition, the different areas of trade facilitation are not entirely covered. Narrow indicators are available through specific cases studies, Time Release Studies or Customs reports. These sources are detailed in the following section.

2.2 Some specific measures of trade facilitation

2.2.1 Time Release Studies

By comparison to traditional indicators, Time Release Studies (TRS) provide an effective evaluation of Customs performance at the border, a standardized way to measure the time to release goods, at each step (see figure 2.1). The TRS cover the Customs procedures, related government agencies and the private sector involved in the trade supply chain⁶¹. In addition, TRS provide information for each different mode of transportation, type of goods and even at different Customs offices. As stressed by Zhang (2009), the scope of TRS is a determining factor of the measure of border performance. TRS has been promoted by the World Customs Organization since 1994, following the pilot initiatives of Japan and the United States. In 2002, the WCO has developed a guide (WCO, 2002), followed by a software in 2005, to help its Member to launch such programmes. Even if their number expands, the TRS are not well *-or not enough-* developed around the world to be used as a useful database to evaluate the impact(s) of trade facilitation policies⁶². Such programmes are costly to implement, they require technical capacities and a close cooperation between the different actors involved. Moreover, a TRS project usually requires several months along each stage of the programme⁶³.

Despite these implementation difficulties, TRS are a valuable tool for Customs authorities, particularly to design and measure trade facilitation policies. TRS help to identify bottlenecks in the clearance process and reform opportunities which aim to enhance the efficiency of Customs procedures and the whole trade supply chain, such as the single windows, the pre-arrival declaration or the Authorized Economic Operator. Thus, since its first TRS in 1991, Japan has followed the recommendations of each survey (conducted every two or three years) and implemented a series of modernization initiatives leading to substantial improvements of Customs procedures⁶⁴. Korea has conducted TRS since 1998 and known numerous critical improvements following a series of adopted trade facilitation policies. After a downward trend of clearance times, the Korean TRS have pointed out a new performance issue, focusing on the predictability of clearance services “*which could be*

⁶⁰According to the Enterprise Surveys, SMEs face higher transaction costs such as higher clearance time, than large firms.

⁶¹The TRS measures the time consumed by Customs but also by shipping company and agent, port Authority, importer, Customs broker, government agencies (health and standard agencies), bank, warehouse operators, forwarder or domestic carriers.

⁶²Matsumoto and Lee (2007) and Zhang (2009) provide a review of Asian TRS. I have also studied a series of publicly available Time Release Studies from Australia (Customs, 2009b,c, 2010a) and New Zealand (Customs, 2010b), Japan (Customs, 2007, 2009d), Jordan (Customs, 2008), Kenya (Oloo et al., 2004) and Tanzania (Customs, 2005). See section A.2 in the appendix.

⁶³See Zhang (2009) for a review of the 5 stages of TRS programmes.

⁶⁴See section A.2.1 in the appendix for additional details.

Figure 2.1: Time Release Study Schedule



expressed as standard deviation of clearance time”, Matsumoto and Lee (2007). TRS also provide insights to reallocate resources, to request other government agencies and private sectors for their re-engineering. Another potential interest of TRS is to evaluate the “real” role and place of Customs in the whole trade supply chain. Indeed, as pointed out by Zhang (2009), a significant finding of TRS is that Customs may not necessarily represent the weakest link of the chain but on the contrary “*Customs is very often found to be one of the more efficient agencies*”. Other government agencies and even the private sector are responsible for some delays. That is why, performance indicators capable to disaggregate the border processes are a useful tool for Customs to underline delays and inefficiencies which are outside their control⁶⁵. TRS could be valuable candidates to build a composite trade facilitation indicator. However, as explained previously, their utility is limited by the geographic scope of the current TRS, but also by the lack of regular surveys and the lack of common measures used in each TRS, despite the WCO initiatives⁶⁶. But, TRS provide insights on the impact of a series of trade facilitation policies according to the type of good, the mode of transport or the Customs regime, and the disparities across border offices of a unique country. Such characteristics are detailed in section A.2 of the appendix and recalled along the paper.

2.2.2 Customs monitoring

In many countries, Customs authorities provide an annual report with a set of key statistics. However, efficiency indicators are not always publicly available or even available -at all- for the authorities. Indeed, such a reporting with various indicators of Customs efficiency is quite new, it implies

⁶⁵This situation has been described by Cantens et al. (2010), the Australian TRS (Customs, 2009c, 2010b) and during some interviews with Customs officers. Firstly, it appears that Customs inherits of some inefficiencies that exist within the delegating agency process. Secondly, private operators often rely to Customs to explain the cause of any delay, instead of their own inefficiencies. Thirdly, logistic operators use the border clearance system to deal with their cargo in a timely manner, but also to play with several delays such as the free stock areas to reduce their costs. Refas and Cantens (2011) explained that “*the container terminal is in fact a warehousing option for cargo owners and is therefore used to meet some of their temporary or long term storage needs*” and define this phenomena as a discretionary dwell time.

⁶⁶Zhang (2009) details additional dilemmas confirming that TRS are not designed for cross-countries comparison.

numerous steps and actors, including the Customs authorities but also other agencies, and could be expensive or require an extensive use of IT. In addition, the picture is not necessarily the same at every border offices of the same country⁶⁷. Definitions also differ between countries. Even within the European Union, there is not a common approach to measure trade facilitation and particularly the Customs efficiency⁶⁸. Moreover, Holloway (2010) underlines the natural tendency for border agencies “*to measure outputs rather than outcomes*”. To quote the example of Holloway, such reports provide “*the amount of drugs seized over a period of time rather than any assessment of whether or not a particular drug strategy has been effective*”. It raises the question of the ambiguity of several indicators⁶⁹. As stressed by the Time Release Studies, even hard data need to be put in the right context. Thus, clearance time varies according to the nature of the good, the transport mode, the Customs regime or the classification to the risk. Most of the time, classical indicators are a simple average of all the states of the nature. For example, clearance time is an average of goods classified according to their potential risk as “green lights” and “red lights”, the latter requiring a longer process with several controls⁷⁰. Merge both categories do not provide a right picture. It is advisable to use two separated indicators of clearance time with and without controls (as provided by the LPI).

Finally, the Customs authorities also provide a series of specific reports on particular issues, such as compliance issues (Customs, 2009a), which are useful to elaborate a clear facilitation strategy and assessing priorities. I made a review of the monitoring approach of the french Customs⁷¹, available in the appendix (section A.3).

2.3 A way towards new indicators

Deeper and disaggregated indicators are essentials to provide an accurate picture of the impacts of trade facilitation policies. Specific reports such as TRS or Customs reports could provide reliable indicators. Unfortunately these reports are not provided on a regular basis and suffer from a lack of

⁶⁷As pointed out by the Australian TRS, there are different patterns at each offices, different infrastructures and even different “perceptions” of Customs officers. These observations have also been confirmed by numerous TRS and several interviews of Customs officers in Europe.

⁶⁸The EU has recently launched (April 2011) a series of working parties on this topic and a wide study of the EU Customs efficiency in each Member States.

⁶⁹Similar questions exist for the traditional indicators. In addition, as stressed by the Doing Business Evaluation Report (IEG, 2008), the methodology used to construct these indicators often links a higher level of regulation with higher costs, without assess the potential social benefits of regulation. Moreover, “*since regulations generate social benefits as well as private costs, what is good for an individual firm is not necessarily good for the economy or society as a whole*”, IEG (2008). This concept is also discussed by Holloway (2010).

⁷⁰The USYCUDA refers to color channels. To better understand this particular issue, I rely on the french experience where the clearance time of french Customs has dropped from 13 minutes in 2004 to 6 minutes and 19 seconds in 2010 (Douane, 2010a). It is a positive trend showing an improvement of the efficiency of french Customs, according to this criteria which decreases each year. However, it is an average where outliers, *i.e. value higher than a day (shipments which require several checks)*, are dropped. Moreover, as an average, there is no distinction between “normal” shipments (green lights) and shipments requiring additional checks (red lights lower than a day). In reality clearance time is lower for the majority of shipments, only limited to the automatic process time of the Risk Management System.

⁷¹I thank Mr Jean-Michel THILLIER, Deputy Director General of French Customs (International Trade Directorate), for helping me to better understand the french strategy to measure the efficiency of the Customs clearance process, and for giving me all data I need.

geographic coverage to be used as a reference database, at least to date. That is why the literature mainly relies on the traditional indicators detailed previously. However, among them some are most suitable than other to be used as trade facilitation proxies, due to their scope or their construction.

The most important points are to know the dimension really covered (and so omitted) by an indicator and the implications of its construction scheme, particularly in the case of a time series analysis. In general, traditional indicators are broad regarding their trade facilitation dimension⁷² but also regarding their coverage, both geographic and sectoral. As explained previously, the situation could vary at different border office within the same country and indicators rarely take into account potential sectoral variances⁷³. The construction scheme is also relevant in the choice of an indicator. As pointed out by Hoffmann et al. (2008), an indicator is more or less suitable for time series and country comparisons. Thus sample specific indicators are sensible to the addition of new country. Changes in the definitions between two releases⁷⁴ as well as changes in the structure of respondents across countries are other examples of common issues.

The criteria of the WCY are based on opinion surveys (see footnote 30) and their score are not sensitive to the sample. The *Customs authorities* criteria is the most relevant indicator of the WCY as trade facilitation proxy, even if it remains broad in its coverage. The LPI is a recent database project which provides valuable indicators about the import (and export) process. As explained previously several criteria are linked to trade facilitation dimensions, focusing on specific steps of the process. In addition the LPI relies on several hard data and variables split by transport mode. However, the LPI remains difficult to use in time series due to the limited number of releases (two), changing methodologies and indicators. Until now, few criteria such as *the number of agencies* to import/export or *the percent of physical inspection* can be used in 2006 and 2009. The World Economic Forum (WEF) provides a series of indicators related to a broad definition of trade facilitation. However, the methodology adopted must be known before using them in time series and even cross country comparisons. The survey sampling follows a stratification based on the size of the company and the sector of activity, but the share of respondents by categories can vary across releases and countries. Then the sector-weighted country averages for the current year are combined with the previous year average to produce the final score. This moving average technique has been introduced in 2007 and includes a discounted factor of the previous year⁷⁵. In addition, hard data are normalized on a 1 to 7 scale with a min-max formula related to the sample. Among the indicators provided by the WEF, the *burden of Customs procedures* may be a candidate. However it remains

⁷²Firstly, the indicators rely on broad definitions of trade facilitation. Secondly, indicators usually merge various steps and actors. For example *time to import* proxies cover many different steps and actors, but rarely a specific stage of the import/export process. However public authorities cannot act at each stage.

⁷³Differences between perishable and not perishable goods, or between SMEs and large firms for example are rarely reported into specific indicators.

⁷⁴That is why some data provided by Doing Business are back calculated each year, as explained previously. See also table A.3 in the Annex

⁷⁵As explained by Schwab (2010) “*it makes results less sensitive to the specific point in time*” and it increases the sample size.

broad by measuring both import and export procedures, without being disaggregated along the trading process. Doing Business is another traditional source providing numerous data related to broad trade facilitation measures, especially the criteria included in the trading across the border category. As explained previously Doing Business suffers of several limitations, from the definition of its indicators based on standardized case scenarios to their coverage⁷⁶. Finally the Enterprise Surveys provide more specific variables regarding their scope or coverage even if their data are not updated on a regular basis, while the Global Express Association shows the issues faced by express forwarders which may be different than other traders. To conclude I would say that aggregated indicators and ranking are usually difficult to use in time series.

These issues lead to the necessity to develop new indicators in an effort to measure various narrow dimensions of trade facilitation and covering more disaggregated areas. The following chapters are a step toward this objective by focusing on specific measures. The country coverage may be more or less limited and these indicators may suffer of several issues listed previously, but they design a path to follow.

⁷⁶Thus the *time to import* relies on the following specific hypotheses: if a procedure can be accelerated for an additional cost and is available to all trading companies, the fastest legal procedure is chosen; it is assumed that neither the exporter nor the importer wastes time and that each commits to completing each remaining procedure without delay; the waiting time between procedures (for example, during unloading of the cargo) is included in the measure. Finally, there are some gaps between Doing Business and Time Release Studies about Customs delays.

Chapter 3

International regulatory frameworks

Since decades, numerous regulatory frameworks have been developed in an effort to simplify, harmonize and standardize the cross-border operations. A series of Treaties, Agreements, Conventions, Arrangements or guidelines have been concluded. Some 489 RTAs have been notified to the World Trade Organization, counting goods and services notifications separately on the 15th May 2011⁷⁷. Each agreement covers many areas which are often related to trade facilitation. Earlier, Wille and Redden (2006) showed that a series of trade facilitation principles are recurring in most modern RTAs, followed by Duval (2007), Bin (2008) and recently Duval (2011). These agreements can be classified according to their level of integration and should provide some benefits to their Members⁷⁸. However, as stressed earlier by Messerlin and Zarrouk (2000) and recently by Freund and Ornelas (2010), they also raised several concerns about trade diversions or the noodle bowl effects. Hamanaka et al. (2010) and Duval (2011) also pointed out the possible discriminatory treatments of a trade agreement between Members and non Members. Many trade facilitation provisions are -usually- non exclusives, such as Customs transparency or the adoption of international conventions, while others such as mutual recognition or fees could have discriminatory elements. Finally, trade facilitation provisions vary across trade agreements. Due to their potential impacts on trade, these agreements have been studied since a while and, as noted by Disdier and Head (2008), Kepaptsoglou et al. (2010) or Arvis et al. (2010), almost always included into gravity regressions even if such dummies encompass econometric issues, such as endogeneity (Baier and Bergstrand, 2007, 2009b).

Beyond the growing development of the multilateral and bilateral trade agreements, numerous international bodies which aim to enhance trade flows, such as the World Trade Organization (WTO), the World Customs Organization (WCO), the UN Conference on Trade and Development (UNCTAD), the UN Economic Commission for Europe (UNECE) or the International Maritime Organization (IMO), have develop uniform standards or their mutual recognition, through a series of conventions, arrangements or guidelines. Conventions cover a wide range of topics which are more

⁷⁷Some 295 RTAs are still in force, according to the Regional Trade Agreements Information System (RTA-IS) of the WTO.

⁷⁸See Pomfret (2005) for a review. A recent report of the Productivity Commission showed that benefits of bilateral agreements are not systematic (Commission, 2010).

focused than in Trade Agreements. Unfortunately, Conventions are rarely used in economic models and particularly gravity regressions. According to the agreed definition, a wide range of areas could be related to trade facilitation issues. There is no trade facilitation convention *per se*, but many conventions include a section or underlying elements related to it, as noted by Staples (2002) or Grainger (2007b). In addition, Alburo and Duval (2010) showed that many Conventions spread the use of ICT. Such links have been explored during the WTO negotiations on trade facilitation (WTO, 2009a, 2010), following the pre-existing work of the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT)⁷⁹. These arrangements will be a useful counterpart to the traditional trade facilitation indicators. However, such an index is not obvious to build due to the absence of a consistent interpretation and application of those agreements by several countries (Widdowson, 2008).

This chapter reviews the main Agreements, Conventions and guidelines used in the following indicators and regressions. Firstly, I build a new database on the trade agreements notified to the WTO, which covers more agreements than traditional dummies and focuses on trade facilitation issues. Secondly, I study a series of useful Conventions related to trade facilitation and build another database, to compute a specific index based on the rate of ratification. Thirdly, I detail some specific guidelines which belong to the trade facilitation literature. Finally, I explain some limits to the use of such variables.

3.1 Trade Agreements and Trade Facilitation

Since a decade, with the elimination of tariff barriers, trade agreements have increasingly dealt with many trade facilitation dimensions. It was noted earlier by Moisé (2002), who showed the growing share of provisions related to trade facilitation. Wille and Redden (2006), then Duval (2007) and Bin (2008) explored these provisions for the Asia-Pacific trade agreements⁸⁰. They relied on various trade facilitation dimensions, from Customs procedures to standards, fees, transit issues or ICT provisions, showing the significance of such provisions. Recently, based on the on-going WTO trade facilitation negotiation focusing on a *narrow* definition of trade facilitation, Duval (2011) showed that trade facilitation provisions have known a new boom. In addition, new agreements often include dedicated chapters. Maur (2008) explained that trade facilitation issues are particularly fitted to the regional level, RTAs being a good complement to multilateral and national initiatives. However, beyond the trade creation effects, Hamanaka et al. (2010) have shown the potential discriminatory impacts of such provisions.

Trade agreements rely on trade facilitation provisions, leading to substantial impacts for their Members and non-Members too. That is why, it seems necessary to use the information incorporated

⁷⁹The UN/CEFACT provided a series of Recommendations on various trade facilitation dimensions.

⁸⁰Generally, such provisions are found in different parts of the agreements, but not in a separate chapter related to trade facilitation issues *per se*.

into trade agreements, in order to improve the measure of the impact of trade facilitation policies. It may be relevant to include some dummies or variables into the gravity regressions to account for such provisions. Even if, as stressed by Duval (2011), only rely on the fact that a dimension is covered by an agreement, “*may not be good enough to capture how trade facilitating an agreement really is*”. It will be necessary to explore in details such provisions.

3.1.1 Existing compilations

The UNESCAP Review The UNESCAP has reviewed such provisions in the Asia Pacific regional trade agreements, classifying them according to several dimensions. Some of them are related to trade facilitation, such as Customs procedures, Customs valuation, Trade regulations publication and administration, use of ICT, mobility of business people, Freedom of transit, transport and logistics and trade finance⁸¹. Based on the UNESCAP observations, I built a database which covers each dimension from 1976 to 2011⁸². The database covers 111 agreements (in 2010), from all types, but only signed between Asian countries and their partners. I created a series of dummies for each trade facilitation area covered, which take the value of one when an Agreement includes it. I also built a variable reporting the percent of trade facilitation areas covered for each agreement, measuring the “*trade facilitation intensity*” of it. Finally, I made this database “gravity friendly”, sorted by country, partner and year. This database includes variables measuring the number of agreements for each pair of countries that cover each trade facilitation dimension, and the related percentage of all agreements concluded. I also built a variable for each trade facilitation dimension that takes the value of one if at least one agreement covers it. In addition, the database includes a membership dummy for each trade agreement⁸³.

The scope of these variables are restricted to the Asian region, but they provide new insights on the nature of the trade agreements in force in 2010⁸⁴. Firstly, it appears that almost a fifth (17.12%) of the trade agreements reviewed by the UNESCAP in 2010 were not notified to the WTO. This rate is lower for the agreements related to trade facilitation (8.22%). Nevertheless, it means that the trade agreements dummies based on the WTO notification database do not encompass all existing agreements. Secondly, the number of the *-Asian-* trade agreements has increased since the last decade and around 70% of them are related to trade facilitation, at least to one of the dimensions covered by the UNESCAP (figure B.2 in the Appendix). This is much more than the rate found by Duval (2007), but in line with Bin (2008) who stressed that almost all FTAs include Customs procedures

⁸¹Bin (2008) provided an explanation about these various dimensions.

⁸²I download the UNESCAP observations resumed in an *Excel* file and a report in *pdf*, at the 04 June 2011. Unfortunately these two sources do not match, the former being more accurate. That is why I rely on the *Excel* file.

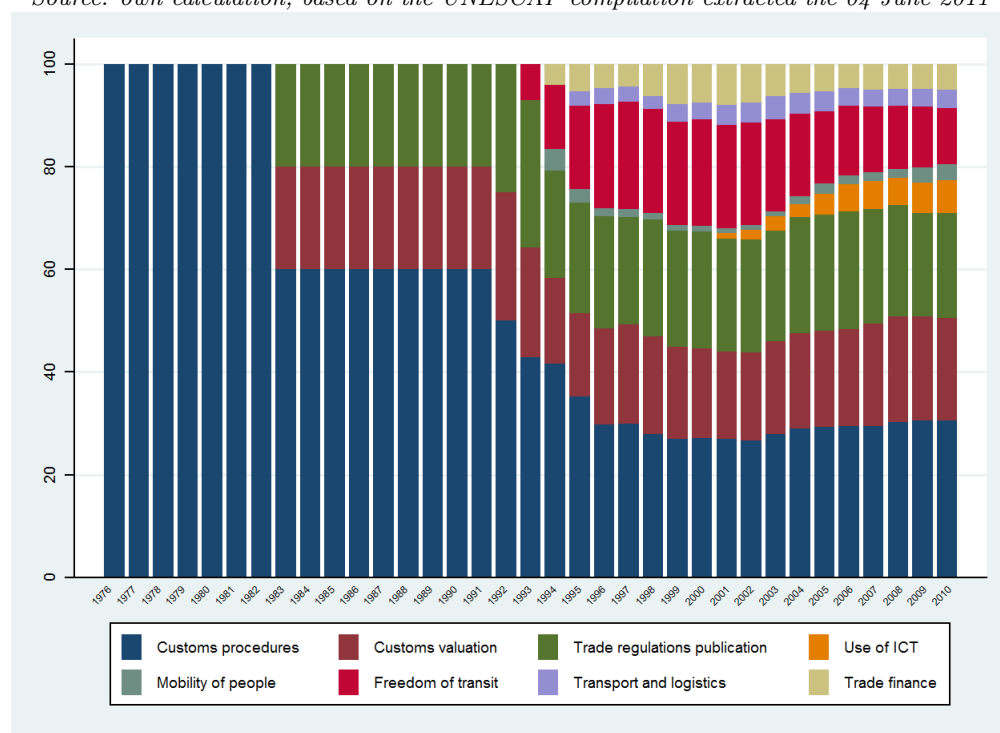
⁸³The two databases are available in STATA format on my website, www.thomas-orliac.eu

⁸⁴Around one third of the world stock of trade agreements is composed by Asian agreements.

provisions and other “core elements” of trade facilitation⁸⁵. Thirdly, since a decade the use of ICT is increasingly included in the trade agreements related to trade facilitation, even if it remains a small share of the seven dimensions covered by the UNESCAP (figure 3.1). Customs procedures are still the main dimension, followed by the Customs valuation and the trade regulations publication. Fourthly, some countries participate to many agreements covering trade facilitation issues. About 30% of country pairs have at least one common agreement that includes a reference to Customs procedures, but a third of them (10% of the total) have more than one common agreement sharing this issue (table B.1 in the appendix). Such duplicates illustrate the noodle bowl effects, but can also be used as an indirect measure of the intensity of the trade facilitation provisions. However, as stressed by Duval (2011), “a key issue for a given country is to ensure that these [trade facilitation provisions] remain consistent across the various trade agreements in enters to”.

Figure 3.1: Trade agreements related to trade facilitation, by dimensions (%)

Source: own calculation, based on the UNESCAP compilation extracted the 04 June 2011



The WTO agreements database RTAs are legally based on the article XXIV of the GATT 1994, the enabling clause for developing countries⁸⁶ and article V of the GATS. WTO members are

⁸⁵However, note that only a quarter (28.48%) of the *country pairs* covered by the database in 2010 have at least one agreement that includes one -or more- trade facilitation dimension (as classified by the UNESCAP review).

⁸⁶Around 14% of all RTAs in force in 2011 rely on the enabling clause.

bound to notify the regional trade agreements in which they participate. That is why, the World Trade Organization has developed a database covering the trade agreements notified by its Members. It provides information on each trade agreement that is in force, which is classified according to a series of criteria, *i.e. the coverage and the type of Agreement as well as its status*. By the mid 2011, there were 210 agreements in force, at least reported to the WTO⁸⁷ (table 3.1). Free Trade Agreements and Partial Scope Agreements account for 90%, while Customs Unions account for 10 % (table B.2 in the Appendix).

Table 3.1: Trade Agreements reported to the WTO, by Status

Source: own calculation, based on the WTO RTA-IS extracted the 6 June 2011

Status	Freq.	Percent
Early announcement-Signed	11	2.55
Early announcement-Under negotiation	27	6.26
In Force	210	48.72
Inactive	183	42.46
Total	431	100.00

Numerous usual trade agreement dummies are based on this source. It is the case of the traditional dummy built by Baier and Bergstrand (2007), which measures whether or not a country pair shares at least one trade agreement. Unfortunately, such databases are not updated on a regular basis and do not encompass all the information provided by the RTA-IS. The coverage of each agreement is particularly useful. Indeed, each agreement is classified according to the topics it covers, such as Customs related procedures, Rules of origin, Sanitary and Phyto-Sanitary measure or Technical regulations and standards. As explained previously, RTAs include many trade facilitation provisions which should be reported into trade facilitation models. As noted by Duval (2011), relying on broad cross-references do not ensure that the agreement is really “trade facilitating”. Nevertheless, I think that such variables can be viewed as a second best. At least, they are best fitted than traditional agreement dummies.

3.1.2 A database on Trade Agreements related to trade facilitation issues

In order to take into account of trade facilitation provisions included into trade agreements, I built a database by using the WTO categories classification previously listed. This database provides a Membership dummy for each agreement, a dummy if the country pair is part of at least one trade agreement and a dummy if the pair only shares one bilateral agreement. I built several databases classified according to the topic covered by each agreement⁸⁸. It is not a detailed database on trade

⁸⁷It is a limit of the RTA-IS which only reports agreements in force, dropping the inactive ones.

⁸⁸Each database is based on a “gravity friendly” format. They cover *all RTAs reported*, agreements related to *Customs procedures*, to *Rules of origin*, *SPS* and *TBT*. They are available in a STATA format on my website.

facilitation provisions but it has a World coverage, from 1958 to 2010. Regarding to the Baier and Bergstrand (2007) database (BBD) which covers 5142 unique country pairs from 1960 to 2005, this new database covers 7072 unique country pairs (5763 from 1960 to 2005). In addition, the BBD accounts for 80590 country pairs while mine covers 136120 pairs (dropping all duplicates by *cou par year*). It is a huge improvement. Such disparities come from a bigger set of agreements and range of years, despite the number of agreements which currently became inactive⁸⁹ and the missing data of the WTO database⁹⁰. Additional statistics are available in the Appendix, section B.2.

It should be possible to upgrade this new database by including inactive agreements and checking with additional sources. However, it seems that this base is well fitted, providing some good proxies of broad trade facilitation issues. It remains a second best, without details on the commitments and conditionality of each agreement, but it has the advantage to cover a wide set of countries, to date. Based on the RTA-IS online database, I calculate that 41% of RTAs in force in 2010 were classified as agreements linked to Customs-related procedures.

3.2 Conventions and trade facilitation

As explained previously, Conventions refer on several trade facilitation provisions too. In addition, trade agreements rely also on the use of international standards provided by such Conventions, Arrangements or guidelines (Duval, 2011). The OECD has also raised the power of such Conventions and included them in its Trade Facilitation Indicators. Based on this seminal work and the pre-existing work developed by the UN/CEFACT through its series of Recommendations, the UNCTAD technical notes (UNCTAD, 2011b), the WTO compilations of Member's proposals (WTO, 2009a) and the current draft WTO (2011) on trade facilitation negotiations⁹¹, it has been possible to highlight a set of core Conventions related to trade facilitation various dimensions.

Recent drafts do not refer to a list of conventions to use as baseline for international standards, but earlier compilations did. The sixth draft (WTO, 2010) refers to the Conventions in the following way:

ARTICLE 7: RELEASE AND CLEARANCE OF GOODS

7.3. Risk Management

7.3.5 [Members shall, where practicable, refer to relevant international standards and practices including the Revised Kyoto Convention and the WCO Risk Management Guideline as a basis for its risk management.]

ARTICLE 10: FORMALITIES CONNECTED WITH IMPORTATION AND EXPORTATION

10.3. Use of International Standards

10.3.6 [For the purposes of this Agreement, the term "international standards" shall be understood to refer to [international Conventions or Agreements] [standards, guidelines and recommendations] relating to facilitating

⁸⁹According to the WTO, a large amount of agreements became inactive in 2004 and, as stressed before, the current RTA-IS only provides a snapshot of active Agreements.

⁹⁰Remember that 17.12% of the trade agreements reviewed by the UNESCAP in 2010 were not notified to the WTO. That is why, Baier and Bergstrand (2007) have completed their database with additional sources.

⁹¹The WTO Negotiating Group on Trade Facilitation provided regular compilations of Member's proposals.

international trade, inter alia those administered by the World Customs Organization (WCO) and United Nations Center for Trade Facilitation and Electronic Business.]

Countries are well aware that such conventions aiming to facilitate international trade play a crucial role in the trade facilitation process and should be taken into account as a reference tool. Previous compilations of Member's proposals pointed out a more explicit list of conventions:

J. FORMALITIES CONNECTED WITH IMPORTATION AND EXPORTATION

3. Use of International Standards

3.5 [*Alternative*: For the purposes of this Agreement, the term "international standards" shall be understood to refer to International Conventions or Agreements related to facilitating international trade and administered by relevant international intergovernmental organizations: World Customs Organization (WCO), United Nations Organizations Center for Trade Facilitation and Electronic Business, International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO). In particular, the following conventions shall apply: Convention (2005) on Facilitation of International Maritime Traffic, Convention (2006) on International Civil Aviation, Convention (1990) on the Temporary Admission of Goods (Istanbul Convention), International Convention (1986) on the Harmonized Commodity Description and Coding System (HS Convention), General Annex of the International Convention (1999) on the Simplification and Harmonization of Customs procedures (Revised Kyoto Convention). As appropriate, the lists of relevant international organizations and conventions may be complemented as identified by the Trade Facilitation Committee]."

The United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT) provides a series of Recommendations to facilitate the international transactions, through the simplification and harmonization of processes, procedures and information flows⁹². Based on the involvement of the public and private sectors, they remain a valuable tool. The 35 Recommendations refer to a series of Arrangements, such as the Customs Convention on Containers, the Convention on the Facilitation of International Maritime Traffic, the International Convention on the Harmonization of Frontier Control of Goods, the International Convention on the Harmonized Commodity Description and Coding System, the Convention on International Civil Aviation, the International Convention on the Simplification and Harmonization of Customs Procedures (Kyoto), or the Customs Convention on the International Transport of Goods under cover of TIR Carnets.

I review the core Conventions related to trade facilitation in the following sub-sections. Firstly, I explore their provisions, particularly the ones related to some trade facilitation dimensions, their objectives and their history. Secondly, I provide several explanations about the construction of each database.

3.2.1 The core Conventions

The Convention on the ATA carnet for temporary admission of goods The Convention entered into force on 30 July 1963 and accounts 65 Members by the mid of 2010. The ATA Carnet (for "*Admission Temporaire-Temporary Admission*") is a Customs document used for goods under temporary admission that allows its holder, against a collateral, to import goods without payment

⁹²The United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT) is an intergovernmental body with a global remit. Its objectives are to develop and promote simple, transparent and effective processes for global trade (including related government-to-business and government-to-government processes). A full description could be found in its home page, <http://www.unece.org/cefact/about.htm>

of duties and taxes. These Carnets apply mainly to three categories of merchandise: commercial samples, professional equipment and goods for use at exhibitions and fairs. The ATA Carnets are now part of the Convention on the Temporary Admission of Goods.

The TIR Convention After the end of the second world war, there was a rapid growth in trade in goods in Europe. It became clear that lengthy and cumbersome Customs procedures each time goods crossed a border put a severe strain and burden on trade. The negotiations started at the United Nations Economic Commission for Europe, with the objective of drawing up an international Agreement which would facilitate the movement of goods in Europe. The first TIR Agreement was launched in 1949 between a small number of European countries and its success led to the creation of the TIR Convention in 1959. As a result of this Agreement a guarantee system was introduced in a number of European countries which would cover the duties and other charges at risk on goods moving in Europe, in the course of international trade. Following the changes in Customs and transport requirements, such as the arrival of the maritime container (Levinson, 2006) and the development of multimodal transport techniques, the TIR Convention was revised in 1975⁹³ and, since, amended 28 times (UNECE, 2010). The TIR framework has formed the basis of many regional transit system and contributed to the facilitation of international transport, not only in Europe but also in Africa or Latin America⁹⁴. By the end of 2010, the Convention had 68 contracting parties. The number of Carnets issued has grown from 3000 TIR in 1952 to 2.822 million in 2010 (UNECE statistics), despite the enlargement of the European Community⁹⁵.

The TIR procedure enables goods to move from a Customs office of departure in one country to a Customs office of destination in another country under cover of an internationally accepted Customs transit document, which also provides a financial guarantee for the payment of the suspended duties and taxes⁹⁶. The aim of this procedure is to facilitate *“to the greatest possible extent the movement of goods under Customs seals in international trade and to provide the required Customs security and guarantees”* (UNECE, 2010) while reducing Customs formalities. If such advantage is obvious for economic operators, it is also the case for Customs which save times and avoid expensive use of manpower and facilities. The TIR transit system is founded on the following five pillars: the use of secure vehicles or containers, the international guarantee chain, the TIR carnet, the mutual recognition of Customs controls⁹⁷, and controlled access to the TIR system. The successive amendments to the TIR Convention (1975) has improved the transparency of the international guarantee system and

⁹³Note that the former convention is still in place since one of its contracting parties - *i.e.* Japan - has not yet acceded to the Revised convention of 1975.

⁹⁴In 1984, the Economic and Social Council of the United Nations (ECOSOC) adopted a resolution (1984/79) which recommends that countries world-wide examine the possibility of acceding to the TIR Convention. This procedure is promoted by the UNESCAP, ESCWA, the World Bank, the Asian Development Bank and the OECD.

⁹⁵The European Community has its own community transit system (see section 6.2.2.3) and does not use TIR Carnets for transit operations within the its Members States.

⁹⁶The guarantee system is managed by an international organization, which is currently the International Road Transport Union.

⁹⁷Customs control measures of the country of departure should be accepted by the country of transit and destination.

the responsibility of the different operators, but also led to a modernization of the TIR procedure using modern electronic data processing mechanisms such as the TIR Procedure Computerization Project (eTIR).

The International Convention for Safe Containers This convention has followed the huge increase in international trade and the use of freight containers for consignment of goods by sea. In 1972, the Convention had two goals, to protect the human life and to facilitate the transport of goods by containers by providing uniform international regulation. The UN/CEFACT mentioned this conventions as related to Customs and other official procedures concerning the means of transport and transport equipment including containers. According to the International Maritime Organization (IMO), the contracting parties represent 60.95% of world tonnage and only 6.18% in its revised form of 1993. This Convention is not very followed but containers are extremely standardized anyway. Note that other conventions refer to this particular convention, generating possible double counting *-weighting-* issues.

The Convention on the Harmonized Commodity Description and Coding System Entered into force on 1st January 1988 and commonly known as the “HS Nomenclature”, this Convention provides an international nomenclature. Elaborated by the WCO, it comprises about 5000 commodity groups classified by a six digit code. By the mid of 2010, the Convention was ratified by 135 countries and the system used by more than 200 economies according to the WCO, covering around 98 % of the international trade of goods.

The Convention on the Temporary Admission of Goods This Convention, known as the Istanbul Convention, has entered into force on 27 November 1993 and was ratified by 53 countries by the mid 2010. Through a series of annexes, the Convention describes in detail the rules applicable to temporary admission papers (ATA and CPD carnets); goods for display or use at exhibitions, fairs, meetings or similar events; professional equipment; containers, pallets, packings, samples and other goods imported in connection with a commercial operation; goods imported in connection with a manufacturing operation; goods imported for educational, scientific or cultural purposes; travellers’ personal effects and goods imported for sports purposes; tourist publicity material; goods imported as frontier traffic; goods imported for humanitarian purposes; means of transport; animals; goods imported with partial relief from import duties and taxes.

The Revised Kyoto convention One of the most important instruments for the development of modern Customs processes is the International Convention on the simplification and harmonization of Customs procedures, commonly known as the Kyoto Convention (Messerlin and Zarrouk, 2000). Originally adopted in 1974, the Convention was revised in 1999 and entered into force on 3 February 2006. The Convention consists of 31 Annexes, each contains basic principles for Customs processes. Indeed, as explained by the World Customs Organization, the revised Kyoto Convention elaborates several key governing principles such as the transparency and predictability of Customs

actions, the standardization and simplification of the goods declaration and supporting documents, the simplified procedures for authorized persons, the maximum use of information technology, the minimum necessary Customs control to ensure compliance with regulations, the use of risk management and audit based controls, and the coordinated interventions with other border agencies. The revised Kyoto Convention promotes trade facilitation and contains new rules that binding to all contracting parties, without reservation. As stressed by the Global Facilitation Partnership for Transportation and Trade (GFPTT), “*the revised Kyoto Convention is regarded as the blueprint for trade facilitation*”.

The Convention on Facilitation of International Maritime Traffic This Convention aims to reduce delays in maritime traffic and to increase the standardization of formalities and procedures. According to the International Maritime Organization (IMO), the Convention has successfully reduced the number of declarations which can be required by public authorities⁹⁸. This Convention came with the necessity to facilitate the international maritime traffic, by reducing many burdens of the 50ies such as the excessive number of documents and copies required, translation issues, or the different authentication standards. The number of required copies is now limited and the types of document standardized. In force since 1967, the main revisions related to trade facilitation matters occur in 1992, 1996 and 2005. Different amendments have been introduced, respectively on electronic data processing, consular formalities and fees, submission of pre-import information in 1992, on national facilitation committees in 1996, on recommended practices for public authorities to develop necessary procedures in order to use pre-arrival and pre-departure information, on the necessity to submit all information to a single point to avoid duplication, on the encouragement of electronic transmission of information, and on the reference to the International Ship and Port Facility Security (ISPS) Code in 2005. This convention has been signed by the main actors of the containerized trade, accounting for almost 90% of world tonnage and 114 contracting parties (figure 3.2). The UNCTAD also linked this convention to several trade facilitation areas⁹⁹.

The Convention on International Civil Aviation The Standards and Recommended Practices (SARPs) on Facilitation (FAL) can be found in Annex 9 of the convention on International Civil Aviation, since its first edition (1949). Until the 10th edition provisions aim to reduce paperwork, standardize documents and simplify procedures. It was clearly trade facilitation related. Indeed, as pointed out by the International Civil Aviation Organization (ICAO), delays due to cumbersome formalities “*must be reduced, not just because there are unpleasant but, in practical terms, because they are costly to all*”¹⁰⁰. Following the growth of international trade, the focus shifted then to the new congestion issues. In its 11th edition (2002) the SARPs added several provisions on inspection

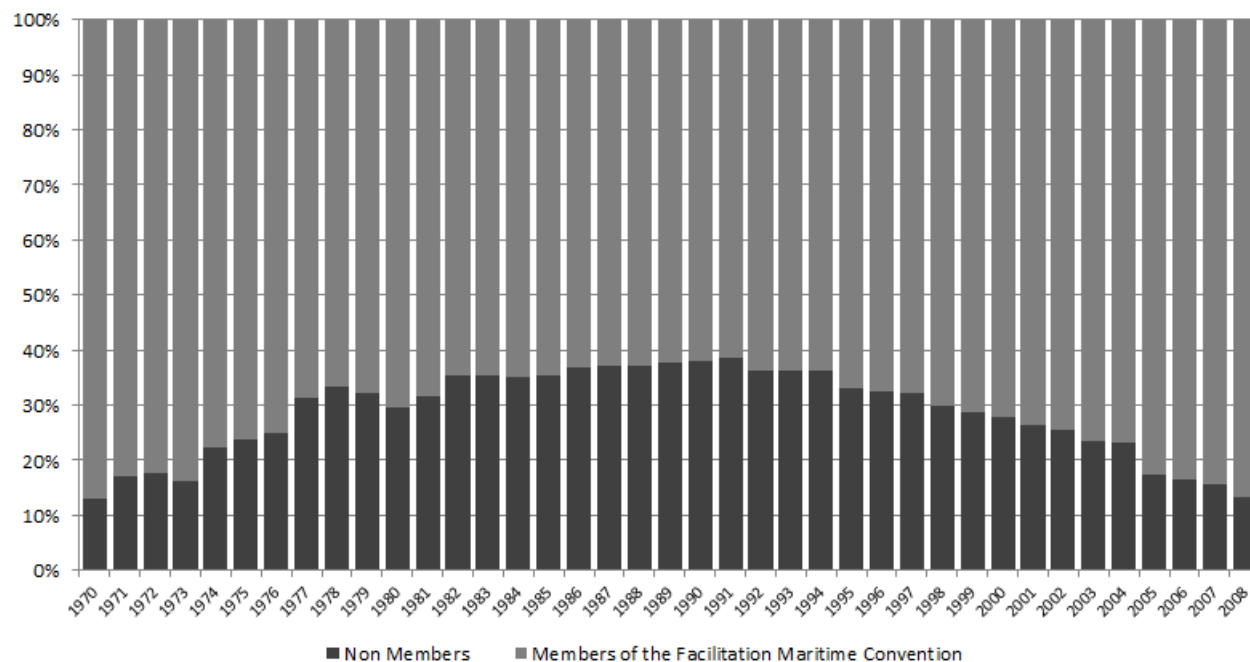
⁹⁸<http://www.imo.org/About/Conventions/ListOfConventions/Pages/Default.aspx>

⁹⁹General provisions to facilitate trade, Measures relating to official controls, Measures relating to transport, Measures relating to Customs and other official procedures concerning the means of transport and transport equipment including containers. <http://www.unece.org/cefact/refer/comp/reclist.htm>

¹⁰⁰The annexes to the Convention on International Civil Aviation are available on the ICAO website, http://www.icao.int/eshop/annexes_list.htm

Figure 3.2: Traffic in TEU handled by Members of the Facilitation Maritime Convention, since 1970

Source: Own calculation, Traffic data come from Containerization International (CI)



techniques based on risk management. Finally in its 12th edition (2005), growing concerns on security lead to added provisions on security, international cooperation and the use of current ICT. Earlier the UNCTAD¹⁰¹ also pointed out that this convention relies on general provisions to facilitate trade, on measures relating to official controls, measures relating to transport, measures relating to the use of computers and EDI, measures relating to Customs and other official procedures concerning the means of transport and transport equipment including containers, measures relating to official requirements for imported goods, and also measures relating to the Customs clearance of export. These trade facilitation areas are structured through their impact on formalities, procedures and documents¹⁰².

The ILAC Mutual Recognition Agreement The increasing development of standards and the lack of reliability of exporter's test certificates have spurred the growth of laboratories and accreditation programmes. Created in 1977, the International Laboratory Accreditation Cooperation (ILAC) encourages the adoption of common technical requirements for testing and calibration laboratories. Since a decade, the number of signatories has grown. It reached 71 accreditation bodies in December

¹⁰¹In preparation for the 1994 United Nations International Symposium on Trade Efficiency, the UNCTAD provided a Compendium which contains recommendations and other provisions extracted from a number of international conventions or agreements, in order to bring about suitable solutions to facilitate trade. We note that its structure is quite close to the one used by the WTO for the current Trade Facilitation negotiations. <http://www.unece.org/cefact/refer/comp/reclist.htm>

¹⁰²Formalities stand for the official, commercial, institutional, operational requirements ; Procedures stand for the steps to be followed in order to comply with formalities, or the way in which the required information reaches the party concerned ; and Documents stand for the data carriers which contain the information.

2010, involving more than 30000 laboratories¹⁰³. This effort to standardized procedures is essential to create -or preserve- trade opportunities. Indeed, such a cooperation through the mutual recognition of accreditation bodies limits and reduces the Technical Barriers to Trade (TBT) in place. Moreover, all accreditation bodies publish various information related to the accredited laboratories on the internet, helping traders to select a laboratory in the exporting country for testing products before their physical import. The ILAC MRA is clearly “trade facilitation friendly” and should be taken into account in the set of conventions and agreements used in trade facilitation studies.

Table 3.2: Members to the ILAC MRA (countries)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Calibration	27	29	30	34	36	42	42	43	45	50
Testing	29	31	33	36	38	44	45	47	49	55

Source: own compilation, from www.ilac.org

3.2.2 A database of Conventions related to trade facilitation issues

I built a database in STATA format, which is a compilation of the previous Conventions¹⁰⁴. I followed a common methodology and I tried to underline the trade facilitation areas covered by each Convention, by focusing on the related chapters. Indeed, some Conventions are divided by chapters or revisions. I built a year dummy to indicate whether or not a country is a member of a Convention and also a dummy to underline countries who have ratified more than 50% of chapters¹⁰⁵. The reporting year is the year of enter into force of the convention for each signatory. Apart specific cases, Conventions which enter into force after August are reported to the following year, to account of potential transition periods. The global database includes a rate of ratification of each listed conventions, taking into account their first introduction. I introduced an intensity variable in the ILAC database to capture the number of accreditation bodies by country.

3.3 Useful guidelines and tools

A Guideline is also a valuable tool to improve Customs clearance procedures. Many guidelines are “trade facilitating”. That is why, Moïsé and Orliac (2009) used various of them, mainly developed by the World Customs Organization, to find some useful proxies candidates. The main guidelines are the

¹⁰³A charter establishing a network of mutual recognition agreements among accreditation bodies was created in 1996 and the arrangement came into effect on 31 January 2001 with 28 initial countries. Table 3.2 shows the evolution of countries who have joined ILAC since 2001.

¹⁰⁴A gravity friendly database covering 193 countries since 1940 is available on www.thomas-orliac.eu. The database provides information about the HS Convention, the ATA and TIR convention, the Civil Aviation Convention, the Container Convention, the FAL Convention, the Istanbul Convention and the Revised Kyoto Convention. The IMO Convention(s) and the ILAC database are provided separately. Additional detailed databases and *do files* are available on demand.

¹⁰⁵Thus *Istanbul_50* takes the value of one when the country is an active Member of the Istanbul Convention and that 6 chapters at least have been accepted

SAFE Framework of Standards to Secure and Facilitate Global Trade, the guidelines for immediate release of consignments by Customs, or the WCO integrity principles. Trade facilitation relies also on various United Nations layouts and internationally-agreed standards (UNLK, UN/EDIFACT, UNeDocs) to design trade documents and electronic interchanges.

The SAFE Framework of Standards to Secure and Facilitate Global Trade This framework was adopted in 2003 and is part of the WCO strategy “*to secure the movement of global trade in a way that does not impede but, on the contrary, facilitates the movement of that trade*”. Thus, the framework introduces a series of standards and improves the cooperation between Customs administrations and private operators. It provides numerous standards which are “trade facilitating”, such as the need for advance electronic information, the use of automatic risk management systems or the development of the status of Authorized Economic Operators (AEO). Finally, the SAFE framework of standards relies also on various existing guides or conventions.

The WCO integrity principles The WCO has developed a series of tools and best practices to improve the integrity of Customs. Adopted in 1993 (and revised in 2003), the Arusha Declaration on Customs Integrity is the key element, a toolbox based around ten components: Leadership and Commitment, Regulatory Framework, Transparency, Automation, Reform and Modernization, Audit and Investigation, Code of Conduct, Human Resource Management, Morale and Organizational Culture, and Relationship with the Private Sector. The Arusha Declaration has also lead to design a model of a comprehensive code of conduct which explores the standards of ethic expected of all Customs officials. These tools, as the review of best practices, are very useful to design relevant indicators in the area of transparency and good governance. Thus, in one hand, the WCO pointed out that exclusive prerogatives, discretionary power, low sanctions, low incomes, poor management, long-time procedures, or numerous direct contacts (*i.e no automated and electronic systems*) favor corruption issues. While, in the other hand, the availability of a clear Code of conduct, the use of the Kyoto Convention, the publication of procedures, the right of appeal, an active Customs support, the involvement of public, the use of an automated risk management, the use of automation (reducing human issues), the development of post-audits, the use of Advance Rulings and the development of the cooperation between each border operators (public and private) are part of the best practices.

The Automated System for Customs Data The UNCTAD’s Automated System for Customs Data (ASYCUDA) is an automated Customs data management system designed to handle a series of Customs clearance procedures. Since its introduction in 1981, the ASYCUDA has known several upgrades since¹⁰⁶. This programme aims to facilitate trade by developing the simplification and the standardization of Customs procedures. It also improves the use of ICT and modern techniques such as the automated risk management system. As stressed by the UNCTAD (2011b), the ASYCUDA

¹⁰⁶The first version was launched in 1981. The two successive versions in 1986 and 1992 has developed the use of ICT, leading to the ASYCUDA++. Introduced in 2002, ASYCUDA^{WORLD} is the last version and a veritable *e-Customs* edition.

is also often accompanied by a trade facilitation component and relies on several Conventions and Guidelines. The ASYCUDA programmes have spread across the world and has been adopted by 106 countries in 2010 (table 3.3).

Table 3.3: ASYCUDA installations around the World

Source: own compilation, based on the map of ASYCUDA user countries in 2010

Status	Freq.	Percent
ASYCUDA v2.xx	13	12.26
ASYCUDA World	42	39.62
ASYCUDA++	51	48.11
Total	106	100.00

3.4 Issues and limits of the use of such arrangements

Previous sections have underlined some potential issues by using such agreements and conventions without care. The related databases have dealt, to some extent, with the two following key issues.

Consistency in interpretation and application As pointed out by Widdowson (2008), the members of a Convention -or an Agreement- usually achieve a reasonably high level of consistency in interpretation, as reflected in their national legislation. However, the application of each provision is heavily dependent upon the capacity of an administration to effectively apply it. According to Widdowson (2008), the international standards which rely on technical issues are quite consistent, but significant inconsistencies are apparent in other areas. Based on the SAFE Framework of Standards, he provided an example of such disparities through the interpretation of the concept of Authorized Economic Operator (AEO), more or less broadly interpreted. It is confirmed by the OECD questionnaire on the trade facilitation indicators and the review of the European trade facilitation patterns in the following chapter 6.

Trade Facilitation relevance and Ratification issues The nature and the application of trade agreements and conventions vary. Firstly, they encompass several chapters and, unfortunately, all members do not ratify each of them. Secondly, these arrangements follow numerous revisions which are not always ratified by the original members. In addition, some revisions may include trade facilitation provisions which were not encompassed previously. Finally, it may have some differences between the ratification date and the date of entry into force. Such specifications have to be taken into account, which is not usually the case. Another issue relies on the intensity, the “in-depth application”, of trade facilitation provisions across each Convention and Agreement. As stressed by Duval (2011), some of them have dedicated sections or chapters, while others only refer to trade

facilitation across various sections. In addition, they refer on broad and narrow definitions of trade facilitation.

The non-discriminatory nature of trade facilitation provisions It is usually accepted that most trade facilitation provisions are non-discriminatory by nature, *i.e.* that trade facilitation measures benefit to members and non-members too. Improving Customs transparency is a typical example of such a non-exclusivity nature. However, as stressed by Moisé (2002) or more recently by Hamanaka et al. (2010), despite the non-discriminatory objectives of such measures some FTAs may be discriminatory. Indeed, some specific provisions, operational guidelines between contracting partners or implementing rules can lead to such issues. Hamanaka et al. (2010) provides a series of examples where such issues arise. Thus, even if transparency is non-discriminatory by nature, some provisions may limit comments on new rules only to partners, simplification of Customs procedures may be applicable for members only, as fees exemptions¹⁰⁷, origin provisions, or conformity assessment standards which are often territorial in nature. These issues are encouraged by the lack of constraints under the WTO system on such measures adopted by FTAs, which allow tailor-made provisions. It also raises the issue of differentiated treatment across FTAs¹⁰⁸.

The first issue can not be dealt broadly and requires a detailed approach, studying each agreement and its application on a case by case basis. Such an approach has been followed for the European Customs Union (chapter 6), showing some disparities in the application of Customs provisions among the Member States. The second issue has been dealt by introducing specific variables related to the different chapters and revisions of each Agreement or Convention. Some kind of “intensity variables” have also been built, based on the number of chapters ratified or the number of agreements including trade facilitating provisions. The third issue may require the use of dummies to measure possible discriminatory agreements and a deep review of each provision to evaluate its potential discriminatory power.

3.5 The international regulatory frameworks and gravity models

This chapter underlines that numerous trade facilitation provisions are covered by the international regulatory frameworks. Such provisions should be accounted for when studying the impact of trade facilitation measures. That is why I built several indicators (databases) that will be possible to include into traditional studies on trade facilitation, particularly with gravity models. Such variables suffer of various limitations as stated previously, but another restriction arises in gravity models. These variables may encompass other dedicated variables which share the same provisions. It leads to double counting issues, multicollinearity, etc.

¹⁰⁷He quotes the example of digital products in the Korea-Singapore FTA.

¹⁰⁸As explained by Hamanaka et al. (2010), “*trade facilitation provisions covered by different FTAs are not necessarily harmonized, even if there are common members*”.

In the following chapter I develop a series of trade facilitation indicators covering numerous trade facilitation dimensions - and so provisions. The proximity between these two sets of variables do not allow me to use them in this particular study which -in addition- covers OECD countries only¹⁰⁹. However, I used this research to build several specific variables such as the variables accounting for the international harmonization or the laboratory issues. For future research, these databases exploring the international regulatory frameworks can be used as a proxy of several trade facilitation provisions to enlarge the country coverage of traditional studies¹¹⁰. In addition this research has provided some insights about the nature, the distribution and the frequency of trade facilitation provisions as include into various international agreements.

¹⁰⁹These developed countries have signed many agreements, arrangements and conventions.

¹¹⁰Note that it would be difficult to divide an agreement into specific provisions (apart by chapters as explained previously).

Chapter 4

The Trade Facilitation Index

This chapter is based on the OECD project designed to develop indicators for assessing the economic and trade impact of specific trade facilitation measures. It relies on my researches at the OECD started in 2008, under the supervision of Evdokia Moïsé, senior trade policy analyst. This research has been recently declassified. I developed twelve Trade Facilitation Indicators (TFIs) and studied the relationship of these TFIs to bilateral trade patterns and trade costs. It is an updated version of the first revision of the paper, with several changes in the methodology and additional countries. I also corrected some reporting issues. Results are consistent with previous insights.

Trade facilitation refers to policies and measures aimed at easing trade costs by improving efficiency at each stage of the international trade chain. According to the WTO definition, trade facilitation is the “*simplification of trade procedures*”, understood as the “*activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade*”. This is the definition also followed by the OECD. As explained previously, in Chapter 1, trade facilitation encompasses various definitions. Some of them are narrow -such as the one used by the WTO- while others are broad and may include Customs, transport and transit issues, banking and insurance, business practices and telecommunications. Whatever the definition and scope, existing economic analysis of trade facilitation usually draws on the notion of trade transaction costs and seeks to assess the benefits of (efficiency-enhancing) trade facilitating measures by estimating the costs of inefficiency in the various policy areas influencing the movement of goods. Such analysis is usually carried out by using the “work horse” of trade analysis, the gravity model.

Seeking appropriate tools for estimating the costs of inefficiency, the OECD decided to develop indicators to assess the economic and trade impact of trade facilitation measures (Moïsé and Orliac, 2008). Contrary to previous studies which sought to quantify the overall impact of *broad* trade facilitation measures, the primary aim of this work has been to estimate the impact of addressing

specific facilitation hurdles in the trade procedures of a given country, focusing on *narrow* trade facilitation dimensions which directly depend on public sector involvement. The Working Party sought a better understanding of the relative economic importance and relevance of various trade facilitation measures for OECD and non-OECD countries, for several reasons: a) in order to provide a basis for prioritizing trade facilitation actions by governments; b) to better focus advocacy efforts; c) to provide additional support for the successful conclusion of the ongoing WTO negotiations; as well as d) to mobilize technical assistance and capacity building efforts for developing countries in a more targeted way.

At its March 2009 meeting, the Working Party approved the proposed methodology for building trade facilitation indicators (Moisé and Orliac, 2009) and agreed to provide missing data via a questionnaire. Due to partial responses to the questionnaire by Members, only an interim report was possible based on a limited data sample; this report, presented at the December 2009 WP meeting provided some first insights regarding the indicators. A final report (Moisé and Orliac, 2010), based on data from the 26 countries that have replied to the questionnaire by March 2010 (25 OECD Members plus Hong Kong, China) completed the construction of the indicators and tested their impact on trade costs.

4.1 Trade Facilitation background

The overall economic impact of trade facilitation has been the subject of a number of empirical studies, most of them using econometric models to try and predict, at a macro domestic, or global level, the benefits of broad facilitation initiatives, such as domestic border-related policies and reforms, or international facilitation endeavours. The coverage of these studies varies, as the notion of trade facilitation does not benefit from a generally agreed definition: for instance, the United Nations views trade facilitation widely, including Customs, transport and transit issues, banking and insurance, information for trade, business practices, telecommunications, human resources development and legal issues¹¹¹, while the WTO defines trade facilitation more narrowly.

Despite definition and scope differences, existing economic analysis usually draws on the notion of trade transaction costs¹¹². They are considered to include direct costs, “*such as expenses relating to supplying information and documents to the related authority*”, and indirect costs, “*such as those arising from procedural delays*”, OECD (2003a). Minor and Tsigas (2008) describe the former as the “*charges that are directly assessed on each transaction, such as Customs fees, port handling charges,*

¹¹¹As stated earlier by the UNCTAD Compendium of Trade Facilitation Recommendations (1993) in preparation of the United Nations International Symposium on Trade Efficiency, so called *the Columbus Ministerial Declaration on Trade Efficiency* (1994). See ADB (1999) for a review.

¹¹²Trade *transaction costs* should not be confounded with trade *facilitation costs*: the later refer to the cost of introducing, implementing and complying with trade facilitation measures and can be weighed against transaction costs in the context of cost/benefit analysis. Moisé (2009b) provides an overview of the costs of implementing trade facilitation measures based on a series of country surveys, highlighting four types of costs: regulatory costs, institutional costs, training costs and equipment costs.

and informal payments” and the latter as the cost of time in trade, including, for exporters, the time to complete all pre-shipment procedures as well as loading cargo, and, for importers, the time required to take possession of shipments once a ship arrives into the port area. OECD (2003a) found that trade transaction costs vary depending “*on the efficiency and integrity of interacting businesses and administrations, the characteristics or kind of goods, and the size and type of businesses*”. The notion of transaction costs can provide a valuable basis for estimating the benefits of trade facilitation, although we should keep in mind that they represent the overall cost of border procedures and can therefore not be entirely eliminated: this means that the benefits of even the most efficient trade facilitation endeavours will only represent a fraction of trade transaction costs¹¹³.

The objectives of existing studies also vary. Some of them aim to inform policymakers in their policy choices by providing a tool for assessing the impact on trade flows of *at* and *behind* the border policies. But there has been little empirical work to date to couple these broader macro tools with disaggregate micro-economic assessments. The two analytical methods commonly used by economists to gauge the impacts of transaction costs and by the same token of trade facilitation measures are the gravity model and the CGE model. Since a decade, a growing literature has tried to quantify the impact of trade facilitation, such as Wilson et al. (2002, 2003, 2004), OECD (2003a), Mann (2004), OECD (2005b), Helble et al. (2007), Wilson (2007a,b), Wilson and Otsuki (2007), Dennis and Shepherd (2007), Iwanow and Kirkpatrick (2007), Hoekman and Nicita (2008), Zaki (2009, 2010), Shepherd and Wilson (2009), Kharel and Belbase (2010), Portugal-Perez and Wilson (2010), or Persson (2010). Most of the studies show that trade facilitation matters for trade performance, despite different methodological approaches and proxies¹¹⁴. In addition, benefits exceed implementation costs thanks to significant welfare and competitiveness gains for governments, customers and traders¹¹⁵. Another way has been to directly measure trade costs, as the gap between fob and cif value. However, such data remain limited and related studies usually focus mainly on transport costs only (Hummels, 2007; Sourdin and Pomfret, 2009; Pomfret and Sourdin, 2009, 2010a,b). Since a couple of years, several studies such as Miroudot et al. (2010), Shepherd (2010) or recently Duval and Utoktham (2011), have directly evaluated the non-tariff policy component of trade costs by following the seminal work of Novy (2008) and Chen and Novy (2009). Infrastructures and logistics costs remain important, but trade facilitation policies are significant too. A complete review of literature on trade facilitation and trade costs as well as a discussion on the different methodologies, are available in the previous Chapter 1.

Contrary to the studies described above, the primary aim of the current work is to estimate

¹¹³Recently Duval and Utoktham (2011) estimated the non-tariff policy component of trade costs for ASEAN countries. They found that 25% of the changes in non-tariff policy related trade costs can be explained by infrastructure and transport issues, followed by the access of information (10%) and three indicators of behind the border business regulatory environment which account together for about 10%. The direct cost of Customs clearance and preparing documents was limited in their study.

¹¹⁴Section 2.1 provides an overview of the traditional indicators used in trade facilitation studies.

¹¹⁵See Moïsé (2004) and Duval (2006a) for a review of implementation costs of trade facilitation policies.

the impact of specific *-narrow-* measures of trade facilitation dimensions. It requires going beyond the construction of a single generic trade facilitation indicator, to compose specific indicators for each trade facilitation measure or family of measures amenable to economic analysis. A first step identifies the key elements -so called *categories-* that will compose the indicator, by following the current structure of the WTO negotiation process, so as to maintain the relevance of the resulting indicators for negotiators, implementing authorities and donors (section 4.2 below). A second step computes the underlying dataset with the available variables coming from existing databases and the replies to a dedicated questionnaire. It leads to the construction of relevant indicators for each selected measure or family of measures. Finally, the impact of each component of trade facilitation on trade flows and trade costs is evaluated. Some technical notes and methodological details are available in the Appendix (Chapter D).

4.2 A WTO framework

4.2.1 The historical background

As noted by Staples (1998, 2002), trade facilitation has been a growing topic since decades. Several GATT provisions are related to trade facilitation and even under the Uruguay Round, many agreements had direct implications for trade facilitation¹¹⁶. Since the Singapore Ministerial Conference of 1996, trade facilitation has become the subject of WTO discussions and a symposium on trade facilitation was held in 1998 to explore the main concerns of traders¹¹⁷. According to Stoler (2003), former Deputy Director-General of the World Trade Organization: “*Members engaged in comprehensive and constructive discussions, expressing general support for the advancing of trade facilitation work*”. The scope of the discussions on trade facilitation covered transport, payments, ICT and of course, issues related to Customs and border-crossing¹¹⁸. Following the Doha and Cancun Ministerial Conferences, negotiations on trade facilitation were launched in July 2004, on the basis of a ten-points list modalities (Annex D). The so called “July Package” stated that negotiations “*shall aim to clarify and improve relevant aspects of Articles V, VIII and X of GATT 1994 with a view to further expediting the movement, release and clearance of goods, including goods in transit*”¹¹⁹. In addition, it established the vital importance of technical assistance and support for capacity building¹²⁰. As stressed by Finger and Wilson (2006), it was a core element of the negotiation. By

¹¹⁶Staples (2002) and Sengupta (2006) enumerate numerous agreements such as the Harmonized Commodity Description and Coding System, the Customs valuation agreement, the agreement on rules of origin, the agreement on import licensing procedures, the agreement on technical barriers to trade (TBT) and Sanitary and Phyto-Sanitary (SPS) measures, the agreement on pre-shipment inspection, and Articles V, VIII and X of GATT.

¹¹⁷It came to a background note containing a compilation of delegations suggestions in this area (WTO, 1999).

¹¹⁸As detailed by Nanda (2003), it encompasses (1) documentation requirements; (2) official procedures; (3) automation and use of information technology; (4) transparency, predictability, and consistency; and (5) modernisation of border-crossing administration.

¹¹⁹These articles cover freedom of transit, fees and formalities related to importation and exportation, publication and administration of trade regulation.

¹²⁰As explained by Orliac (2005), the implementation of trade facilitation policies in developing countries could lead to a transfer of resources from other vital institutions (such health or education) to Customs administration. Duval (2006b) provided insights on the implementation costs of trade facilitation measures, according to experts’ qualitative

the end of 2004, a specialized negotiating body was formed, called the Negotiating Group on Trade Facilitation (NGTF).

The Developing countries were initially reluctant (Nanda, 2003), but trade facilitation negotiations became one of the areas the most advanced under the Doha Round. At the 6th Ministerial meeting in 2005, some progresses were achieved. As reported by the Annex E of the Hong-Kong declaration, 60 written proposals had been supported by more than 100 delegations. Some core principles emerged, such as transparency, predictability, non-discrimination, simplification and avoidance of unnecessary restrictiveness and due process (OECD, 2005d). Since, numerous propositions have been held by Members. The NGTF compiled these proposals in one document regularly updated. The latest was released the 30th June 2009 (WTO, 2009a). The NGTF has also provided self assessment guides for developing countries (WTO, 2007a, 2009b). By the end of 2009, a first consolidated draft has been proposed and since regularly revised. This document does not compile the position of individual WTO Members, but follows “*refinement, consolidation and merger in open ended plenary meetings*”, Priya (2010). To date, the latest version is the eighth revision of the 21st April 2011 (WTO, 2011).

4.2.2 The dimensions covered by the WTO negotiations

The on-going negotiations on trade facilitation cover various core dimensions, based on numerous provisions¹²¹. They rely on a narrow approach of trade facilitation, focusing on public prerogatives. Earlier reports already pointed out the potential impact of many of these specific dimensions¹²², but no empirical studies have been conducted to evaluate it, apart few country case studies. A seminal work of Duval (2006b) and the UNESCAP (2008) explored some of these areas, for a group of selected Asian countries. He provided some insights on prioritizing trade facilitation measures, based on experts qualitative assessments. Additional insights are provided by Findlay (2009) and Dios (2009a) who ranked these measures according to business and logistic surveys. The current draft of the trade facilitation negotiations deals with twelve families of measures¹²³, taking into account of the recent development of information and communication technologies.

assessment.

¹²¹Recently, Priya (2010) made a in-depth review of each new provision covered by the GATT articles under negotiations.

¹²²Such as Goh (2000), Raven (2001) (...), or the OECD (2005d).

¹²³The text (WTO, 2011) also includes three more articles (Art.13 on Institutional Arrangements; Art.14 on National Committee on Trade Facilitation; Art.15 on Cross-Cutting Matters) and a section on special and differential treatment provisions for developing country and least developed country.

Art.1	PUBLICATION AND AVAILABILITY OF INFORMATION, covering publication; internet publication; enquiry points; and notification
Art.2	PRIOR PUBLICATION AND CONSULTATION, covering intervals between publication and entry into force; opportunity to comment on new and amended rules; and regular consultations
Art.3	ADVANCE RULINGS
Art.4	APPEAL PROCEDURES, covering the right of appeal and the appeal mechanism
Art.5	OTHER MEASURES TO ENHANCE IMPARTIALITY, NON-DISCRIMINATION AND TRANSPARENCY, covering conditions applied to import alerts; detention of shipments; and test procedures
Art.6	FEES AND CHARGES CONNECTED WITH IMPORTATION AND EXPORTATION, including penalty disciplines
Art.7	RELEASE AND CLEARANCE OF GOODS, covering pre-arrival processing; separation of release from clearance; risk assessment; post clearance audits; publication of average release and clearance times; authorized traders; and expedited shipments
Art.8	CONSULARIZATION
Art.9	BORDER AGENCY COOPERATION
Art.10	FORMALITIES CONNECTED WITH IMPORTATION AND EXPORTATION, covering their periodic review; reduction; and harmonization with international standards; the use of single windows; disciplines on pre-shipment inspection and Customs brokers; common border procedures and requirements, and temporary admission of goods
Art.11	FREEDOM OF TRANSIT
Art.12	CUSTOMS COOPERATION

Since 2006, the UNCTAD has also provided a series of technical notes on trade facilitation measures, providing a useful background information on the concepts under negotiations and their expected benefits, requirements and implementation issues. The notes have been revised, following the latest developments, and compiled in one document (UNCTAD, 2011b). This document is organized around four core elements: (i) the access to information and transparency, (ii) the administration of trade regulations, (iii) Customs clearance and (iv) transit trade. It refers to numerous pre-existing work and experiences of international organizations¹²⁴. In addition to this compilation, one can also refer to the UN/CEFACT Recommendations which provide complementary information on various trade facilitation areas¹²⁵.

¹²⁴As stressed by Wille and Redden (2006), multilateral trade facilitation negotiations should, to the extent possible, take advantage of such works, which include standards widely accepted and represent established best practices.

¹²⁵To date, there are 35 Recommendations, http://www.unecce.org/cefact/recommendations/rec_index.htm

These twelve families of measures have been re-organized, in order to take into account similarities between measures, underlying shared components as well as areas where further distinctions were warranted. We have discarded freedom of transit [Article 11] as a separate indicator¹²⁶. Another indicator, meant to capture elements of good governance and impartiality of border administrations, was also added. This results in the following twelve categories (core indicators):

- A. Information Availability [Art.1+2+11]
- B. Involvement Of The Trade Community [Art.2+11]
- C. Advance Rulings [Art.3]
- D. Appeal Procedures [Art.4]
- E. Fees And Charges [Art.6+11]
- F. Formalities – Documents [Art.7+10+11]
- G. Formalities – Automation [Art.7+10+11]
- H. Formalities – Procedures [Art.5+7+10+11]
- I. Cooperation – Internal [Art.9+11]
- J. Cooperation – External [Art.12]
- K. Consularization¹²⁷ [Art.8]
- L. Governance And Impartiality

Most measures (variables) reflected in these categories, such as the single window concept, advance rulings, or fees and charges, draw on the definitions of the WTO Negotiating Group on Trade Facilitation, to be found in the latest Draft Consolidated Negotiating Text¹²⁸.

4.3 Building the indicators

Following the WTO framework, we have developed a series of variables in order to encompass various *-narrow-* dimensions of trade facilitation. It is a seminal work to go deeper in trade facilitation analysis. Many variables have been taken from the latest compilation of Members' proposals (WTO,

¹²⁶Because transit raises similar publication, fees and formalities and cooperation issues as measures related to import/export trade [Articles 1, 2, 6, 7, 9, 10], it has been integrated in indicators covering those articles.

¹²⁷Defined as “*the procedure of obtaining from a consul of the importing Member in the territory of the exporting Member, or in the territory of a third party, a consular invoice or a consular visa for a commercial invoice, certificate of origin, manifest, shippers' export declaration, or any other Customs documentation in connection with the importation of the good*”. The negotiating proposal aims at prohibiting such consular transaction requirements.

¹²⁸Note that, when this paper was done at the OECD, the on-going draft was the third revision. Moreover, the initial support to this work was the latest compilation of Members' proposals (Rev.19).

2009a) and the on-going negotiations (WTO, 2011). Some useful proxies are selected based on several international conventions and guides (which usually refer to best practices), but also on various specific studies about the Customs clearance systems such as the Time Release Studies¹²⁹. We also explored the traditional indicators methodologies and questionnaires (section 2.1) and some related studies such as Mann (2004)¹³⁰, Duval (2006b) or Holloway (2010). In this latter study, Holloway provides insights for an integrated performance measurement framework, by using an appropriate mix of lagging and leading indicators¹³¹. Based on these sources and our own expertise, we selected the best fitted variables. However, a fundamental criterion for selecting the variables incorporated in the dataset was the possibility to obtain them easily for OECD members.

The construction of such indicators is a challenging task. Firstly, we have to collect *-accurate-* data. Secondly, we faced to a series of technical issues as stressed by Kee et al. (2006), Hoffmann et al. (2008), the IEG (2008), the OECD (2009b) or Nordås (2010a). It is particularly the case in the context of trade facilitation, with sequencing and hierarchical issues. The impact of one measure often depends on which other measures are in place. Removing a bottleneck without streamlining the whole chain can result in suboptimal returns. Thirdly, the absence of time series at this initial stage makes every trade analysis difficult. The reminder of this section is the following. In a first part, I detail the dataset explaining the different sources and categories of data. Then, I explore the characteristics of our variables, their scope, their relevance and some potential underlying links. Finally, I construct the indicators, by explaining the scoring and weighting schemes as well as the aggregation strategy. I also explore the key characteristics of these indicators and their robustness.

4.3.1 The dataset

Data are drawn from existing databases and publicly available information from Customs websites or official publications such as Customs Codes, annual reports, etc. This information is supplemented by replies provided by OECD members and observers to a specific questionnaire¹³². The questionnaire is available in the Appendix, section D.2.1. It covers around 50 questions, used to fill some gaps in the variables but also to better understand a country's particular historical background. For the purpose of the work, we favour hard data, *i.e.* quantitative information, as opposed to soft data (qualitative

¹²⁹See section 3.2 and section 2.2.

¹³⁰Earlier, Mann (2004) has explored a methodology to benchmark and quantify trade facilitation efforts. She referred on several traditional indicators but also went beyond, suggesting a series of proxies for trade facilitation indicators. They cover various dimensions of trade facilitation which are currently included in the WTO negotiations, such as clearance procedures, fees, involved border operators, use of risk management, valuation procedures, transparency, use of ICT, or the adherence to international standards. She also suggested proxies measuring the degree of monopoly of services providers, the efficiency of physical infrastructures and the burden of regulation.

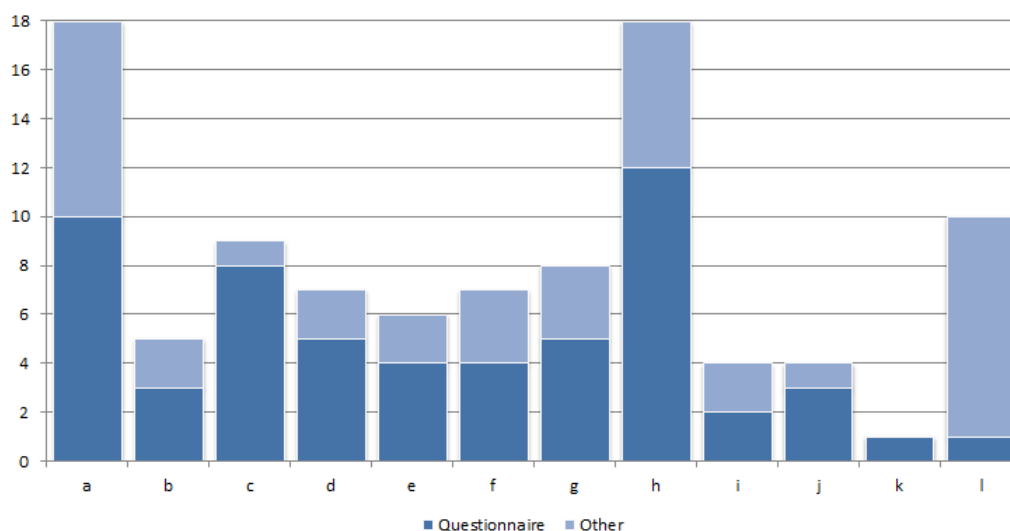
¹³¹To quote Holloway (2010), the indicators of performance “*can be ‘lagging’ indicators which measure a variable at the end of a process or a consequence of applied strategies (for example, revenue collected, drugs interdicted, seizures) or they can be ‘leading’ indicators measuring variables during the process and used to determine progress against milestones or objectives (for example, effectiveness, quality, cycle time, implementation of compliance programs)*”. Such a distinction may be used in an extended version of the OECD Trade Facilitation Indicators.

¹³²Based on the 26 replies received by the March meeting of 2010.

information from survey or policy reviews)¹³³. As explained in the previous section 2.1, traditional indicators (external data) suffer of several limitations and they should be used sparingly¹³⁴. However, correlations could be sought between external data and the different categories (and variables) of the TFIs, providing useful insights to enlarge the indicators. To the extent they were available, we favour internal data, *i.e.* data collected directly by the Secretariat through the questionnaire and through the relevant members' official agencies. As explained by Hoffmann et al. (2008), “*the quality of a composite indicator as well as the soundness of the messages it conveys depend not only on methodology used in its construction but primarily on the quality of the framework and the data used*”. Finally, some data are point estimates (level) while others indicate a rate of change. For consistency, level data will be favoured. The following figure 4.1 draws the distribution of variables according to their sources.

Figure 4.1: Distribution of variables by categories, according to their source.

Source: own calculation, based on the database used by Moïse and Orliac (2010)



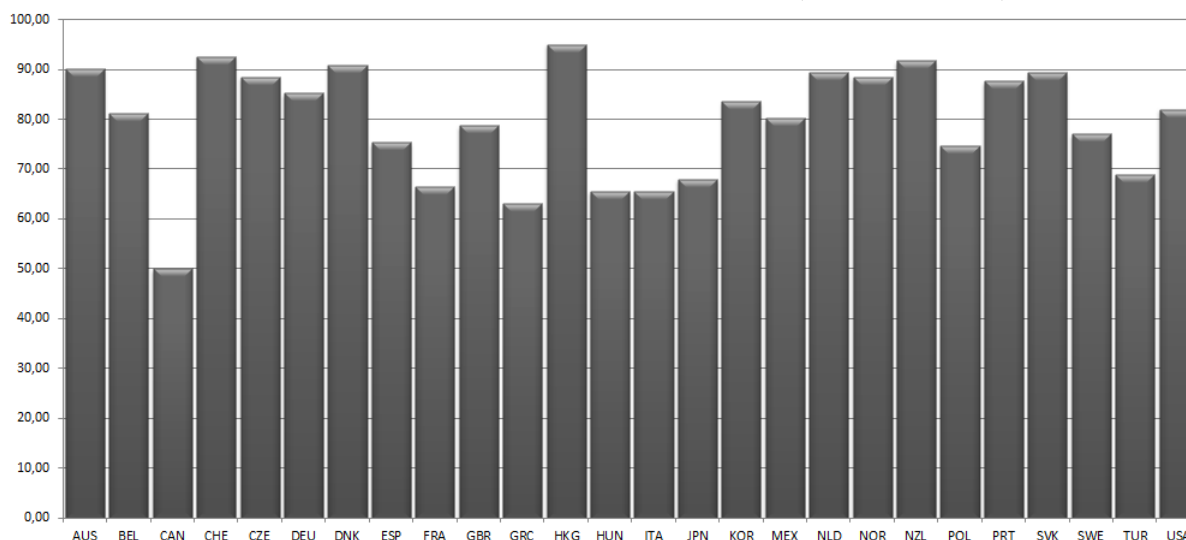
The most a category refers to questionnaire data, the most the level of confidence granted to this category should be high. However, the rate of reply to the questionnaire varies across Members (figure 4.2) and categories (figures D.1 in the Appendix). The average rate of reply was 78.6%, but it decreases when we take into account of the replies which are not relevant or applicable. Indeed, several countries do not apply a set of linked *-hierarchical-* variables, either for “justified” reasons or a lack of performance. For instance, in one hand, a country who does not apply advance rulings because it does not apply duties on import, should not be penalized for that. In the other

¹³³Note that sometimes binary data (yes/no) can provide “harder” information than numerical data poorly reported. Binary data with definitions providing clear and objective markers (even if they do not fully inform about the extent/coverage of the current variable) can help avoid too much subjectivity and perception in the indicators.

¹³⁴See Moïse and Orliac (2009) for a review of possible candidates.

hand, a country who does not have a Customs website and scored for that, will not see the direct hierarchical variables rated too¹³⁵. In both cases, data are noted as “not applicable”, to avoid some double counting issues¹³⁶.

Figure 4.2: Rate of reply to the questionnaire (Revised version)



4.3.2 The variables

4.3.2.1 The availability of data

The trade facilitation indicators initially contained a total of ninety-nine variables, aggregated around twelve categories¹³⁷. However, we do not include all variables in the final construction of the indicators. Firstly, some variables may serve as control or weighting variables. They are not directly included in the aggregation scheme leading to each indicator (category)¹³⁸. Secondly, some variables are not sufficiently supported across the sample due to insufficient data (either none, insufficient publicly available sources or a very poor reply rate in the questionnaire). They were dropped as input, at least at this stage of the data compilation¹³⁹. I apply a minimal rate of 60% under which the variables are dropped from the construction of the indicators¹⁴⁰. After having dropped the above variables from the dataset, the indicators would be composed of around two third of the initial variables¹⁴¹.

¹³⁵Expert judgement has been used to weigh such key variables.

¹³⁶See section D.2.2 in the Appendix for a discussion on such variables.

¹³⁷The definition, the origin and the scoring strategy of each variable is available in the Appendix, section D.3.1.

¹³⁸Such variables are detailed within the definition box of each variable in the Appendix, section D.3.1.

¹³⁹Although these variables are not irrelevant, they cannot be included at this stage of the compilation and it is expected that related information for countries beyond the OECD sample could be even more difficult to obtain.

¹⁴⁰The rate applied in the original paper (Moisé and Orliac, 2010) was lower (50%).

¹⁴¹It varies according to the type of the dataset (accurate or ambiguous). See below, paragraph 4.3.2.2 for a discussion on these two datasets. The basic statistics of each dataset is available in the Appendix, table D.1.

4.3.2.2 Relevance of the variables

OECD similarities (variations issues) Some families of measures offer little possibility to undertake comparisons between measures: for instance, consularization [H] is a yes/no variable which takes a “yes” value in all OECD and most major non-OECD countries, thus unlikely to have any analytical significance¹⁴². Some of the variables do not vary a lot within the OECD sample, which is not surprising for this high income group of countries. Such variables could lead to irrelevant categories when the TFIs are tested. The situation is expected to be different with the extension of the sample to non-OECD countries. However, this problem remains limited¹⁴³, comforting as to the general relevance of the remaining variables. There is sufficient variation too within each indicator¹⁴⁴. This changes only minimally if variables are weighted on the basis of the expert judgement method.

The underlying structure of the dataset The first type of observations on the variables would concern relations between categories/indicators sharing common characteristics or mutual influences so as to better understand the relative importance of each category/indicator, the hierarchy among them and to weigh or control some variables. The second type of observations concerns the relations between variables composing each category. Variables have been selected on the basis of *practical* (information accessibility) and *substantive considerations* (issues highlighted during the WTO negotiations, recommendations and practices of relevant international organizations such as the WCO, and expert opinion drawn from relevant papers and surveys). Relations between variables within each category have been analyzed more thoroughly to identify key variables, hierarchical variables and variables with “ambiguous” outcomes. We have thereby attributed logical (hierarchical) links between variables¹⁴⁵, or different weights to variables according to their importance.

We realized a statistical analysis of the choice of variables within each category, in order to highlight possible causality and correlation links between them. Thus, a strong correlation between variables could be interpreted as double counting, distorting the final outcome for this category. Although some indicator methodologies favour strong correlations¹⁴⁶, the TFIs were not limited to highly correlated variables in order to capture as many dimensions as possible within each indicator. Regression testing does not seem to invalidate this approach. The average correlation rate among variables within each indicator is not very high and the majority of rates are positive, indicating factors that go in the same direction¹⁴⁷. Variables used in the TFIs may also be correlated to other datasets commonly used in indicators such as the Logistics Performance Index and Doing Busi-

¹⁴²It has been included following the Working Party decision.

¹⁴³Around four variables do not vary across the sample (Table D.1 in the Appendix).

¹⁴⁴Table D.2 in the Appendix.

¹⁴⁵For example, the absence of a dedicated Customs website has a penalizing effect for the remaining variables of Category (a).

¹⁴⁶Thus such correlations are a positive signal about the underlying governance model for the World Governance Indicators.

¹⁴⁷See the Appendix, section D.3.4, for a detailed analysis of underlying links between variables.

ness (trading across the border), the Global Competitiveness Report or the World Competitiveness Yearbook¹⁴⁸. We found several correlations, providing some insights about the robustness of the indicators. Finally, checking for correlations between indicators did not reveal correlation problems for most of the indicators, with the exception of indicator (a) information availability, which share some patterns with several other indicators.

Interpretation issues (ambiguous variables) As stressed previously, we have identified a number of variables that can pose problems of interpretation, or which need to be controlled for or be suitably weighted. These variables are identified in section D.3.3 of the Appendix. It mainly refers on advance rulings, appeal procedures and irregularities. Indeed, the interpretation of the absolute number of cases is ambiguous. It may be related to the volume of trade raising causality issues, or to the cultural background of the country, the effectiveness of Customs services, but also to a lack of transparency. For instance, the number of appeal cases could be the consequence of the level of independence of the judicial system, trade flows, Customs administration irregularities, Customs effectiveness, the judicial procedures (consultation or not), etc. While advance rulings could be the consequence of Customs administration facilities (and effectiveness) or to a lack of transparency (traders trying to increase predictability of the import procedures). Moreover, the number of advance ruling is highly correlated with trade flows¹⁴⁹. Finally, a high level of irregularities may be the consequence of an efficient risk management system with good targeting assumptions, or to a general poor level of traders compliance. Such “ambiguous” variables have been tested, discussed during expert meetings, weighted or dropped when necessary.

Reporting issues: Accurate vs. Ambiguous Last but not least, data may suffer of reporting issues and various mistakes, such as misunderstanding of a question by a respondent who refers to a different definition for example. In order to limit the impact of such issues, I put in place an “accurate/ambiguous strategy”. I built a database which only includes checked data (the accurate version) and another with all available data, including data where some doubts remain (the ambiguous version). In addition, these two versions can be used as robustness check. Finally, I also compare data provided by the questionnaire and our own observations to reveal some matching issues and so, reporting or mis-understanding issues.

4.3.2.3 Dealing with country specificity

In the case of countries where some measures or policies are not applied, the related variables or indicators are dropped. There is only one case where an entire indicator is irrelevant for a country. It concerns advancing rulings for Hong-Kong, China, where no duties exist. This problem generally refers on individual variables only. For example, variables 72 to 75 (relating to authorized traders) are not included in New Zealand’s dataset as the country does not operate an authorized trader regime,

¹⁴⁸See section 2.1 for a review of traditional indicators.

¹⁴⁹However, a recent analysis provided by the OECD, shows that advance rulings seem related to the level of facilities granted by Customs administrations.

but makes these provisions available to all traders unless they have been found non-compliant. To avoid possible biases, another scenario could be applied by granting top scores to these variables in such country-specific cases¹⁵⁰. In the case of European Union countries, some, but not all, variables are attributed the same score because the same EU regulation should be applied. It does not mean that all EU countries end up with the same score, as many variables refer to national implementation issues and not to regulation defined at the EU level¹⁵¹.

4.3.3 The indicators

Building composite indicators raises several challenges. In order to ensure the relevance, accuracy, timeliness and accessibility needed for a wide, international use of the indicators, the methodology used for the construction of the TFIs will follow directions offered in the recent OECD Handbook on composite indicators (Hoffmann et al., 2008). We also rely on the methodology used for the construction of the STRI (Nordas and Kox, 2009), and the approaches used for the construction of traditional indicators such as the Logistics Performance Index (Arvis et al., 2007, 2010).

4.3.3.1 The scoring strategy

After having selected the variables entering into each indicator and studied their characteristics, we need to normalize the variables in order to make them comparable, given that the raw data available are of different nature and scale. The selected scoring strategy should be as simple and transparent as possible as well as match the characteristics of the variables and the objective of the project. As pointed out in the STRI methodology (OECD, 2009b; Nordås, 2010a,b), the crucial factor for preserving variation among countries from the underlying data is the scoring. STRI review of several indicators' methodologies about the scoring strategy and the weighting scheme shows that standard practices include transformation into a unique scale and transformation of continuous variables into ordinal scales through ranking; sample-based methods for scoring and weighting are also often used. Several normalization methods exist, including ranking, standardization, Min-Max, Distance to a reference, categorical scale, binary scores, indicators above or below the average, etc., and each has its pros and cons (Hoffmann et al., 2008). Taking into account the different nature and scale of our data, the number of binaries (*yes/no*) and the need to keep as much variations as possible from the raw data, we have adopted a multiple binary strategy [0,1,2]. This is a simple and transparent method and the loss of information when transforming continuous data to multiple binary data is limited (OECD, 2009b). However, the construction of binaries raises several challenges depending on the nature of data (continuous or not), calling for the implementation of a threshold strategy.

¹⁵⁰Under this scenario, the Hong-Kong TFI (c) equals 2 and the New-Zealand TFI (h) equals 1.56 with the accurate specification. Note that New Zealand was already the best performer of category (h) with a score of 1.37, consequently biases should be limited.

¹⁵¹Chapter 6 explores the specificity of the European Customs Union and proposes a new approach to account of the *-de facto-* disparities across the Union.

4.3.3.2 The threshold strategy

The scoring strategy follows a multiple binary methodology, with a range of 0 to 2, which calls for selecting thresholds. Variables have different nature and scale, in addition some variables are continuous. The challenge is to find the most suitable measure-specific threshold a_k . When there are no “natural” thresholds, they can be assessed in terms of deviation from the sample mean or by other methods. Let s_{ik} represent the score of country i for variable k and s_{ik}^* the continuous score, then:

$$s_{ik} = \begin{cases} 2 & \text{if condition } C \text{ is applied} \\ 1 & \text{if condition } B \text{ is applied} \\ 0 & \text{if condition } A \text{ is applied} \end{cases} \quad (4.1)$$

$$s_{ik} = \begin{cases} 2 & \text{if } s_{ik}^* > a_k^2 \\ 1 & \text{if } a_k^1 < s_{ik}^* < a_k^2 \\ 0 & \text{if } s_{ik}^* < a_k^1 \end{cases} \quad (4.2)$$

The scoring follows method (4.1) as far as possible and when faced with a continuous variable it switches to method (4.2). If there are no natural thresholds, most of the time we use a categorical score based on the percentile of the distribution. Usually we use method (4.3) but we can also use the above/below the average method.

$$s_{ik} = \begin{cases} 2 & \text{if } s_{ik}^* > 70\text{th percentile} \\ 1 & \text{if } 30\text{th} < s_{ik}^* < 70\text{th} \\ 0 & \text{if } s_{ik}^* < 30\text{th percentile} \end{cases} \quad (4.3)$$

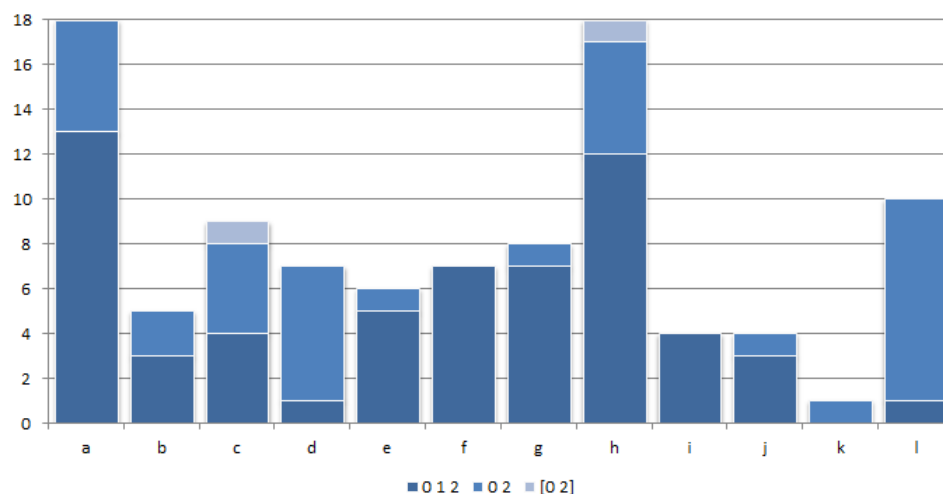
This classification can change according to the variable (see the definitions in the Appendix, section D.3.1). Method (4.3) has also some advantage and inconvenient. Since the same percentile transformation is used for different years, any change in the definition of the variable over time will not affect the transformed variable (Hoffmann et al., 2008). However, this strategy raises several issues. Firstly, it is difficult to follow increases over time¹⁵². Secondly, categorical scales exclude large amounts of information about the variance of the transformed variable. Thirdly, a sample-based scoring makes the resulting indicator incomparable across the sample¹⁵³. The percentile methodology is also sensible to outliers.

¹⁵²It provides information on change over time but not in absolute values. For several variables the absolute value is more important than the relative value. So we need to use method (2) for these cases.

¹⁵³That could be an issue in case of extension to new countries. However, the basic statistics of the accurate and ambiguous databases (table D.1 in the annex) show that the average score of each variable remains quite stable, despite an increase of the sample coverage. One solution to resolve such an issue could be to provide a set of indicators according the type of country (OECD/non-OECD, Developed/Developing) and another for general comparisons which should favor non sample-based variables.

The figure 4.3 below resumes the distribution of variables according to their scale. The majority of variables relies on the multiple binary strategy. Some are limited to extreme value (0 or 2). It is mainly due to the nature of these variables which cannot be disaggregated into multiple binary scheme. Indirectly, this choice attributes more weight to such variables. They remain limited regarding the whole set of variables, apart for categories (d) and (l). Finally, two variables are built on a continuous scale in order to preserve the variation in the raw data¹⁵⁴.

Figure 4.3: Distribution of scale across the categories



4.3.3.3 The weighting scheme

In order to determine the relative importance of given variables as compared to the other variables, a number of weighting techniques exist. Some are derived from statistical methods, others from expert opinions who reward components according to their presumed influences. The diversity of the weights resulting from applying different methods is notable and each one has advantages and disadvantages¹⁵⁵. Selecting the appropriate weighting procedures involves judgment on variables that are relatively more important than others in terms of trade facilitation performance.

Two sets of weights are used in the study: the weights assigned to variables within each category and the weights of each category relative to others¹⁵⁶. As pointed out in the STRI methodology paper (OECD, 2009b), the approach has two advantages: first, assessing the relative weight of broad categories is easier, and second, the index is independent of the number of variables inside

¹⁵⁴I apply this methodology to variables 29 and 64 due to the great variation of related Members' scores and their importance to my point of view. However, the impact of this particular scheme remains marginal on the aggregate indicator.

¹⁵⁵See Hoffmann et al. (2008) for a review of each weighting methodology.

¹⁵⁶One of the purposes of the study was to estimate the relations and the relative importance of each dimension of trade facilitation (each category). The weighting strategy for the categories needs thus to take into account the relations between categories and their relative impact on trade. If such impacts have been explored (see below), no appropriate weighting scheme between categories has been proposed to date. There is only a "naive" version.

each category. We rely on two methods, the Equal Weighting (EW) and the Expert Judgment (EJ). The former is used because of its simplicity and transparency, and also as a “control” factor. It attributes a weight equal to the unity¹⁵⁷. While the latter is based on trade facilitation experts’ opinion reflecting trade facilitation particularities, such as sequencing or hierarchical issues. We also explored additional methods, such as the Analytical Hierarchy Process (AHP), a widely used technique for multi-attribute decision making¹⁵⁸, or the Principal Component Analysis (PCA)¹⁵⁹. However, we do not rely on this latter method in both cases, *i.e.* within and between categories. The nature of our scoring methodology¹⁶⁰, the composition of each category¹⁶¹, the lack of correlation between indicators and some missing sub-indicators for few countries do not provide acceptable results¹⁶². Finally, we adopt a linear aggregation procedure.

4.3.3.4 Sequencing and hierarchical issues

Another issue specific to trade facilitation is the sequencing of different policies. The impact of one measure often depends on which other measures are in place. Removing a bottleneck without streamlining the whole chain can result in sub-optimal returns. The construction of an overall trade facilitation indicator based on the 12 categories as well as the construction of the indicators themselves, should take into account of this factor. Timing links, hierarchy links or coexistence links should be analyzed for all variables, possibly with the support of disaggregate studies such as Time Release Studies (see section A.2 in the Appendix).

The variables used to compute the different TFIs have been attributed logical (hierarchical) links, expressed as different weights to variables according to their importance. This hierarchical organisation was based on key case studies on trade facilitation and expert judgements, which have been validated by a trade facilitation experts meeting scheduled for June 2010. Hierarchy between variables is stated in Moïse and Orliac (2009) in the form of scores ranging from (*) to (****), reflecting the relative importance of each variable within each indicator. A (*) score is used for less important

¹⁵⁷This method is often claimed as “neutral”. However, as stressed by Nordås (2010b), “*equal weights are not as neutral as is often argued, because the way a measure influence the overall index depends on how many measures are included and how they are organized into sub-categories*”.

¹⁵⁸The AHP is used in order to reduce the subjectivity of expert opinion. As stressed by Hoffmann et al. (2008), “*the AHP facilitates the decomposition of a problem into a hierarchical structure and assures that both qualitative and quantitative aspects of a problem are incorporated into the evaluation process, during which opinions are systematically extracted by means of pair-wise comparisons (...) This is computationally costly, but results in a set of weights that is less sensitive to errors of judgement*”. It was proposed to refer on this method after a dedicated expert meeting.

¹⁵⁹The PCA is often viewed as a complement to expert judgment, to balance an inherent subjectivity. But the PCA has the disadvantage of assigning the largest weight to the variables that have the largest variation, quite independently of their relative economic importance.

¹⁶⁰PCA is problematic when using binary data because assumptions are that variables are normally distributed. This could be solved by using a tetra choric correlation matrix (OECD, 2009b; Nordås, 2010b).

¹⁶¹For example, categories (d) and (l) which are mainly composed by an extreme binary scoring scheme (0 or 2) increase the variance of these categories and so their PCA attributed weights.

¹⁶²I launched a PCA on the accurate (ambiguous) databases, dropping category (k) which does not vary a lot for the OECD sample. Standard statistical tests (Kaiser Criterion and the eigenvalue screeplot) suggest to retain four (five) principal components accounting for 70% (80%) of the variance of the eleven categories. The first component accounts for 26% of the variance.

variables or control variables (not directly incorporated in the construction of the category indicator). Score (**) represents “medium-weight” variables, score (***) represents key variables and score (****) hierarchical variables¹⁶³. For example, the absence of a dedicated Customs website was attributed a penalizing effect for the remaining variables of category (a).

4.3.3.5 Robustness of the indicators

The robustness of the indicators has been improved through the study of the underlying links of the dataset and tested successfully with traditional indicators¹⁶⁴. We also made a sensitivity analysis to assess the impact of different weighting schemes. Impacts are limited, as the sample is restricted to a small sample of similar countries. That is why, in this version of the paper, I only rely on the equal weighting scheme¹⁶⁵. The impact of the quality of the variables on the outcomes (accurate vs. ambiguous dataset) also lead to similar results, even if the accurate dataset provide better estimates. All these tests indicate that the indicators are quite consistent. In addition, the indicators has been tested successfully in gravity regressions (see the following section) and provide similar results than the previous version of the indicators (Moisé and Orliac, 2010), which was limited to twenty two countries¹⁶⁶. I also used these impact analysis to review the dataset and its underlying structure, as suggested by Hoffmann et al. (2008).

Finally, the variables have been discussed during an experts meeting, where several suggestions have been done about the choice of the proxies or the ambiguity of some outcomes. The main concerns of the panel were related to the extension of these indicators to developing countries and the need of a deeper analysis across sectors and firms (SMEs), which probably call to a rewrite of some indicators.

However, it remains some issues. Our methodology favours as much as possible the variation across our sample. Thus, the threshold strategy have been used to highlight disparities across a similar set of countries, sharing common patterns. In the other hand, the variable outcomes are sensible to the addition of new countries. Particularly, it is expected that the expansion of this study to developing countries will change (increase) the scores of OECD countries. Another issue relies on the number of available variable composing each category and the weighting scheme, *i.e.* the equal weight. Indeed, categories with a limited number of variables will be very sensible to every variations of their components. In addition, within the equal weight scheme (which is used here) such categories have indirectly a higher weight. The aggregate composite indicator in this particular version must be use with caution¹⁶⁷. Finally, missing values could lead to misinterpretation, particularly when it concerns key Countries such as the United-States or Japan.

¹⁶³This classification reflects the Expert Judgement. Corresponding weights range from one (*) to four (****).

¹⁶⁴See the Appendix, Chapter D.

¹⁶⁵Previous researches has shown a limited impact of Expert Judgements weights.

¹⁶⁶Note that preliminary insights with thirty one countries indicate similar results too.

¹⁶⁷At this stage the focus of the study was to explore as many dimensions of trade facilitation as possible and follow the WTO negotiations framework. In future research, it will be possible to restrict the number of categories to those which share a similar composition (or a minimal number of variables) and scoring strategy.

4.4 Reflections on the indicators

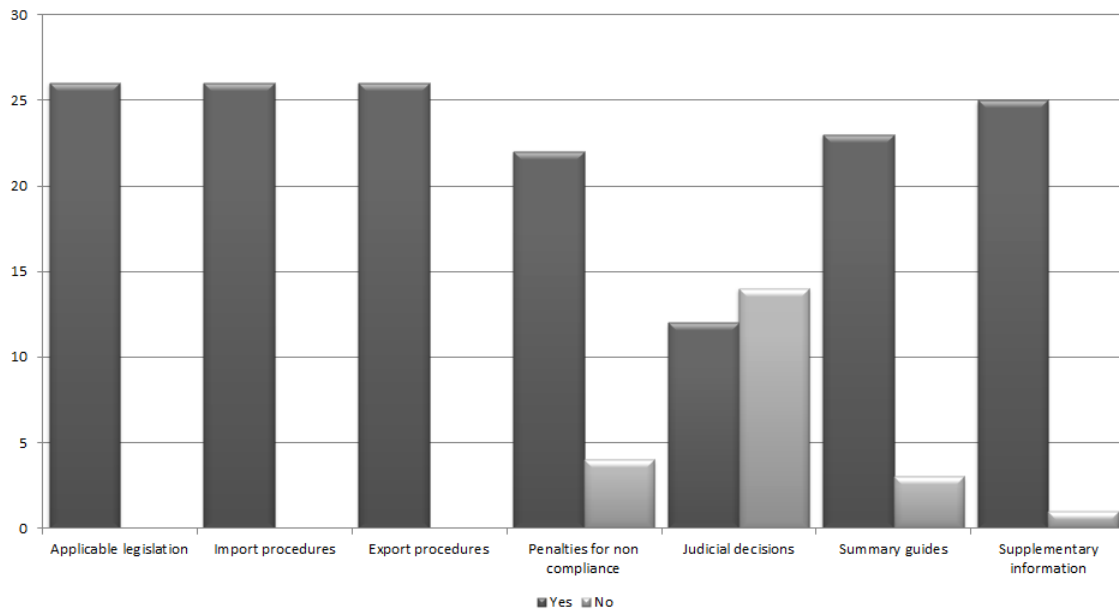
This section presents reflections on each of the indicators and their possible interpretation. They refer to the sample of 26 countries that have replied to the questionnaire unless otherwise specified. They highlight the most important country variations, what they may mean for country performance as well as interpretation issues raised by the different variables.

4.4.1 Information availability

Transparency is evoked by Article X of GATT, but it does not specify the means and channels of publication. As stressed by the UNCTAD (2011b), “*provisions of trade-related information differs from country to country*”, but information is often restricted to legislative texts. However, further information on operational procedures, access to online forms, news flash (rss) on changes in legislation, etc. are equally important to traders. The WTO negotiations on trade facilitation have explored these issues and highlighted some minimal requirements.

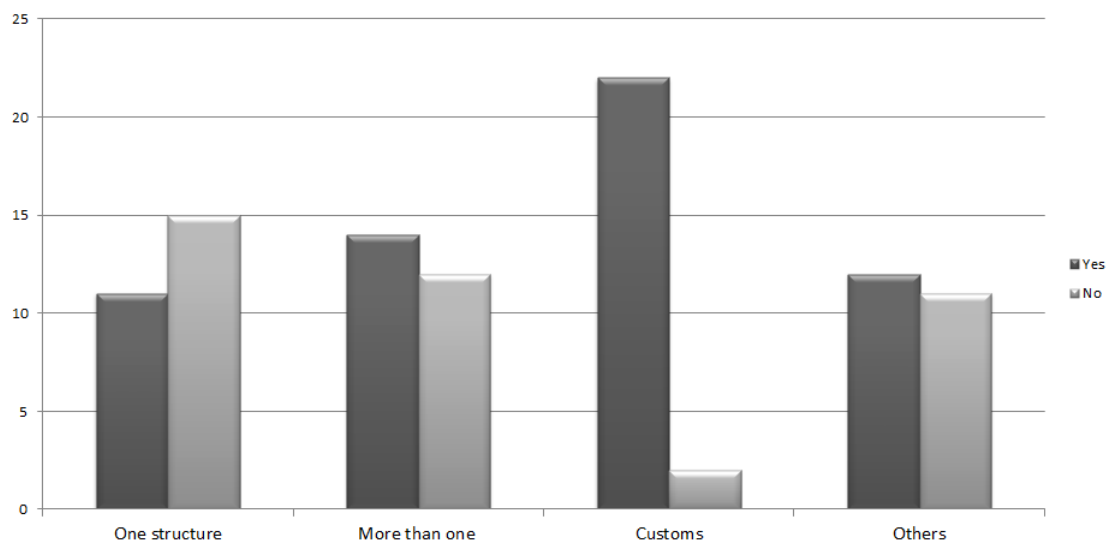
Information on applicable legislation and import and export procedures is commonly available online across our sample. Most countries also offer the possibility to ask for supplementary information. This is typically one of the issues where the current country sample offers very little variation and many variables are attributed the top score throughout the sample. This could change with a wider country coverage including developing or least developed countries. On the other hand, far fewer countries publish penalties for non compliance and examples of judicial decisions. Although almost all countries report in their replies providing information on advance rulings and also on penalties on their website, there rarely seems to be a dedicated page explaining, at least briefly, the different types of penalties and their amounts. We assume that information is essentially provided in the Customs Code.

Figure 4.4: Information availability



Online content is generally updated by Customs, although some websites also provide links to relevant authorities responsible for different procedures¹⁶⁸. It seems only to have a single entity acting as an enquiry point in less than half of the sample countries¹⁶⁹, although the Customs administration does play a central role (Figure 4.5). Finally, opening hours of Customs supports introduces significant variation across the sample (Figure 4.6).

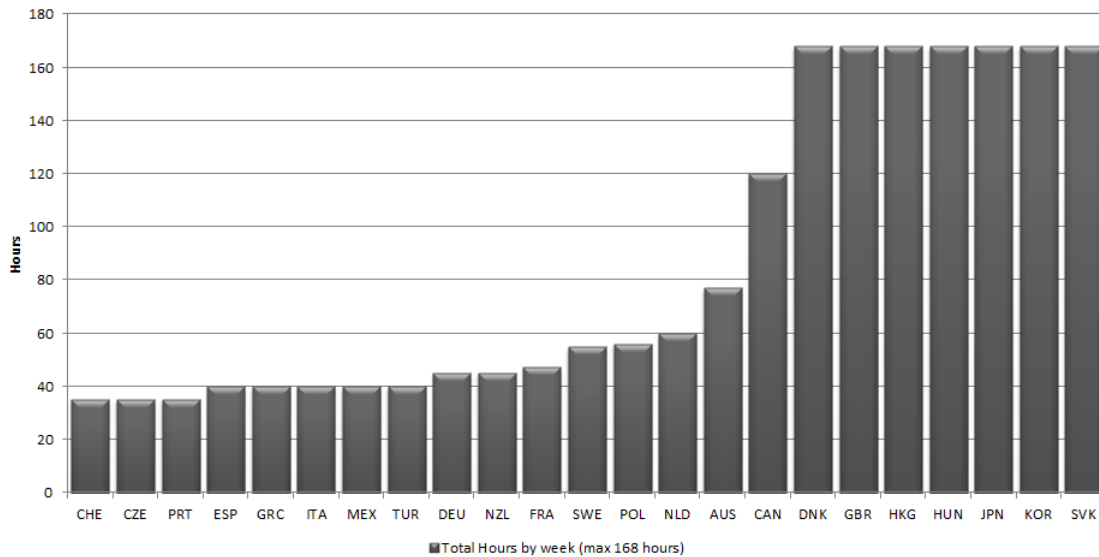
Figure 4.5: Enquiry Points



¹⁶⁸ As for the United Kingdom, <http://www.businesslink.gov.uk/>

¹⁶⁹ Single National enquiry points generate time and costs savings (UNCTAD, 2011b).

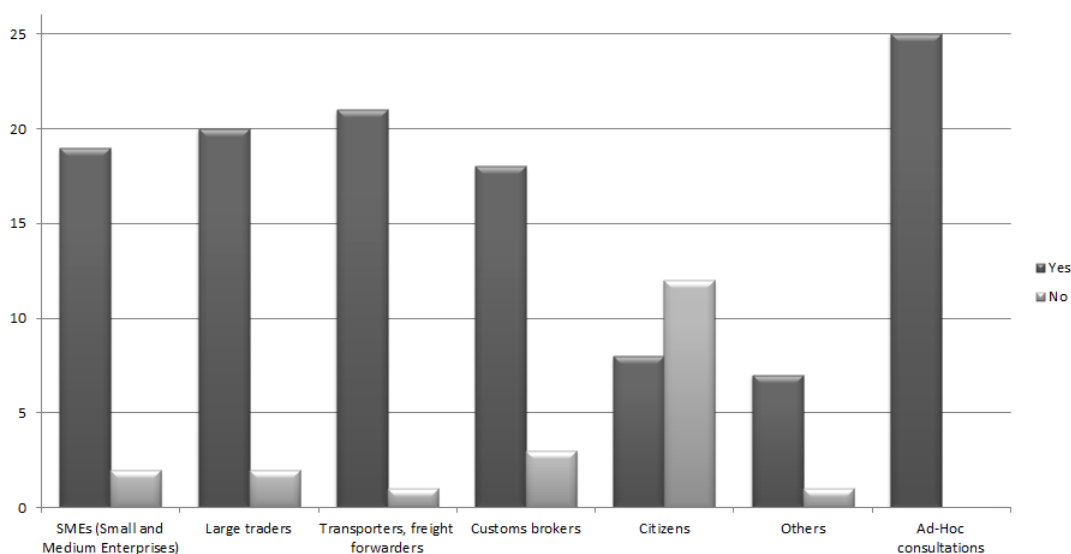
Figure 4.6: Opening Hours of Customs supports



4.4.2 Involvement of the trade community

Not surprisingly, there are fewer consultations with citizens than with the various professional communities. The non-implication of citizens should not necessarily be interpreted as a lack of transparency, but could well be due to a lack of interest of non-professionals for issues that can be pretty technical. The average number of consultations on Customs matters is 30 per year per country but there are some disparities across the sample.

Figure 4.7: Involvement of trade community



4.4.3 Advance Rulings

Advance rulings aim to enhance the predictability of cross-border trade transactions, by providing a transparent and formal process. Almost all countries in the sample provide such mechanisms, although levels of use are not at all comparable across countries (between 0 and 30 000 requests per year, depending on the country, see figure 4.8). They are irrelevant for Hong-Kong, China, which is a free port. Advance ruling mechanisms mainly concern tariff classification (91.96% on average; within the sample they range from 90 to 100%), the second most important area being origin¹⁷⁰. They may be issued by national or regional offices¹⁷¹.

The number of advance rulings (AR) seems to be significantly related to the volume of trade entering the country and expert opinion would rather indicate that the direction of causality is from trade volume to AR numbers. Gravity regressions confirm quite clearly that advance rulings are highly correlated with trade flows; caution is therefore called for attributing weights to this variable. However, the environment, including the transport network or conditions of issuance, can play a role, even if it is marginal, as suggested by the results of the regressions. Where the sample does not offer a direct match between trade volumes and the number of advance rulings, as in the case of some EU countries, this is mainly due to the fact that EU trade statistics count the goods' final point of clearance and not its point of entry to the EU market. Advance rulings are generally issued near to the point of entry (which tends to favour big entry ports for transatlantic trade in EU northern

¹⁷⁰As stressed by several surveys (Dios, 2009a; Findlay, 2009) or the UNCTAD (2011b), the determination of the value of a good or its classification are a major source of dispute between Customs administrations and traders.

¹⁷¹Thus for Canada, the majority are issued by regional offices.

countries)¹⁷².

Among the factors that further enhance the predictability of advance rulings is the timeliness of the mechanism for issuing those rulings. Variables 28 and 29 aim to assess whether the Customs administration publishes average issuance times and to what extent advance rulings are issued within that set time (Figure 4.9). No assessment is made as to the appropriateness of such average time.

Figure 4.8: Total number of advance rulings (2009)

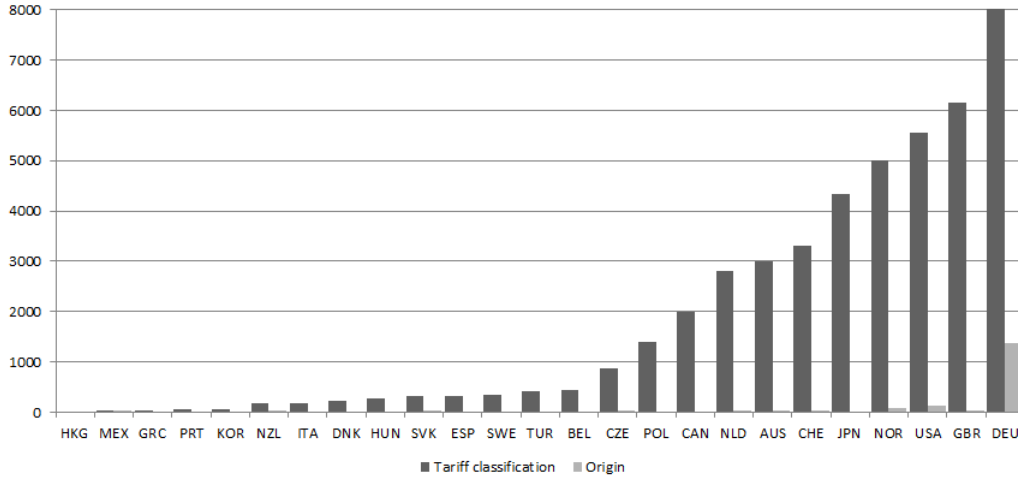
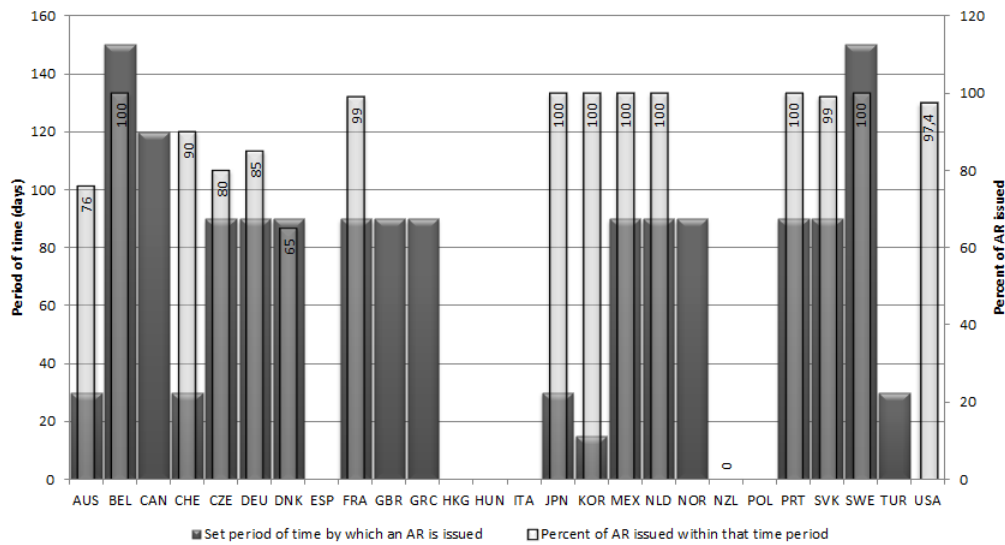


Figure 4.9: Set period of time by which an Advance Ruling is issued



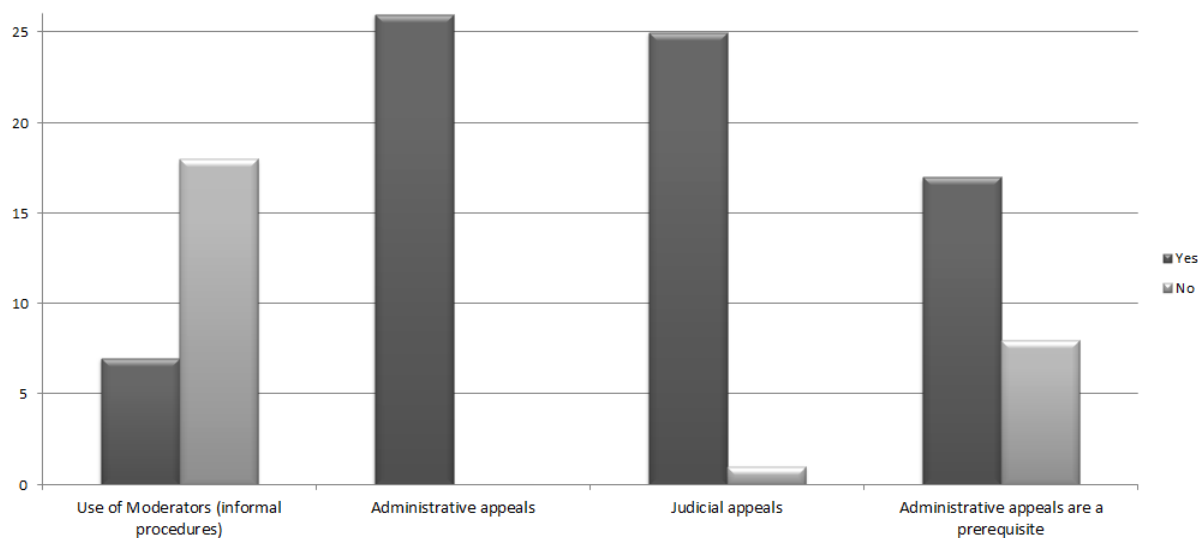
¹⁷²Note that in the case of the European Union, there is also the temptation of “BTI shopping”. This issue is developed in Chapter 6.

4.4.4 Appeal procedures

Online information on appeal procedures is scarce and often not easily accessible. Some information can be found in Customs codes, but almost never in a dedicated page on Customs websites. The scarcity of publicly available data for some countries points out the need of considerable improvements in this area. Appeal procedures follow different patterns across the sample. Moderators are only used by a small group of countries; while administrative appeals are prerequisites for the judicial stage for two thirds of the sample countries. The sample confirms the expected tendency to have a much higher number of administrative appeals than judicial appeals. As stressed by the UNCTAD (2011b), administrative appeals offer “*substantive advantages over judicial review*”. They enable quick decisions and involve fewer costs for traders¹⁷³. In addition, it reduces at the same time the burden of Customs administrations. For this reason and others detailed in the Appendix (section D.3.3), I favor administrative appeal over the judicial one.

Outcomes for this indicator have been non-significant for all tested specifications. This does not mean that appeal procedures are not important for trade facilitation, but that the indicator would have to be constructed differently.

Figure 4.10: Appeal procedures



4.4.5 Fees and charges

Although the notion of proportionality between fees and charges and service rendered is quite clear in legislative texts and that almost all countries claim to provide information on fees and their level,

¹⁷³Such reviews should be made by an authority independent from the administration which issued the decision.

such information is very hard to find. Indeed, very few countries provide a simple and comprehensive view on the type and level of fees and charges that they apply. Most of the time this information can be found in the Customs Code, but it does not benefit from a dedicated webpage. Publicly available data on fees and charges highlight the paucity of fees and charges-related information and strongly point to the need for OECD countries to improve their performance in this area. Australia, Japan, Hong-Kong, China and New Zealand are among the best providers of this type of information. Note that we probably face a bias in this area. Indeed, the most “transparent” countries have provided a full list of fees and charges, whereas others do not probably drawn all fees and charges in place¹⁷⁴.

4.4.6 Formalities-Documents

Most of the sample countries accept commercial documents or authenticated copies when a government agency already holds the original and multiple authorities are involved, without exceptions. The average percent of import procedures that accept copies is 95%. Two thirds of the sample countries no longer request originals when the declaration has been lodged electronically. The number of documents to import or export, is relatively homogeneous across the sample; however less than half of the countries (43%) use a single document¹⁷⁵.

This indicator aims also to evaluate the simplification of trade documents, *i.e.* the reduction of data and documents requirements as well as the alignment with international standards. Such alignments should generate obvious benefits. However, international standards compliance has raised interpretation questions: ratification of a treaty does not automatically mean full application and, conversely, a number of the sample countries have not ratified some conventions containing international standards but apply them in practice. In addition, as international standards play a significant role as a multiplier of trade gains at the regional or even global level, the significance of international standards compliance goes far beyond domestic performance.

4.4.7 Formalities-Automation

Figure 4.11 shows that most of import and export procedures are cleared electronically. However, these figures need to be put in perspective, since the rates could vary by transport mode. Indeed, even in one of the best performers, Hong-Kong, China, the submission of documents for clearance of goods, including trade declarations, certificate of origin, dutiable commodities permits and cargo manifests are carried out electronically by air, water and rail but the system for electronic submission of advance road cargo information for Customs clearance is still under development¹⁷⁶. This could explain the relatively low rate of electronic clearance for countries with an important part of trade by

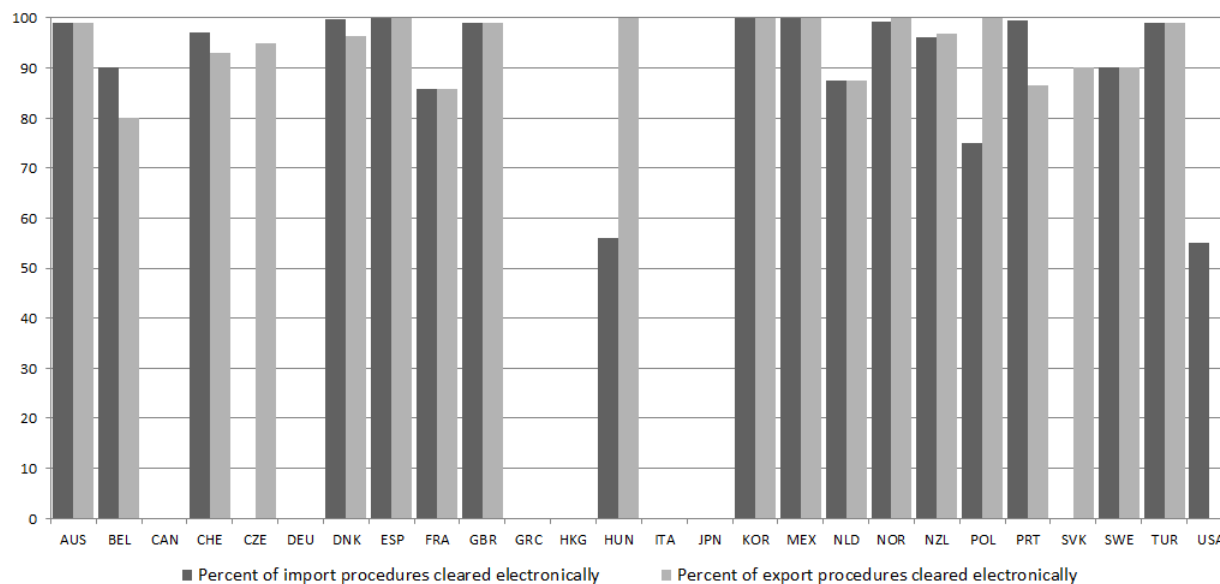
¹⁷⁴It may be an explanation of the poor performance of this indicator in the following regressions, where it bears an unexpected sign.

¹⁷⁵Note that the Single Administrative Document (SAD) of the European Union only concern Customs related matters, but not licence issues for example.

¹⁷⁶It was expected to become operational in early 2010.

road. Information on automation spending is very scarce as well as data on the rate of irregularities which may suffer from interpretation problems.

Figure 4.11: Procedures cleared electronically



4.4.8 Formalities-Procedures

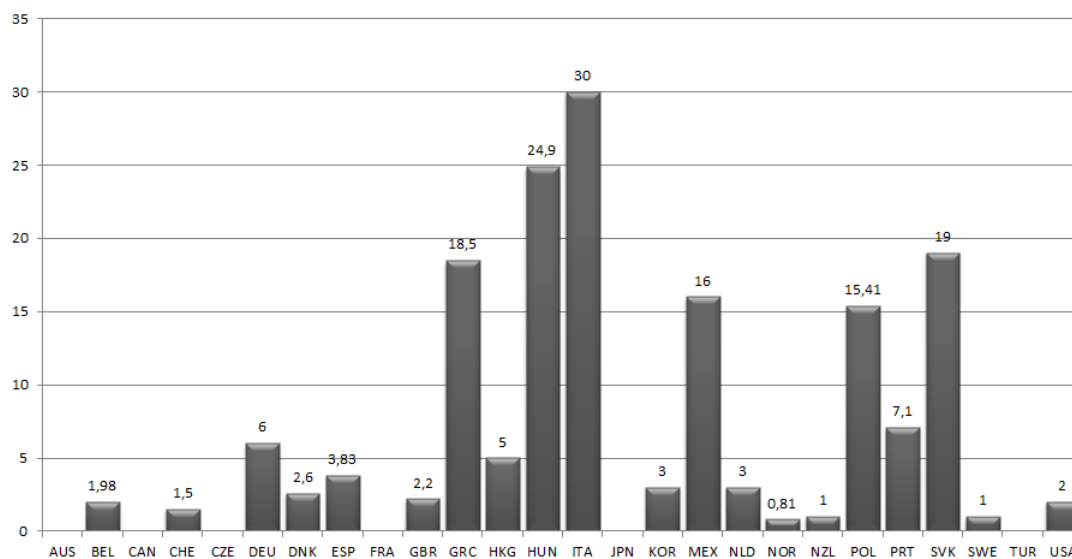
The Procedures indicator incorporates a series of very important dimensions of trade facilitation, including single windows, pre-arrival processing, physical inspections, post-clearance audits, separation of release from clearance and the concept of authorized traders, all of which play a leading role in indicator (h).

Among them, “Single Windows” is an important trade facilitating measure, which is not yet prevalent in the OECD area. According to the questionnaire only one third of the sample countries use a single window. The variable Single Window (V61) plays a leading role in indicator (h) and when more weight is attributed to this variable, indicator (h) appears to have a greater impact on trade volumes and trade costs.

Another interesting dimension is the percentage of physical inspections. The sample presents considerable disparities (figure 4.12), even if only one of the responding countries inspects more than 25% of imports. It seems to have no clear relation between the rate of physical inspections and the percentage of post-clearance audits, but the scarcity of data on the latter variable has led us to drop it from the indicator construction at this stage¹⁷⁷. There seems to be an inverse relationship with

¹⁷⁷As stressed by the UNCTAD (2011b): “Introducing post-clearance audit reflects a different approach to Customs

Figure 4.12: Rate of physical inspections (% of total imports)



the percent of pre-arrival processing, as shown in figure 4.13, although information on this variable is still incomplete. All these processes are linked to a risk management strategy.

We also explored the impact of different sectors on trade procedures. Our information on the distinction between perishable and non-perishable goods, was limited. According to the replies of the questionnaire, only Switzerland, Portugal, the United Kingdom and Korea apply different treatments between perishable and non-perishable goods. The quality of this variable will be crucial with the future expansion of the scope of the study to sectoral analysis.

Finally, although information on authorized traders is still incomplete, available data confirm that, while authorized traders represent small percentage of total traders, they handle a very significant percentage of total trade. The benefits linked to the Authorized Trader status vary across countries (figure 4.14) even among European countries. The Authorized Trader status generally offers reduced physical and documentary controls and a reduced release time, although other benefits, such as the possibility of periodic declarations and of local clearance are less widespread. If a growing part of trade is handled by such traders, the traditional provisions -*the common rules*- will apply to a limited part of traders. This characteristic may have an impact on trade facilitation analysis as well as a distorting impact on non-authorized traders who will bear additional controls or even an exclusion of the market by other traders (pointed out as a weak link in the whole chain).

control, as it has the effect of offering an immediate release of goods or reduced release times”.

Figure 4.13: Percent of pre-arrival processing

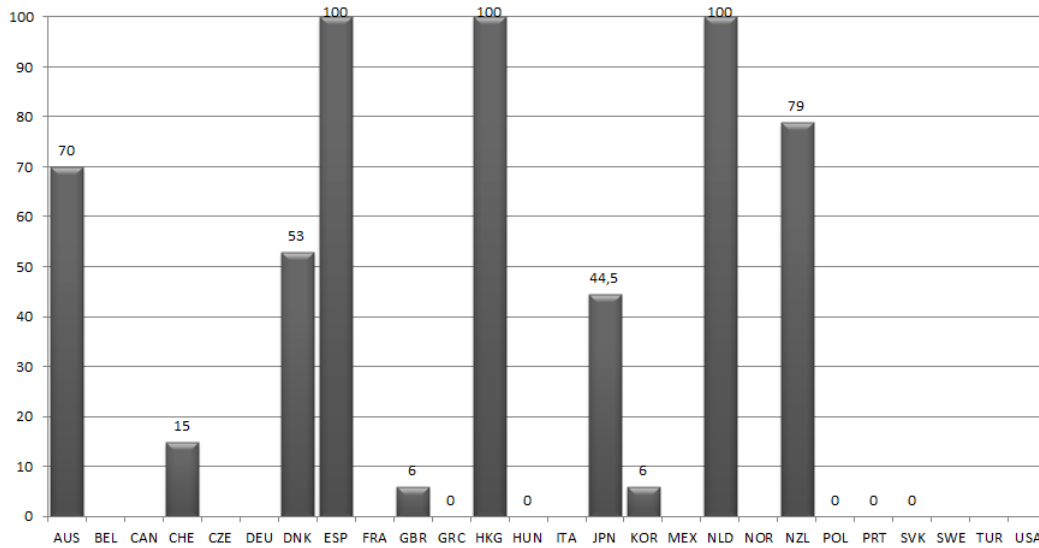
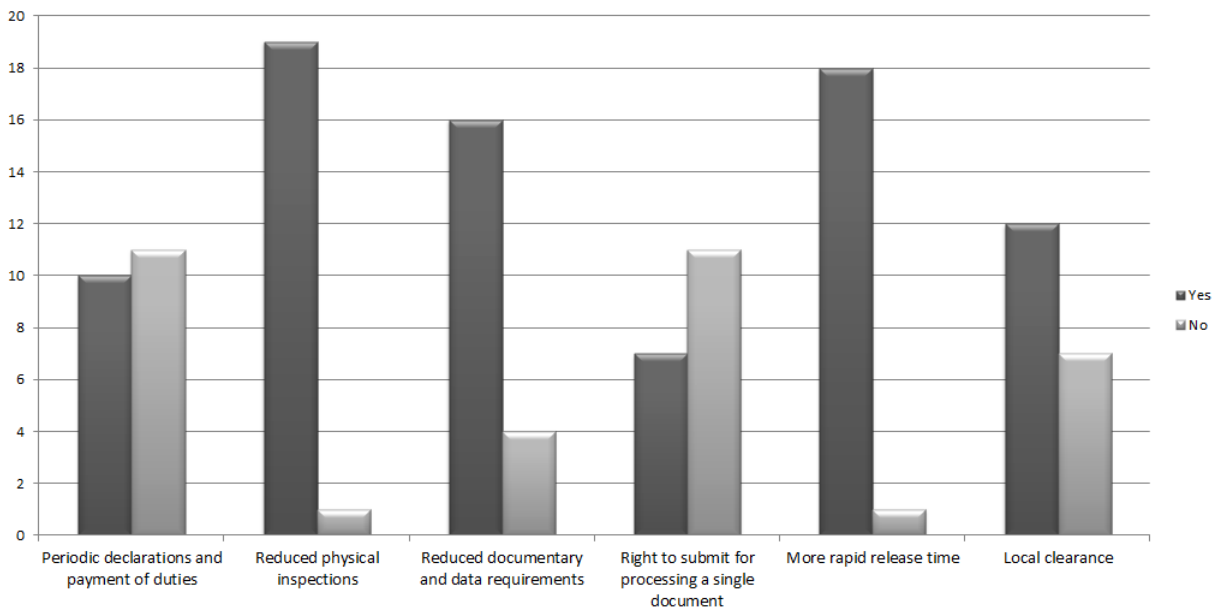


Figure 4.14: What are the benefits linked to AT status?



The cooperation of border agencies aims to facilitate the release of goods as well as make easier all border procedures. It has a domestic dimension and a cross-border international dimension. In one hand, it aims to improve the coordination amongst national agencies involved in border controls, in the other hand it recommends cooperation between agencies of different countries sharing common borders.

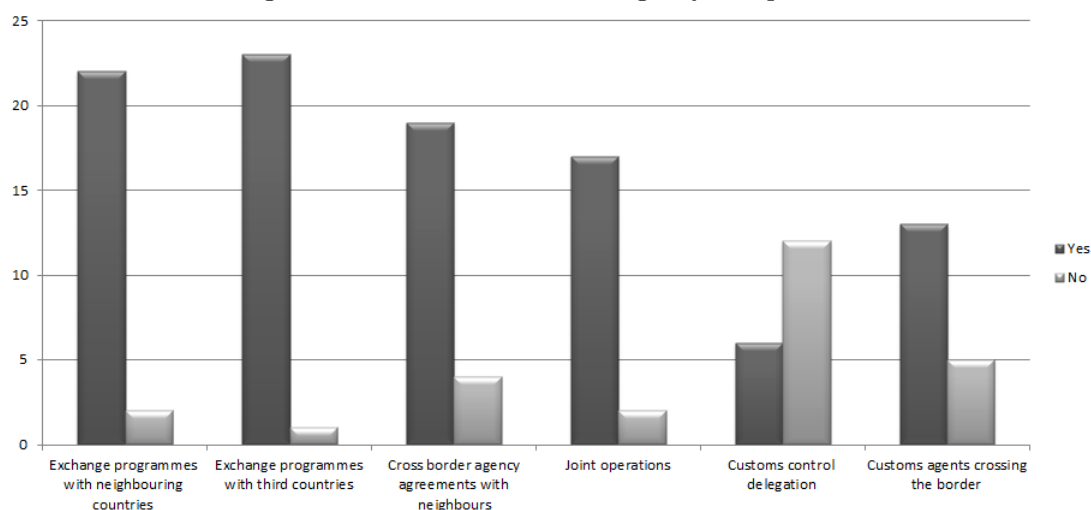
4.4.9 Internal co-operation

Coordination and cooperation can encompass various components (UNCTAD, 2011b). A little less than half of the sample countries provide evidence of significant border agency cooperation both for one-time documentary controls and for co-ordinated physical inspections. As the cooperation between border agencies has been identified in time release studies as an important factor for reducing import lead time, we explored the relation of international cooperation variables to average clearance times. The link was only partially supported by correlation tests.

4.4.10 External co-operation

Almost all the sample countries are involved in extensive co-operation and exchange programmes with neighbouring and third countries. Joint operations are quite widespread and almost all the sample countries have cross border agency agreements with neighbouring countries allowing Customs agents to cross the border. However, only six countries report agreements that allow delegating Customs control, of which five are EU countries. Finally, note that less integrated forms of cross-border cooperation such as the alignment of office hours, could also have beneficial impact on trade facilitation.

Figure 4.15: External Border Agency Cooperation



4.4.11 Consularization

Not surprisingly, none of the sample countries impose consular transaction requirements. The “procedure of obtaining from a consul of the importing Member in the territory of the exporting Member, or in the territory of a third party, a consular invoice or a consular visa for a commercial invoice, certificate of origin, manifest, shippers’ export declaration, or any other Customs documentation in

connection with the importation of the good” is a practice that can be found only in some developing countries. All OECD countries and most major non-OECD countries do not impose such formality. At this stage of the analysis this indicator was not tested further.

4.5 The impact of Trade Facilitation Indicators on trade flows and trade costs

Following the construction of the indicators, their relevance and robustness have been tested through gravity and trade costs models. We sought to evaluate which area (indicator) of trade facilitation leads to higher increases in trade and greatest reductions in trade costs, so as to provide advice for prioritizing trade facilitation policies. However, this does not allow organising the indicators in a preferential implementation order (sequencing). In order to do this, additional data on the implementation date of every relevant variable would be needed. This kind of information is not available in the current dataset, but could be sought for inclusion in the future. As the TFIs do not have a sector specific design (even if they should mainly cover goods), regressions were run for the total economy for different sectors at aggregated levels¹⁷⁸, but also separately for the manufacturing and agricultural sectors.

4.5.1 The impact of the TFIs on bilateral trade patterns

4.5.1.1 The gravity equation(s)

The inspiration for the gravity model, and its name, comes from an analogy with the Newton’s law which states that “*every point mass in the universe attracts every other point mass with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between them*”¹⁷⁹. This force of attraction is the force of gravity. As stressed by Baldwin and Taglioni (2006), when we replace this force with the value of bilateral trade and the masses with the trade partners’ GDPs, the equation fits the data quite well¹⁸⁰. The gravity model is became a workhorse tool for economists, covering a wide range of empirical fields. Thus, it is regularly used to estimate the impact of a series of trade impediments, trade agreements, common historical and cultural patterns, or even the impact of religion on trade¹⁸¹.

The gravity model emerged in the 1960s as an empirical specification with the seminal works of Tinbergen (1962) and Linnemann (1966). If the naïve form of gravity equation provides a good

¹⁷⁸Sectors follow the ISIC Rev.3 classification for data harmonization reasons. Future research could proceed to introduce further sectoral distinctions and sector specific elements to the TFIs (such as further distinctions between perishable and non perishable goods, or service related issues), but this is beyond the scope of this paper.

¹⁷⁹The theory was first formulated in Newton’s work *Philosophiae Naturalis Principia Mathematica* ("the Principia"), first published on 5 July 1687.

¹⁸⁰Evidences lead to a positive relation between GDPs and bilateral trade, and a negative one between distance and bilateral trade, subject to potential deviations and influences.

¹⁸¹See Disdier and Head (2008) or Kepaptsoglou et al. (2010) for a review of literature on gravity studies over the last decade.

fit to most international trade flows, the right use of gravity is conditional to theoretical micro-foundations. There is a trend in the history of gravity towards deeper foundations, more accurate specifications and econometric strengthening. The first theoretical foundations came from Anderson (1979), followed few years latter by Bergstrand (1985). The gravity models have known new developments after the findings by McCallum (1995) that the US-Canada border had a big impact on trade. Last decades have seen several key contributions, ones focused on microfoundations and others on econometric estimation issues¹⁸². The most commonly used gravity equation refers to Anderson and van Wincoop (2003, 2004), which stands in its naïve log-linearized form as follows:

$$\log(x_{ij}^k) = \log(Y_i^k) + \log(E_j^k) - \log(Y^k) + (1 - \sigma_k) \left[\log(t_{ij}^k) - \log(\Pi_i^k) - \log(P_j^k) \right] \quad (4.4)$$

Where x_{ij}^k denotes exports from i to j , Y_i^k income for country i , E_j^k expenditures for country j , and Y^k world income. The other variables account for the elasticity of substitution across goods (σ_k), Π_i^k and P_j^k the price index of country i to j , and t_{ij}^k bilateral trade costs.

Their work shows that leaving the multilateral resistance out of an empirical estimation lead to biased estimates. The problem is to assess these two terms, Π_i^k and P_j^k . Different approaches exist: one can use non-linear estimation as in Anderson and Van Wincoop, Taylor series approximation as in Baier and Bergstrand (2009a), or the easiest way with a Remoteness or fixed effects. Each method has its positive and negative aspects, for instance fixed effects give unbiased parameter estimates but could absorb other invariant key parameters, while others are difficult to compute (Shepherd, 2008). Finally it is necessary to proxy t_{ij}^k , by ad-hoc (and available) variables as distance¹⁸³ or other trade impediments, leading to the so called “augmented versions” of the gravity equation. This approach has been widely used in the area of trade facilitation by breaking down trade costs into various components and estimating their impacts on trade. The literature reports significant impacts but relies often on a broad measure of trade facilitation¹⁸⁴. Our research aims to go deeper

¹⁸²Main researches are provided by Deardorff (1995), Eaton and Kortum (2002), Anderson and van Wincoop (2001, 2003, 2004), Helpman et al. (2008), Baier and Bergstrand (2009a), Chaney (2008) and Melitz and Ottaviano (2008). One can refer to Feenstra et al. (2001) and Evenett and Keller (2002) for a discussion on the impact of trade models on gravity, and also Baldwin and Taglioni (2006), Silva and Tenreyro (2006) or Shepherd (2008) for a review of main technical issues, from the zero trade to the choice of well fitted variables.

¹⁸³Distance is a core variable of gravity models but faces to several issues. Firstly, far from its death (Cairncross, 1997), recent studies still stress the importance of distance. Thus, in a huge survey, Disdier and Head (2008) show that distance effects increasing over time, leading to “*the puzzling persistence of the distance effect*”. Secondly, distance effects have a huge range of variability, 90% of estimates lying between -0.28 and -1.55 according to the meta-evaluation of Disdier and Head. Thirdly, the composition of distance is unclear. In one hand there is a structural heterogeneity since the usual elasticity of distance is the product of two structural parameters: the elasticity of trade costs relative to distance and relative to trade, leaving the analysis of the distance variable much more complex. In the other hand, as stressed by Hummels (1999), Martinez-Zarzoso and Nowak-Lehmann (2007), Behar and Venables (2010) and many other researchers, distance does not reflect transport costs very well, overestimating its measure. As suggested by Egger (2008), distance is subjected to many factors and, in addition, varies across countries.

¹⁸⁴Since a decade, a growing literature has estimated the impact of trade facilitation on trade flows by using gravity models, such as Wilson et al. (2002, 2003, 2004), OECD (2003a), Mann (2004), OECD (2005b), Helble et al. (2007), Wilson (2007a,b), Wilson and Otsuki (2007), Dennis and Shepherd (2007), Iwanow and Kirkpatrick (2007), Hoekman and Nicita (2008), Zaki (2009), Shepherd and Wilson (2009), Kharel and Belbase (2010), Portugal-Perez and Wilson (2010), or Persson (2010).

in the trade facilitation components to fill the gap between these broad measures and the narrowest, such as provided by the Time Release Studies (see section 2.2). The Global Enabling Trade Report (Lawrence et al., 2010) provides a good explanation of the usual attributes included in a gravity equation. The previous considerations lead to the following naïve regression:

$$\ln x_{ijt}^k = \beta_0^k + \beta_1^k \ln d_{ij} + \beta_2^k Contig_{ij} + \beta_3^k Lang_{ij} + \beta_4^k Col_{ij} + D_{it} + D_{jt} + D_t + D_k + \varepsilon_{ijt}^k \quad (4.5)$$

Subscripts i , j , k , and t indicate respectively exporting country, importing country, sector, and year. The variables are the logarithm of bilateral trade x_{ijt}^k , the logarithm of bilateral distance d_{ij} and a series of usual bilateral dummies, common border, common language and common colony ties. In order to deal with the multilateral resistance issues and any unobserved variation over years, we also include country-year fixed effects and a year dummies to capture year effects common to all countries. The inclusion of variables that only vary across country pairs prevents us from controlling for country pair fixed effects. Based on this naive form, studies usually add some dedicated dummies such as the membership to a Free Trade Agreement, or some trade impediments/facilitating variables such as indexes of corruption, infrastructure quality or even the effectiveness of the import procedures. We follow the same approach by including our different components of trade facilitation as $\beta_5^k TFI_j^{c,v}$, where c accounts for the category and v for the version of the dataset (accurate or ambiguous). However, we face several issues.

Firstly, the inclusion of our indicators is incompatible with country fixed effects sharing the same dimension. In such a case, we will face perfect co-linearity between the TFIs and the fixed effects, which are both country specific. In order to resolve this problem, the solutions are to run a regression without fixed effects accounting for the same dimension, with the risk of bias estimates, and to build a measure of economic remoteness or to directly calculate the multilateral resistances. Building a remoteness variable is however a second best¹⁸⁵. Secondly, to date, the TFIs are built for one year. We started to collect data in 2008, but the latest information available cover 2009. In order to enlarge the number of observations, take into account for multilateral resistance and price variation, we run panels covering 2000-2008. One could say that the indicators do not cover this period, but considering the way they were built, they could be viewed as relatively stable over time (at least for some categories). It is a common practice. The extension of the indicators (by including implementation date, for example) could be extremely valuable in this case to improve the robustness of our results¹⁸⁶. Thirdly, the way our indicators are built as well as the limited country coverage (with similar patterns) raise the question of the co-linearity. As in many studies, it is always problematic to include several indicators encompassing the same dimensions. That is why we run

¹⁸⁵Direct calculation of the multilateral resistances is quite complex, even if specific software to deal with this issue may be used (OECD, 2009c). That is why we favour the use of an ad-hoc remoteness, despite some known issues (Shepherd, 2008). We follow the methodology provided by the Global Enabling Trade Report (Lawrence et al., 2010) for building such a remoteness REM_i .

¹⁸⁶We also run some cross section regressions (for 2005 and 2007) as a robustness check.

different specifications, including each component one by one, and another with all indicators. Last but not least, some traditional variables such as regional trade agreement dummies may be linked to our indicators by construction and may be not relevant through our sample which only cover OECD countries and most of the European countries¹⁸⁷. Following these considerations, we apply various specifications to rise common insights (see the Appendix, section D.5). As robustness checks, we also run *Poisson* estimates, following Silva and Tenreyro (2006), even if the number of zero trade is quite limited in our sample¹⁸⁸. These results should be revised with new indicators, covering a new set of years and extended to more countries sharing different patterns.

4.5.1.2 The relevance of the TFIs

So, we first tested the relevance of the TFIs with a gravity equation, linking trade flows to economic attributes and a series of variables controlling for bilateral costs. This is based on the premise that trade facilitation measures are supposed to increase bilateral trade flows. The results are quite stable for the classical variables of the gravity equation, which bear the expected signs and are statistically significant. Moreover, they cover the traditional ranges too.

The most statistically meaningful results are obtained when all sectors are included. The adjusted R^2 is higher than the other sector coverages (in average 0.70) and the number of observations is much more important (around 100000 observations depending on the specifications¹⁸⁹). Note that we also include sector fixed effects when the sector coverage is *all sectors*. Sector specific analysis shows that the indicators are particularly significant for manufactured goods, but less so for agricultural goods. This is mainly due to the poor rate of reply on variables accounting for specificities of agricultural goods (such as the distinction between perishable and non-perishable goods). Robustness checks, such as *Poisson* and comparisons between accurate and ambiguous datasets, generally confirm the first estimates. Note that the accurate dataset seems to provide better results. Finally, this updated version of the paper goes in the same direction than previous insights, while bearing more significant coefficients.

When the manufacturing sector is tested separately, a first group of TFIs is statistically significant and carries the expected sign (positive, as trade facilitation improvements are expected to increase bilateral trade). This group includes Information Availability (a), Involvement of the trade community (b), Advance Rulings (c), Formalities - automation (g), Formalities - Procedures (h), Internal Cooperation (i), External Cooperation (j) and Governance and Impartiality (l). Within this group, indicators (a), (c) and (h) have the highest impact on bilateral trade. A second group includes Fees and Charges (e) and Formalities - Documents (f), for which results are ambiguous

¹⁸⁷Indeed, some variables include references to various arrangements and conventions, while many variables are harmonized for the EU Members to follow the European legislation.

¹⁸⁸When all sectors are used, there are 13426 zero trade over 245213 observations. Note that numerous country pairs are dropped due to missing TFIs.

¹⁸⁹It is a huge improvement since the previous version of Moïse and Orliac (2010) as several countries have been added. The number of observations ranges between 3200 and 3600, respectively for agriculture and manufacture.

and do not bear the expected sign. Finally a last group of indicators does not seem significant. It includes indicators (d) on Appeal procedures and (j) on external cooperation, even if in this latter case Poisson make it significant with the expected sign.

When the agricultural sector is tested separately, almost all the TFIs do not bear the expected signs or remain non-significant. However, in some cases, non-significant indicators do not withstand robustness checks. Thus, according to the Poisson regressions, indicator (e) and (i) became significant and bear the expected sign. The only indicators which seem significant across all specifications and robustness checks are indicators (g) Formalities - Automation and (h) Formalities - Procedures.

For the total economy, the regression was run combining the values of the different sectors but without aggregating them in one single figure¹⁹⁰. This coverage, controlled with sector specific fixed effects increases the number of observations: all of the indicators are significant and almost all carry the expected sign, with the exception of indicator (d) and (f). However, the Poisson regressions make indicator (e), (f) and (g) ambiguous. This configuration includes services and it may explain some results, particularly for indicators (f) and (g) related to formalities. As pointed out by Miroudot et al. (2010), the impact of services on trade costs (and consequently on trade flows) is found two to three times higher than goods.

The best fitted specification (both in terms of number of significant coefficients and elasticities) refers to the manufacturing sector, which is not surprising regarding the design of our indicators; while the agricultural regressions lead to ambiguous outcomes where only indicators (g) and (h) on formalities are significant. It may be the result of a lack of representativeness of this sector into our current indicators. Moreover, it may come from different trade patterns and issues than manufactured goods¹⁹¹. Focusing on the manufacturing sector, indicators (a), (c), (g), (h) and (i) are particularly significant¹⁹². It seems that indicator (f) on Formalities-Documents does not bear the expected sign, whatever the sector. As explained previously, it may be the consequence of its composition and the ambiguous outcomes of Conventions. Finally, indicator (d) on appeal procedures is rarely statistically significant or bear unexpected sign, as indicator (e) on fees and charges. This does not mean necessarily that these indicators are not relevant for trade facilitation, but that their constructions need to be adjusted¹⁹³.

These regressions provide useful insights about the relevance of the indicators, by category. A summary of the significant elasticities are drawn in the following figure 4.16. However, it remains

¹⁹⁰ A regression using an aggregated total economy value does not provide sufficient information to be useful.

¹⁹¹ This would seem to indicate that agricultural goods are more sensitive to the procedures (clearance time, pre-arrival processing, percent of physical inspections) than other type of information. It may also be more sensitive to TBT and SPS measures.

¹⁹² Note that indicator (h) on Formalities-Procedures is found significant, contrary to the odd output found by Moisé and Orliac (2010).

¹⁹³ One explanation could be that this indicator relies on too many missing data.

numerous limits with this methodology. Some improvements may be done, such as the construction of an update indicator to introduce new dimensions and improve the econometric methodology. We could also study the impact on trade using a *time sensitive* classification following Rauch (1999) and Djankov et al. (2010).

Figure 4.16: Impact of the TFIs on trade flows

Source: own calculation, based on the third specification (Reg3) with Remoteness.

	Agriculture	Manufacturing	Total Economy
(a) Information availability		0,6053	0,4212
(b) Involvement of trade community		0,2428	0,1594
(c) Advance Rulings		0,7221	0,3133
(d) Appeal procedures			
(e) Fees and Charges			0,0257
(f) Formalities - Documents			
(g) Formalities - Automation	0,321	0,3702	0,2186
(h) Formalities - Procedures	0,1982	0,6532	0,451
(i) Cooperation - Internal		0,4179	0,2257
(j) Cooperation - External			0,0934
(l) Governance and Impartiality		0,2393	0,1082

l only reported significant coefficients, which bear the expected sign.

4.5.2 The impact of the TFIs on trade costs

In this sub-section, we test the TFIs as regards their impact on trade costs by using a new methodology developed by Novy (2008). We first calculate the trade costs on the basis of this methodology and then we decompose it, running several regressions on a set of “classical” variables such as distance, common language or colony. We finally study the contribution of each component to trade costs.

4.5.2.1 The Novy methodology

Until recently, trade facilitation issues were evaluated by testing the impact of various related indicators on bilateral trade flows, using augmented gravity models as we proceeded previously. Such studies provide substantial evidence on the sensitivity of trade flows with respect to trade facilitation. However, as stressed by Shepherd (2010), “*they do not undertake any direct analysis to the effectiveness of trade facilitation in supporting trade costs reductions*”. In addition, gravity models often suffer of a series of technical issues¹⁹⁴. The results rely on the specification adopted and on the quality of dummy variables which should capture “*what they are claimed to capture [but] not another relationship*”, Sourdin and Pomfret (2009). As explained differently by Miroudot et al. (2010),

¹⁹⁴A wide literature explores these issues such as Anderson and van Wincoop (2004), Baldwin and Taglioni (2006), Silva and Tenreyro (2006), Helpman et al. (2008), Shepherd (2008) or Baier and Bergstrand (2009a).

“previous work that infer trade costs from gravity model estimates tends to confound true trade costs with noise in data”. Some studies follow a different approach by estimating directly trade costs from observed patterns of trade. Thus, Pomfret and Sourdin (2009, 2010a,b) focus directly on the issue of trade costs by using the gap between CIF and FOB trade data. They mainly rely on transport costs, measuring Australian shipping costs¹⁹⁵. If they conclude that “distance and commodity explain part, but far from all, of the variation of trade costs in Australian data”, they do not test the impact of trade facilitation policies *per se*.

Based on the gravity equations derived from Anderson and van Wincoop (2003, 2004), Novy (2008) has developed a comprehensive measure of trade costs. After several rearrangements of the basic gravity equation and the multilateral resistance, he derived an expression for the geometric average trade costs in both directions, a measure of bilateral trade costs relative to domestic trade costs. Following this seminal work, Chen and Novy (2009) have generalized the model at the sectoral level and studied the impact of Technical Barriers to Trade (TBT) on trade costs. The Novy approach has many advantages. Firstly, this measure of trade costs capture the full range of costs affecting trade, direct or indirect, such as infrastructure, institutional or cultural costs. It includes trade policy matters and particularly trade facilitation issues, but even non-observable costs. Secondly, the methodology is theory-based and consistent with various theoretical models (Eaton and Kortum, 2002; Chaney, 2008; Melitz and Ottaviano, 2008). Thirdly, this methodology deals with multilateral resistance issues. Last but not least, data requirements are limited¹⁹⁶. As stressed by Miroudot et al. (2010), “it is a top down approach in the sense that it infer trade costs from observed patterns of trade and production, contrary to the bottom up approach of most previous work on trade costs, which has started by coding qualitative data on regulatory measures and then estimating their economic impact”. A growing number of studies should rely on this approach in the following years. Some studies already refer on it (OECD, 2009c; Miroudot et al., 2010; Shepherd, 2010) and more recently Duval and Utoktham (2011).

As explained previously, Chen and Novy (2009) have generalized the model at the sectoral level. The expression of this all-inclusive trade costs may be defined as in the following equation 4.6:

$$\theta_{ij}^k = \left(\frac{t_{ij}^k t_{ji}^k}{t_{ii}^k t_{jj}^k} \right)^{\frac{1}{2}} = \left(\frac{x_{ij}^k x_{ji}^k}{x_{ii}^k x_{jj}^k} \right)^{\frac{1}{2(\sigma_k - 1)}} \quad (4.6)$$

Where x_{ii}^k denotes domestic production for country i and sector k , x_{ij}^k the exports from i to j , for sector k , and σ_k the elasticity of substitution across goods for sector k . This elasticity is assumed to be the same across all countries and goods (Anderson and van Wincoop, 2003). Following the common rule, the elasticity of substitution is set equal to eight¹⁹⁷. Note that this elasticity may

¹⁹⁵Other studies have evaluated various components of trade costs, such as information (Rauch, 1999), time (Hummels, 2001; Evans and Harrigan, 2005) or transport costs (Hummels, 1999, 2007).

¹⁹⁶It requires only data on domestic production relative to exports for each country.

¹⁹⁷It follows Novy (2008) and it is in line with previous work on firm level productivity distribution for goods markets

vary across sector and estimates and could be more or less sensitive to the value chosen (Shepherd, 2010). Novy's measure captures the fact that a decrease (increase) in trade costs, increases (reduces) international trade relatively to domestic trade flows. Thus, trade costs are captured only by inferring them from observable trade flows¹⁹⁸. These trade costs are a geometric average of trade costs in both directions¹⁹⁹. It may be expressed in tariff-equivalent form by subtracting one $\left(\theta_{ij}^k - 1\right)$.

Trade costs used by Moisé and Orliac (2010) rely on the database provided by Miroudot et al. (2010). The database follows Novy's methodology at a sectoral level, by using a classification of 29 sectors based on ISIC Rev.3 which is the industry classification used in national accounts data such as input-output tables. As required by Novy's calculation the total domestic demand for a given sector is needed. For that purpose, the database uses gross sectoral output, which comprises intermediate consumption contrary to the sectoral GDP. The database covers a wide range of countries and years, that is why different sources are used to fill the gaps²⁰⁰. All values are converted in US\$ and deal with basic and purchaser price issues too. Finally, the database relies on the OECD's ITCS database which provides data on bilateral trade flows and uses additional sources for services. This database is extremely valuable²⁰¹.

We introduce an interacted variable of the TFIs as independent variable in the regression. The variables are computed as a geometric mean of both directions.

$$TFI_{ij}^{c,v} = \sqrt{TFI_i^{c,v} TFI_j^{c,v}} \quad (4.7)$$

This computation appears well adapted to Novy's methodology and also provides a more accurate index, since a poor index can be merged with a more accurate one²⁰². As a counterpart of such transformation, it is more difficult to conclude on the country specific part. We face the same issues as in the gravity equations: the list of controls varies within each study and it is not possible and even desirable to add too many variables; if we include fixed effects, regressions must be more accurate (Fixed effects account for all their dimensions), but we have to deal with perfect co-linearity between the attributes and the fixed effects of the same dimension.

(Miroudot et al., 2010).

¹⁹⁸However, intra-national trade (x_{ii}^k) is calculated with domestic output at the sector level.

¹⁹⁹It can be important, as pointed out by Shepherd (2010) who attributes improvements in China (decrease of trade costs) to the progress China made in lowering its own barriers but also to its WTO accession, improving its market access abroad.

²⁰⁰It favours data from the OECD's Input-Output tables, but also relies on Eurostat Input-Output tables, the OECD's STAN database and the EU-KLEMS project. It also computes gross output/value added ratios when all alternative sources have already been exhausted.

²⁰¹Note that following the study of Duval and Utoktham (2011), the UNESCAP has put online a new database on trade costs which can be alternatively used. In addition, Duval and Utoktham (2011) rely on two versions of trade costs, based on an "upper bound" approach and a "lower bound" approach where domestic outputs are adjusted for the share of services in GDP. However, their database is build around aggregate trade values.

²⁰²A "poor" index is an index based on a country a with several missing variables, by opposition to an index of a country b computed without missing variables. The geometric average of a and b will smooth such accuracy issues.

So, we run the following specification (reg4):

$$\ln \sigma_{ijt}^k = \beta_0^k + \beta_1^k \ln d_{ij} + \beta_2^k Contig_{ij} + \beta_3^k Lang_{ij} + \beta_4^k Col_{ij} + \beta_5^k TFI_{ij}^{c,v} + D_{it} + D_t + D_k + \varepsilon_{ijt}^k \quad (4.8)$$

Subscripts and variables are the same as in the gravity equation. Other variables stand for trade costs σ_{ijt}^k , the interacted index $TFI_{ij}^{c,v}$ and a country-time dummy D_{it} . Section D.5.4 in the Appendix provide the results, with OLS estimation and robust standard errors.

4.5.2.2 Results of the regressions

The results are quite similar to those obtained in the previous gravity regressions and even stronger. All “classical” variables bear the expected signs. Physical distance is an important factor of trade costs, with a 10% increase in distance between partner implying a 1.634% increase in trade costs. This value is quite close to the one found by Duval and Utoktham (2011), who found a similar increase (1.73%) in *non-tariff* trade costs. As previously, the model is globally significant and performs better for all sectors and the manufacturing sector than for agriculture. Checking robustness, *Poisson* (PPML) and cross-section regressions confirm almost all the time the OLS estimations.

When the manufacturing sector is tested separately, almost all the TFIs are significant and carry the expected sign (negative, contrary to gravity, since trade facilitation improvements are expected to reduce trade costs). Most of the indicators that are statistically significant in gravity are also significant in the trade costs specification. Thus indicators (a), (b), (c), (g), (h), (i), (j) and (l) are significant and bear the expected sign. Among them, the availability of information (a) and Formalities-Procedures (h) have the stronger coefficients. Finally, indicators (d) and (f) lead to ambiguous outcomes, while indicator (e) is not significant.

When the agricultural sector is tested separately, only indicators (a), (c), (g), (h) and (l) remain significant and carry the expected signs. It is more than for the gravity regressions. As for manufacturing sector, the stronger coefficient is bear by Formalities-Procedures (h). As explained previously, this sector has specific patterns which are poorly accounted either because of model specification or paucity of data.

For the total economy, results are more meaningful as all indicators are significant. However, indicators (e) and (f) do not carry the expected signs. Among all the indicators and irrespective of specification, Information Availability (a) and Formalities - Documents (h) seem to impact the most on trade costs. It cannot be excluded that indicator (a) accounts for non observable variables, as it shares common dimensions with other indicators (information on advance rulings, procedures, penalties, or legislation for example), but improving the accuracy of the other indicators should also help address this issue. Indicator (c) on advance rulings seems to impact quite significantly on trade costs and have one of the most sensitive coefficients too.

4.5.3 The contribution to the variance of trade costs

The quantitative contribution of each indicator to the reduction of trade costs is illustrated by a “decomposition of variance” analysis (see section D.6 in the Appendix). This provides relative weights to the TFIs and could also be used to weight the TFIs in an aggregate Trade Facilitation Indicator²⁰³.

Applying this methodology to equation 4.8, we find that physical distance explains about 14.8% to 15.2% of the variation in trade costs, according to the specification (when we include all sectors)²⁰⁴. It is in line with Duval and Utoktham (2011). It appears that the most important indicator as regards manufactured goods trade is indicator (c) (advance rulings), which accounts for a potential reduction of 5.5% of trade costs. Information availability (indicator a) accounts for 0.4% of the potential reduction, followed by indicators (g) and (h) on formalities, accounting for 1.8% and 0.96% respectively, and indicator (i), accounting for 0.5%. A summary is provided in figure 4.17. These results are quite significant, especially if viewed against estimates on the impact of the entire category of TBTs, which according to Chen and Novy (2009) account for 4.5% of the variation in trade cost. As a comparison, the “classical” control variables of the regressions account for 0.5% (languages), 2.7% (contiguity) or 30% of cost reductions (distance, which incorporates all transport costs)²⁰⁵. Note that results are stronger for indicators (a) (Information Availability) and lower for indicator (c) (Advance Rulings), when we account for all sectors. Finally, if all TFIs are added²⁰⁶, it appears that the TFIs could result in almost 10% of trade cost reductions. This is an important outcome, consistent with several studies on the impact of trade facilitation on trade costs.

The results for the other indicators do not necessarily mean that they are not relevant; data shortcomings do not allow firm conclusions to be drawn at this stage. Moreover, it should be kept in mind that the scope of the analysis to date has been limited to OECD countries which share many similar regulatory patterns. A sample including emerging and other developing countries would present much more significant performance disparities and could highlight the impact of other indicators on trade costs. The recent work of Duval and Utoktham (2011) provides an update to this methodology. After extracted the weighted tariff trade costs and the natural trade costs (cultural and physical distance), they isolate the non-tariff policy related trade costs through the fixed effects dummies which broadly capture all characteristics, even non observables. Then, they use a simple regression to test several indicators related to infrastructure, logistic services and ease of doing business proxies. It could be a good framework to test our indicators.

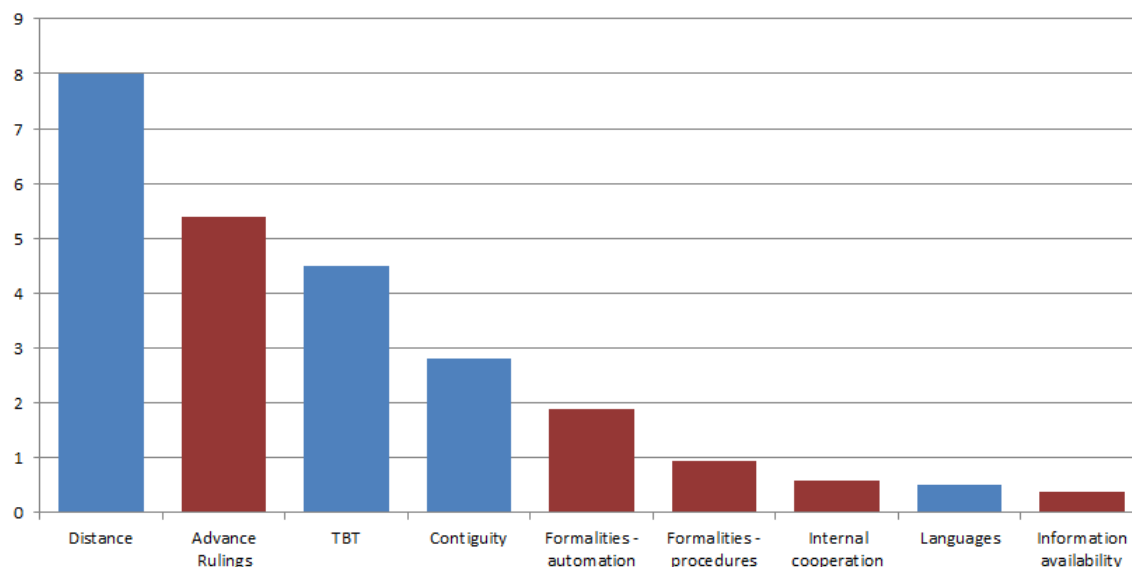
²⁰³This approach requires running regressions with all the TFIs together (Appendix 4). As the inclusion of correlated variables in the same regression usually raises econometric and interpretation issues, this approach should be considered with caution, even if the correlation matrix does not display high correlations between the TFIs. We ran two regressions, the first with all indicators and the second with only significant and “cleared” indicators.

²⁰⁴This rate increases to 45% when we only focus on manufacturing sector.

²⁰⁵The introduction of a weight/value ratio as in Chen and Novy (2009) should decrease the importance of the distance variable. All sector-specific regressions in this paper have been interpreted in this way. If the weight/value ratio is relevant for manufacturing goods or agricultural goods, it is less relevant for services.

²⁰⁶Apart from “ambiguous” indicators, i.e., indicators too correlated to the others to be included without biasing the outcomes or producing outcomes with unexpected signs.

Figure 4.17: Contribution to the variance of trade costs (%)

Source: Own calculation, based on the Manufacturing sector.*In blue, the Chen and Novy (2009) measures, in red the impacts of the TFIs.*

4.6 Conclusions and way forward

The work on developing Trade Facilitation Indicators undertaken to date has allowed us to build a set of indicators covering the different dimensions of trade facilitation. Despite some problems with missing data and a few ambiguous results, the indicators appear robust and almost all of them can be tested for their impact on trade flows or trade costs. The methodology could be improved and the recent work of Duval and Utoktham (2011) could be a good framework to follow, with the extension of the study to a wider set of countries. The following Chapter 5 provides some insights to enlarge quickly the dataset.

The main findings indicate that some indicators have a larger impact than others on trade flows and trade costs, at least in the current data and country sample. This update of the paper confirms most of previous insights. Sector specific results show that the indicators are especially valuable for manufacturing goods. This conclusion is consistent with the way the indicators are built, as agricultural goods specificities (especially the perishable/non-perishable nature of goods) are poorly accounted for by the indicators due to the lack of replies to the questionnaire in this particular area.

Indicators that seem to have the greatest impact on trade volumes and trade costs for manufacturing goods are indicators (a), (c), (g) and (h), respectively related to information availability, advance rulings and formalities. Indicators (i) and (j) on Internal and External Cooperation are more ambiguous, but remain significant.

Seeking to assess the relative importance of the different dimensions of trade facilitation, it appears that the TFIs account for almost 10% of the variance of trade costs. This result is quite significant, especially when viewed against estimates on the impact of the entire category of TBTs, which are shown to account for 4.5% of potential trade cost reductions²⁰⁷. The results for other indicators, while statistically not significant, are inconclusive at this stage, due to data shortcomings. The limited country coverage of the paper, covering only OECD countries which share many similar regulatory patterns, should also be kept in mind.

The use of the indicators should enable countries to better assess which trade facilitation dimensions deserve priority. On the other hand, data constraints have not permitted, at least not at this stage, to provide any indications about the best implementation sequence of various measures.

Future steps of this work could seek to improve the Trade Facilitation Indicators by refining the analysis in a number of different ways:

- Compile more data (fill the gaps, check the data);
- Enlarge the sample outside the OECD, especially including Accession and Enhanced Engagement countries, other developing and if possible least developed countries;
- Deepen the specifications and robustness checks (introduce more control variables and provide more analysis on the indicators);
- Introduce implementation dates in order to obtain time series supporting the analysis of implementation sequences)
- Further develop sector specific indicators (introduce goods specifications, study services issues)
- Account for firms' heterogeneity (as SMEs are more sensible to specific TFIs)

²⁰⁷However, note that the methodology is not exactly the same and it may be difficult to compare these outputs.

Part II

A world village with various Customs

Chapter 5

A global picture

The previous chapter provided a innovative measure of trade facilitation, split up into several dimensions and based on a narrow definition of trade facilitation following the current WTO negotiations. The Trade Facilitation Indicators (TFIs) have stressed the impact of the availability of information and predictability with the use of advance rulings. However, the TFIs only provide a picture of the challenges, the benefits and the priorities faced by the OECD countries. This sample selection bias does not allow to extend the conclusions hold by Moïse and Orliac (2010) to the rest of the World. In this chapter I draw a global picture of the trade facilitation performance across various regions of the World. Firstly, I report the view of the traditional trade facilitation indicators provided by the World Bank, the World Economic Forum (WEF) or the International Institute for Management Development (IMD). Secondly, I explore the main results of the Customs Capabilities Reports provided by the Global Express Association (GEA), putting them into perspective with the Trade Facilitation Indicators. Finally, I propose two new indexes based on a narrow definition of trade facilitation and covering a larger set of countries: the Extended Customs Services Index and the Extended Trade Facilitation Indicators.

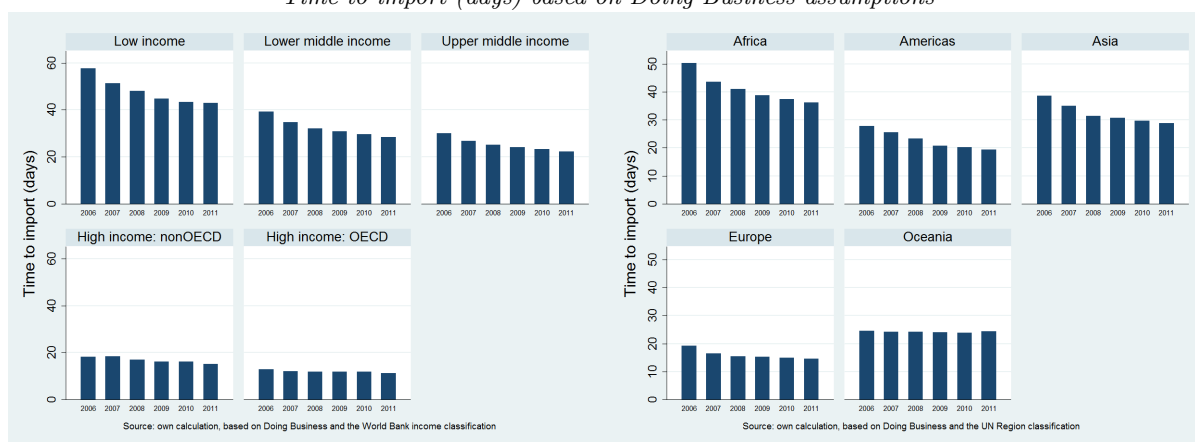
5.1 The traditional Trade Facilitation indicators

Studies on trade facilitation and trade costs rely on a series of usual indicators (section 2.1). They explore the broad definition of trade facilitation, measuring the efficiency of Customs procedures as well as the development of ICT or physical infrastructures, and the performance of logistic operators. Such sources are useful for researchers. They cover a large set of countries and are available for time series studies. Governments also rely on such indicators as they provide an international visibility on some broad areas. However, they should use such rankings carefully. Indeed, these traditional indicators do not focus on the narrow definition of trade facilitation, omitting a series of specific trade facilitation issues particularly related to the public authorities. In addition, their assumptions vary across sources and even from year to year. Finally, most of the time, these indicators rely on perception surveys.

Despite these restrictions, such traditional indicators draw a global picture of the broad trade facilitation performances across the World²⁰⁸. An overview of the main traditional indicators shows that their performances are correlated to the income groups and to some extent to regions²⁰⁹. Thus, the most efficient Customs administrations are located in the higher income economies. However, each income group exhibits a positive trend and the improvements are stronger in the non-OECD countries. Indeed, it seems that OECD countries have reached a threshold regarding the traditional indicators. There is maybe a minimal number of documents, clearance time and costs²¹⁰. In addition, current improvements in developed countries may be concentrated in other dimensions than the ones measured by traditional indicators. Another general observation is that disparities among the quality of infrastructures are less significant across regions, but it remains a gap between the higher income economies and the others.

Figure 5.1: Time to import (2006-2011)

Time to import (days) based on Doing Business assumptions



The first set of figures describes the evolution and the dispersion of the time, the cost and the number of documents required to import across income groups and regions²¹¹. The time to import (figure 5.1) decreases in all income groups -apart the OECD Members- and regions. However, the cost to import (figure 5.2) is quite stable and even increases since a couple of years, while the number of documents required to import have not changed since several years (figure 5.3). The cost to import is traditionally linked to the time to import, but such observations tend to reveal that other factors account, such as the predictability of the import process, the technological innovations or the liner services (network). The apparent disconnection between the time and the number of document is also surprising. This indicator may be based on wrong assumptions, as suggested by the Customs reports or the time release studies.

²⁰⁸The limitations of these traditional indicators are described previously, in section 2.1.2.

²⁰⁹The income classification relies on the World Bank classification, while regions (and sub-regions) are based on an extended version of the United Nation classification (I filled some gaps).

²¹⁰Moreover, they are often the best performers and used as a reference, a benchmark, by respondents. Such considerations “limit” the apparent improvement of some indicators for these countries and refer to the subjectivity of the perception indexes.

²¹¹These traditional indicators are provided by Doing Business (*Trading across the border*).

Figure 5.2: Cost to import (2005-2011)

Cost to import (US\$ per container) based on Doing Business assumptions

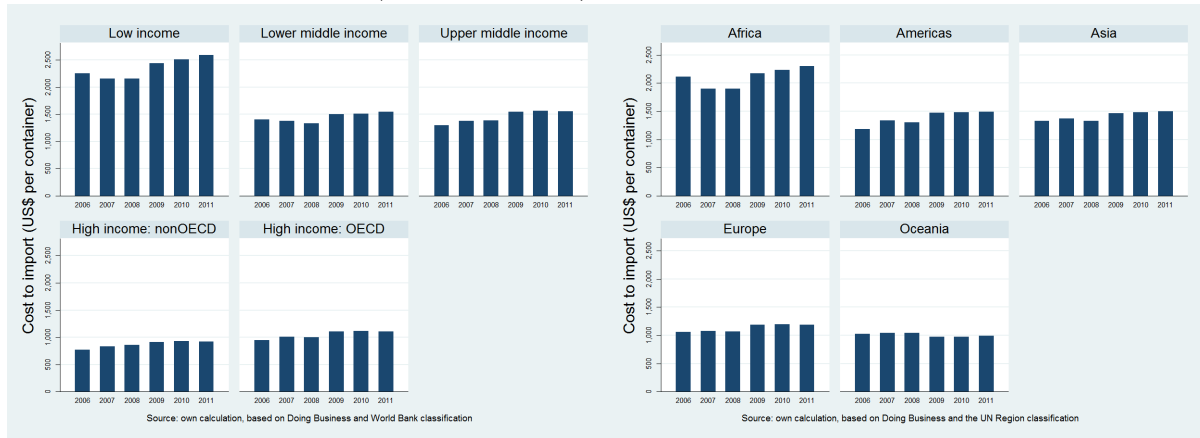
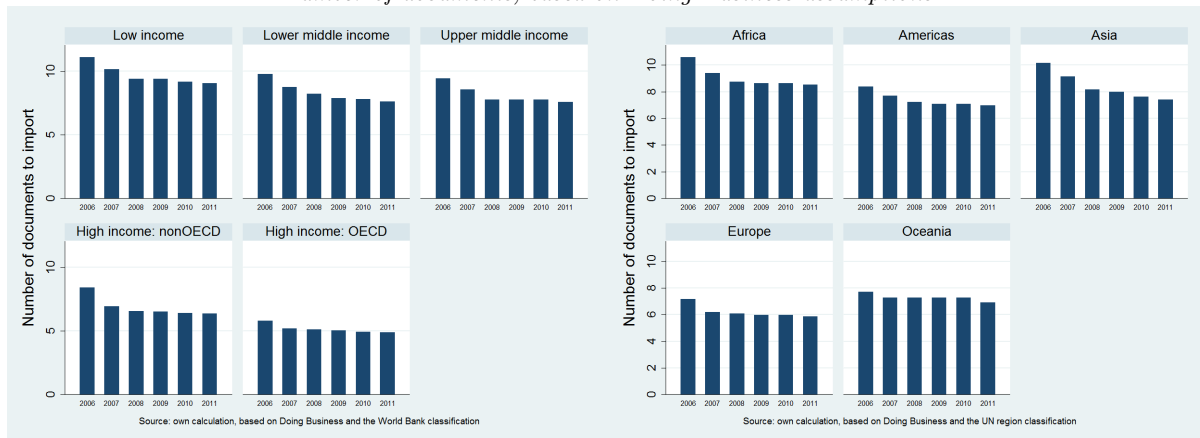


Figure 5.3: Number of documents to import (2006-2011)

Number of documents, based on Doing Business assumptions



The Customs authorities efficiency shows the same gap between high and low economies. However, its evolution is more ambiguous. If the low income economies have improved their scores, the other groups exhibit a small improvement or even of decrease of their performances (figures 5.4 and 5.5). Moreover, since a couple of years, there has been only a tiny gap between the OECD countries and the other high income economies. The current wave of trade facilitation policies launched since a decade as well as almost all recent reports on the topic (such as the time release studies) do not reflect such flat evolutions. This relative stability of the scores measuring the effectiveness of Customs procedures could be the consequence of construction issues. It may be due to an increase of countries coverage, but also to the nature of such indicators based on perceptions. All is relative, if every one improve its border procedures, relative scores will not change apart for the extreme

players (in this case the low income economies who encompass the greater gap). In other words, a constant score may hide some real improvements, which are not sufficient to fill the gap with the leading countries. It could also be the consequence of recent security initiatives which are not yet fully integrated by traders.

Figure 5.4: Customs Efficiency according to the WCY and the GCR
 Mean of scores by income levels, a higher score indicates a stronger efficiency of Customs Authorities.

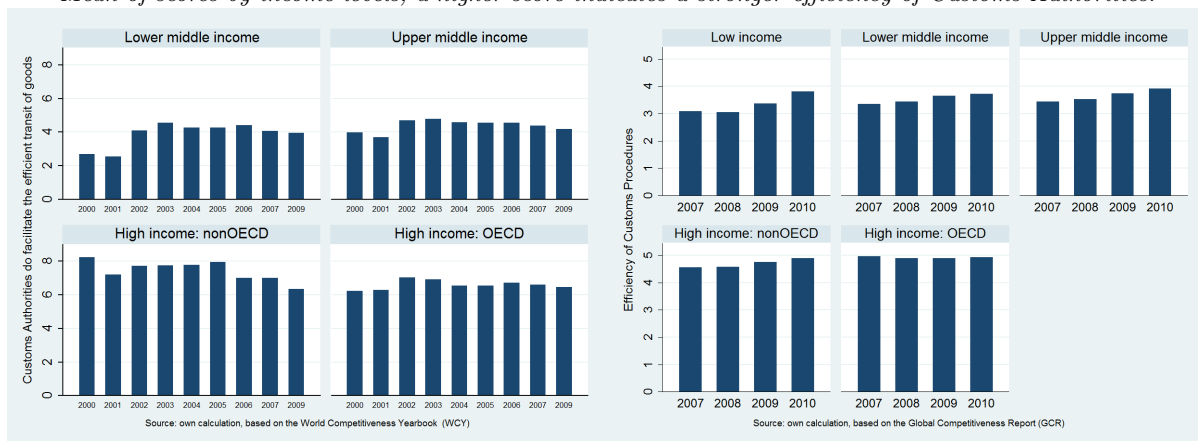
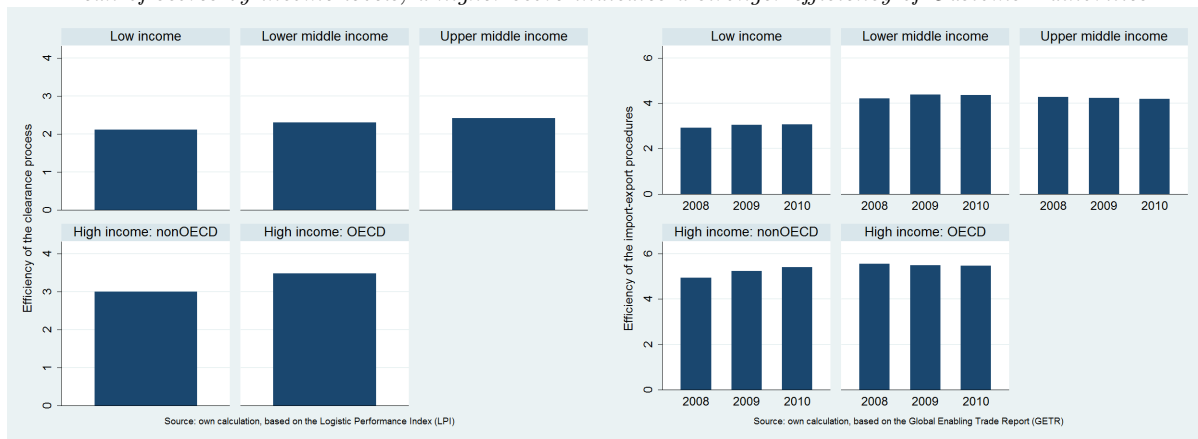


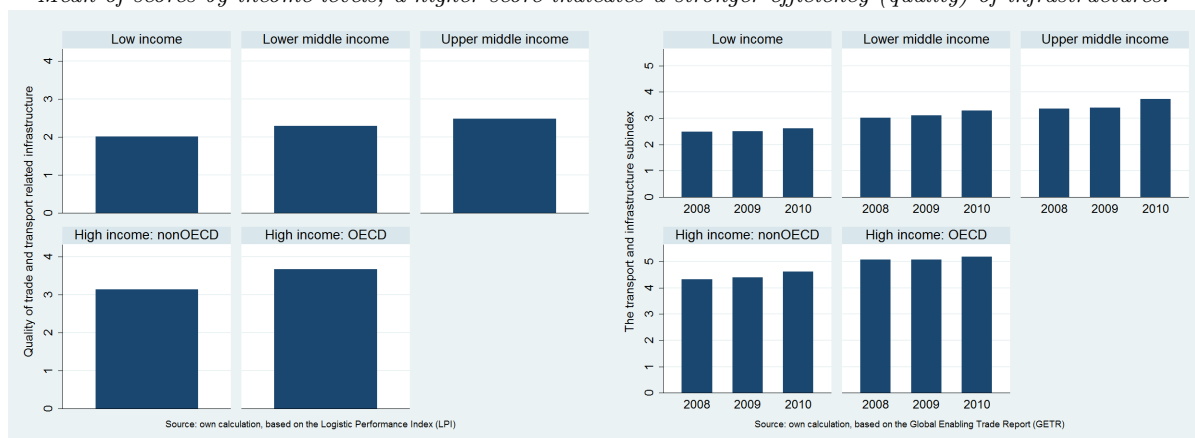
Figure 5.5: Customs Efficiency according to the LPI and the GETR
 Mean of scores by income levels, a higher score indicates a stronger efficiency of Customs Authorities.



Regarding to the quality of infrastructures, disparities are still the same between income groups (figure 5.6). The evolution is quite stable, but it not surprising as this area requires heavy and long investments. Many indicators rely also on the efficiency of the logistic operators. It is difficult to interpret such variables. There are based on private factors and numerous criteria such as distribution

and network policies which do not rely on the public hand. Moreover, such indicators are correlated with trade flows, encompassing many causality issues.

Figure 5.6: Transport and infrastructure efficiency, according to the LPI and the GETR
Mean of scores by income levels, a higher score indicates a stronger efficiency (quality) of infrastructures.



Based on the framework of the WTO trade facilitation negotiations (WTO, 2010) and the OECD Trade Facilitation Indicators (Moisé and Orliac, 2010), I computed the rate of ratification of the main trade facilitation conventions and agreements, by income groups and regions (figure 5.7). It exhibits huge disparities across each classification. It also shows the supremacy of the OECD countries or, at least, their involvement and their leading role in the international normalization and standardization process. The International Laboratory Accreditation Cooperation (ILAC) provides accreditation for testing and calibration laboratories, encouraging the adoption of common technical requirements. It appears that the OECD countries are far ahead of others in this area too, both in term of participating countries and number of laboratory (intensity). Moreover, these disparities remain at the regional level (figure 5.8). Such disparities are also obvious about the Mutual Recognition Agreements related to Customs and standards matters.

The traditional indicators of trade facilitation draw a contrasted picture. In the one hand, the high income economies perform better than the others, that it is not surprising. There is also a phenomena of catching up between income groups. In the other hand, the evolution of the efficiency of Customs remains ambiguous. If the lower income economies achieved several apparent improvements, trends show a relative stability since a couple of years²¹². It seems that a threshold has been reached. These

²¹²The improvements noted in the lower income economies could be the consequence of the aid for trade initiatives, which have increased under the Doha round. In addition to previous programmes such as the ASYCUDA, many programmes have been launched, leading to substantial improvements. Numerous researches try to evaluate the effectiveness of aid for trade and recent insights argue that aid for trade facilitation is one of the most effective area (Helble et al., 2009; OECD, 2009a; Cali and te Velde, 2011). However, assessing the economic outcomes related to aid for trade remains challenging. See Hallaert (2009, 2010), Hayashikawa and Hallaert (2010), Hynes and Hallaert

observations reveal the limits of such indicators based on perceptions, but also their “limited” scope. Indeed, they cover a broad definition of trade facilitation, forgetting some narrow aspects which can be more relevant to evaluate the effectiveness of Customs administrations and border procedures. These dimensions are explored in the following section.

Figure 5.7: Rate of ratification of the main trade facilitation Conventions

Source: own calculation, based on Conventions listed by the WTO (2009a) and Moisé and Orliac (2010).

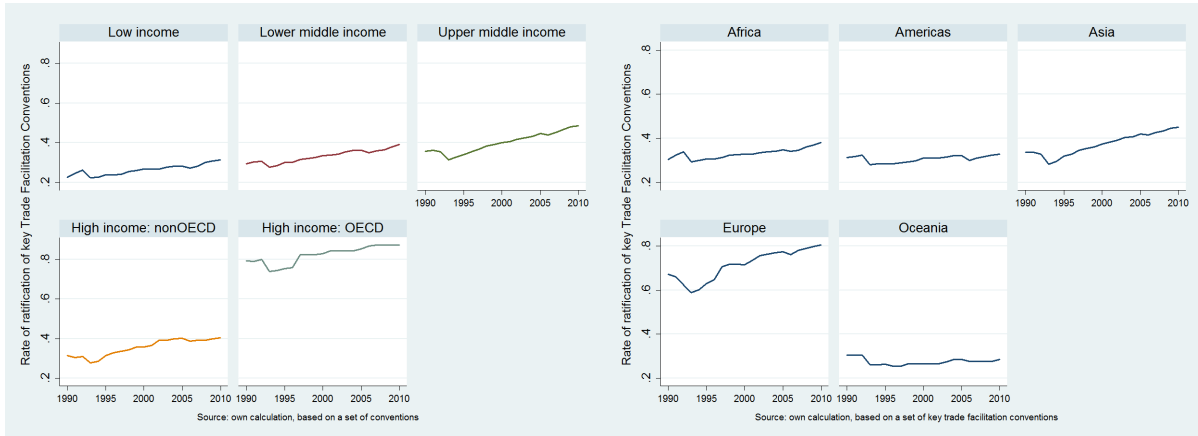
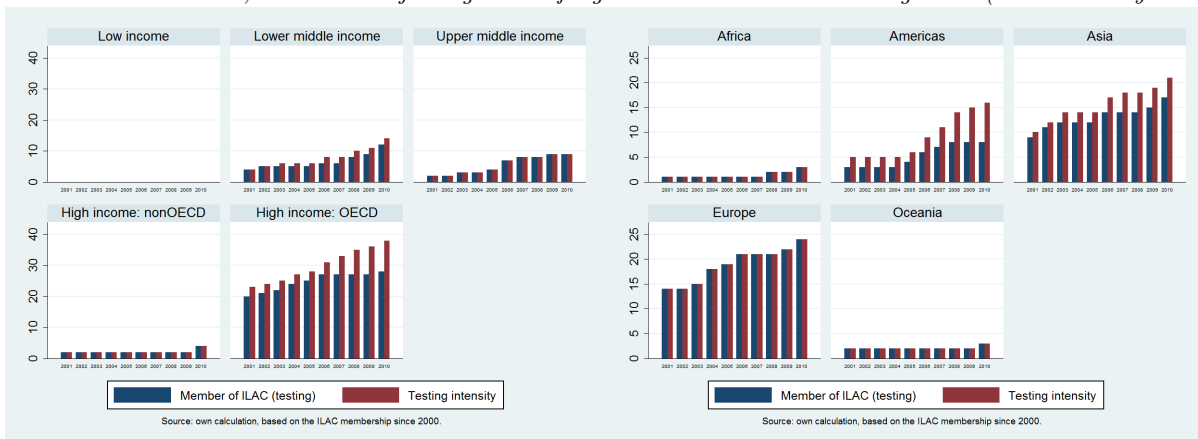


Figure 5.8: ILAC Membership and intensity (since 2001)

Source: own calculation, based on the joining dates of signatories to the ILAC Arrangement (at the 16 May 2011).



(2010) and Hoekman and Wilson (2010) for a review. Moreover, as stressed in a recent meta evaluation by Delpuech et al. (2010), the evaluation programmes are not well designed to evaluate the impact on trade.

5.2 The Global Express Association (GEA)

The Global Express Association (GEA) is the global trade association of the express delivery industry²¹³ which has a significant experience in the cross-border Customs clearance system around the World. That is why the GEA has been invited to participate to the WTO negotiations on trade facilitation²¹⁴. In this context, the GEA has compiled regular reports focusing on market access and Customs barriers. The GEA explores particularly the issues that are of interest to its members, which are related for most of them to trade facilitation. These reports - *the Customs Capabilities Reports* - follow closely the questions rose during the WTO negotiations on trade facilitation. It could be a valuable source to expand to a wider set of countries the Trade Facilitation Indicators (TFIs) provided by the OECD (Moisé and Orliac, 2010), which follow a similar framework. The scope of the data covered by the GEA Customs reports is more limited than the TFIs, but the GEA reports cover 138 countries, including all OECD countries. These reports can also be used to give a global picture of the current Customs efficiency around the world on several trade facilitation dimensions. These observations have already been used by the Global Enabling Trade Report to build a variable on *Customs Services*, based on a set of 15 questions from the GEA questionnaire.

The GEA collects information from its members, through their people “on the ground” who have local knowledge of border issues. Data were first collected in 2005 and since are regularly updated. The last available reports have been updated in 2009 and unfortunately the GEA does not keep the previous versions available. I have extracted the information of all the Customs Capabilities Reports, downloaded the 15th January 2011. Based on 33 questions, each questionnaire covers three main categories: transparency, Customs efficiency and post-release processes. However, the questionnaires themselves have changed since 2005 and I made several connections between the oldest and the current reports²¹⁵. There is some missing data regarding to a series of specific questions (Appendix, section E.1.2) and probably several mistakes inside the Customs reports, either they are transcription or updated issues. But these reports still provide a global and valuable picture of Customs efficiency around the world. I study the main results of the database at different levels²¹⁶, by OECD membership, by regions (and sub-regions) following the United Nations classification, and by income level following the World Bank classification. I only refer to the sub-regions when there is enough data²¹⁷. Note that the European Countries do not refer to the European Union (EU27) alone, but to a larger set of countries (Appendix, section E.1.2). In a first part, I summarize the main results of the Global Express Association surveys by core trade facilitation dimensions, following the

²¹³Such as DHL, FedEx, TNT and UPS.

²¹⁴The GEA aims also to help the World Bank and the WCO to determine their assistance and set priorities.

²¹⁵Note that 78.42% of the sample is up to date (2009) sharing the same questionnaire framework. The correspondence table and a current Customs report are provided in the appendix, table E.2.

²¹⁶Statistical analysis of all questions and the whole database are available on demand.

²¹⁷Some sub-regions have to be put into perspective. Thus, North America only includes the United States (2006), Canada (2009) and Bermuda (2009). As many questions from the 2009 questionnaire do not have any correspondences with the 2006 questionnaire, we have only 3 possibilities regarding to the percentage of positive replies (“yes”) for this sub-region (0%, 50% or 100%). Such ratios do not provide a lot of information regarding to the number of countries constituting the sub-region.

WTO negotiations framework. Then, in a second part, I explore the potential correlations with a series of existing indicators and suggests a Customs efficiency index based on the GEA data.

5.2.1 Trade Facilitation at a glance

Availability of information on the Customs website (Forms, docs and procedures) As stressed by Moïse and Orliac (2010), the availability of information is a key factor of each trade facilitation policy. The GEA Customs Reports indicate that, most of the time, Customs regulations (related to imports or exports) are published in Official Journal. However, it is still an issue in 20% of countries, most of them take place in Caribbean (40%), North and Eastern Africa (respectively 34% and 25%) and South-Eastern Asia (37%). According to the GEA Customs reports, Portugal and Greece do not publish Customs regulations in their respective Official Journal. But, it should be noted that most of the related regulation is published by the European Community. Beyond the official publication of regulation, another important aspect is the publicity of such regulation and the availability of related documents and forms. In this area, the degree of information is much more scattering across the world. Thus, about half of African countries (47.62%) do not provide a full and precise description of Customs procedures (especially Eastern and Western Africa), 39% of American countries, 25.8% of Asian countries and 20% of European Countries. This proportion tends to increase when we look at the “internet availability” of forms and documents required for import, especially for Eastern and Western Africa²¹⁸, and South-Eastern and Southern Asia. OECD countries do not perform as well as for the description of procedures as, according the GEA Customs reports, Portugal and Turkey do not provide the necessary forms and documents on their website. The TFIs also showed that such documents and forms are not always available on the Customs website of each OECD Member²¹⁹. Surprisingly, in this area, the lower middle economies perform better than the upper middle economies and share similar percentages than the higher income economies. It may be the consequence of the technical assistance programmes provided by the World Bank or other agencies.

Trader involvement in regulation process and publication Improving the transparency enhances traders compliance and the predictability of the clearance process²²⁰. The involvement of the trade community in the regulatory process and the publication of new regulations before their implementation are useful tools to improve the transparency at the border. Non-surprisingly, all OECD countries allow traders to make necessary changes and arrangements by publishing advance notice of the effective date, even if it is not always the case for 16.67% of them. One quarter (26%) of non-OECD countries does not publish such notices in advance and another 22% of them do it only sometimes. The situation gets worse when we look at the traders involvement. Thus, half of non-OECD countries and 19.35% of OECD countries do not allow public comments prior the implementation of new regulations and another quarter only sometimes.

²¹⁸Thus 75% of countries in Eastern Africa and 60% in Western Africa do not provide such documents.

²¹⁹It was measured by variables 6 and 7 of the TFIs.

²²⁰See Helble et al. (2007) for a discussion on transparency and predictability.

Figure 5.9: A full and precise description of Customs procedures on Customs website?

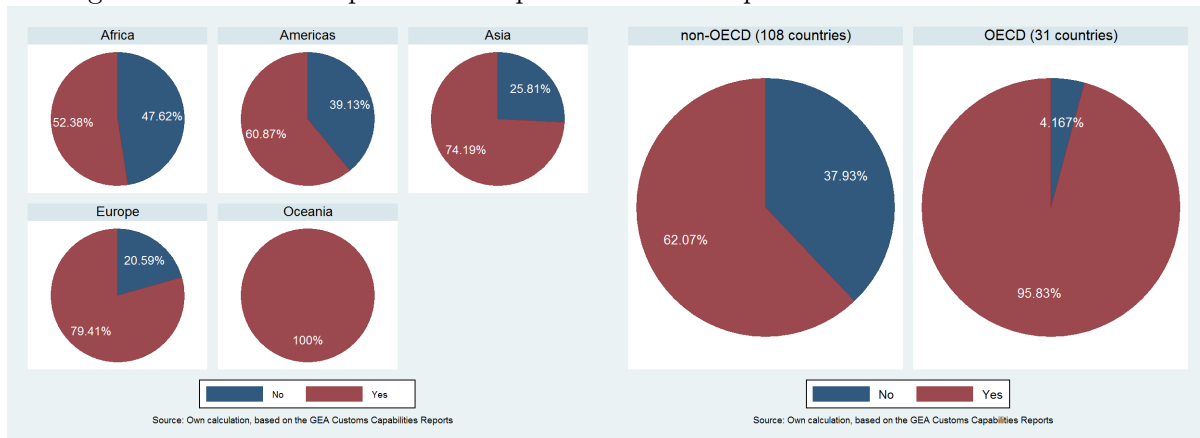


Figure 5.10: The forms and documents required for import are available on the Internet?

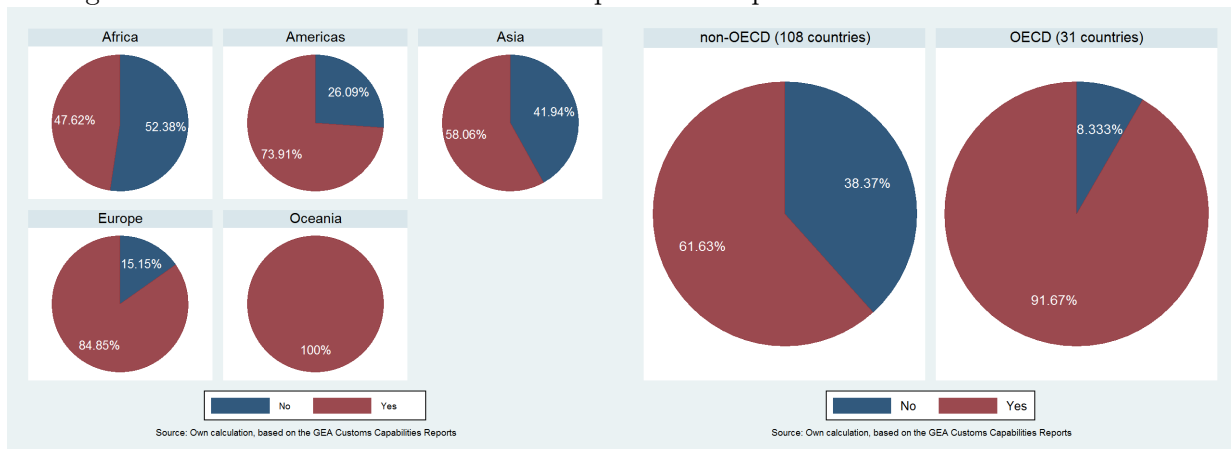


Figure 5.11: Are new regulation and changes published for public comments prior to being implemented?

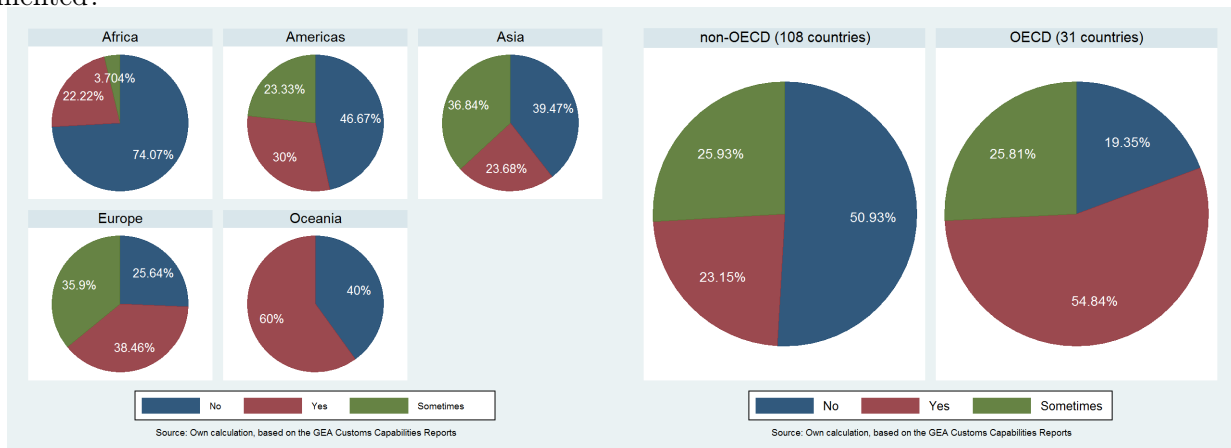
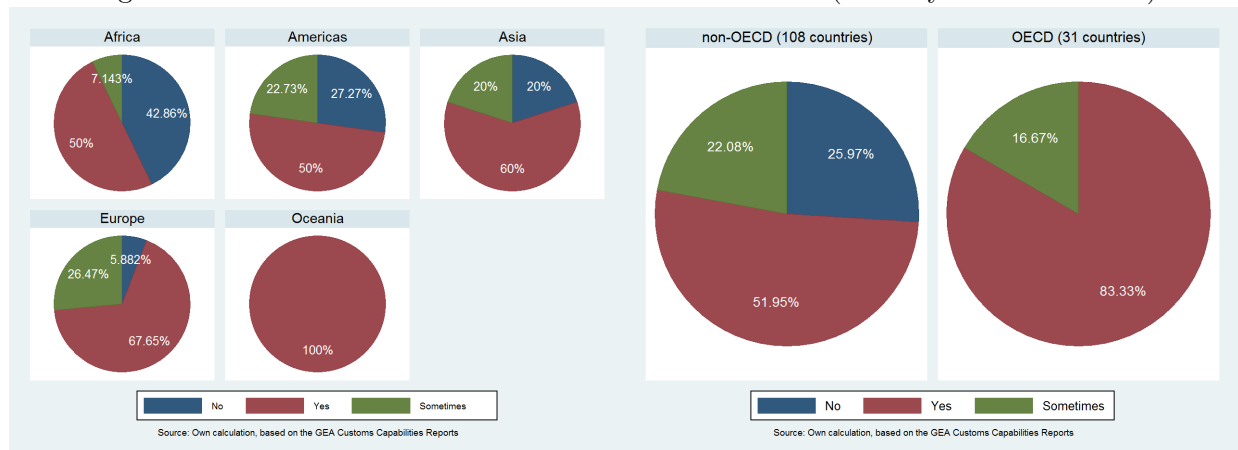


Figure 5.12: Is there advance notice of the effective date? (or delayed effective date)



At a regional level, the European countries seem more open to public comments with almost 75% of countries allowing public comments prior implementation of new regulations. As the European Union allows such comments, it is not surprising. African countries are still the more closed to public comments, as near 75% of them do not allow them, while about a half of American and Asian countries do it. Regarding to the possibility for traders to have a notice before the effective date of new regulations, the situation is much better. However this measure is still absent respectively in 20%, 27.7% and 42.86% of Asian, American and African countries.

Advance Rulings Binding Tariff Information (or Advance Rulings) is a valuable tool to improve the predictability of the import process and traders' compliance. The GEA Customs reports show several disparities across the international community. The procedure is well developed in Europe and, at a sub-regional level in Western Europe, North America, Eastern Asia and Northern Africa, where 100% of the panel allow for the use of advance rulings. But, several sub-regions do not use such procedures. Less than 40% of countries allow the use of Advance Rulings in South-Eastern Asia, Middle and Eastern Africa, Central and South America. Such disparities decrease with the income level (47.37% of low income economies do not apply such procedures, but only 12.77% of high income economies). As regard to the OECD membership, it appears that the OECD countries are the most intensive users than the non-OECD countries²²¹. However, the exact question ask by the GEA relies on *all* Customs ports. So it may be possible that some countries provide such procedures but not at all border offices. Nevertheless, such domestic disparities generate also many inefficiencies for traders and Customs too.

Appeal procedures One of the areas explored by the TFIs refers to the appeal procedures. According to the GEA reports (see figure 5.14), almost all countries allow traders to appeal against

²²¹ Apart Hong-Kong, China who does not provide such procedures as it is a free port without duties, all OECD Members use Advance Rulings. Note that there is some mistakes in the GEA reports as, according the replies to the OECD questionnaire on the trade facilitation indicators, Greece, Turkey and Norway allow the use of Advance Rulings, whereas Hong-Kong, China does not.

Figure 5.13: Does Customs issue advance rulings on all Customs ports?

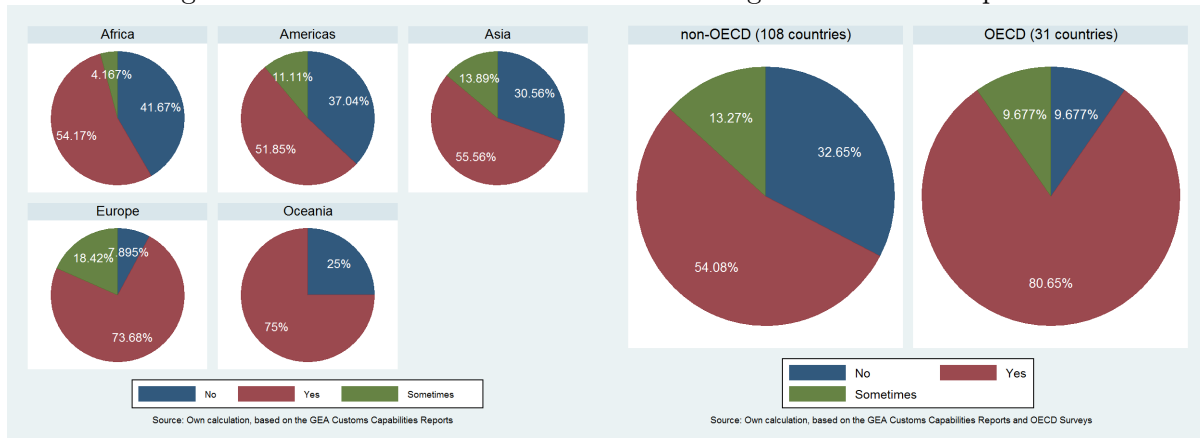
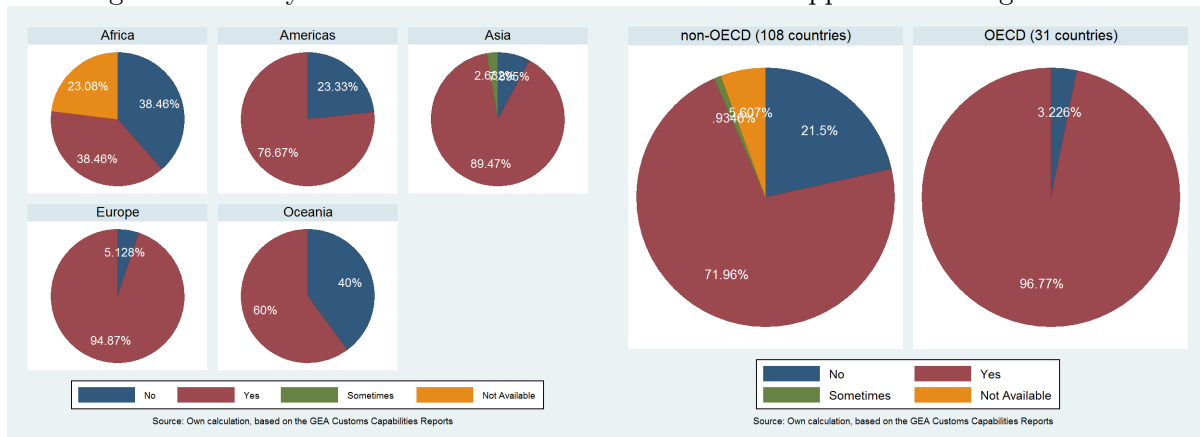


Figure 5.14: May decisions of local Customs officials be appealed to a higher level?



local Customs' decisions to a higher level, with the exception of some African countries (especially Eastern African countries). However, the availability of information on appeal procedures on Customs websites is not equally spread around the World. Thus, such information is available in 76.47% of European countries, 67.74% of Asian countries, 60% of American countries and only 47.62% of African countries²²². At the OECD level almost all Members provide such information (87.5%) against 60% of non-OECD countries. There is a time limit to appeal in many countries. The usual limit is between 30 and 90 days, with some peaks for North America and Western Europe. The Average is 50 days for non-OECD countries (from 7 to 180 days, 36 observations) and 258 days for OECD countries (from 20 to 1095 days, 18 observations). Several countries (33) do not apply any limits. It is difficult to analyze this absence of limits. It may be a policy in favour of traders driving by a highly efficient appeal system, but also the result of an impartial system or a discretionary one²²³.

²²²Some sub-regions encompass numerous countries who do not provide information, especially Southern Europe (40%), Central Asia (100%), Eastern (75%) and Western (57.4%) Africa and Caribbean (60%).

²²³There is a wide disparity across the countries who do not apply any limits, between Germany, Hong-Kong, Portugal, the United Kingdom, Sweden, Finland, and Syria, Nigeria, Sierra Leone, Iran or Saudi Arabia.

Figure 5.15: Availability of information on appeal procedures of Customs' decision (on internet)

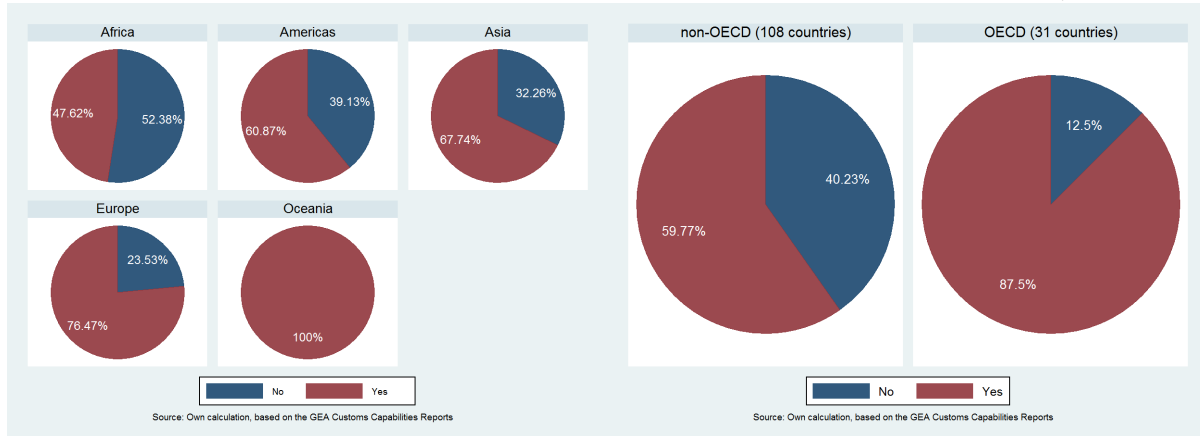
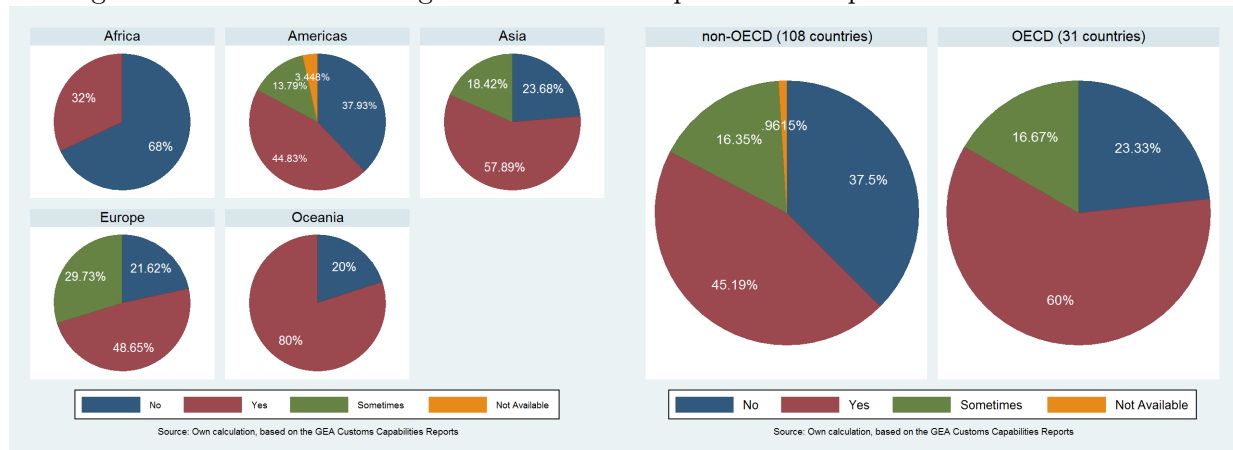
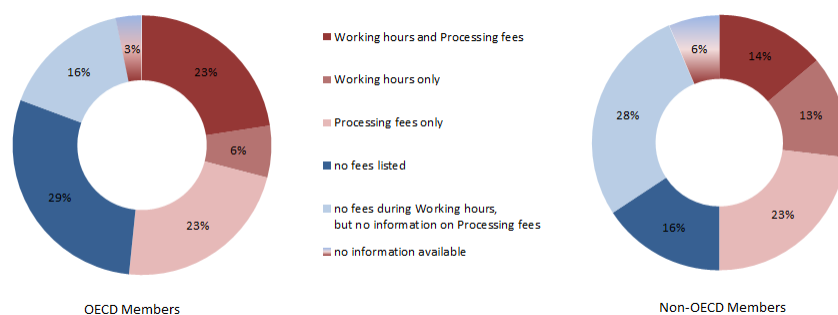


Figure 5.16: Are the working hours of Customs personnel adapted to commercial needs?



Processing fees Fees could be necessary in some cases and are not forbidden by the WTO, but they should remain proportional to the real cost of the service provided (WTO, 2010). According the GEA Customs reports, the use of fees for Customs services during normal working hours is equally distributed across the world (around 30% of countries both for OECD and non-OECD countries), with the exception of Eastern Europe where 53% of countries apply fees during normal working hours. However, even if such fees are well distributed, it should be noted that working hours do not match commercial needs to the same extend around the world. Thus, 60% of OECD countries and 45% of non-OECD countries provide working hours adapted to commercial needs according to the respondents of the GEA Customs reports. It is a big issue in Africa, where only 30% of countries have well adapted working hours. Do not have fees during working hours without match working hours of commercial operators should lead us to moderate the impact of this absence of fees. Indeed, you will probably face a set of fees outside working hours.

Figure 5.17: Fees during Working Hours and Processing fees during Post-Release processes



The GEA compiles processing fees for express clearance, on-site Customs facilities, EDI links, value added network operators and a category grouping all other fees²²⁴. Regarding to Asia and Europe -the two regions who have the higher rate of data availability on fees- respectively around 25% and 15% of countries apply fees for EDI links²²⁵, fees for value added network operators, or fees for on-site Customs facilities²²⁶. About this last type of fees, *at least* 35% of African countries apply it²²⁷. Looking at the processing fees for express clearance, 20% of Asian countries and 12% of European countries apply some fees. Once again African countries seem to be high consumers, as at least 25% of countries apply fees for express clearance. Contrary to the previous observations, Asia and Europe apply much more “other fees”, a sub-category for non-listed fees. Thus respectively 40% and 32% of their countries apply a variety of additional fees²²⁸, whereas only 10% of *all* African countries seem to apply other fees. This is particularly tricky and leads to the following questions: why such importance and what are these fees? It could be the consequence of the different types of imported goods requiring different treatments and procedures, or the volume of trade flows, or also some hidden taxes through “exotic fees”. Figure 5.17 shows the repartition of all the fees listed by the GEA Customs reports, across the OECD and non-OECD members.

Customs brokers The use of Customs brokers varies across the international community. Almost none of the OECD countries require clearance by a third-party Customs broker²²⁹, whereas at least 36% of non-OECD countries require such services. At a sub-regional level the most intensive users of such services are Western and Southern Asia (more than 50% of the panel), South and Central America (respectively 90% and at least 50% of the panel) and Eastern Africa (50% of the panel).

The importer needs to provide different documents Several documents may be required to import, like a consular invoice (to prove the origin of the good), a certificate of origin from a

²²⁴Note that many data are missing and that results should be taken with caution.

²²⁵Especially South-Eastern Asia, where at least 50% of countries apply such fees.

²²⁶Around a third of Southern and Western Asian countries apply fees for on-site Customs facilities.

²²⁷I refer to the total of African countries of the panel. I use the term “at least” as 50% of data are missing.

²²⁸Particularly Eastern Europe and South-Eastern Asia where 75% of countries apply other fees.

²²⁹Only Greece and Mexico require clearance by a third-party Customs broker.

Figure 5.18: Does Customs require clearance by third party Customs broker?

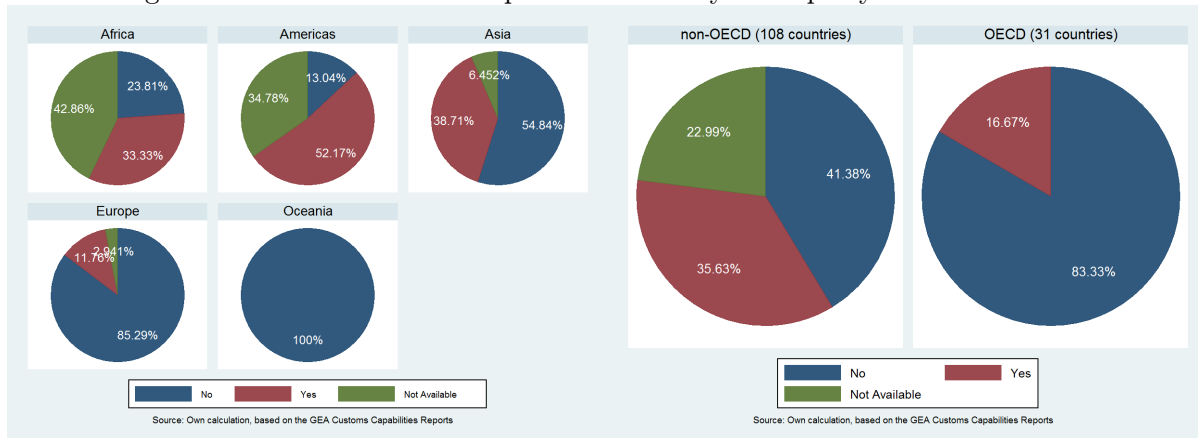
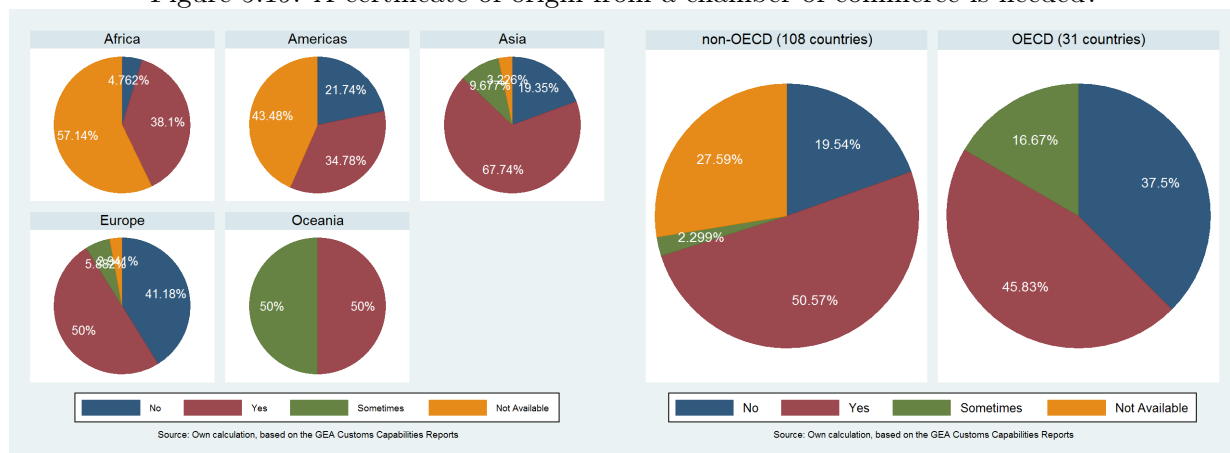


Figure 5.19: A certificate of origin from a chamber of commerce is needed?



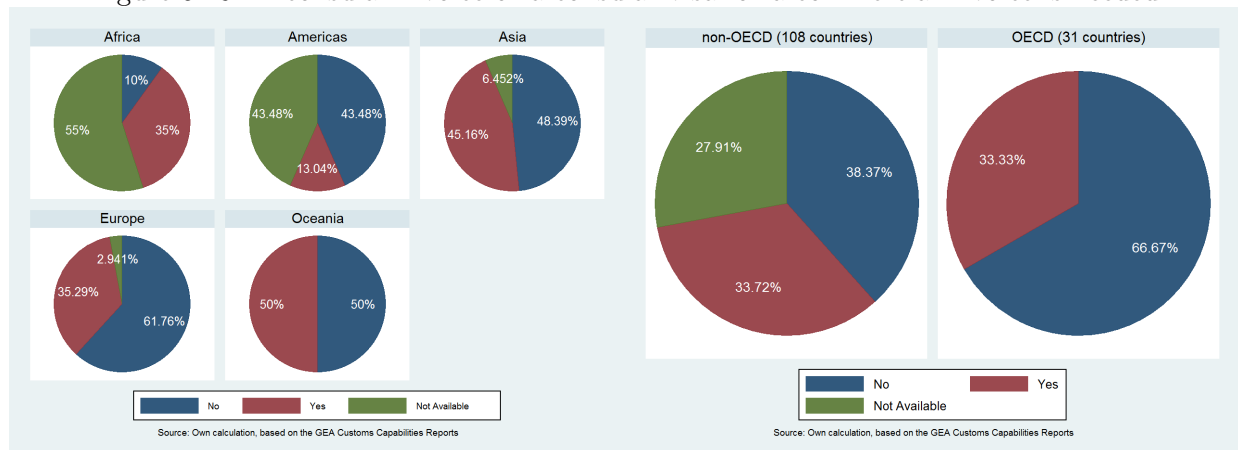
chamber of commerce (or similar agency), or a certificate from a pre-shipment inspection agency²³⁰. According to the GEA Customs reports, the pre-shipment inspection is not a common practice across the sample²³¹, whereas origin issues concern more countries, equally distributed across OECD and non-OECD countries. Several Asian (19.35%) and European countries (41.18%), but only 4.76% of African countries, do not require a certificate of origin from a Chamber of Commerce. These ratios increase when we look at the need of consular invoice. Thus, 61.76% of European countries and 48.39% of Asian countries do not require a consular invoice or a consular visa for a commercial invoice. The ratio remains close to the previous ones for African countries (10%), but its interpretation is still cautious due to 55% of missing data for this region.

Customs release The Customs Capabilities Reports provide a valuable information regarding to the release and clearance process. First, the reports indicate if the Customs accept and process

²³⁰It is not an exhaustive list, but the documents checked by the GEA Customs reports.

²³¹64.52% of Asian countries do not require a certificate from a pre-shipment inspection agency, 79.41% for European countries, and 19% for African countries.

Figure 5.20: A consular invoice or a consular visa for a commercial invoice is needed



electronically the data required for release of shipments prior arrival. There is a huge difference between OECD and non-OECD countries where respectively 22.58% and 64.81% of countries do not accept EDI prior arrival to release goods immediately after arrival. At a regional level less than 10% of African countries and around a third of Asian countries accept EDI prior arrival. Note that, it is possible in some cases to send documents prior arrival, but without EDI means. All countries who accept EDI process prior arrival release the shipments immediately after arrival or within the day of arrival. When such processes are not accepted, the average time of release after post-arrival submission of data varies between OECD and non-OECD countries (figure 5.22). Another component of the release process is the possibility to separate the release of goods from the fiscal control. Observations are in line with previous results. Indeed, OECD and non-OECD countries are still diametrically the opposite, since 71% of OECD countries allow such a separation, whereas the same ratio (70%) of non-OECD countries does not. When all OECD countries use EDI at this step, only 50% of African countries do it. At the regional level, 77% of American countries and 67% of African countries do not separate physical release from fiscal control, while only 39% of European countries do not provide such a separation.

The primary basis for physical examinations of shipments The method used to examine the shipments arriving at the border is a key trade facilitation indicator, as it affects waiting time at the border. It is part of the risk management policy at the border (Wulf and Sokol, 2005) and Customs should apply a method which is an appropriate balance between trade facilitation and regulatory controls. The different methods of physical examinations are based on automated risk assessment, random examination, inspector discretion and finally to a situation where all goods are inspected. Using electronic data exchange and risk analysis reduce the time consuming at the border without decreasing security. Supported by the Revised Kyoto Convention and the international Customs community, the automated risk assessment is the best standard to implement (WCO, 2007; WTO, 2010). As explained by Laporte (2011), the use of statistical scoring techniques is the most effective risk management system. Random inspections avoid arbitrary issues and congestion

Figure 5.21: Use of EDI prior arrival to release shipments immediately after arrival?

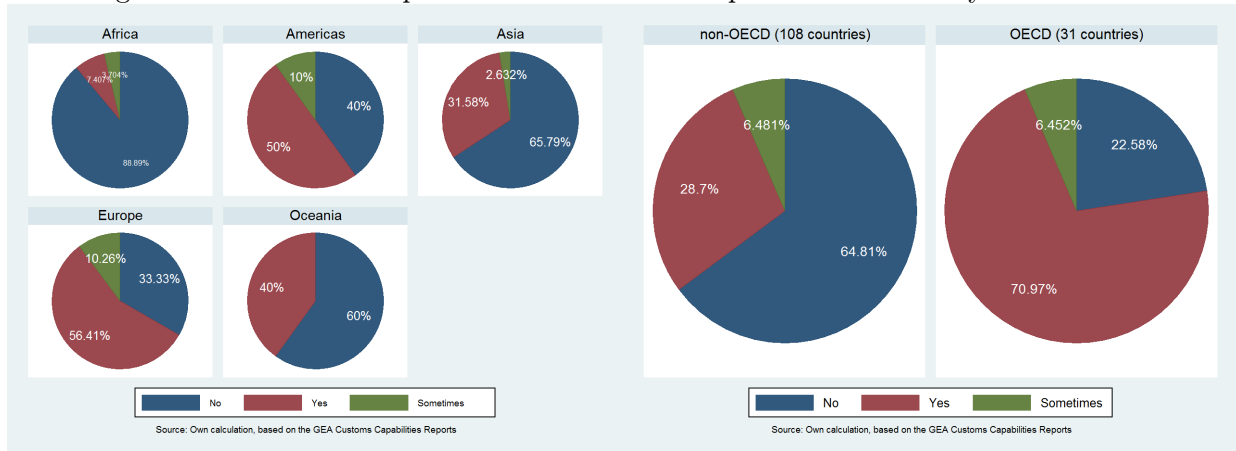


Figure 5.22: Average time (hours) between post-arrival data submission and shipment release

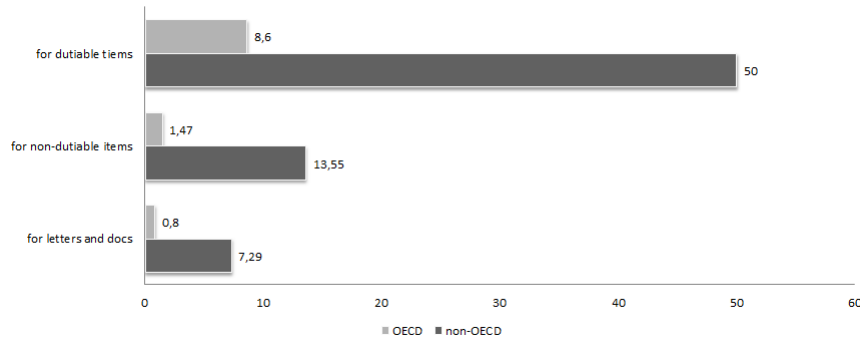


Figure 5.23: Is physical release of goods separate from the fiscal control?

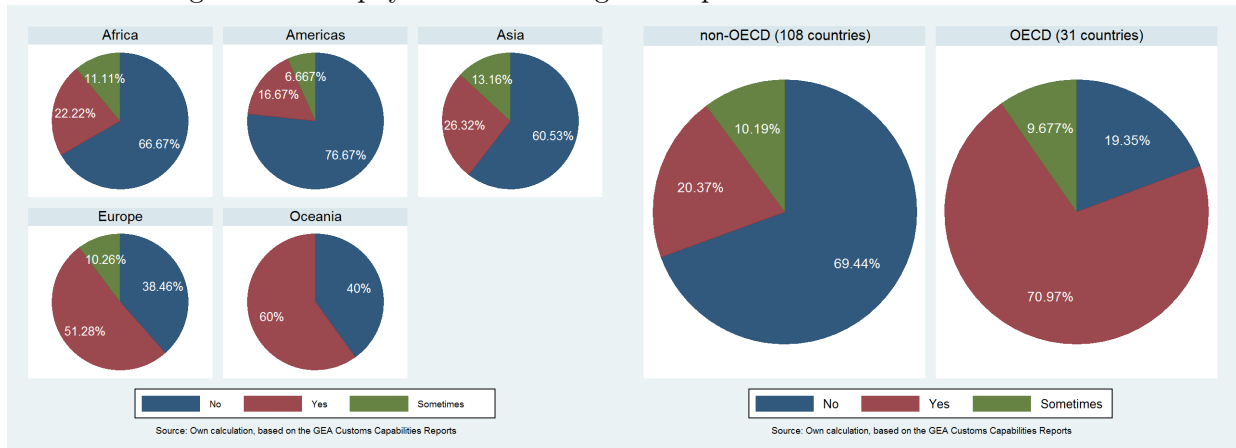
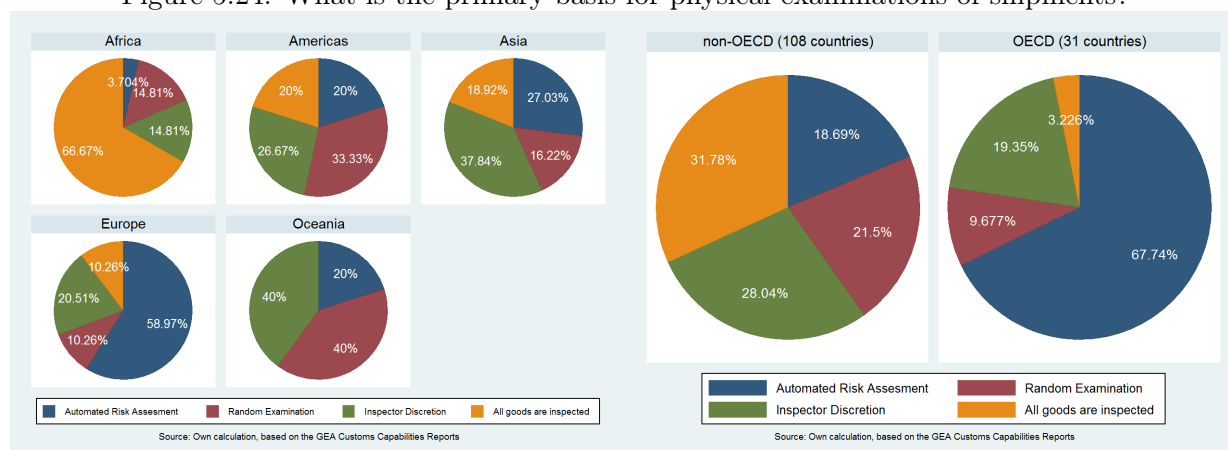


Figure 5.24: What is the primary basis for physical examinations of shipments?



issues, keeping the time at the border at a low level. However, the efficiency of controls may not be optimal, as the level of security. Inspector discretion relies on the staff skills, practices and its ethics. In the one hand, it could be viewed as increasing security by targeting “effectively” suspicious goods. In the other hand, it could be viewed as a potential source of corruption and inefficiency. Finally, when Customs officers control all goods, we can expect that the time at the border increases a lot, without reducing the risk of corruption. The following table 5.1 classifies the different methods according to their impacts.

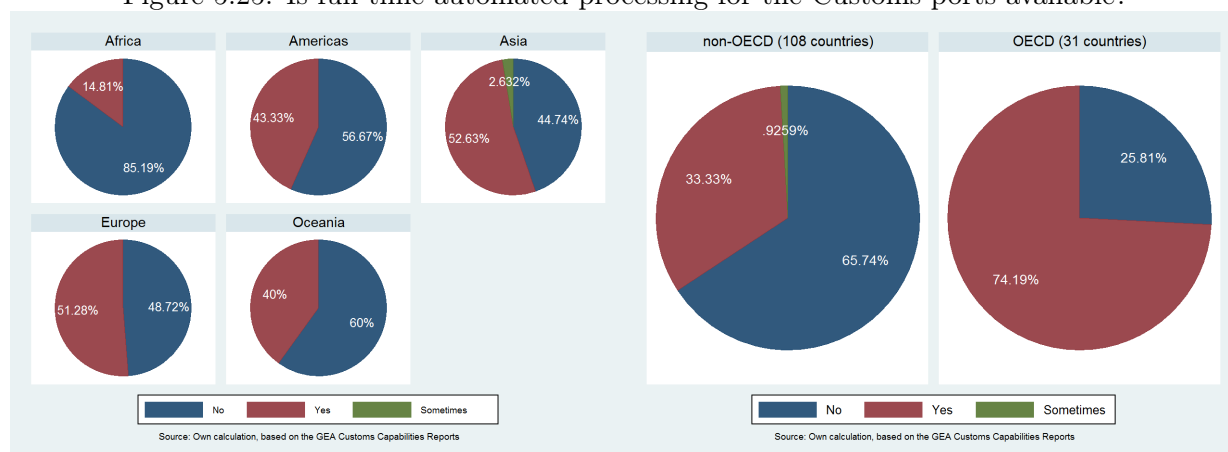
Table 5.1: Impact of the inspection method on time and risk

	Time at the border	Risk of Corruption	Control efficiency
Automated Risk Assessment	low	null	high
Random Inspection	medium	null	medium
Inspector Discretion	medium*	high	medium*
Inspection of all goods	high	medium	medium

* It varies with the degree of ethics and skills of Customs Officers

According to the GEA Customs reports, it appears that each region has its own preferences. Moreover, the use of automated methods seems correlated with the income classification. Thus, 67% of African countries against 20% of American countries, 19% of Asian countries and 10% of European countries inspect all goods. Only 3.7% of African countries apply automated risk assessment (South Africa), 20% of American countries, 30% of Asian countries and 60% of European countries. Looking at the sub-region level, the most intensive users of automated risk assessment are in Eastern Asia (100%), North America (100%), North and Southern Europe (both 75%). It appears that in Western Europe, automated risk assessment, random examination and inspector discretion are equally distributed, several countries using a mix of these methods. These observations are confirmed when one looks at the choice of inspection methods according to the membership or not to the OECD. Indeed almost 75% of OECD countries use an automated risk assessment whereas the fourth methods are well distributed within non-OECD countries (ranging from 19% for automated risk assessment to 31% for inspection of all goods).

Figure 5.25: Is full time automated processing for the Customs ports available?



Full-time automated processing for the Customs ports The use of IT and the efficiency of Customs infrastructure is another essential point of the trade facilitation chain (see Chapter 1). Regarding this area, OECD and non-OECD countries are the opposite. Indeed, 74% of OECD countries, but only 33% of non-OECD countries, provide a full-time (24/7) automated processing for the Customs ports. At the regional level, around 50% of countries across the different regions do not provide such automated process, while this figure increases to 85% for African countries.

Multiple inspection and related delays Customs are not always the only agency involved in the control of goods at the border. Some other agencies, such as health agencies, can also control shipments. These agencies could be a source of additional delays in delivery. The OECD countries are more intensive users of complementary agencies (65%) while more than a half of non-OECD countries does not use such agencies. In both cases, half of these multiple inspections cause delays in delivery. It is quite surprising to see the OECD countries using such multiple inspections more intensively. It may be the consequence of the different challenges faced by the OECD Customs administrations, following different trade patterns (flows, goods). These countries have also developed numerous regulatory standards, by requiring the expertise of various agencies. At the regional level we note that American countries are the greatest users of multiple agencies, thus only 36.67% of American countries do not apply multiple inspections. African and Asian countries are the less intensive users as respectively 59.26% and 52.63% of countries do not rely on multiple agencies. About the delays, the “worst” areas are Europe and Africa where, respectively, in 65% and 63% of countries these multiple inspections are viewed as causing delays.

Time limit for Customs to demand additional duties In some cases, Customs can demand additional duties after the release of goods. Such demands can or cannot be limited in time. In this latter case, it is not a good sign for traders. It could be an indicator of Customs efficiency, predictability and even of integrity. Almost all OECD countries have such limits, whereas 56.48% of non-OECD countries do not have any limits. In this area, the “worst” regions are Asia and Africa,

Figure 5.26: Are there multiple inspections?

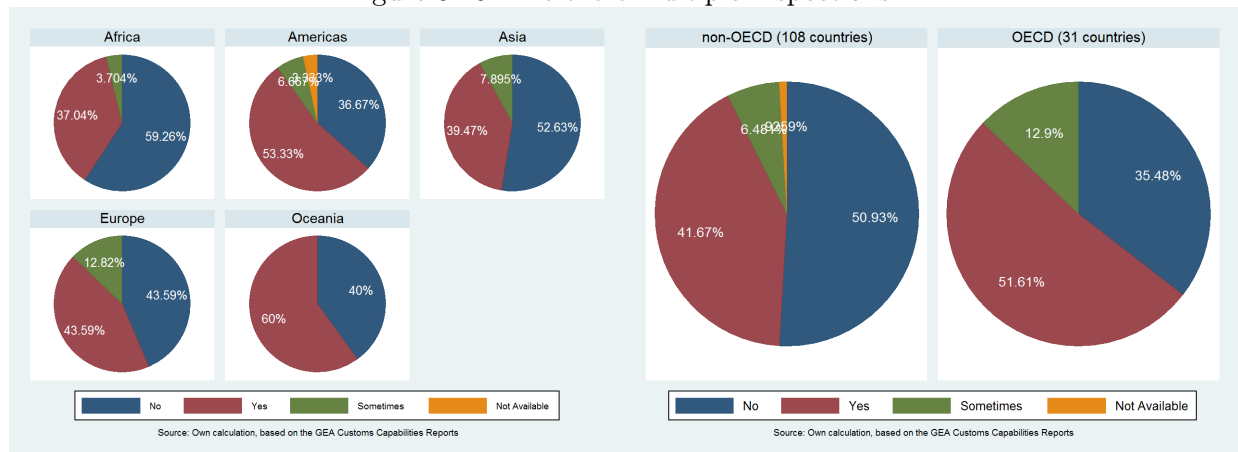
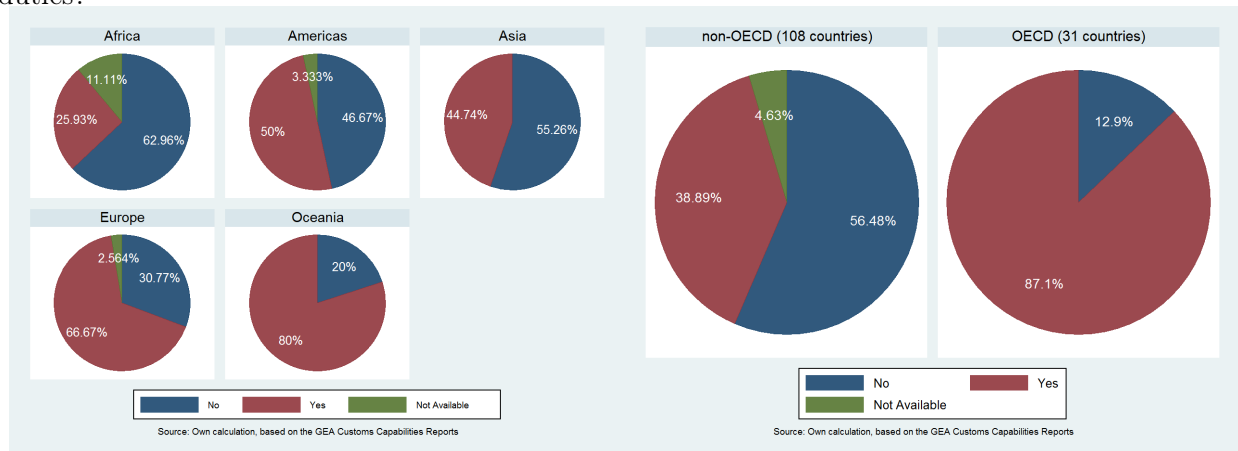


Figure 5.27: Is there a limit on the time within which Customs is allowed to demand additional duties?



where respectively 55% and 63% of countries do not have any limits. When there is a limit, the norm seems to be 3 years (1095 days). North America, Europe and South-Eastern Asia have the longer limit. The Average is 921 days for non-OECD countries (from 1 to 2190 days, 39 observations) and 1461 days for OECD countries (from 30 to 3650 days, 27 observations). Higher delays could be related to the degree of Customs efficiency (the rapidity of the post-audit for example), but also to the volume of trade flows.

Operator’s facilities (for shipment arriving by air) The express delivery chains often use airport infrastructures. Once a shipment arrives, it is inspected and released at the operator’s facility but it can also be transferred into another facilities. Almost all OECD countries keep the shipments at the operator’s facility, whereas 30% of non-OECD countries transfer shipments into another facility. Only few European and African countries transfer shipments to another facility (around 15%), whereas 28% of American countries and 35% of Asian countries do it²³². It is possible that

²³²Especially Southern and Western Asia.

Figure 5.28: Does Customs inspect and release goods at the operator’s facility? (by air)

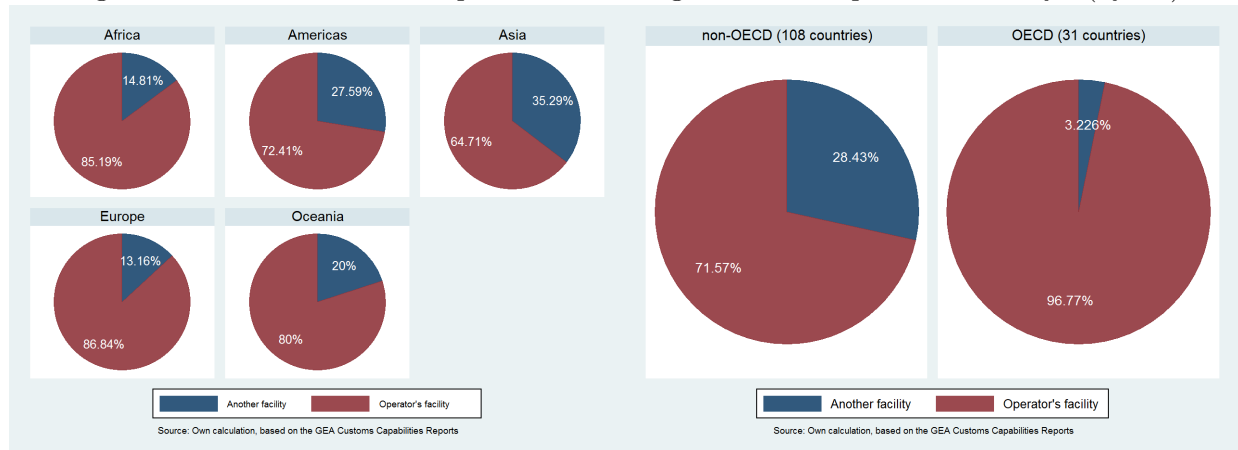
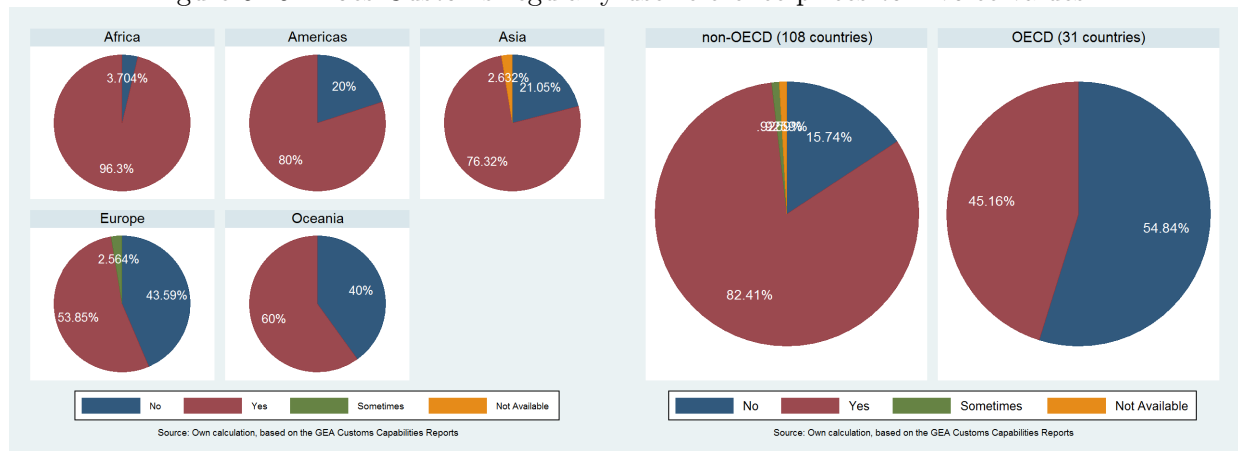


Figure 5.29: Does Customs regularly use reference prices to invoice values?

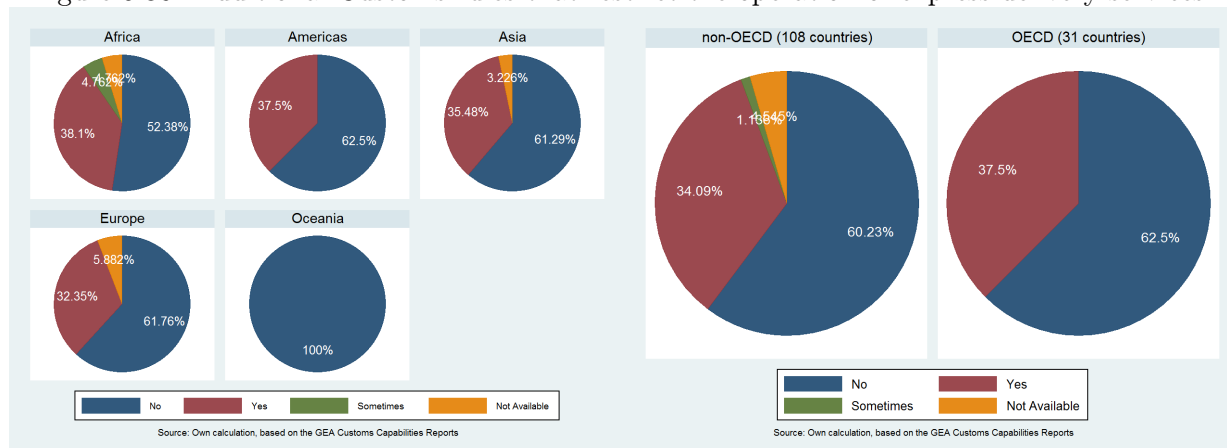


African countries rely on operator’s facility for cost reasons.

The use of reference prices to invoice values? Customs valuation is one of the main compliance issues at the border, particularly in the growing context of transfer pricing²³³. Customs authorities apply the WTO Customs Valuation Agreement by providing a series of methods to determine a “fair” value (Rosenow and O’Shea, 2010), while direct tax authorities follow the arm’s length principle and OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, which set the international standard for transfer pricing. The OECD countries mostly use reference prices (55%) while only 16% of the non-OECD countries rely to this method. There is huge disparities at the regional level too. Thus, only 3.7% of African countries use regularly a reference prices to invoice values, whereas 20% of American and Asian countries and 44% of European countries do it.

²³³ According to Bakker and Obuoforibo (2009), the multinational enterprises account for about 60% of world trade. For a critical review of transfer pricing challenges, see Ping and Silberstein (2007) and Wehnert (2009).

Figure 5.30: Additional Customs rules that restrict the operation of express delivery services?



Other restriction on express delivery services The questionnaire of the GEA includes also a question on whether or not it exists other Customs rules or procedures which restrict the operation of express delivery services. Replies are equally distributed across the panel and around a third of countries seem to apply a series of additional restrictions which are not listed in the GEA questionnaire. This observation highlights the quality of the GEA database which covers a lot of constraints met by traders at the border (two thirds), at least for the Global Express Association members.

5.2.2 A Customs Efficiency Index

A valuable database... Following its involvement in the WTO negotiations on trade facilitation, the GEA provided numerous Customs Capabilities Reports closely related to the WTO framework. Based on a narrow definition of trade facilitation, the GEA explores a series of Customs services focusing on the public capacity, rather than on the private side. Such specificities are extremely useful to build specific indicators of trade facilitation, even if the GEA represents a specific group of traders, *i.e. the express delivery industry*. That is why, the Global Enabling Trade Report used these surveys to construct a variable measuring Customs services²³⁴, one of the components related to the efficiency of Customs administration. The previous section reviews the main dimensions explored by the Customs Capabilities Reports and drawn a global picture of trade facilitation performances across the World (in 2009). It appears that numerous disparities remain across each narrow trade facilitation dimension. Moreover, there is a performance gap between different income groups and particularly between OECD and non-OECD countries. However, on few topics such as the use of multiple agencies, high income economies are not the “best” performers²³⁵. As explained previously, it may be related to the trade patterns faced by these countries who concentrated the majority of trade flows and rely intensively on a series of technical and sanitary standards. It seems also that it

²³⁴This variable is based on 15 questions of the GEA Customs reports and covers 2007 to 2009. Details are available in the *Technical Notes and Sources* section of the Global Enabling Trade Report (Lawrence et al., 2010).

²³⁵Multiple agencies generate delays for most of the respondents. In fact, such agencies are a potential source of additional efficiency and cooperation issues.

remains some particularities in each region, based on cultural heritage or trade patterns²³⁶.

Beyond the broad definition of trade facilitation and the traditional gaps recorded by the World Bank indicators (LPI, DB), the World Economic Forum (GCR, GETR) or the International Institute for Management Development (WCY), the GEA Customs reports show that there is also numerous disparities related to the narrow definition of trade facilitation. This global overview also put in perspective the TFIs which are limited to the OECD countries. It appears that their enlargement to a larger set of countries, particularly to developing countries, should provide new insights on the main trade facilitation issues and priorities. Indeed, needs and priorities are different across each country, especially across different income groups. In addition, impact analysis should provide new insights.

... with accurate data? If the dimensions measured by the GEA surveys seem highly valuable, what about their quality? A first check through the OECD countries and the variables of the Trade Facilitation Index has shown up some mistakes (at least some differences). The data provided by the GEA Customs reports can be tested with a larger sample by using the other traditional indicators, especially some specific and narrow variables from the Logistic Performance Index (LPI). Moreover, the last LPI report stands also for 2009. Studying the different variables of the LPI and the GEA, I made the following observations between variables with potential correspondences.

First, the rate of physical inspections (LPI) is positively correlated with the question looking at if all goods are inspected (GEA). Second, there is no correlation between the LPI variable measuring the rate of multiple inspections and the corresponding GEA variable which only indicates if there are multiple inspections by agencies other than Customs. Indeed, numerous countries classified as non user of multiple inspections by the GEA, use intensively such inspections according to the LPI. Third, it seems that the use of an automated risk assessment system is positively linked with the competence and the quality of services of Customs and health/standard agencies, as proxied by the LPI. This variable is also positively correlated with all the sub-indexes of the GETR (particularly the Customs efficiency) and the efficiency of Customs procedures measured by the GCR. Forth, the provision of adequate information on regulatory changes (LPI) are correlated, to some extend, to the GEA variable indicating if changes are published for public comment prior to being implemented. The availability of a full and precise description of the Customs procedures on the Customs website seems correlated with the GETR measure of Customs transparency. I note similar relations about the web availability of procedures for appeal of Customs' decisions and also the availability of forms and documents. Fifth, the availability of a full-time (24/7) automated processing for the Customs ports is correlated to some extend to the traditional ICT proxies, such as the GETR ICT sub-index. Sixth, the "quality" of working hours to meet operators needs seems not linked to any efficiency proxies. Finally, the relations between some GEA variables (1, 5, 8a-8d) and the time to import (days)

²³⁶Such as the use of Customs brokers.

provided by Doing Business show some valuable results. Thus, the ability to process electronically the data required to import prior the arrival and the availability of a full-time automated processing at the Customs ports are negatively related to the time to import. The method of examination seems also consistent with previous insights, as the automated risk assessment is highly negatively correlated with the time to import, while the random examination and the full examination of goods are positively correlated with the time to import. Finally, there is no correlation with the inspector discretion. It may be the consequence of the ambiguity of this method which rely on the integrity and the skills of Customs officers.

These observations are based on simple correlations and manual checks. Thus, some correlations could be attributed to a series of underlying factors, sharing by economies who belong to the same income group for example. It remains some mistakes in the GEA surveys and some observations seem specific to the set of respondents. However, despite these issues, many variables seem consistent with various existing indicators. As explained previously, the GETR already used the GEA surveys by including several questions in its Customs Services Index (CSI). Table 5.2 explores the correlations of this index with a series of traditional indicators. Not surprisingly, the index is highly correlated with other GETR global indicators (as one of their components) but also with other traditional sources²³⁷. Moreover, all rates share the expected signs.

5.3 The expansion of Trade Facilitation Indicators

Extended Customs Services Index (ECSI) The GETR only relies to 15 questions of the GEA surveys, forgetting various aspects explored by the questionnaire about transparency and the Post-Release processes. Using the same scoring scheme as the GETR, I built an extended indicator which encompasses all the dimensions covered by the GEA surveys²³⁸. Thus, the ECSI is composed by three pillars based on 36 questions, covering the following dimensions: transparency (pillar1), Customs efficiency (pillar2) and post-release processes (pillar3). The aggregate ECSI is the simple average of these three pillars. I also compute a ECSI using a Principal Component Analysis. The respective country ranks are quite sensible to the methodology (Appendix, section E.2.3).

Firstly, I calculate the CSI by following the presumed GETR methodology, by using the last Customs Capacities Reports available on the GEA website at the 15th January 2011. The majority of these reports has been updated in 2009 (78%). This updated CSI covers 139 countries. I attribute zero point to a bad reply (usually “no”), a half point if the reply is “sometimes” and one point if

²³⁷With the exception of the quality of services of Customs agencies measured by the LPI as high. It may be the consequence of sample selection issues (different assumptions and respondents between the LPI and the GEA) or an expression of the “subjectivity” of the respondents to the LPI surveys. Indeed, the CSI is based on a series of “objective” variables.

²³⁸The methodology used by the GETR is not clear. It seems that the GETR relies on a simple aggregation of each score (0/1), followed by a classical standardization to generate its aggregate GETR indicators (pillars and sub-indexes).

the reply is classified as efficient (usually “yes”)²³⁹. About the primary method used for physical examinations of shipments, I attribute one point for countries using an automated risk assessment and a negative point for those who inspect all shipments. Finally, I share one point between the five questions related to the processing fees, each accounting for 0.2 point (if no fees are registered). The scores are quite similar to the CSI provided by the GETR. The correlation between my own calculation of the CSI and the CSI provided by the GETR is 0.8427. It remains some differences due to a different scoring strategy (the GETR methodology is not explicated) and possible updates. Note that the correlation between this updated CSI and the set of traditional indicators are now higher (table 5.2).

Secondly, using the same scoring scheme as previously, I aggregate the score of each question according to its trade facilitation dimension into three pillars²⁴⁰. Then, I calculate the ECSI as the simple average of each pillar, without normalize their respective scores²⁴¹. The ECSI scores are available in the Appendix, section E.2. According to the correlations of the ECSI and its pillars with various traditional indicators (table 5.2), this extended indicator seems extremely consistent. Moreover, the pillars provide additional insights across specific dimensions of trade facilitation. Particularly, they show up the impact of transparency (pillar1) on the efficiency of the clearance process. There is also a high negative correlation between transparency and the number of documents required to import. It may be the consequence of the simplification and paperless initiatives on transparency. In addition, it seems that the most efficient Customs administrations in term of transparency are also the most efficient in term of targeting. It is probably related to the use of ICT by the border administrations, which are often viewed as a support of transparency. Finally, the Customs efficiency (pillar2) seems linked to the time to import and the rate of multiple inspection, while the impact of the post-release processes (pillar3) is more ambiguous but still significant²⁴².

Thirdly, using a Min-Max method, I standardized each pillar and calculated a new ECSI. I also apply a Principal Component Analysis (PCA) to compute a weighted ECSI²⁴³, following the same methodology used by the LPI to compute its global index (Lawrence et al., 2010). These new versions are available in the appendix, section E.2.2. The PCA provides a single indicator that is the

²³⁹Missing information is dealt as a bad reply. A variable with too many missing variables is dropped.

²⁴⁰The questions of the GEA surveys are available in the Appendix, section E.1.1.1. I do not include question B2a, B2b, B10b, B11b, C1b and C2c.

²⁴¹Consequently, Customs efficiency (pillar2) should have more influence to the ECSI since this pillar includes more questions than the others. Under this configuration, the ECSI measures all the services explored by the GEA surveys, without weighting them according to their relative importance. For example, the use of advance rulings has the same weight than the use of a *de minimis* regime.

²⁴²Note that such correlations only provide basic insights.

²⁴³The first step is to check the correlation structure. The second step is the identification of latent factors. Standard practice is to choose factors that have associated eigenvalues larger than one and contribute individually to the explanation of overall variance by more than 10% (and contribute cumulatively to the explanation of the overall variance by more than 60%). PCA is useful but suffers of many assumptions, like number of case, no bias of selection, no outliers, linearity or intercorrelations. Hoffmann et al. (2008), Box 5. Assumptions in principal component analysis, p.66

Table 5.2: Correlation Matrix of the CSI, the ECSI and its pillars with traditional indicators

Source	Indicator	CSI				ECSI		
		(1)	(2)	(3)	(4)	Pillar1	Pillar2	Pillar3
GETR	Efficiency of Customs Administration (Pillar2)	0.9030	0.8948	0.9414	0.8973	0.5424	0.8380	0.5356
GETR	The border administration sub-index	0.8196	0.7719	0.8792	0.9003	0.6456	0.6803	0.5985
DB	Documents to import	-0.4600	-0.3722	-0.4828	-0.5182	-0.4729	-0.3150	-0.3231
DB	Time to import	-0.6703	-0.5654	-0.6273	-0.5880	-0.2259	-0.6082	-0.4166
DB	Cost to import	-0.5917	-0.5354	-0.5548	-0.5413	-0.1481	-0.5323	-0.4678
BEEPS	Customs and trade regulation identified as a Major Constraint	-0.5818	-0.6653	-0.5760	-0.5238	-0.1774	-0.5833	-0.3530
GCR	Efficiency of Customs Procedures	0.6182	0.6572	0.7491	0.8369	0.6297	0.4872	0.6711
GCR	Prevalence of Trade Barriers	0.7638	0.7934	0.8311	0.8530	0.5854	0.6483	0.5885
LPI	Efficiency of the clearance process	0.5446	0.3751	0.4715	0.4529	0.5169	0.3437	0.1158
LPI	Physical inspection, % of import shipments	-0.6475	-0.5884	-0.6699	-0.6683	-0.6306	-0.4945	-0.3099
LPI	Multiple inspection, % of shipments physically inspected	-0.7009	-0.6316	-0.6625	-0.6285	-0.2903	-0.6196	-0.4286
LPI	Competence/Quality of Services of Customs agencies	0.0448	-0.1335	0.0217	0.0583	0.1634	-0.0624	0.0275
WCY	Customs Authorities	0.6152	0.6375	0.7114	0.7735	0.6807	0.4593	0.5169

Source: Own calculation, based on the GEA surveys downloaded the 15th January 2011 and several traditional indicators.

(1) The CSI provided by the GETR (2007-2009)

(2) The CSI based on the last available GEA surveys

(3) The ECSI based on the simple average of the non-standardized pillars

(4) The ECSI weighted according to the component loadings of each normalized pillar (Principal Component Analysis)

weighted average of each pillar according to its component loadings²⁴⁴. This principal component summarizes the underlying data and accounts for 58 percent of the variation in the three pillars. Normalized scores for each of the three pillars are multiplied by their component loadings (table 5.4) and then summed to create a new ECSI. Note that a large part of the variance of each pillar remains unexplained.

Table 5.3: The principal component analysis for the ECSI

	Eigenvalue	Difference	Proportion	Cumulative
Component1	1,7463	1,0891	0,5821	0,5821
Component2	0,6572	0,0606	0,2191	0,8012
Component3	0,5965		0,1988	1

Source: Own calculation

Table 5.4: Component loadings for the ECSI

	Component1	Unexplained
Pillar1	0,5894	0,3934
Pillar2	0,5800	0,4125
Pillar3	0,5623	0,4479

Source: Own calculation

The Extended Customs Services Index (ECSI) could be used as a trade facilitation indicator, measuring various narrow dimensions of trade facilitation. Moreover, it should be possible to construct it for several years, as the reports exist since 2005²⁴⁵. However, previous reports are not available on the GEA website (and not available at all according to the GEA staff) and I only used the last available versions. Correlations with existing indicators and preliminary gravity regressions

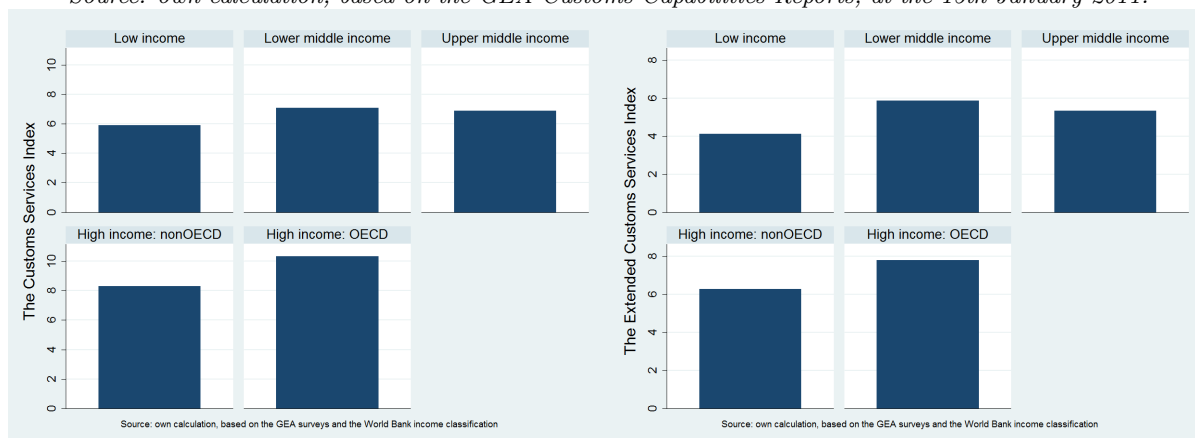
²⁴⁴ Indeed, only the first principal eigenvalue of the correlation matrix is greater than one (table 5.3). The eigenvalue scree plot also suggests that it is appropriate to retain a single principal component.

²⁴⁵ Thus, the Global Enabling Trade Report uses a simpler version (the CSI) since 2007.

suggest that the ECSI is consistent with its purposes, *i.e. the measure of some narrow trade facilitation issues*²⁴⁶. The following figure 5.31 draws the CSI and ECSI performances by income groups.

Figure 5.31: The Extended Customs Services Index (ECSI) and the CSI, by income groups

Source: own calculation, based on the GEA Customs Capabilities Reports, at the 15th January 2011.



Extended Trade Facilitation Indicators (ETFIs) The Global Express Association (GEA) Customs capabilities reports provide numerous valuable indicators (Appendix, section E.1.1.1). I previously built an extended Customs Services Index which relies on almost all questions covered by the GEA surveys. But these reports are also useful to expand the OECD Trade Facilitation Indexes (Moisé and Orliac, 2010). Indeed, many variables can easily complement missing variables and even expand the TFIs to a larger set of countries, at least for a set of TFIs components.

Based on the last available GEA surveys, several questions can be linked to some TFIs variables. Some of them do not encompass the same level of details covered by the TFIs variables, but others go beyond. The OECD Trade Facilitation Indexes cover various dimensions, closely related to the WTO negotiations on trade facilitation²⁴⁷. The following table 5.5 provides a series of correspondence between the GEA surveys and some traditional sources with the TFIs framework²⁴⁸. Each TFI dimension is covered by the GEA surveys, but without the same intensity. Some traditional sources can also contribute to expand the TFIs to a larger set of countries. However, it seems necessary to

²⁴⁶However, there is the specification issue (simple average, standardized or not, and the PCA) that leads to different rankings. I favor the ECSI based on the simple average of the non-standardized pillars, which do not rely on subjective assumptions (as the PCA omits a part of the variance). Even if the Customs efficiency pillar has *de facto* a higher weight.

²⁴⁷The indexes measure the following dimensions: TFI(a) Information availability, TFI(b) Involvement of traders, TFI(c) Advance Rulings, TFI(d) Appeal procedures, TFI(e) Fees and Charges, TFI(f) Formalities and documents, TFI(g) Formalities and automation, TFI(h) Formalities and procedures/processes, TFI(i) Border Agency cooperation (internal), TFI(j) Border Agency Cooperation (External), TFI(k) Consularization, TFI(l) Governance and impartiality, and finally TFI() for additional information.

²⁴⁸The first TFIs specification covered 99 variables (Moisé and Orliac, 2009). Other sources include Doing Business (DB), Logistic Performance Index (LPI), the International Laboratory Accreditation Cooperation (ILAC), Conventions, RTAs or MRAs (conv) and own observations (own).

reshape the TFIs, to drop several variables and to create new ones. It is also possible to research all the required data or design a new questionnaire, which is quite burdensome and beyond the purpose of this paper²⁴⁹.

Table 5.5: Correspondence table between the GEA surveys and the TFIs

(a)	GEA	(b)	GEA	(c)	GEA	(d)	GEA	(e)	GEA	(f)	GEA	(g)	GEA	(h)	GEA	(i)	GEA	(j)	GEA	(k)	GEA	(l)	GEA	(m)	GEA
1	A5	19		24	33			40		46		53		61		79		83	Conv	86	B12a	87	Own	97	IMF
2	Own	20		25	34	C2a		41		47		54		62	Own	80		84				88		98	
3	Own	21		26	35			42		48		55	LPI*	63	LPI	81		85				89		99	B10*
4		22		27	36			43		49	Conv	56		64	B1	82			RTAs			90	Conv		B11*
5		23	A2a	28	37			44	C5*	50	B12*	57		65		B9a			MRAs			91			
6	A4a			29	38			45		51	DB	58	B8	66	B9a*	B9b						92	C3*		
7	A4c			30	39					52		59	B4	67		LPI						93			
8	A2b			31								60		68	B3							94			
9	Own			32		C2b			B6b					69								95	C1a*		
10	A4b												B5	70								96	Own		
11					A3								B6a	71	B12c										
12	Own													72											
13														73											
14	A1*													74											
15														75											
16														76	ILAC										
17														77	LPI										
18	Own													78	DB										
															B7										
															B9b										
															B13										
															C4										

Source: Own compilation, based on the TFIs framework, the GEA surveys and some traditional sources. Stars indicate a proxy and the necessity to reshape or redefine the variable. Correspondences without variables ID indicate the GEA questions linked to the related dimension and potential new variable.

In order to build the Extended TFIs, it will be probably necessary to reshape the TFIs by keeping all available correspondences, from the GEA surveys, traditional sources and my own observations²⁵⁰.

5.4 Conclusion

This chapter shows that numerous disparities exist and that each region bears some particularities. The high income economies perform better than the others, even if on few topics such as the use of multiple agencies, high income economies are not the “best” performers. It may be the consequence of specific trade patterns faced by these countries who concentrated the majority of trade flows and rely intensively on a series of technical and sanitary standards. There is also a phenomena of catching up between income groups and particularly for the lower income economies who achieved several improvements. However, basic observations show that we have reached a “threshold” since a couple of years. This relative stability reveals also the limits of the use of traditional indicators. They forget some specific aspects, which can be more relevant to evaluate the effectiveness of Customs administrations and border procedures²⁵¹. Beyond the broad definition of trade facilitation, the GEA Customs reports show that there is also numerous disparities related to the narrow definition of trade facilitation.

²⁴⁹This enlargement of the scope has been proposed at the OECD working party, but not launched yet.

²⁵⁰I rely in the following traditional sources: LPI (provision of adequate info on regulatory change), LPI (possibility to review procedures), LPI (% declaration submitted electronically 2006), LPI (number of agencies and % of multiple inspection), LPI (clearance time), LPI (pre-shipment inspection - delays), DB (time to import/export), and the IMF (Customs revenue).

²⁵¹It could be also the price of the relative success of a series of traditional indicators as governments focus on some international rankings, omitting other variables.

This global overview also put in perspective the TFIs which are limited to the OECD countries (to date). It appears that its enlargement to a larger set of countries, particularly to developing countries, should provide new insights on the main trade facilitation issues and priorities, which vary across regions and income groups. I finally propose a new index based on a narrow approach of trade facilitation, the Extended Customs Services Index, which seems consistent, and an extension to the current TFIs.

Chapter 6

The European Union and the Customs Union

The previous chapters have shown that many disparities exist across countries in the area of trade facilitation. There is also a distinction between broad and narrow indicators of trade facilitation. In addition, many actors are involved in the success of a dedicated policy. The European Union is a leading contributor in WTO negotiations on trade facilitation, but also in other border related organizations and through its “soft power”. It is also a Customs Union, where the majority of Customs related regulations are binding to each Member State.

For all this reasons, the European Union is an excellent candidate for a case study on trade facilitation matters. The following sections explore, in a first part, the legislative structure of the EU and review its Customs and Trade Facilitation strategy. I draw a time-line of each programme which covers various trade facilitation dimensions. It shows that implementation issues are a source of disparities across the EU. In a second part, I try to assess the degree of trade facilitation across the EU and the reality of the harmonization of its border policies. It shows that it remains some disparities at broad and narrow level. I propose an approach to assess the specificity of the EU and the differences between some binding rules and their application.

6.1 Law and order in the European Union

6.1.1 The influence of the EU law into national legislation

Since 1958 the remit of the European Union has expanded. Now the European Union operates in many areas and it is organized around tools in favor of its propagation such as the *acquis communautaire* which covers the Treaties, regulations, directives and decisions²⁵², and judgments of the

²⁵²At the end of 2009, EU laws comprised, apart from the rules of the Treaty, some 6140 regulations and 1820 directives in force throughout the 27 Member States (EC, 2010a). See also Christensen (2010) for an historical measure of the number of directives, regulations and decisions adopted by the European Union from 1980 to 2009.

Court of Justice, but also the EU “soft laws” (i.e. non-binding rules) which include the communications, declarations, recommendations, resolutions, statements, guidelines and even special reports of the EU institutions. Soft laws do not rule under a legislative process but rather under an informal cooperation between Member States and the EU institutions, it is “a half way between pure legislative integration and straightforward cooperation” (Coyne and Pierini, 2001). The European Union has increasingly begun to rely on this approach²⁵³ which allows dealing with policy issues “that reach beyond the willingness of member governments to commit themselves to binding policies” Christensen (2010).

Earlier the former president of the Commission, Jacques Delors, predicted that the share of national laws based on European laws will reach 80%²⁵⁴. If it was ambitious, the influences of European law vary widely across the Member States and even across sectors, but recent analysis using statistics from the EU’s *EUR-Lex database* estimate that the proportion of national law influenced by European law is not so high²⁵⁵. These analysis based on the *EUR-Lex database* suffer from several critics due to the relative accuracy of data, the difficulty to differentiate between EU induced and nationally induced changes to the law, the variation from year to year, the difference of structure across Member States, the relative importance of EU or national legislative acts, the different methods of transposition, the different types of measures²⁵⁶, or even the length of EU membership²⁵⁷.

Recent reviews show that the European Union institutional development and regulation in force is concentrated particularly in two policy areas: Agriculture and Customs Union (and third countries relations)²⁵⁸. This could explain that almost all country studies show that national agricultural laws are largely influenced by European impulse²⁵⁹.

²⁵³According Christensen (2010), the European Union uses three times more soft laws than Directives and Regulations.

²⁵⁴In a speech in the European Parliament on 4 July 1988, Jacques Delors predicted that 80% of economic, fiscal and social legislation would be of EU origin within 10 years (EC, 1988).

²⁵⁵A recent report of the United Kingdom (Miller, 2010) provides a good review of such influences in the UK law but also across the other Member States.

²⁵⁶“Thus EU regulations, unlike directives, are not usually transposed into legislation but rather into quasi-legislative measures, administrative rules or procedures which do not pass through a national parliamentary process” Miller (2010).

²⁵⁷“The proportion of EU-based national laws is likely to be higher for a new Member State than for an older one, as the new State will have adopted all the existing *acquis communautaire* (with the exception of some transitional exemptions) in a short time frame in order to qualify for membership. As formal membership requires that most adaptation of national law to the *acquis* has already been made before entry in a pre-accession policy alignment, in theory, a new Member State starts off on an equal footing with other Members. In practice, the initial adoption of the vast body of the EU *acquis* has a significant impact on new Members” Miller (2010).

²⁵⁸According to the institutional stage (Common Market 1958-87, Single European Act 1988-92, Maastricht 1993-1998, Amsterdam 1999-2003) these two policy areas respectively account for 37.7% (first stage) to 42.4% (last stage) and 19% to 28.8% (Christensen, 2010, Table 1)

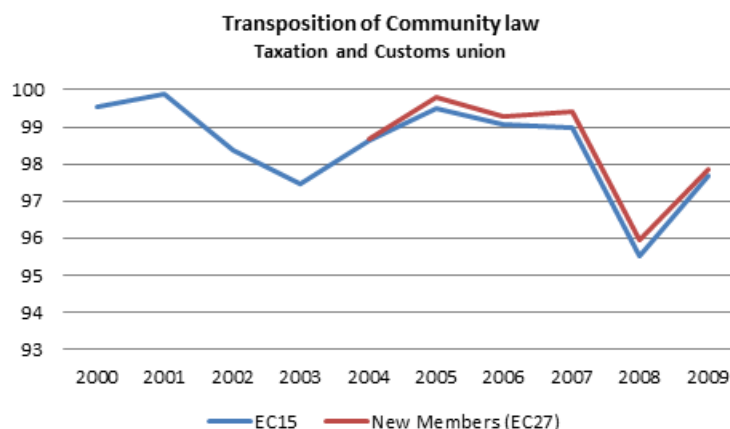
²⁵⁹According the review of Miller (2010) the European influence in this area is around 90% in France, 75% in Germany, 52% in Austria or 22% in Belgium.

6.1.2 Monitoring the implementation of European law

The application and enforcement of Community law involves many actors including the European institutions and the Member States, but also local and regional authorities and courts. Member States have primary responsibility for the correct and timely application of EU legislation. However, as guardian of the Treaties, the Commission has been given the authority and responsibility to ensure respect for Community law. Since many years the Commission has followed a strategy of better monitoring²⁶⁰ and regulation, developing a close cooperation with Member States and increasing the use of new information technologies (EC, 2002a, 2006b, 2007c). The new Member States also benefit of significant transfers from the EU budget to support the various EU policy areas²⁶¹ (EC, 2009c).

One of the tools used by the European Commission to measure the coherence and effectiveness of its policy is the rate of transposition of the Community law. This indicator looks at the situation of the notification by Member States of the total number of national measures implementing Directives, by policy areas²⁶². According to the Commission, the implementation of Community law into national law has slightly increased in each area with the exception of *Taxation and Customs Union* which is still below the target (EC, 2009g). Figure 6.1 shows the evolution of this rate since a decade between the “old” and twelve “new” Member States, in the area of *Taxation and Customs Union*. Even if there is only a small difference, it seems that new Member States are outperforming the oldest (EU15) as regards to the transposition rates.

Figure 6.1: Transposition of Community law, in the area of Taxation and Customs Union



²⁶⁰The Communication (EC, 2002a) on better monitoring ensures that Community policies are “*effectively implemented and have the desired effect*”.

²⁶¹See section 6.3.2.

²⁶²Statistics cover a large range of areas from agriculture to environment, competition, internal market, justice, energy and transport, employment, taxation and Customs union, or enterprise and industry. Data are available on *Eurostat* under the codification TSDGO220.

The implementation effectiveness of European Union policies attracted many researches²⁶³ and the source, the nature and even the consequences of this implementation process are not obvious. Firstly, as explained previously, many factors could explain such disparities²⁶⁴. Secondly the transposition process is only a part of the European influence in national legislation which varies widely across the Member States and sectors (Miller, 2010). And thirdly, data are limited to the formal transposition stage, providing little information on the practical implementation stage.

Studies which focus on the transposition of European Union legislation in the new Member States during their post-accession stage confirm these observations. If the EC (2008g) notes that half of complaints in 2007 targeted the new Member States, the EC (2009c) and Knill and Tosun (2009) show that there are also significant variations in the transposition behavior across the new Member States²⁶⁵ and sectors. Moreover according to Causse and Falkner (2009) the practical implementation stage is often problematic in these States. Knill and Tosun (2009) also explore the factors which explain the variation across new Member States and focus their attention towards four usual suspects: intra-European trade integration, bureaucracy capacity, pre-accession policy alignment and adjustment pressure emerging from EU requirement. Expected outcomes are ambiguous for the pre-accession policy alignment where a good performance could lead to two scenarios: a more effective transposition of EU law in the post-accession stage due to the intensity of “*acquis conditionality*”²⁶⁶ or a less effective transposition performance following the move from conditionality to regulatory cooperation which increase the power of the new Member States as “*they are no longer dependent of the evaluation of other Members and do not fear of major sanctions*”²⁶⁷. Finally, using the number of letters of formal notice as dependent variable, they find that transposition failure is related to the degree of trade with the European Union, bureaucracy capacity and pre-accession policy alignment, whereas adjustment pressure emerging from EU requirement does not seem to impact the level of transposition.

As explained by Toshkov (2010), almost all studies use two type of data to measure the level of compliance with European Union law: the rate of transposition of European Directives or the amount of infringement procedures. A Letter of Formal Notice is part of the infringement proce-

²⁶³Knill and Tosun (2009) and Toshkov (2010) provide an extensive review of literature on the implementation of the European Union law. There is also an online database on the following website <http://www.eif.oeaw.ac.at/implementation/>

²⁶⁴Recent OECD reviews of European Member’s regulation show that such factors are numerous and vary across Members (OECD, 2010).

²⁶⁵While Lithuania, Hungary and Slovenia are the best performers, the transposition of EU legislation is less effective in Bulgaria, the Czech Republic and Romania.

²⁶⁶Such intensity is important. Thus, according Steunenberg and Dimitrova (2007) the main reason explaining the less effective implementation of the *acquis* for Slovakia and Latvia was “*the premature announcement of accepting their application and therefore a notable reduction of the conditionality pressure, which decreased the pace of political reforms and the adoption of the acquis*”. However, Brno (2003) underlines the that accession was a top priority for Slovakia and lead to remarkable progresses in the area of trade facilitation. They also stress the importance of the political will to implement such reforms.

²⁶⁷It is also pointed out by Causse and Falkner (2009).

dures²⁶⁸. Among the different sectors, *Taxation and Custom Union* are well represented. Thus, according Siegel (2006), Customs Union was one of the areas the most violated between 1982 and 2002. More recently a report of the European Community (EC, 2009g) indicated that this area, *Taxation and Custom Union*, represented 7% of new cases. This share increases to 18% of infringements in new Member States (EC, 2009c). The annual reports monitoring the application of Community law (EC, 2010h) and the Court of Justice of the European Communities (ECJ, 2010) provide data on the number of infringements, enquiries, preliminary ruling²⁶⁹, petitions²⁷⁰, or complaints²⁷¹ on Customs matters and describe the overall situation as stable. However, this does not mean that the legislation is correctly applied across Member States as traders or citizens do not report all cases to the Commission.

6.1.3 The interdependence with international laws

As shown by Wolfgang (2007), European Customs law is influenced by international law such as the WTO Agreements, through the reduction of tariffs and the trade facilitation initiative (section 4.2), or the WCO umbrella which developed many international conventions improving Customs laws and its procedures²⁷². This interdependence remains very complex. Lux (2007) stressed the wide variety of implementation methods of the international laws into the Customs Union²⁷³, which could involve the Council, the Parliament or the Commission.

Normally, the European Community Treaty agreements are binding on the institutions of the Community and do not need to be transposed when “*the rules of an international agreement are sufficiently clear and precise to allow their application*”. In such case the international law is directly applied. It is the case for almost all parts of Preferential agreements, the Customs Convention on the International Transport of Goods under Cover of TIR Carnets, and the agreements on mutual administrative assistance in Customs matters. Some agreements are directly applicable but nevertheless transposed into Community law such as the Convention on Temporary Admission (Istanbul

²⁶⁸The infringement procedure under article 258 of the Treaty on the Functioning of the European Union has three stages: formal notice, reasoned opinion and referral to the Court. Thus, in the first stage of the procedure, the Commission sends to the Member State a letter of formal notice inviting it to submit its observations within two months. The Commission monitors such procedures (EC, 2008a, 2009g, 2010a) and show that around three quarter of complaints were closed before this first formal step (70% and 77%, respectively in 2007 and 2009). See also *Eurostat* under the codification TSDGO210 to follow the number of infringements.

²⁶⁹Questions referred by national courts to the Court of Justice.

²⁷⁰Petitions are sent to the European Parliament but are examined and dealt with by Commission services which can launch infringement proceedings in cases showing an infringement situation.

²⁷¹Anyone can challenge a Member State by lodging a complaint against a measure (legislative, regulatory or administrative) or widespread administrative practice they consider incompatible with Community law. If the complaint appears to be founded, the Commission may initiate infringement proceedings.

²⁷²Especially the International Convention on the Simplification and Harmonization of Customs Procedures and its revised version issued in 1999. The European Community was one of the early contracting states. See Chapter 3.

²⁷³Lux (2007) enumerates six approaches: direct application without transposition; transposition in spite of direct applicability; literal or almost literal transposition where implementation is needed; implementation which reflects (with varying degrees) international agreements; the extension of Community Customs rules to third countries; and the adoption or application of guidelines and explanatory notes.

convention) or the Florence Agreement. Some agreements, by their nature or because of the intentions of the contracting parties, cannot, as such, become directly applicable within a country, but are designed to be incorporated in, or taken into account, when drafting a legal instrument which is directly applicable within a jurisdiction. This third category of agreements includes the Harmonized System Convention (Kyoto convention), WTO tariff concessions, the WTO Agreement on Pre-shipment Inspection (PSI), the WTO Customs Valuation Agreement, the WTO Anti-dumping Agreement, and the Non-proliferation arrangements. The next category encompasses international agreements needing transposition and reflecting in varying degrees in Community legislation. It is the case of the Revised Kyoto Convention on the Simplification and Harmonization of Customs Procedures, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), or the International Convention on the Harmonization of Frontier Controls of Goods.

Another type of implementation used is the extension of Community Customs rules to third countries. The EU and a third country agreed to apply the same Customs rules could use different approaches. It could be achieved by including the territory of the third country in the Community Customs territory; by extending the scope of a Community Customs procedure to the territory of a third country by virtue of an agreement; by creating identical international rules and Community rules; or by agreeing with countries who want to join the Community to align their Customs legislation with Community law. Finally, the Community deals with soft laws, implementing international recommendations, explanatory notes, or guidelines emanating from international organizations. The international relations of the European Union are reviewed in sub-section 6.3.1.

6.2 A Customs Union

Since 1968 the Customs Union, which is a foundation of the European Community²⁷⁴, has been expanded both quantitatively and qualitatively, and became a Single Market in 1993²⁷⁵. The resulting common rules go beyond the Customs Union as such - *i.e. common tariff* - and extend to all aspects of trade policy. Since many years, the European Union has understood the new challenges faced by its Customs, such as the increasing globalisation and the EU enlargement, leading to the modernization and the simplification of Customs procedures to ensure efficient controls, the facilitation of legitimate trade²⁷⁶ but also to the uniform application of its Customs law. The role of

²⁷⁴The Customs of the six founding Member States of the European Economic Community had already been harmonized in 1968 “*to such a degree that the Customs payable by third countries could be established on the basis of a common Customs tariff*”. (Wolfgang, 2007)

²⁷⁵As stipulated in Art. 9 (§1) of the Treaty establishing the European Community (EU, 1992b), now Art. 28 (§1) of the consolidated versions of the Treaty on European Union (EU, 2010), “*The Community shall be based upon a Customs union which shall cover all trade in goods and which shall involve the prohibition between Member States of Customs duties on imports and exports and of all charges having equivalent effect, and the adoption of a common Customs tariff in their relations with third countries.*”

²⁷⁶The EC (2001a) became aware that “*the Customs legislation must not only promoted the international trade, but concerning the control task, the Customs legislation must not introduce some excessive frictions in the trade system, which are fatal for the exchanges and the competitiveness of the European enterprises*”.

Customs moved from the collection of duties to “*a catalyst to the competitiveness of countries and companies*” (EC, 2003c), playing a central part of the globalisation process. Today there are twenty seven Customs administrations who must act as though they were one, facilitating legitimate trade, protecting the Society and the EU’s financial interests. Thus, the Customs play a crucial role: “*their mission is to ensure at all times the balance between protecting society and facilitating trade through the control of the supply chain, at the external border as well as within the EU*” (EC, 2008h). The European Commission is responsible for revising and adapting EU Customs law and for monitoring its implementation (EC, 2011).

6.2.1 The Community action programmes for Customs

The abolition of the Community’s internal frontiers shows up the necessity to supplement the legislative harmonization brought about through the entry into force of the Community Customs Code (EU, 1992a), by ensuring that the national administrations apply Community law uniformly. It has become a strategic issue since then, in addition to its traditional role, “*its new tasks, involving the regulation of trade by monitoring the correct implementation of all the common policies and Community legislation governing imports and exports, are constantly expanding*”, EC (1996). Thus, following the continuous evolution of challenges faced by Customs, the Commission has developed several strategic objectives in the field of Customs and launched a series of action programmes for Customs, aiming to ensure an harmonized implementation of the Customs regulation.

In the light of the experience acquired during the pilot action programme MATTHAEUS (EU, 1991) based on common training schemes (designed to ensure that Community law on imports and exports was applied uniformly), the European Parliament and the Council launched the first action programme for Customs in 1996 (EU, 1996). Each action programme is organized around a series of joint actions (such as exchanges of officials, project groups, seminars, benchmarking and training) and the development of information technologies, following the strategic objectives of the Union (EC, 2001a, 2008i). The Commission reviews the implementation of each programme by monitoring operations and feedback from Member States but also traders (EC, 1996, 2003b, 2008f).

6.2.1.1 Customs 2000 (1996-2000)

This first action programme aimed to improve the effectiveness of Customs procedures and controls at every point in the Customs territory of the Community, by identifying the difficulties in implementing Customs law and cooperation issues. In the absence of a single Community Customs administration, the main objective of the Union was that “*the Customs administrations of the Member States (...) operate as efficiently and effectively as would one single administration*”, EU (1996). In this context, the Community started to simplify its Customs procedures, to develop a common methodological approach for Customs controls on the basis of risk-analysis techniques and initiated a cooperation programme between Customs laboratories in order to create a European network as efficient and

effective as a single Customs laboratory. According to the EC (1996), this simplification initiative enabled the Community to adopt a forward-looking position in discussions on trade facilitation in the WTO. The plan also provided supports to the development of a series of IT programmes, initiated almost all current database, pushing forward the development of computerized handling of Customs procedures.

6.2.1.2 Customs 2002 (2001-2002)

This first programme has been completed by a second action programme running until the 31 December 2002 (EU, 2000). Under this second programme, the joint actions have resulted in recommendations and guidelines to facilitate understanding and application of Customs legislation. According to the Member States (EC, 2003b), the seminars really contributed to a better application of Community legislation, since they made it possible to compare the different ways followed by each Member States to handle specific Customs issues. Moreover, the programme led to the organization of networks between different parties involved in the same field, such as ports or airports²⁷⁷. Finally concrete results were achieved in the field of control, the programme improved the standardization of several areas such as a standard framework for risk analysis, and the formation of a cooperation group of Customs laboratories which works regularly on harmonizing techniques or standards on product safety. Customs 2002 has continued to implement computerized applications, such as the New Computerized Transit System (NCTS) even if it was not yet used to full capacity by the end of the programme²⁷⁸. The centralized management of Binding Tariff Information notices (BTIs) also contributed to improving the efficiency of administrative procedures and the cooperation between Customs administrations. However, the Commission already pointed that it remained several cases of divergence in the application of tariff legislation, due to a lack of reporting or checking of existing cases as well as translation issues²⁷⁹.

Customs 2002 ended the first wave of action programmes started in 1996. These programmes, which accounted for 135 millions of euros, have enhanced the cooperation among Member States on several topics and improved the use of information technologies although these efforts needed to be continued. In addition, Customs 2002 has prepared the way for the integration of future Member States' administrations into the management of Community Customs. However, Customs administrations must constantly follow an international changing environment. The Commission reminded that the following plan should contribute to the facilitation of trade, while improving the campaign against fraud, and continue to ensuring the uniform application of Community policies. The Commission also pointed out that the cooperation with traders should increase. Indeed, according to the implementation report of Customs 2002, the programme in this area seems "*to have done more to*

²⁷⁷RALFH, ICARUS or ODYSUD.

²⁷⁸It was a top priority for the EC (2003b) who estimated the cost of fraud in Customs transit at EUR 1 billion for the period 1990 to 1996. Moreover inefficient transit procedures could be a huge source of corruption, as explained by Wulf and Sokol (2005).

²⁷⁹That is why the Commission stressed the need to improve the central dictionary of the BTIs database. This point is further developed in section 6.4.1.1.

raise consciousness than to produce concrete solutions or convergences of approach”, EC (2003b).

6.2.1.3 Customs 2007 (2003-2007)

The Customs 2007 programme was the third Community action programme for Customs (EU, 2003). It covered the period from 1 January 2003 to 31 December 2007 and accounted for 133 millions of euros. It was open to the twenty seven Member States as well as to Croatia and Turkey. The main goals of the plan were to reduce compliance costs borne by traders, by monitoring Customs performance and best working practices, and improve the simplification of procedures by creating an electronic Customs environment with paperless Customs procedures.

One of the previous issues underlined by the commission was the involvement of traders into the Customs regulation process. According to the EC (2008f) there is a clear tendency during Customs 2007 to include traders in numerous joint actions and thereby to collaborate throughout the process of drafting new rules or procedures. However, the impact of such participation was mixed. Economic operators did not find so many improvements in the actual impacts of this cooperation on the reduction of trade costs. On the contrary, they were complaints that most new measures have focused primarily on security issues, often resulting in additional burdens for trade²⁸⁰. About the cooperation between Customs administrations, the increasing exchanges of knowledge and experiences has contributed significantly to the uniform implementation of Customs law. The harmonization of working methods in many different areas have brought out new connexions between national Customs administrations. It was confirmed by the replies of traders to the survey conducted by the EC (2008f) which showed that the different Customs administrations have made “*significant progress towards performing their duties as though they were one*”. Regarding IT programmes, Customs applications ran smoothly and their usefulness was supported by the high levels of satisfaction from users. The evaluation results also suggested that IT systems have helped significantly to make progress towards the programme’s objectives of trade facilitation and Customs uniformity, by increasing transparency and simplifying formalities²⁸¹. By speeding up the transit procedure for both traders and administrations in participating countries, the New Computerized Transit System (NCTS) made a great contribution to the ease of doing business²⁸². Some tariff-related systems, especially the information

²⁸⁰See Grainger (2007a, 2008b,a), Gutiérrez et al. (2007), NBT (2008) and Donner and Kruk (2009) for a review on supply chain security issues and initiatives. As noted by the evaluation report (EC, 2008f), “*the relatively low number of joint actions that explicitly addressed the programme objective of trade facilitation is a further indication of a certain imbalance*”. Even if calls for proposals do not encompassed all aspects of action programmes, the evolution of the share of projects related to trade facilitation (Table 6.4) seems to confirm this impression.

²⁸¹See OECD (2005c); WB (2005); Lewis (2009); Holloway (2009) for a review on the role of ICT to improving the overall efficiency of Customs. Wilson et al. (2006, 2010) explore also this question. Studying trade facilitation and capacity building priorities in twelve European and Central Asian countries, they showed that IT infrastructure improvement will lead to the largest gain for the new Member States as well as for candidates. If all trade facilitation indicators improve to halfway of the EU 15 level, almost 40% trade gains will result from the improvement of IT infrastructure. Portugal-Perez and Wilson (2010) also find that the impact of ICT on exports appears increasingly important, especially for richer countries.

²⁸²In addition to fraud and corruption reductions due to efficient transit procedures, overland transit can generate important cross-country spillovers (Shepherd and Wilson, 2006). As reminded by de la Campa (2006) information and communication technologies, such as the NCTS, “*can be effectively used to assist Customs in streamlining procedures*

system on the integrated tariff of the Community (TARIC) and the European binding tariff information system (EBTI), have also had an impact on trade facilitation by improving the availability of information and predictability for traders²⁸³.

Overall, this third action programme has deepened the cooperation between Customs administration and enhanced the use of IT (EC, 2009b). If the EC (2008f) has found that Customs 2007 impact in facilitating trade was mixed, it appears that the trade facilitation level has increased substantially under Customs 2007 through the development of related IT systems, ensuring transparency and simplification of formalities. However, as pointed out by Wilmott (2007) there is still a need of improving these different systems, the uniformity of Customs practices, and the cooperation with non-Customs border agencies and traders, especially with large firms²⁸⁴. In this context, the Commission stressed the necessity to pursue improving trade facilitation performance through the next programme.

6.2.1.4 Customs 2013 (2008-2013)

Customs 2013 is the fourth and current action programme for Customs. It started on 1 January 2008 and will end on 31 December 2013 (EU, 2007). To date, there is not yet evaluation report, even if the European Commission monitors its implementation through performance indicators (EC, 2011). This programme, which accounts for 328,9 millions euros, aims to “*help Customs administrations to facilitate legitimate trade and to simplify and speed up Customs procedures*”, by following the activities carried out in the framework of the previous Customs programmes (enhanced cooperation, Customs acting as they were a single administration, standardizing and simplifying Customs systems and controls) and supporting the increasingly important development of e-Customs. An important and

and controls over the physical movement of goods during their transit through the Customs territory”. Such attention to transit operations is relevant since around 12 million of shipments transit per year, according to a presentation of the EC (2010b). During the last 12 months, the Community Electronic Map on the number of transit movements recorded 9 130 111 arrivals and 9 148 780 departures for EU and EFTA Members (own calculation based on data downloaded the 22 February 2011, http://ec.europa.eu/taxation_Customs/dds/cgi-bin/emap?Lang=en).

²⁸³For traders, reliable services is as important as minimizing the time to import. It might be even more costly. According to the OECD (2003c) the surcharges arising from procedural delays when importing goods could represent as much as 15% of the value of the goods; while according to Arvis et al. (2007), the cost of unpredictability is evaluated to 30% of the value of the good. See Helble et al. (2007) for a discussion on transparency and predictability issues.

²⁸⁴It appears that the majority of international trade is shared by a small group of firms (Bernard et al., 2007) and particularly by the largest. Recently, using micro-data on twenty three OECD countries, the OECD (2011) shows that large firms have a higher propensity to export and account for the bulk of export flows. Moreover, exports are concentrated in a small number of firms (the extensive margin) and a small number of partner countries. Thus only 2.7% of EU firms export outside EU markets (and 4.5% of US firms). Following Melitz (2003) and its works on the impact of firms heterogeneity on trade, numerous research have studied the intensive and extensive margin. The extensive margin of trade is sensitive to trade facilitation policies. Shepherd (2007) has shown that the harmonization of international standards was associated with the development of the extensive margin. Recently, Persson (2010) provides insights that transaction costs related to cross-border trade procedures would affect positively the extensive margin in the European Union. Among trade facilitation areas, the availability of information should be especially relevant to expend the involvement of SMEs, and so increase the extensive margin (Chapter 4). The review of the french Customs strategy shows the growing importance of SMEs in the Customs policy (section A.3 in the Appendix). Policy makers should support SMEs in order to develop the extensive margin of trade.

recurrent objective is to reduce the administrative burden and the cost of compliance for economic operators. Last but not least, the programme contributes to the implementation of the Modernized Community Customs Code (EU, 2008b) which includes numerous advanced rules related to trade facilitation. This new Code is clearly close to the agreement draft on trade facilitation under negotiation at the WTO (2011).

6.2.2 The Community Customs Code(s)

The Treaty establishing the European Community states the overall objectives of the EC's trade policy, aiming to "*contribute, in the common interest, to the harmonious development of world trade, the progressive abolition of restrictions on international trade and the lowering of Customs barriers*"²⁸⁵. However, Customs regulation is provided by the Customs Community Code (EU, 1992a) which was established in 1992 and entered into force the 1st January 1994. It included the Community's basic Customs legislation, based on the integration of the Customs procedures applied by the respective Member States during the 80ies. As expressed by Wolfgang (2007), it is the conclusion of "*decades of effort marked by the issue of many hundreds of pieces of legislation aimed at harmonizing Customs law*". The Customs Community Code has been completed by the Code's implementing provisions (CCIP), which has been regularly and considerably amended since its introduction (EU, 1993), and many guidelines²⁸⁶. The Customs Code as well as the majority of Customs legislation, is adopted in the form of regulations (EC, 2010h), and its accurate and uniform application is an obligation of each Member State²⁸⁷. This is an ongoing problem, even recently, as remind by the EC (2006b) who explained that the Member States should "*oriented their efforts towards a correct and uniform application of the Community Customs legislation*". Moreover, traders need to easily understand their rights and obligations. The rules should be clear enough. The Customs Community Code is organized around nine titles (253 articles) encompassing general rules and procedural laws. These basic provisions are completed by the 915 articles of the CCIP and its 113 annexes (EU, 1993). The exploration of the Code and its implementation provisions (CCIP) shows that it was already "trade facilitation friendly" in many areas.

Following recent changes, both at the Community and international level, such as the new acts of accession, the amendment to the revised Kyoto Convention, a changing environment and the new technologies developments, the Community adopted the Modernized Customs Code in 2008²⁸⁸. However, this new Code will be applicable only when its implementing rules are applicable, espe-

²⁸⁵Art.110 of the consolidated version of 1992 (Official Journal C 224 of 31 August 1992), then Art.131 in 1997, 2002, and Art.188B in 2007.

²⁸⁶The purpose of these guidelines is "*to ensure the uniform interpretation of Community Customs law at Community level (by preventing national differences of interpretation) and thereby contribute to the uniform application of the Customs rules*" but they just provide indicative rules, without legislative obligations (EC, 2006a).

²⁸⁷Art. 288 of the Treaty on European Union and the Treaty on the Functioning of the European Union stipulates that "*a regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States*". (EU, 2010)

²⁸⁸This new appropriate legal framework has been introduced by the Commission in 2005 (EC, 2005c) and adopted in 2008 (EU, 2008b).

cially due to the need to develop systems to handle with the new computerized procedures. That is why the Commission sets a five-year time frame for its application²⁸⁹. The Modernized Community Customs Code is also structured around nine titles including less articles (188) than the previous Code, but encompassing many trade facilitation issues. Indeed, as regard to the current WTO draft (WTO, 2011) and the previous Code (EU, 1992a), this new version is clearly an improvement in the field of trade facilitation as well as in the use of up to date information technologies. According to its preamble, the Modernized Community Customs Code aims to rationalize the legal framework, improve the standardization of Customs rules and their implementation, and simplify Customs procedures using information and communication technologies. Moreover, since its inception the new Code aims to “*create a more updated and harmonized legislation concerning the Customs Union (...) leading to an increase in the efficiency and effectiveness of Customs procedures*”, EC (2005c).

The following subsections study how the Customs Code(s) dealt with several trade facilitation areas as well as their chronological changes. Note that the annex of the Modernized Customs Code provides a correlation tables between the articles of the former and the new Code. I only focus on main trade facilitation issues, it is not a full assessment of the European Customs law²⁹⁰. Thus I explore some transparency issues, such as the availability of information and the right of appeal, then the Customs procedures scheme (declaration, release and clearance) and finally the Customs tariff scheme. Additional areas and the reality of their implementation are studied in the following sections.

6.2.2.1 Transparency issues

Availability of information The former Code dealt with the availability of information in such a way that “*any person may request information concerning the application of Customs legislation from the Customs authorities (...) [this information] shall be supplied to the applicant free of charge*” (Art. 11 CC). In the following article (Art. 12) the Code also refers to Binding Tariff Information and Binding Origin Information, which are additional and valuable ways to improve transparency and predictability for traders. It also ensures the uniformity of the Customs Union as such advance rulings are binding to all Member States²⁹¹. The Code and the CCIP also required, in many cases, that Customs administrations inform traders of their decisions as well as their motivations (Art. 6 §3 CC). Thus, the need and the right to a transparent information is already underlined in the Customs Code and the CCIP. However the Modernized Customs Code goes further in the path of transparency, taking into account the development of the information and communication technologies, such as Internet. Indeed, the Code introduces the need for Customs authorities to develop a close cooperation with economic operators and indicates that they “*shall promote transparency by making the Customs*

²⁸⁹Thus the implementing rules must enter into force before the 24 June 2013 (Art. 188 of the MCCC). According to the EC (2011), a preliminary draft of implementation provisions should be provided in the mid 2011.

²⁹⁰The European Commission’s Taxation and Customs Union portal provides such information. See also a review by Wolfgang (2007); Wolfgang and Ovie (2007, 2008) or the Trade Policy Reviews of the WTO (WTO, 2000, 2002, 2005c, 2007b, 2009c).

²⁹¹The harmonization led by BTIs is subject to a certain skepticism by EU partners (See section 6.4.1.1).

legislation, general administrative rulings and application forms freely available, wherever practical without charge, and through the Internet” (Art. 8 §2). Such references to procedures availability and downloadable forms are in line with the first article of the WTO (2011) agreement draft on trade facilitation related to the availability of information. Note that the websites of Member States administrations and of the Commission will be interlinked and harmonized where possible (EC, 2008d).

Right of appeal Legal protection in Customs matters by independent courts has always constituted one of the most important principles of international Customs law, from the GATT²⁹² to the current consolidated WTO negotiating draft on Trade Facilitation (WTO, 2011). Such principles are included in the Customs Code (1992) under Title VIII (Art. 243-246) which directly refers to the right to appeal against decisions taken by the Customs authorities before an independent body. However, appeal must be launched at the national level in a first step and the Code still refers to national provisions for procedural details. Thus, EU Members have the possibility to deal first at the administrative level or to use moderators and then, before national Courts, followed by a recourse before the European Court of Justice. Moreover there is no common time schedule to issue a case as well as no maximum time. This is a source of non-uniformity across the Community, at least during the first step of the process. In addition, it generates costly procedures for traders. Nevertheless the Commission and the Parliament let the possibility for traders to initiate an infringement procedure (a petition) to underline non respect of European Customs law by Member States²⁹³. The Modernized Customs Code consolidates the right of appeal and emphasizes it by placing the rule at the beginning of the Code under Title I (Art. 23).

Penalties On this topic, the Code relied to national provisions (Art. 212 CC). It is still the case in the Modernized Customs Code even if there is more indications. Thus “*penalties shall be effective, proportionate and dissuasive*” and Member States “*shall notify the Commission (...) of the national provisions in force*”, Art. 21 MCC. It is one of the trade facilitation areas with the higher degree of non-transparency (Chapter 4), as there are very few -or at least easily available- information on the amount and the nature of such penalties, for each Member State.

6.2.2.2 Customs declaration(s)

Customs declarations Before to be placed under a Customs procedure goods must be covered by a declaration for that purpose (Art. 59 §1 CC). These declarations can be lodged in writing (Art. 61 CC) or by a data-processing technique using EDI (Art. 222–224 CCIP). The Modernized

²⁹²Under Art. X (§3b) of the GATT, “*each contracting party shall maintain, or institute as soon as practicable, judicial, arbitral or administrative tribunals or procedures for the purpose, inter alia, of the prompt review and correction of administrative action relating to Customs matters. Such tribunals or procedures shall be independent of the agencies entrusted with administrative enforcement and their decisions shall be implemented by, and shall govern the practice of, such agencies unless an appeal is lodged with a court or tribunal of superior jurisdiction within the time prescribed for appeals to be lodged by importers*”, WTO (1986).

²⁹³Only jurisdictions can initiate a complaint, traders or citizens can however initiate a petition before the Parliament.

Customs Code reminds the necessity to all goods which “*intended to be placed under a Customs procedure, except for the free-zone procedure, [to] be covered by a Customs declaration appropriate for the particular procedure*” (Art. 104 §1 MCC) and automates the declaration requiring that each Customs declaration “*shall be lodged using an electronic data-processing technique*” (Art. 107 §1 MCC). Customs declarations “*shall contain all the particulars necessary for application of the provisions governing the related Customs procedures*”, and an electronic signature (Art. 108 §1 MCC).

The Single Administrative Document (SAD) is the official model for a written declaration of goods²⁹⁴ (Art. 205-217 CCIP). Designed originally to reduce the formalities in intra-EU trade²⁹⁵, the SAD has evolved with the creation of the single Market and the recent technological progress. Drawn up in compliance with the rules stated in the United Nations layout key (UNECE, 2002), the SAD is aimed at reduce administrative documentation, the amount of requested information and harmonize data²⁹⁶. Regulation (EC) 2286/2003 has led, after its application in 2006, to an overall reduction of data requirements by 26% and by 43 % of the optional elements that Member States can decide to require on a national basis. Moreover the harmonization has improved with the decrease in the amount of data non-coded at EU level, which has dropped by 70 % in average for all procedures.

Simplified declaration “*In order to simplify completion of formalities and procedures as far as possible while ensuring that operations are conducted in a proper manner, the Code provides for simplified declaration procedures*” (Art. 76 §1 CC). There are three simplified declaration procedures (Art. 253 of the CCIP): the incomplete declaration, the simplified declaration procedure and the local clearance procedure²⁹⁷, which is “*of great practical importance for traders if they regularly deal in large consignments of goods*” Wolfgang and Ovie (2007). This simplified procedure only requires absolutely essential details at the initial entry and allows to register the goods for the Customs procedure at the premises of the declarant (moreover the declarant may be authorized not to present the goods to Customs). The use of the simplified declaration is conditional on the provision

²⁹⁴This document is composed of 56 cases to fill and a set of eight copies which, as the documents attached to the declaration, will depend on the procedure requested. These copies have the following functions: (1) Retained by the Member State / Country where the export or transit formalities are carried out. (2) Used for the statistics of the exporting Member State / Country. (3) Returned to the exporter. (4) Either is retained at the destination office of the transit operation, or constitutes the document T2L serving to attest the Community status of the goods. (5) Return copy for the transit procedure. (6) Retained by the Member State / Country where the destination formalities are carried out. (7) Used for the statistics of the destination Member State / Country. (8) Returned to the consignee. Forms and user notices are available in annexes 31-37 of the CCIP, and also in the SAD Guidelines.

²⁹⁵The SAD has been introduced in 1988, after the conclusion of the Convention on the simplification of formalities in trade in goods, concluded between the EEC and EFTA.

²⁹⁶The legislation on the SAD establishes, procedure by procedure, the maximum -and minimum- list of information required. The “optional boxes” enable Member States to collect information from areas which are not yet completely harmonized at EU level. Finally, common codes constitute a language understandable in all the Member States, avoiding linguistic problems.

²⁹⁷Pointing out the role of such simplification in the EU trade facilitation policy, the European Court of Auditors provides in the special report No 1/2010 an overview of the characteristics of these simplified procedures as well as a schematic presentation in its Annex 1 (CoA, 2010). Local clearance procedure are developed in the following sub-section 6.2.2.4.

of some type of guarantees, especially for import duties and other charges. Such declarations must be completed by a periodic declaration giving all the necessary information. The Simplified declaration is covered by the Modernized Customs Code under Art. 109.

Summary declaration and preliminary declaration European Customs law currently states that a summary declaration must be submitted once the goods have been brought into the Community Customs territory (former Art. 43 CC, Art. 36a,b CC). This summary paper is not the same as the Customs declaration, but aims to ensure compliance with the period for placing goods under a specific Customs procedure. Once lodged, the Customs declaration must be provided within 45 days in the case of goods arrived by sea, 20 days otherwise (Art. 49 CC). The Regulation (EC) No 648/2005 and (EC) No 1791/2006 introduced the need to provide this summary declaration prior the arrival of the good in order to permit early risk analysis to target goods for inspection (Art. 36a §3 CC). In addition, an advanced declaration will not be required if a Customs declaration is submitted immediately instead²⁹⁸ and Customs authorities “*may allow the Customs declaration to be lodged at a Customs office of import different from the Customs office of entry*” (Art. 36c CC). The advance declaration is to be submitted electronically and the rule shall be binding on all Member States from 1 July 2009. In the reality, the requirement of this electronic advanced declaration has been delayed to the 1st January 2011. The time-limits, within which the advance declaration must be lodged prior to the border crossing of the goods, vary according to the mode of transport. These periods range from 24 hours in maritime transportation to one hour in the case of road traffic (Art. 184a CCIP). The Modernized Customs Code confirm these rules (Art. 87 MCC) and especially the need to use data-processing techniques (Art. 88 MCC). It is in accordance with the WTO negotiations²⁹⁹.

Verification of a declaration and post-clearance examination In order to verify a declaration, Customs may examine it and its accompanying documents such as commercial documents³⁰⁰ as well as examine the goods or only part of the consignment by way of samples (Art. 68 CC and Art. 117-122 MCC). Customs authorities may realize this inspection after releasing the good, on their own initiative or at the premises of the declarant (Art. 78 CC).

²⁹⁸However the Customs declaration shall contain at least the particular necessary for a summary declaration (Art. 36c CC). Moreover some goods do not require the submission of an advanced declaration, such as goods in the personal baggage of travelers (Art. 181c CCIP).

²⁹⁹WTO (2010) draft on trade facilitation agreement currently stipulates that “*Members shall maintain or introduce procedures allowing traders to submit import documentation and other required information to Customs and other relevant border agencies prior to the arrival of the goods, where appropriate*” (Art. 7 §1.1) and “*Members [[will][shall]] provide for advance electronic lodging of documents in electronic format and for pre-arrival processing of such documents [appropriate to the procedure applicable] [prior to the arrival]*” (Art. 7 §1.4).

³⁰⁰According to the trade policy review of the WTO, “*under the normal Customs clearance procedure, documents that are required include the invoice or other documents for Customs valuation purposes, documents making the consignment eligible for the application of a preferential tariff arrangement (e.g. the certificate of origin), and any other document required by the specific legal regulations valid for the import of the goods mentioned in the bill of entry (e.g. licence, certificate of conformity, certificate of authenticity for certain alcoholic beverages)*” (WTO, 2000).

6.2.2.3 Customs procedure(s)

As soon as the Customs declaration has been verified, accepted without verification, or if such verification cannot be completed within a reasonable period of time, the shipment will be released (Art. 73 §1 CC, Art. 123 MCC). For the Code(s), Release of goods is *“the act whereby the Customs authorities make goods available for the purposes specified for the Customs procedure under which they are placed”* (Art. 4 §20 CC, Art. 4 §21 MCC). The eight Customs procedures provided by the former Code (Art. 4 §16 CC) are included within the new one which provides three categories of Customs procedures: release for free circulation, special procedures (encompassing transit, storage, specific use and processing) and export (Art. 4 §12 MCC).

Release for free circulation The release of goods into free circulation is the classic Customs procedure (Art. 79–83 CC and 290–308 of the CCIP). Indeed all non-Community goods (Art. 4 §19 MCC) that *“intended to be put on the Community market or intended for private use or consumption within the Community shall be placed under release for free circulation”* (Art. 129 §1 MCC). Customs authorities will release the good only if the Customs debt has been paid or a guarantee provided (Art. 74 §1 CC, Art. 124 §1 MCC). This possibility of guarantee is in accordance with the WTO Agreement draft on trade facilitation related to the Separation of Release from Final Determination and Payment of Customs Duties, Taxes and Fees (Art. 7 §2). By the way, the European Community is proactive to speed up release and clearance time, proposing in a Communication at the WTO that *“each [WTO] Member would establish and agree progressively to reduce, its domestic standard processing times for goods release and clearance”* (WTO, 2005b).

Transit procedures According to the EC (2010j), transit is a Customs facility available to economic operators *“who move goods across borders or territories without paying the charges due in principle when the goods enter (or leave) the territory thus requiring only one (final) Customs formality”*. It provides a simpler and cost advantageous procedure to carry goods across Customs territories, allowing the trader to transport goods to their place of destination within the Community without delay. As pointed out by Wolfgang and Ovie (2007), such *“procedure constitutes a special case among Customs procedures because it is a suspensive procedure without any economic impact”*. Transit, which is dealt in WTO negotiations on trade facilitation (WTO, 2010, Art. 11), is particularly relevant to the Community where a single Customs territory is combined with a multiplicity of fiscal territories: goods can move under transit from their point of entry into the Community to the point of their clearance. Customs transit is one of the cornerstones of European integration and of vital interest to European businesses (EC, 2001c). Under certain circumstances and authorisations, the Community transit procedure may be simplified too (EC, 2010j).

The need for a specific transit system for the European Community became more apparent in 1968 when the Common Customs Tariff was introduced. In order to facilitate the movement of goods in Europe, the Community transit system was extended in 1972, then 1987, to all EFTA

countries. In 2001 the reform of the Transit legislation established a new structure of the legal basis, made the transit systems more homogenous and redesigned the guarantee system (EC, 2003a). The Code(s) and the CCIP refer to the freedom of transit and its related procedures (Art. 91-97 CC, Art. 144-147 MCC), the common, the internal and external Community transit procedures reflecting the status of the goods being moved (community good or not). The European Community also applies international procedures such as the TIR Convention, ATA Carnets, the Rhine manifest, the NATO movement convention and the postal package procedures³⁰¹ (Art. 91 CC, Art. 145 MCC, and CCIP provisions).

As explained previously the electronic messages have progressively replaced the various paper documents required for transit procedures, leading to the development of the New Computerized Transit System (NCTS). In the early 1990s transit procedures were identified as inefficient by the Commission, in particular due to the lack of coordination between involved administrations and a lack of consistency resulting from the multiplicity of existing systems. These paper-based systems were not adequate to combat fraud effectively³⁰² and to follow the growth of trade. The system was already slow and the “*circulation of the transit documents lasts much longer than the movement of the goods they cover*” (EC, 2010j). That is why, since the mid of the nineties (before the paperless initiative) the administration of the international transit system has started an automation process, aiming to create a computerized transit system³⁰³. This new system has progressively covered the EU Member States and some of its partners³⁰⁴, paving “*the way for the different European Customs administrations to work in a new way*” (EC, 2003a). In 2005, the NCTS was applicable to all Community transit operations regardless of the mode of transport concerned, with the exception of simplified transit procedures where a commercial document serves as the transit declaration³⁰⁵ (EC, 2010j). The possibility of carrying out all the procedures at one’s own premises and exchanging information with Customs electronically is clearly the most rapid, comfortable, secure and economic way of doing business. This system requires an active cooperation between all actors since it takes place at three levels: economic operators, Customs and the Commission.

³⁰¹The TIR procedure is structured on an international guarantee system based on a chain of national guaranteeing associations. The ATA-carnet procedure is similar to TIR but it is limited to certain types of goods (see annex F.2). The Rhine manifest procedure applies to water transport of non-Community goods on the Rhine and its associated tributaries (the Mannheim Convention of 17 October 1868 and the Protocol adopted by the Central Rhine Navigation Commission on 22 November 1963); The NATO movement procedure applies to goods transported to the North Atlantic Treaty Organization (NATO) forces; The postal package procedure applies to goods sent by post.

³⁰²Reviewing the Community transit system in 2006, a special report of the Court of Auditors (CoA, 2006) reminded this reality and the benefits of the NCTS. In the early 90ies, increasing fraud in transit was reported. Estimates of losses to the Community budget between 1990 and 1994 (see COM(95)108).

³⁰³Decision 210/97/EC of 19 December 1996 requested the computerization of the Community Transit, setting 1998 as the deadline for its implementation.

³⁰⁴The implantation was facing significant delays and Decision No 105/2000/EC of 17 December 1999 has fixed a new date for its implementation (30 June 2003). In December 2002, many “transit” Customs offices were not yet connected (74% of offices) and these connections varied greatly from one Member State to another (best performers are ES, NO, SV, CH, IT and NL). Authorized traders must be connected electronically to the NCTS by 31 March 2004 at the latest (EC, 2003a).

³⁰⁵When the manifest or CIM consignment note serve as the transit declaration.

6.2.2.4 The Single European Authorisation (SEA)

If a Customs procedure involves several Member States, then a single authorisation covering the different Customs administrations involved is issued. This authorisation has been progressively extended to simplified procedures, including cases where a Customs procedure with economic impact is followed by release for free circulation, and also to the simplified declaration and the local clearance procedure³⁰⁶. Customs allow more and more to declare exports and imports at a place in the Community which is convenient for the traders with less and less clear link to the physical movement of the goods. Thus, a Customs declaration can be lodged at a Customs office different from the one where the goods are presented or will be presented or made available for control. Such reporting which disassociates the place of reporting and the physical movement of the goods completely are gradually allowed by Customs. Initial progress with the pilot SEA was slow because such authorisations required arrangements which had to be negotiated bilaterally, between participating Member States. Moreover several issues raised, such as the allocation of collection costs³⁰⁷, accounting for VAT on imports³⁰⁸, the collection of statistical information³⁰⁹, and some practical control issues. However, single authorisations have many advantages for business, but also Customs administration (EC, 2005a, 2007d). Traders save costs and transit time, while Customs save costs in the centralization, through the reallocation of staff to critical areas, and improve risk management and monitoring of compliance due to a better cooperation between other partners.

Centralized Customs clearance If the Customs office of entry is at a different place from the office where the importer wishes to place the goods under release for free circulation, the importer must either use a transit procedure (even if both the Customs offices are situated in the same Member State), place the goods under the Customs warehousing procedure and transfer them under a single authorisation, or declare the goods for release for free circulation at the Customs office of entry using a representative³¹⁰. This solution is extensively used and such representatives are often active at the points of entry to or exit from the Community, *e.g. in ports like Rotterdam, Antwerp and Hamburg*. All of these alternatives generate unnecessary costs and, if an importer wishes to avoid

³⁰⁶The regulation (EC) No 1192/2008, which entered into force on 1 January 2009, has extended the provisions on simplified authorisation by merging the existing definitions of the simplified authorisation relating to Customs procedures with economic impact and end-use with those for the simplified declaration and the local clearance procedure. The regulation also provided the legal basis for the use of ICT.

³⁰⁷Member States are allowed to retain the 25% of Own Resources, *e.g. Customs duties*, collected to cover their collection costs (see the following section 6.2.4.2). Under the initial SEA scenario, the whole 25% accrues to the authorising Member State in which the duty was paid. This was at the expense of the participating Member State, where the goods were physically controlled and declared.

³⁰⁸VAT is a destination-based tax and has to be accounted for in the Member State where the goods are consumed.

³⁰⁹In European foreign trade statistics the SEA gives rise to the so called *Rotterdam effect*. In this case a foreign trade transaction on imports is reported for EU statistics first, within Extrastat, as the imports from a non-EU country to the EU Member State where the goods crossed the EU border and were released to free circulation. Second, the following movement of the goods from this EU Member State to the EU Member State which is the final real importing country is then recorded as a dispatch (export) and arrival (import) between these two EU Member States within Intrastat. (Eurostat, 2008)

³¹⁰In these cases, the imported goods are released to free circulation in the EU in the port of arrival to the EU and then consequently continue already as Community goods in quasi transit to the Member State of destination where the actual trader is established.

them, the only available option is to use the local clearance procedure, under which the Customs debt is incurred at the place where the release for free circulation is entered in the records, *i.e.* at the place where the importer is established (Art. 76 §1 CC). Traders may report their trade flows in one place – the “supervising” EU Member State, where it is for them most convenient, *e.g.* because the headquarters or the administrative center of the company are established there.

However, a single authorisation based on an agreement between the involved Member States is required. Such arrangement was hampered by the lack of interoperability between Member States’ import clearance systems and the issues previously listed. That is why, under the former Code “*centralized import clearance [was] still more the exception than the rule, in particular if several Member States are involved*” according to Michael Lux³¹¹, whereas it was already the norm for exports³¹². These issues have been progressively settled with the growing use of administrative Arrangements and the creation of a Convention³¹³. The development of the single authorization for simplified procedures has led to the development of the centralized clearance procedure, which became a standard procedure under the Modernized Customs Code (Art. 106). The centralized clearance has many advantages, especially for traders³¹⁴. Indeed, it allows economic operators to centralize and integrate accounting, logistics and distribution functions, thereby savings on administrative and transaction costs. In addition, Customs simplify the system so that traders are not obliged any more to declare a good in parallel to its movement and rely increasingly on ex-post controls. It is a self assessment model. As stressed by Eurostat (2008), in such a case there are not any more even a Customs declaration. Until now, the lack of common standards leads to divergent applications of these simplified procedures within the European Union, as stressed by the Court of Auditors (CoA, 2010).

Since the revised Kyoto Convention which favours the dissociation of the place where the declaration is lodged from the place where the goods are physically located, and the development of Authorized Traders advantages, this is a major facilitation measure. The economic operator can:

- Concentrate in-house Customs expertise at a single location,
- Deal with only one Customs administration,
- Reduce unpredictability, disrupting the logistical process, and
- Conduct the formalities in only one language.

³¹¹Michael Lux, Head of Unit “*Customs legislation and control of the application of Community law*”, European Commission, in a speech at Helsinki (2005).

³¹²The payment of duty is not normally an issue at export, so there is no need either for an authorisation or for an agreement between the Member States concerned when goods leave the Community from another Member State.

³¹³The administrative Agreement has been signed by the Netherlands, Luxembourg, France, United Kingdom, Austria, Slovenia, Ireland, Germany, Poland and Slovakia in 2009. The Convention will enter into force once ratified by all Member States (15 countries have ratified the Convention before February 2011). Under the Convention, duty retained are equally distributed (50/50) between the participating and the supervising Member States.

³¹⁴See EC (2005a) for a review of advantages and disadvantages of both procedures.

6.2.2.5 The Customs tariff of the European Communities

Classification and Customs value of goods As stipulated by the Modernized Customs Code, “import and export duties due shall be based on the Common Customs Tariff” (Art. 30 §1 MCC). The tariff is the combination of the nomenclature (or classification of goods) and the duty rate, which is common to all Member States. Goods are classified by following their material properties and their use. In order to keep a uniform classification scheme, the Customs refer to the comments on the sections and chapters, the heading and sub-headings, and the general provisions of the Combined Nomenclature³¹⁵ (Art. 34 §1 MCC), but also classification rulings or even judgments of the European Court of Justice. Before to apply a Customs tariff, the value of the goods must be determined (Art. 40-43 MCC). The primary basis for the Customs value of goods shall be the transaction value, based on the CIF value³¹⁶ (EC, 2008c). If it is not possible to determinate the transaction value, the other calculation methods can be used (Art. 42 §2 MCC) following the WTO Customs Valuation Agreement³¹⁷. The Common Customs Tariff is calculated ad valorem³¹⁸, *i.e. a percentage of the goods value*, and varies according to the classification and the origin of the good. The Customs value is also important to calculate the VAT and increasingly faced to the issue of transfer pricing.

The TARIC The Community has created additional sub-divisions by adding two digits to the number of goods³¹⁹. This amendment was incorporated into the Integrated Tariff of the Community (TARIC), which shows the measures (such as anti-dumping measures or quota), regulations and geographical information for each type of goods. This base, which encompasses all Community legislation and commercial policy, provides up to date information and enable a uniform application of Customs law within the Community. TARIC has been available to the public since 2000 on the Commission website.

Binding Tariff Information (BTI) and Binding Origin Information (BOI) In order to improve compliance with Customs classification and the predictability to import, traders can request Binding Tariff Information (Art. 12 CC, Art. 20 MCC). The BTI shall be binding on all Customs

³¹⁵The Combined Nomenclature (CN) is the basis for the common Customs tariff. This nomenclature contains a systematic, hierarchical classification of goods, which are finely classified under different sub-groups at several levels, each of which each can be allocated a special code. Its structure follows the Harmonized System (HS), which entered into force on 1 January 1988 and is currently applied by 137 countries (at the 26 June 2010, according to the WCO).

³¹⁶The Community and the majority of WTO members include the cost of transport to the port or place of importation. Compared to road and sea transport, the case of air transport is less clear as to where the Union frontier is crossed. The Commission regards this as the point in mid-air where a Community frontier is crossed and has made calculations of the proportions of air freight costs to be included in the Customs value on routes between approximately 230 non-Community airports (or groups of airports) and around 60 Community airports; altogether about 14 000 routes are covered (Art. 166 of CCIP, Annex 25 to Commission Regulation (EEC) No 2454/93). As stressed by the Court of Auditors in 2000: “*The Customs value of goods transported from New York to Hamburg by sea bear the full cost of that transport operation, whereas goods transported between the same locations by air bear only a proportion of that transport operation (established at 68 % of the costs)*” (CoA, 2000).

³¹⁷See the report of the Court of Auditors which reviews the valuation process of the European Union (CoA, 2000).

³¹⁸There are ad valorem tariffs, mixed tariffs and specific tariffs too.

³¹⁹In order to take into account of national peculiarities such as the turnover tax on imports or excise tax, the Member States may adopt an eleventh digit in the TARIC as a means of further differentiation.

offices of the Community, for a period of six years from the date of issue (unless environment or legislation change). In order to improve the use of BTI, to avoid misinterpretations between Customs on similar goods as well as BTI shopping³²⁰ phenomenon, the Commission has developed a centralized database which is currently available online³²¹. Traders can also request a Binding Origin Information which is another traditional compliance issue, especially in the context of the development of preferential arrangements³²². The BOI are binding for 3 years. It is an important Trade Facilitation measure in accordance with the WTO negotiations (WTO, 2010).

Charges and costs According to the Art. 30 of the Modernized Customs Code, Customs authorities “*shall not impose charges for the performance of Customs controls or any other application of the Customs legislation during the official opening hours of their competent Customs offices*” but could apply charges for specific services. There is no mention of the availability of these potential charges. It is in line with the review of European Customs websites as well as the Commission website, even if there is -sometime- some information in the official national Customs legislation³²³. This area does not follow the WTO requirements (WTO, 2010) which [will] require a transparent and up-to-date information on charges. Moreover they must be “proportionate” to the service. There is no mention of such proportionality principle within the European Customs Code.

6.2.2.6 Authorized Economic Operators (AEO)

The status of Authorized Economic Operator (AEO) has been incorporated into the Customs Code following the Regulation (EC) 648/2005, known as the Security Amendments, on the basis of Art. 5a. It is a core aspect of the guidelines formulated in the SAFE Framework³²⁴, where an AEO is “*a party involved in the international movement of goods in whatever function that has been approved by or on behalf of a national Customs administration as complying with WCO or equivalent supply chain security standards*” (WCO, 2006). As explained by Mikuriya (2007), it is one of the Community Customs response to supply chain security issues³²⁵. The related implementation provisions entered

³²⁰It indicates the illegal activity of several traders who may request a BTI to different Customs administrations for the *same* good, in order to keep the most advantageous classification if Customs do not provide the same BTI.

³²¹The EBTI is a system for exchanging and consulting on Member States’ decisions on the classification of goods and, therefore, their tariff treatment and the application of trade policy measures. However, there have been some difficulties with consulting the system, since the Member States issue BTIs in their own language and correspondences in the central dictionary (Thesaurus) are imperfect in some areas and for some languages correspondence. “*This may lead to discrepancies in the application of tariff legislation throughout the Customs territory in the case of an estimated 2-5% of BTIs. Another reason for difficulties may be the fact that in some countries a number of offices, rather than a single central office, are responsible for issuing BTIs.*” (EC, 2003b)

³²²Such as the General System of Preferences (GSP), the preferential duty regime for ACP, or Free Trade Agreements (FTAs), which provide preferential access to the EU market for their Members. Origin refers to the economic nationality of the imported goods which depends to which extent the good has been processed in the country, using more or less national components (EC, 2004b, 2010f). The annual activity reports of the DG TAXUD confirm the growing number of origin agreements such as the application of the Pan-European-Mediterranean cumulative origin in 2006.

³²³As stressed in Chapters 4 and 5, it is not a European characteristic.

³²⁴According to the WCO, 163 countries around the World have formally declared that they intend to introduce SAFE (Situation at the 20/09/2010).

³²⁵There are a large number of parties involved in security matters from different perspectives (NBT, 2008).

into force in 2006 (Art. 14a CCIP). The status of Authorized Economic Operator is included in the Modernized Customs Code (Art. 13-15 MCC). Applicable since 2009 and successfully implemented as scheduled, according to a monitoring by the Commission (EC, 2009b), the status granted by one Member State shall be recognized by the other Member States³²⁶. An AEO certificate was to be issued within 90 calendar days of the date of receipt of the application but this period has been extended to 120 days in 2010 (Art. 14o CCIP)³²⁷.

The AEO status provides to reliable traders numerous advantage in term of simplification³²⁸, especially some opportunities with regard to the new Customs controls relating to security. All companies looking to become AEO certified will need to engage in a self-assessment of their global supply chains, and meet the following common criteria: Customs compliance, appropriate record-keeping, financial solvency and, where relevant, security and safety standards. The AEO Guidelines ensure harmonized implementation of the AEO rules throughout the EU³²⁹, guaranteeing the equal treatment of economic operators and transparency of the rules (EC, 2007a).

6.2.3 Strategic objectives in the field of Customs

Since two decades the European Customs legislation and its tools have changed. The strategic objectives of the European Union has been developed all along a series of Communications³³⁰, Regulations (the Customs Codes), action programmes, blue prints and multi-annual plans. It seems that the Customs policy of the European Union faces two challenging dimensions:

- An increasing number of Member States, with different approaches and technical capacities
- A changing environment, enlarging the missions of Customs

A path to uniformity The increasing number of Member States has been the first challenge for the Union, particularly in term of uniformity of the Customs Union. Since its pilot action programme the Commission has provided many efforts to ensure such uniformity through the continuous training of Customs administrations, enhancing cooperation³³¹ and exchanges of best practices between Customs authorities³³² (EC, 2007b). Such harmonization has been also driven by a simplification

³²⁶However, other Member States should grant the use of simplifications to authorized economic operators if they meet specific requirements (EC, 2007a).

³²⁷Indeed, according to Regulation (EC) No 197/2010, the whole authorisation process usually took more than 90 days and in the cases of some big companies, the process can took up to 150 days.

³²⁸The AEO status provides fewer physical and documentary control, priority treatment if controlled, possibility to request a specific place of control, reduced summary declarations...

³²⁹Following sections show that there may be some divergences in the AEO grant process.

³³⁰The strategy of the European Union is particularly explained in COM(2001)51 and COM(2008)169.

³³¹Even between agencies within a Member States. See the Communication of the European Community at the WTO dealing with the incidence of multiple inspections for different control purposes involving more than on agency (WTO, 2005b).

³³²In 2008, the European Commission published a revised set of Customs Blueprints (EC, 2007b). These provide practical guidelines laying down criteria, based on the EC's best practice in 22 key areas, against which Customs administrations can measure their own operational capacity vis-à-vis the blueprint standards and possibly plan reforms if there are gaps.

process of legislation and the development of information and communication technologies³³³, increasing the interoperability and the accessibility to a common rule. Moreover, the Commission adopts a proactive stance in endorsing international standards and developing new EU standards, which could serve as a worldwide model. Finally, accession candidates receive technical assistance and investment aid, through programmes such as PHARE and more recently the Instrument for Pre-Accession Assistance³³⁴, and have to apply the European community acquis.

A challenging environment Since the beginning of the 90ies the international trade environment has changed, and raised a series of challenges³³⁵. Duty rates have significantly decreased all around the world and especially in Europe³³⁶. The sourcing of goods has become increasingly global and concepts such as just-in-time delivery, have raised the expectations from traders of less intrusive Customs controls. In addition, trade in intermediate inputs has grown with the fragmentation of production and the increasing importance of outsourcing. According to Miroudot et al. (2009) these intermediate inputs, which represent 56% of overall trade flows in goods and 73% of services, are more sensitive to trade costs³³⁷. At the same time there is an increasing demand of security³³⁸. In this context, the Customs authorities try to support legitimate trade and strengthen competitiveness by using modern working methods which reduce the interference in the flow of goods as well as the administrative burden to the minimum necessary to achieve security requirements.

Facilitate legitimate trade and ensure compliance In order to allow Customs to continue to play their role in this challenging environment, the EC (2001a) has followed the path of a simplified and rationalized legislation, improved Customs controls through the use of risk analysis management³³⁹ and ensured the development of Information Technologies. The European Union has moved towards a paperless environment for Customs and trade (EC, 2003c), with a pan-European electronic Customs system aiming at building an efficient communication chain between all Customs operators (EU, 2008a). Customs also provide to legitimate traders simplified procedures with a view to reducing compliance costs and to strengthening effective checks at their optimum location in the supply chain, such as the centralized clearance procedure (Cailleteau, 2006). The next improvement step launched by the European Commission is the development of a single electronic access point,

³³³As the OECD (2003c) explained “Automation can also be used to harmonize the interpretation and implementation of Customs regulations across all border points, reducing the discretionary power of Customs officials and improving integrity”. In the European case, ICT are specially designed to support the convergence and the harmonization of Customs business processes, ensuring benefits for Customs administration and traders too (EC, 2008e).

³³⁴These programmes account for billions of euros (EC, 2008b) and some of these projects aim to facilitate trade.

³³⁵See Gordhan (2007) and Widdowson (2007) for a review of current challenges faced by Customs.

³³⁶Since 1996, the weighted average of European MFN applied rates dropped by 53.22% (Own calculation, based on the WTO IDB). See also next section 6.2.4.1.

³³⁷The impact of distance on trade flows of intermediates is higher than on trade flows of consumption goods or total services trade. Miroudot et al. (2009) explain that it is probably because intermediates are less subject to a “home bias” or to consumers’ preferences.

³³⁸In response to the terrorist attacks of 11 September 2001, the Regulation (EC) No 648/2005 introduced security amendments to secure the international supply chain. The two main contributions of this amendment are the status of Authorized Economic Operator (AEO) and the required submission of an electronic advance declaration.

³³⁹See the recent review of Hints et al. (2011).

leading to the European Single Window (EC, 2008d). After the modernisation of the Customs legal (such as the adoption of the Modernized Community Customs Code) and technological environment, it is “*to be applied in the Customs administrations, bringing out the human dimension*” (EC, 2008h).

Trade Facilitation is a core policy of the European Union and has been implemented and continuously improved since the origin of the Customs Union. Due to a permanent changing environment and the EU enlargement, several policy require adjustments and transitional periods. Indeed, almost all projects suffer of delays due to technical or transposition issues. However, the European Union shows the way to follow in order to build an efficient Trade Facilitation policy between heterogeneous countries, through a constant monitoring policy and an active cooperation policy at all levels (national and international Customs agencies, and economic operators). The trade facilitation strategy and its limits will be developed in the following sections.

6.2.4 Customs duties: rates and revenue

6.2.4.1 Evolution of Customs duties and excises

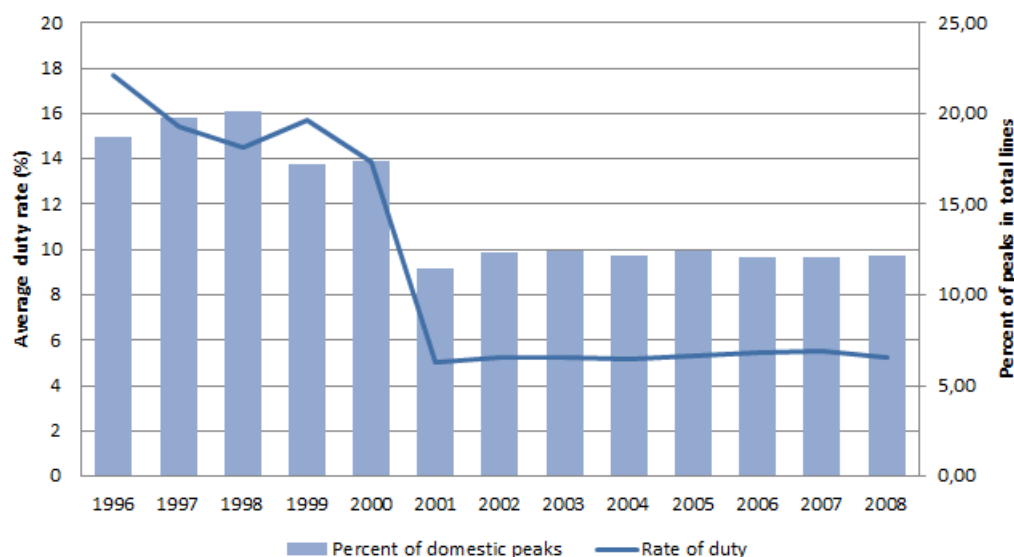
According to the successive WTO Trade Policy Reviews, the simple average tariff have continuously decrease since 1995, when tariff has reached a peak due to the conversion of border measures, including variable levies, into tariff equivalents (WTO, 1995). The MFN rates for agricultural goods are higher than the non-agricultural goods, but both have decreased from 1995 to 2008, respectively from 25% to 17.9% and from 6% to 4.1% (WTO, 2009c). These simple averages hide some tariff peaks especially for the agricultural goods. However, there are numerous duty free lines particularly under trade agreements. According to the WTO (2000), 95% of the lines were duty free for ACP, 80% for the RTAs, 54% for the GSP and 20% for the MFN regime. Finally, ad-valorem is not the only way to collect duties, even in 2009, where EC’s common tariff comprises 90% of ad-valorem and 10% of non-ad-valorem rates³⁴⁰ (WTO, 2009c).

The weighted average of tariffs shows a similar trend, with lower rates than the simple average. Based on the WTO-IDB database, the following figures 6.2 and 6.3 show the evolution of weighted average tariffs by aggregates (HS combined) since 1996 for the European Union. Figures also show the percent of domestic peaks in the total number of lines³⁴¹. The downward trend of tariffs stimulates trade flows and can generate welfare effects by “*replacing lost tariff revenues with revenues from consumption tax, via trade creations*”, Kowalski (2005).

³⁴⁰According to a report of the Court of Auditors (CoA, 2000), almost 95% of import duties were calculated in ad-valorem terms in 1999.

³⁴¹There are different methods to determine a peak and its related threshold. The WTO relies on two measures: *the international peak* if duty rate is above 15% (HS6) or *the domestic peak* if duty is three time higher than the average tariff of the country (Nassar et al., 2008).

Figure 6.2: Agricultural weighted average tariffs (MFN) of the EU



6.2.4.2 The share of EU Revenue represented by Customs duties

Traditionally, the most important role of Customs was to collect Customs and agricultural duties and thus contributing to the Community budget. However, the valuation of goods by Customs are also a baseline for determining value added tax and excise duties, which are important resources for Member States. It still remains a major task too.

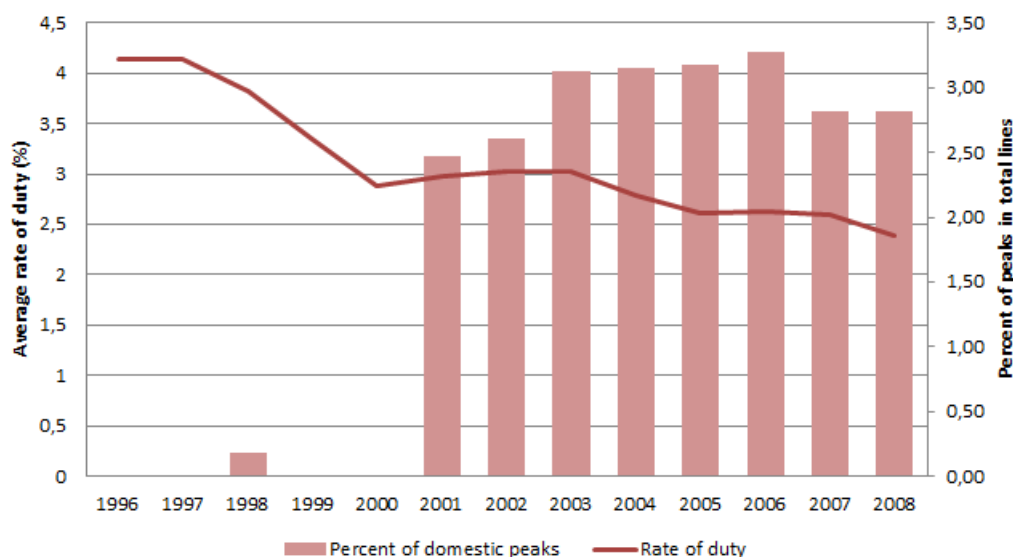
The revenue collected by Customs agencies gives us valuable information in the field of trade facilitation. Firstly, the revenue collected by Customs agencies is a key performance indicator of Customs efficiency. It can be used as a ratio with Customs staff, Customs administration cost or salaries (Amin, 2010; Bagai and Wilson, 2006; Holloway, 2010). Secondly, it is one of the objectives of a trade facilitation policy. Indeed, an active policy should raise collected revenues³⁴², especially by reducing corruption, improving Customs efficiency and trade flows. Thirdly, Customs revenue could represent an important share of national revenue. In such cases trade facilitation policies do not have the same impact and do not face the same implementation issues.

There are three categories of own resource in the budget of the European Union: the GNI, the VAT and the Traditional Own Resources³⁴³. The GNI consists of a uniform percentage rate applied to Gross National Income of Member States. It represents the main part of the European Union resources, 72.5% of the revenue of the European Union in 2009 and even 75.9% in 2010 (EC, 2010d,g).

³⁴²See the OECD (2003b), Stoler (2003), Engman (2005b) or the WB (2005) and more recently the Cameroon case study by Cantens et al. (2010).

³⁴³Revenue other than own resources includes tax from EU staff remunerations, bank interest, contributions from non-member countries to certain EU programmes, interest on late payments as well as the balance from the previous exercises (EC, 2010d).

Figure 6.3: Industrial weighted average tariffs (MFN) of the EU



The VAT resource is a uniform percentage rate which is applied to each Member State's harmonized VAT revenue and accounts for 12.5% in 2009 and 11.3% in 2010 of the EU revenue (EC, 2010d,g). The Traditional Own Resources (TOR) mainly consist of Customs duties charged on imports coming from non-Member States, but also agricultural duties and sugar levies³⁴⁴. Since 2009, agricultural duties are merged with Customs duties (EC 2010d, *Annex 2: Expenditure and revenue 2000-09 by heading, type of resource and Member State*), in order to follow the implementation of the WTO Agreement on multilateral trade.

Member States, who collect such duties, retain a certain percentage as a compensation for the costs of collecting them. This percentage increased from 10% (before 2001) to 25% now (Council, 2000, 2007). According to the EC (2010e) and following the WCO (2010) methodology, *i.e. the aggregation of agricultural and Customs duties*, the share of Customs duties as a percentage of EU revenue is relatively stable across years³⁴⁵ (Table ?? and Figure 6.4). The evolution of this share, which account for 12.24% of the total revenue in 2009, should be viewed in the context of a constant decrease in tariff barriers, the evolution of trade flows and the enlargement of the Customs Union. According to Eurostat (2010), EU imports from the extra-evolutive EU countries rose by 16.04% between 2000 and 2009, whereas the average MFN tariff of the European Union decreased by 28.24% between 2000 and 2008 according to the WTO Integrated database³⁴⁶. Behind these trends there are many disparities between each year. Table 6.2 provides the data on all these evolution since 2000.

³⁴⁴Sugar levies are paid by sugar producers to finance the export refunds for sugar. (EC, 2010d)

³⁴⁵The change of the percentage of TOR retained by Member States to cover their collection costs in 2001 explains the relative higher level before 2001.

³⁴⁶Downloaded from WITS, <http://wits.worldbank.org/wits/>

Table 6.1: Share of the revenue of the EU represented by Customs duties

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agricultural duties (EUR Million)	1198,4	1132,9	1180,2	1349,1	1751,2	1801	1722,4	1872,1	1703,5	0
Sugar levies (EUR Million)	1196,8	840	864,8	510,9	535,5	925,8	202,1	-40,9	943,8	175,5
Customs Duties (EUR Million)	14568,3	14237,4	12917,5	12616,2	14122,8	16023	18113,1	20266,3	20395,5	19195,5
TOR (1) (2)	15267,1	14589,2	9214	10857,4	12307,1	14063,1	15028,3	16573	17282,9	14528,2
Total Revenue (EUR Million)	92724,4	94289,3	95434,4	93468,6	103511,9	107090,6	108423	117563	121235,7	117625,6
% of TOR in Total Resources	16,47	15,47	9,65	11,62	11,89	13,13	13,86	14,10	14,26	12,90
% of Customs duties in total resources (3)	14,14	13,59	5,90	10,12	10,23	11,22	12,53	12,93	12,62	12,24
% of Customs duties in total resources (4)	15,30	14,67	9,27	11,21	11,50	12,48	13,72	14,12	13,67	12,24

Source: Own calculation, based on the financial reports of the European Union.

(1) The Traditional Own Resources (TOR) cover agricultural duties, sugar levies and Customs duties.

(2) Member States retain 10% in before 2001, 25% since, as TOR collection costs. Note that 15% of 2001 TOR are also retained in 2002.

(3) I apply the same retained percentage than TOR.

(4) I apply the WCO methodology, i.e. I dropped the sugar levies. Then I apply the same retained percentage than TOR.

Table 6.2: Evolutive EU imports with extra-evolutive EU countries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Imports from extra EU countries (1)	1033,4	1028,4	989,1	992,7	1032,4	1183,5	1356,1	1433,4	1564,9	1199,2
Annual growth of imports (%)		-0,48	-3,82	0,36	4,00	14,64	14,58	5,70	9,17	-23,37
MFN Applied rates (2)	3,54	3,08	3,16	3,15	2,9	2,73	2,75	2,77	2,54	
Annual growth of applied rates (%)		-12,99	2,60	-0,32	-7,94	-5,86	0,73	0,73	-8,30	
Annual growth of Customs revenue (%) (3)		-2,51	-8,28	-0,94	13,67	12,28	11,29	11,61	-0,18	-13,14

(1) Value in Billion of Euros. Data come from Eurostat (2010).

(2) Trade Weighted Average, Total trade from the World, ISIC Rev.3 classification, data come from the WTO Integrated Database

(3) Agricultural and Customs duties. Own calculation, based on the financial reports of the European Union.

Figure 6.4: The share of EC revenue represented by Customs duties



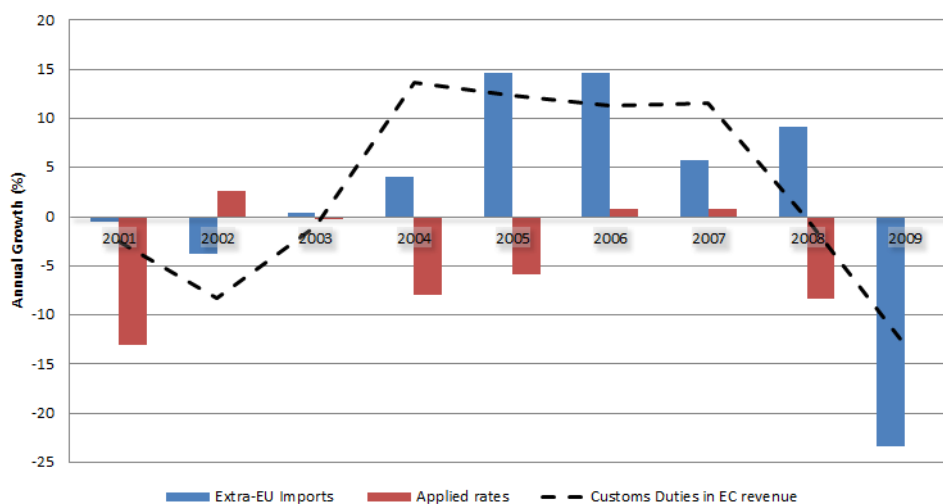
Customs duties are an important source of European Community revenue. The share of national revenue represented by Customs duties is in the line with American countries (12%) and lower than African (25%) and Asian (18%) countries³⁴⁷. Note that the United States are less dependent of Customs revenue which represent only 2% of their national revenue. The evolution of Customs revenue follows the trend of trade flows and MFN applied rates to some extent (Figure 6.5). There is no evidence of lose -or gain- of Customs efficiency during this period according to these figures. It will be interesting to put in perspective this evolution with the evolution of Customs staffs, wages or Customs efficiency indicators. Unfortunately such information is not easy to obtain and to analyze as it depends of the different Member States of the Community³⁴⁸. Moreover, the aggregation of different efficiency level is not obvious. At the level of Member States, the share of national revenue represented by Customs duties is very low (near the United States rate) as they only kept 25% of the collected amounts (since 2001). Nevertheless, it is still a potential source of revenue, leading to a strong competition on various border facilities between European Customs administrations in order to be the most attractive place³⁴⁹. Moreover, trade spillovers and the other resources coming with imports, such as the VAT or excise duties, are even more important for Member States.

³⁴⁷Own calculation, based on WCO and IMF data (see section A.4 in the Appendix for a world overview).

³⁴⁸According to the reports on the protection of the financial interests of the Union, there were around 90000 Customs officers a decade ago. The reports of performance of the french Customs show a trend towards the reduction of Customs staff, which decreases constantly since a decade (from 19859 in 2004 to 18226 in 2009). However I do not have figures for each Member States.

³⁴⁹The french Customs development strategy clearly underlines this issue.

Figure 6.5: Evolution of extra-EU Imports, Applied rates and Customs Revenue of the EU



6.3 Trade Facilitation strategy

The previous sections described the legislation in place within the European Union, the challenges faced by the Commission and its strategy in the Customs area. All measures contribute to “*make life easier for business*”, facilitating trade without weakening the protection of the EU interests. In its former communication concerning a strategy for the Customs Union, the EC (2001a) highlights the important contribution that Customs made in trade facilitation, the protection of the financial interests of the EU (especially in the fight against fraud), the protection of society, and the uniformity application of Customs procedures and treatments. Following the security package of 2005, the EC (2005c) started the modernization of the Customs Code putting an appropriate legal framework in place and launched a series of notable improvements³⁵⁰, using intensively the new technologies. The ultimate goal is the development of single access points, *i.e. a single window*, and a “one stop shop” for control of goods. Such frameworks are one of the most valuable trade facilitation tools (UNCTAD, 2011b). The Commission is constantly working on simplifying the Customs legislation, updating and automating procedures. The chronology of the European Customs initiatives provides a good overview of this growing wave of facilitation.

In order to support a true harmonization across Member States, to keep high security standards and to facilitate trade, the European Community has developed a close cooperation between Member States, economic operators and third countries, implemented up to date ICT and reduced -simplified- its Customs procedures.

³⁵⁰Berden et al. (2009) confirm that European Customs administrations have taken actions to overhaul control procedures, techniques, resources and relevant legislative tools summarized in the “security package” of 2005.

6.3.1 An active cooperation scheme

6.3.1.1 The involvement of economic operators

The review of Customs Action Programmes has shown the increasing participation of the economic operators into drafting process of new legislation. The culture of consultation³⁵¹ is well developed in the European Union and the EC policy aims to meet the expectations of economic operators by providing a simpler procedural framework with a higher predictability of the total transaction (EC, 2003c). Economic operators are also concerned about the security issues, especially in the area of Intellectual Property. The degree of satisfaction of trader is also a key indicator of Customs action programmes (EC, 2005c). A recent report of the EC (2009d) provides several evidences of a close cooperation between Customs and the private sector through the growing applications for action submitted to Customs against suspicious goods. Since 2000 the number of applications for action made in the Member States has increased from nearly 1000 applications to almost 15.000 in 2009³⁵². Finally, the Commission supports traders with a strong import and export help-desk, which in the case of the European Union are strengthened by each Member States' national body. Export promotion initiatives, such as trade missions (Head and Ries, 2009) or specific agencies (Gil et al., 2008) provide significant impacts on the participation of firms to international trade³⁵³. Moreover, the European Commission has shown that availability of information was a key policy, improving transparency at all levels.

6.3.1.2 Inter-agencies cooperation

In order to develop a right implementation of the Customs law at every points of the Union, the Commission has constantly developed a close cooperation framework with the Customs administrations of each Member States as well as with third countries. The action programmes have led to a common risk management policy³⁵⁴, and to improve the exchange of information especially through the extensive use of information and communications technologies (such as the CIS convention or the EBTI database). It is a long process which is today fully in place. The Commission also manages numerous meetings, such as workshops or seminars, to improve the well understanding of the law and assess the different point of views of the Member States' Customs administrations (see

³⁵¹See the Communication COM(2002)704 about the reinforcement of consultation behaviours.

³⁵²In 2009 less than 10% of Customs actions were initiated ex-officio, other were lodged by right holders. Interestingly in 6% of the cases when right holders were notified by Customs of a detention of suspected goods, the right holders were not willing to take action against the infringer and the goods were released to follow their destination. It is particularly the case for small quantity involving high recovery costs.

³⁵³France has developed a wide network of help-desks, from the French Embassy, the Economic Missions or the Chamber of Commerce, to the *Coface*, *Oséo* and *Ubifrance* which has trade commissions in 47 countries to date (May 2011). According to a recent report of the French Court of Auditors (CC, 2011), almost 15% of the french export firms have been actively supported by this network (financial and technical assistance). Despite their great potential, the impact of such export promotion agencies are rarely taken into account in trade facilitation studies. However, it raises the question of the measurement of their role as well as the endogeneity issues. Indeed there is a correlation between the geographic implementation of such agencies and the volume of existing trade flows or the specific cultural links as former colonial relationships.

³⁵⁴A close cooperation has led to the creation of guidelines and best practices in 2007, followed by a decision on common risk criteria and standards approved in 2008 (EC, 2009b).

figure 6.6). The Commission also conducts yearly monitoring of Customs through annual activity reports, special reports (several Communications from the Commission, but also reports from the Court of Auditors or external bodies), or management plans, and it encourages best practices by publishing a compilation of Customs blue prints. The European Union also provides technical assistance and financial aids to its Members, Candidates and neighbourhoods (see section 6.3.2) and runs international cooperation through trade and cooperation agreements (see below).

Figure 6.6: An increasing cooperation between Members States (Meetings)

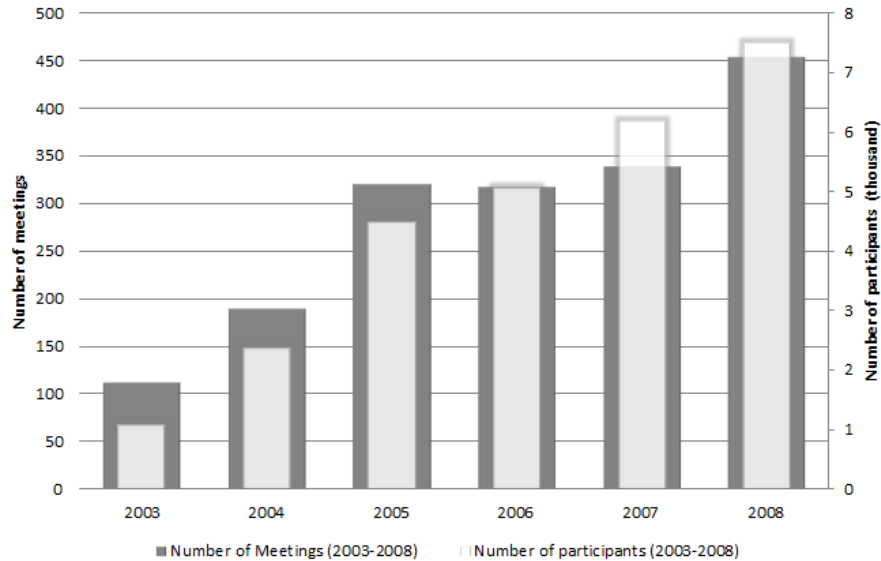


Table 6.3: DG TAXUD, Joint action and IT budget

Source: Own compilation, based on Annual Activity reports

	Joint Actions	IT support
2009	14 000 000 €	51 100 000 €
2008	15 000 000 €	44 000 000 €
2007	12 800 000 €	35 300 000 €
2006	12 500 000 €	36 000 000 €

6.3.1.3 Trade agreements, conventions and international bodies

With the growing participation of the European Union in the international trade network, numerous interdependence with international law and trade partners have been developed, particularly in the field of Customs³⁵⁵.

³⁵⁵See section 6.1.3 for further details on the impact of international law, the summary of key agreements in Figure 6.11 and section F.3 in the Appendix for further details on the agreements concluded by the European Union. The role of trade agreement is explored previously, in Chapter 3.

Trade Agreements The European Union, the world's largest trading block, is a key player at the WTO³⁵⁶ and has developed with its largest trading partners a series of agreements in Customs matters, such as mutual Customs cooperation or Mutual Recognition Agreements (MRAs). At the same time, the EU has strengthened its economic links with its neighbourhood, by spreading the "acquis communautaire" to candidate countries and direct neighbours³⁵⁷. The European Union has also concluded several (Trade) Agreements³⁵⁸, developed the African, Caribbean and Pacific partnership³⁵⁹ (currently the Economic Partnership Agreements) and applies the General System of Preferences (GSP) for numerous countries. The countries who have joined the European Union were previously part of FTAs (WTO, 2007b) and several agreements have been updated, particularly for Mediterranean countries. Today, numerous agreements are under negotiation, including protocols on rules of origin and trade facilitation chapters (for example with Russia). The WTO (2009c) notes that such a proliferation of agreements has led to a decrease of tariff and non-tariff barriers. Since a decade, only 9 countries remain covered by MFN regime when importing into the EU³⁶⁰ and their share in the structure of EU imports has decreased constantly from 45% (WTO, 2002) to 27,5% (WTO, 2009c).

International Conventions As explained in the first section, the European Union has signed many Conventions related to Customs issues. Most of these conventions are detailed in chapter 3. Among them, *the Kyoto Convention*, a major convention, aims to achieve a high degree of simplification and harmonization of Customs procedures and practices. The Convention has been adopted in 1974 and its revised version with its general annex in 2003, by the Council Decision 2003/231/EC. According to Lux (2007), this Convention largely encompasses matters which are regulated by the Community Customs Code and its implementing provisions. The Customs Convention on the International Transport of Goods under Cover of TIR Carnets (*the TIR Convention*) was concluded for the Community by Regulation (EEC) No. 2112/78 and entered into force in 1983. The Convention concerning the simplification of formalities in trade in goods signed between the European Community and the EFTA, entered into force in 1988 by the Decision 87/415/EC, accompanying the development of the SAD. *The International Convention on the harmonization of frontier controls of goods*, which contributes to the progressive abolition of barriers to trade, has been adopted in 1984 by the Regulation (EC) No 1262/84 and its implementation is reinforced with the introduc-

³⁵⁶The European Union has reached the WTO the 1st January 1995 after having participated actively to all previous Rounds. In the WTO, the European Commission negotiates on behalf of the 27 countries of the European Union.

³⁵⁷For example, the EU has concluded in depth agreements with the EEA and the EFTA, harmonizing several rules in a wide range of areas, from the technical regulations to the rules of origin, and involving them actively into consultation process for all new EU legislation relevant to these countries (WTO, 1997).

³⁵⁸According to the Treaties Office Database of the European Union, the EC has signed 230 agreements at the multilateral level and 751 at the bilateral level from 1945 to 2010. Among them, 64 agreements are directly related to Customs matters (Commission classification). Table F.3 and figures F.1, F.2, F.3 in annex.

³⁵⁹In 2000, the Cotonou Agreement replaced the Lomé Convention which had been the basis for ACP-EU development cooperation since 1975. The non-reciprocal trade preferences granted to the ACP countries will be replaced by a new scheme which is to take effect in 2008: the Economic Partnership Agreements (EPAs). These new arrangement provide for reciprocal trade agreements and are quite controversial.

³⁶⁰Australia, Canada, Taiwan, Hong-Kong (China), Japan, Korea, New-Zealand, Singapore and the United States.

tion of the single window and one-stop-shop concept within the Modernized Customs Code. The International Convention on the Harmonised Commodity Description and Coding System (*the HS Convention*) has been applied in 1988 with Regulation (EC) 2658/87. By establishing a uniform system for good classification, the HS nomenclature facilitates the collection and transmission of data as well as international trade. According the Commission, 98% of goods traded in the world are classified according to the HS nomenclature in 2010.

More recently the European Union has adopted a series of conventions through its participation in the WTO. The EU also adopted the Convention on Temporary Admission (known as *the Istanbul Convention*) which is directly applicable since 1997, after its adoption by the Decision 93/329/EEC. Another recent convention aims to reduce the transport of empty units by enhancing the efficient use of pool containers. This Convention on Customs Treatment of Pool Containers used in International Transport is in force since 1998. Finally some conventions, such as the IMO Conventions³⁶¹, are ratified directly by the Member States. Since 2007 the EC was an ad-interim member of the WCO and its role has been progressively strengthened, to become a full member in 2011. This membership aims to ensure a better coordination and harmonization of the European strategy.

Customs cooperation and mutual assistance Following the growth of international trade and the necessity of providing a balance between security issues and facilitation of trade, the European Community has developed an international cooperation policy in Customs matters³⁶². In coherence with this policy, the Customs Cooperation and Mutual Administrative Assistance Agreements allow the parties “*to put the necessary tools for Customs cooperation in place*”. These agreements allow exchange of information, technical assistance, joint actions and training, but also improve the application of Customs legislation (IPRs...), and develop the computerization of Customs procedures, and formalities as well as their interoperability. Such agreements ultimately aim to strengthen the effective coordination between administrative authorities and to facilitate the legitimate movement of goods, by encouraging the simplification and the harmonization of Customs procedures (following international recommendations). The scope of these agreements is more or less wide according to the partners and can be expanded while the international environment and the role of Customs are constantly evolving. Between 1997 and 1999, the European Union has signed Customs Cooperation and Mutual Administrative Assistance Agreements with the United States, Korea, Canada and Hong-Kong, China. Then, several agreements have been adopted with India in 2004, China

³⁶¹Indeed, IMO membership is only open for States (all EU Member States are members of the IMO). However the EC (2009e) tries to granting a formal observer status, if not full membership, and encourages EU Member States to act as an efficient team. **Since almost 90% of the EU external freight trade is seaborne**, maritime efficiency is a hot issue. That is why the Commission also pleads for an European maritime transport space without barriers, removing unnecessary administrative barriers and duplicated cross-border controls. The EU e-Maritime initiative promotes a broader use of ICT and the improvement of interoperability.

³⁶²There is also a close cooperation among Member States, candidates and neighbours. Member States also signed cooperation conventions, such as the *Convention on Mutual Assistance and cooperation between Member States* (Naples II) and the *Convention on the use of information technology for Customs purpose* (CIS), even if their ratification has been delayed since their adoption in 1998 [COM(2004)376].

in 2005³⁶³ and Japan in 2008. The Customs cooperation agreement with the United States has been expanded in 2004 by introducing the Container Security Initiative (CSI), which improves the security of maritime transport of containers and the risk management framework³⁶⁴. Finally, the EC (2011) expects to conclude in 2011 a AEO mutual recognition agreements with the USA, and by 2012 with China and Canada.

Mutual Recognition Agreements (MRAs) These bilateral agreements provide for the mutual recognition between trading partners of test results and certifications for certain sectors, aiming to facilitate market access³⁶⁵. They give the possibility to third-country Conformity Assessment Bodies (CABs) to take part in the EC's conformity assessment activities (and vice-versa) by certifying products for access to the other country's market following its technical legislation. The European Union has signed seven MRAs limited to several sectors and covered by the New and Old Approach EC Directives as well as non-harmonised national legislation (see section 6.3.3.3). These MRAs enter into force in Australia (1999), New Zealand (1998), the United States (2000), Canada (2002), Israel (1999), Japan (2002) and Switzerland (2002). The European Union also plans Agreements on Conformity Assessment and Acceptance of industrial products (ACAAs) which are a specific type of MRAs based on the alignment of the legislative system and infrastructure of the partner with those of the European Community. It is the result of an extensive cooperation with neighbouring countries, notably Mediterranean ones (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Tunisia) and Ukraine, in industrial sectors where the legislation is harmonized at the European level.

6.3.2 Aid for Trade Facilitation

Long before the Trade-Related Technical Assistance and Capacity-Building (TRTA/CB) initiative launched by the WTO (2001) at the Ministerial Meeting of Doha, the European Community provided aid for trade facilitation, particularly through its programmes for accession candidates. The European Commission has launched numerous projects related to trade facilitation and the majority of them are directly related to Customs issues such as border control, simplification of formalities, IT implementation, Customs training or tariffs³⁶⁶. It is difficult to evaluate the share of these projects, as such a share does not reflect the quality and the amount of each project³⁶⁷. Indeed a significant part of trade-related assistance is supplied as technical cooperation, which is not linked to high budgets. However, it appears that the European Union has a proactive policy in the area of trade facilitation, especially in the Customs field (Table 6.4).

³⁶³China and the European Union have launched several initiatives, among them an action plan on IPR Customs enforcement was launched in April 2009.

³⁶⁴Since, the CSI has been implemented in numerous European ports (EC, 2009b).

³⁶⁵Studying TBT impact on developing countries, Chen et al. (2008) show that Mutual Recognition Agreements can help firms to improve economies of scale and scope, *i.e. firms' intensive and extensive margins of exports*.

³⁶⁶EuropeAid provides a database of calls for proposals.

³⁶⁷Based on EU calls for proposals during the last decades and a wording analysis of project topics, the average share of trade facilitation related projects is 12.3% (Table 6.4).

Lesser (2006) has shown that the volume of support for trade facilitation was significant and rose rapidly (around 225% between 2001 and 2004). The European Commission was the major contributor in this area³⁶⁸ and its trade-related assistance was evaluated around 445 millions of euros. Moreover it was based on a narrow definition of trade facilitation and represented only a fraction of support to areas potentially related to trade facilitation³⁶⁹. In this context the European Commission provided considerable assistance to the accession candidates and its neighbours who concentrating 75% of its aids for trade facilitation³⁷⁰. The following table 6.5 provides the repartition of projects according to the different European programmes, in Europe. The European aid is mainly directed to candidates for the accession. Thus, the number of projects as well as the share of projects related to accession candidates increased before each wave of accession. It appears also that the Union has an active policy with its neighbourhood, in order to avoid the emergence of new dividing lines between the enlarged EU and its closest neighbours³⁷¹.

Since the first studies on trade related assistance, the different classifications of aid do not encompass the same dimensions. Moreover the definition of trade facilitation is more or less narrow, as many policy could be related to trade facilitation (see Chapter 1 for a discussion on trade facilitation definitions). Last but not least, databases on aids flows are scarce, not accurate as a lot of projects are not reported, and do not provide any information on the efficiency of each project as well as its impact relative to others. However, according to partner countries self-assessments, the OECD (2009a) showed that trade facilitation is the second most effective aid-for-trade programme.

The main database on aid for trade is the Creditor Reporting System (CRS) of the OECD Development Assistance Committee (DAC). This database covers the aid activities of most of OECD Members as well as those of multilateral development banks and some UN agencies. The CRS records aid flows by sectors, donors and recipient countries since 1973. Within the CRS database, *Transport and storage* (sector 210) and *Trade policy and regulation* (sector 331) are the main sectors related to aid for trade facilitation³⁷². However, even if it is a huge data set (1 785 631 observations by the end of 2010), the CRS database should be used with caution³⁷³. Other sources include the databases

³⁶⁸Based on the WTO/OECD Trade Capacity Building Database and OECD Creditor Reporting System, Lesser (2006) shows that 53.9% of total support in the area of trade facilitation came from the European Commission.

³⁶⁹Note that the European Union has a broader approach of the TRTA/CB than the WTO (te Velde, 2006).

³⁷⁰Another 20% of EC funding is targeted at Africa, though mainly at Egypt. (Lesser, 2006)

³⁷¹Since 2004, this interest for the European Neighbourhood Policy (EC, 2004a) is stressed in the annual activity reports of DG TAXUD.

³⁷²Trade facilitation is codified under the CRS purpose code *33120* and encompasses the following definition: “*Simplification and harmonization of international import and export procedures (e.g. Customs valuation, licensing procedures, transport formalities, payments, insurance); support to Customs departments; tariff reforms*” (OECD, 2007).

³⁷³First, the CRS only includes projects that meet ODA requirements (OECD, 2007). Second, the multilateral aid of DAC’s member (*i.e. contributions to the regular budgets of the multilateral institutions*) is not covered and data on aid activities financed from multilateral institutions are reported on a voluntary basis. Finally, a single project could be subdivided into multiple rows. Indeed, the number of CRS ID duplicates is high, 1165197 duplicates observations in the latest available database (2010).

Table 6.4: Calls for proposals related to trade facilitation

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Customs issues*	18	73	110	79	125	112	95	94	35	29	29	42
Trade	1	5	4	9	6	7	2	8	2	3	3	3
Harmonization and Standards	11	9	17	28	25	22	19	24	12	12	10	9
Technical Barriers to Trade (TBT)	0	0	0	1	0	0	0	0	0	0	0	1
Sanitary and Phytosanitary (SPS)	2	6	7	7	12	9	3	5	1	2	1	7
Transport and transit	7	18	24	24	27	22	16	24	13	7	12	8
Projects related to Trade Facilitation (sum)	39	111	162	148	195	172	135	155	63	53	55	70
Share** (%)	8,5	14,3	16,6	12,6	6,85	9,71	17,6	12,9	13,9	11,5	9,87	14
Number of Projects	459	775	974	1171	2848	1772	768	1206	452	462	557	501

Source: Own calculation based on EuropeAid proposals publication, Calls for Europe apart EU (date of publication)

* Customs, Border, Tariff and Formalities

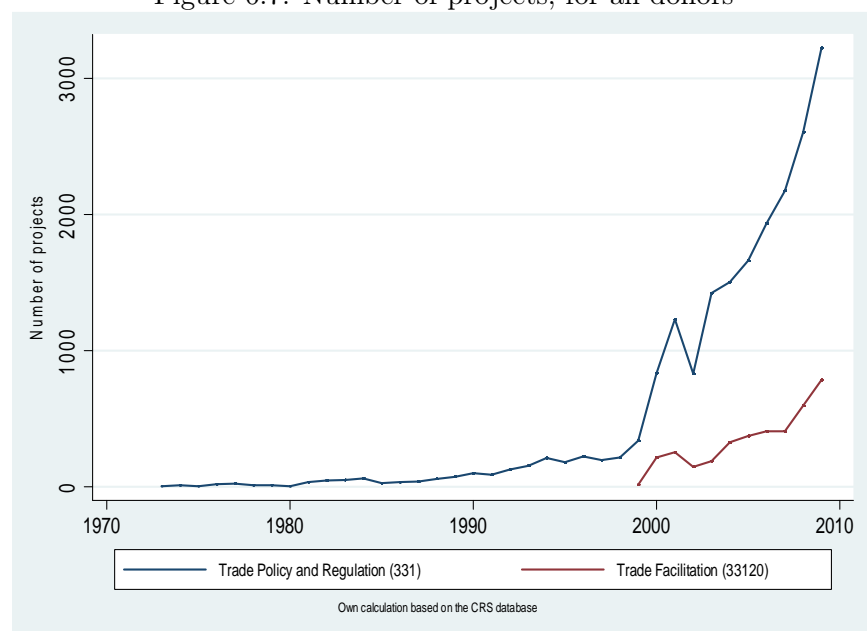
** The share is only indicative as it does not take into account the quality of the project and its amount.

Table 6.5: Repartition of projects by EC programmes, in Europe

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Accession Candidates (%)	76	71	85	82	93	86	69	78	48	63	78	74
Neighbouring (%)	24	22	14	16	6	13	26	19	42	25	9	12
Other (%)	0	7	0	2	0	1	5	3	10	13	14	15
Number of Projects	459	775	974	1171	2848	1772	768	1206	452	462	557	501

Source: Own calculation based on EuropeAid proposals publication, Calls for Europe apart EU (date of publication)

Figure 6.7: Number of projects, for all donors



built by donors such as the World Bank, the USAID database on the U.S. Government's trade capacity building activities in developing countries and transitional economies³⁷⁴, the WTO Technical Assistance Database³⁷⁵, or the AidData project (Findley et al., 2009). The core of the AidData project, the PLAID database, encompasses multilateral and bilateral donor activities. Data come from the OECD's Creditor Reporting System (CRS) but also from a number of additional sources, including annual reports and project documents published by donors or data obtained directly from donor agencies. CRS data are dropped for those donors that offer more complete coverage in either Annual Reports or online databases (AidData, 2010). Moreover PLAID provides more detailed aid project purpose, assigning several activity codes to each project³⁷⁶.

Thus trade facilitation (33120) is divided into 4 sub-sectors:

- Trade facilitation, activity unspecified or does not fit elsewhere in group (33120.01);
- Simplification and harmonization of international import and export procedures (33120.02);
- Support to Customs departments (33120.03); and
- Tariff reforms (33120.04).

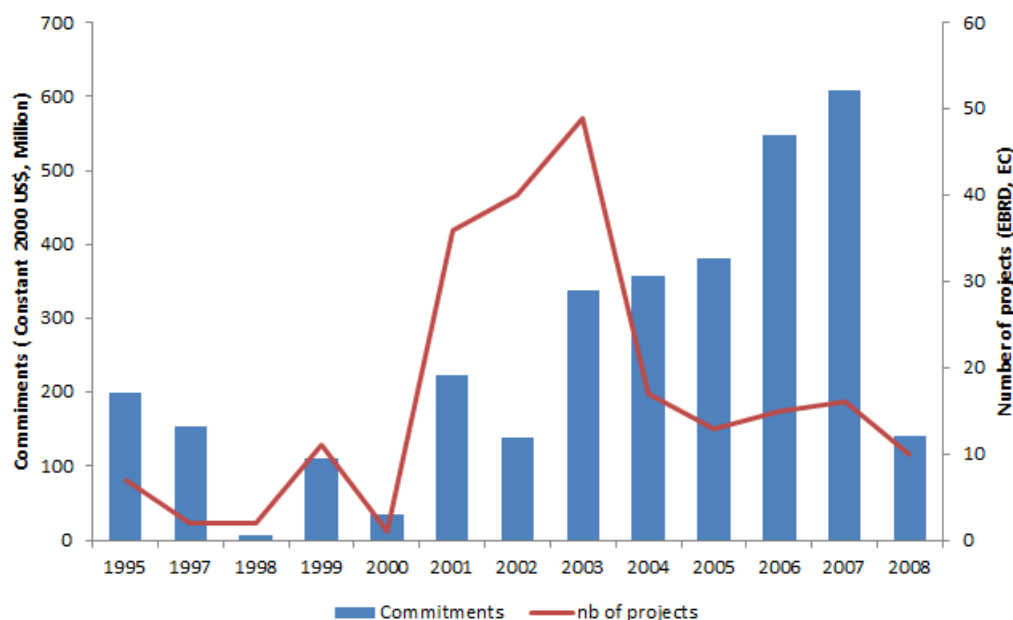
³⁷⁴According to the USAID Economic Analysis and Data Services (EADS), the USA provided USD 2 358 millions of aid related to trade facilitation, between 1999 and 2009. This aid also targeted Europe. Note that the TCB category *Trade Facilitation* is disaggregated into six sub-categories, from Customs Operations & Administration to Export Promotion.

³⁷⁵The Global Trade-Related Technical Assistance Database (GTAD) reports TRTA and CB activities.

³⁷⁶Within the CRS database there is only one purpose code by project. However, in the reality, several activity codes could be associated with a particular contribution.

According to the PLAID database, the European aid towards Europe mainly consist of EBRD commitments. Indeed, the EBRD has provided a continuous and increasing volume of commitments in the area of trade facilitation. Note that 65% of the amount of aid for trade facilitation from EBRD targeted Russia. The following figures 6.8 and 6.9 provide an overview of the trade facilitation aid policy of the European Union, according to the PLAID database.

Figure 6.8: European Commitments in the field of Trade Facilitation*



Source: Own calculation based on PLAID database (Findley et al., 2009).

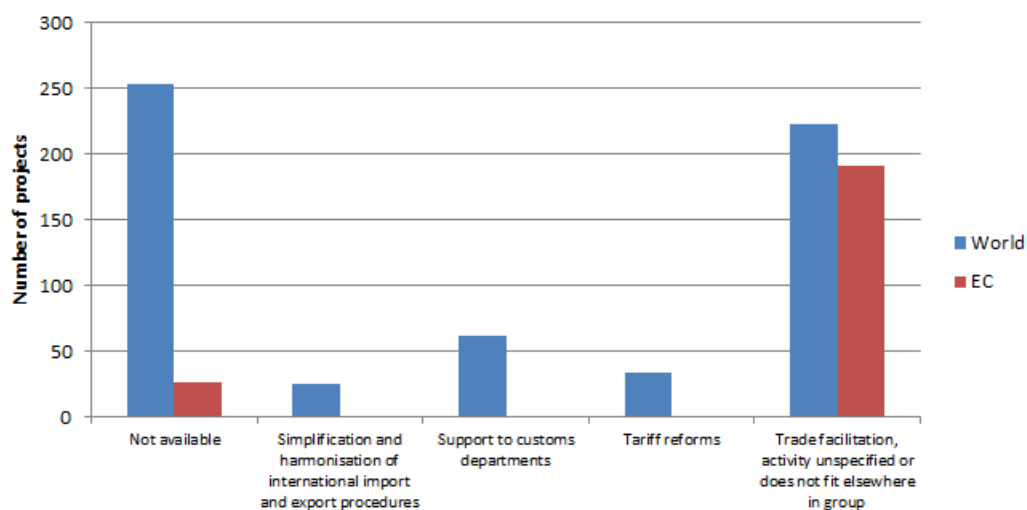
* Compilation of all sectors and sub-sectors related to trade facilitation (33120.xx)

A emerging literature tries to evaluate the effectiveness of aid for trade and technical assistance. It is not obvious due to the lack of reliable data, the nature of these programmes and their implementation schedule³⁷⁷. In a recent meta-evaluation of aid for trade covering 162 evaluations, Delpuch et al. (2010) showed that using donors evaluations is problematic too, as evaluations methodology vary across donors and rarely provide sufficient information and analysis on the trade impact. However, looking at the specific impact of aid for trade facilitation, Helble et al. (2009) found that aid could generate a high rate of return³⁷⁸. In this context, the European Union has an advantage to

³⁷⁷Indeed there are various lag effects in the area of aid for trade. There is usually a lag between the decision of a project -and its first commitment- and the implementation of this project. Moreover it may have several steps in the implementation schedule of a project. In addition, there is often a lag between the application of a project and the first impacts, which can be more or less specifics. Finally the nature of each project varies and there is not a systematic relation between the amount of commitments and the potential impact of a project.

³⁷⁸According to their study, a one percent increase in aid related to trade policy and regulatory reform (accounting to an increase of US\$11.7 million) could generate an increase in global trade of about US\$818 million.

Figure 6.9: Number of projects by sub-sectors related to Trade Facilitation, since 1995



Source: Own calculation based on PLAID database (Findley et al., 2009).

channel such aid, since the European Community has a substantial budget³⁷⁹, an extensive network of regional and country offices, and a great experience in trade negotiations and implementation reforms as the world's largest trading block.

³⁷⁹ According to te Velde (2006), this so called "scale effect" facilitates the support of heavy projects such as transport projects.

6.3.3 From harmonization to normalisation

6.3.3.1 The European influence

The *acquis* conditionality has deeply impacted new Member States as well as accession candidates (EC, 2010c). The European influence also spreads to neighbouring countries and more generally to all trade partners, through its technical or financial assistance and its negotiated agreements. This influence affects numerous areas, including Customs and technical requirements. Thus, studying the RTA channel, Maur (2005) shows that several partners implemented the same classification of product, follow the same policy of harmonization and simplification of border procedures³⁸⁰, or also that the new generation agreements included provisions relating to Technical Barriers to Trade and Sanitary and Phytosanitary measures.

6.3.3.2 Harmonization

It is one of the main components of trade facilitation. There is a research of harmonization in several dimensions such as working methods, legislation or standards. This latter dimension is extremely important since the same requirements and standards should increase “mechanically” trade at the border³⁸¹. Initially it was the unique approach of the EU, before the toppling over of the harmonization European policy toward the principles of mutual recognition³⁸² and equivalence, supported by the European Court of Justice. Then, the “normalisation” became a crucial element of the European economic integration, the EC (2001b) encouraged the use of international standards even though the Union endows itself with its own norms. Lately, the European Union developed the strategy of Lisbon calling to a bigger coordination between all actors, followed by a “better regulation” strategy aiming to verify the utility of the requirements in force as well as their economic viability, *i.e. studying their burden relatively to their objectives*. This strategy that one qualify as “soft approach” aims to simplify the existing legislation and to increase public consultations in order to insure a better quality in the development of the new propositions.

6.3.3.3 Standards and norms

Standards and norms are not strictly speaking trade facilitation areas, according to the “legal definition” provided by the WTO (See chapter 1). However, as various non-tariff measures, they remain closely related to trade facilitation issues. In order to be released on the market of Member States, goods must comply with the relevant regulations, where they exist, to meet health, safety, or environ-

³⁸⁰For example, Maur (2005) explained that the European Union offers access to some of its standards and procedures in its RTAs, such as the use of Europe’s Single Administrative Document (SAD).

³⁸¹The literature on standards (OECD, 2005e; Dee and Ferrantino, 2005) underlines the potential impact on trade of standards (Li and Beghin, 2010), their compliance costs (Maskus et al., 2005) and their relative importance in trade costs (Chen, 2004; Chen et al., 2008; Chen and Novy, 2009). However, if trade agreements tend to reduce such barriers, overlapping agreements and increasing bilateral agreements could arise new obstacles in term of TBT and SPS measures (Lesser, 2007).

³⁸²In 2002, the EC (2002b) estimated the economic value of the intra-community trade of products covered by the mutual recognition to 430 billions of euros.

mental objectives (Directive 2001/95/EC). In the other cases, a general product safety requirement applies. Requirements are established through conformity assessment procedures. At the national level, Member States can develop specific regulations in the “non-harmonized” areas, and the mutual recognition is the rule³⁸³. These regulations must be notified to the Commission to prevent unjustified restrictions to trade (Directive 98/34/EC). At the Community level, in the “harmonized” areas, product regulations follow the *old-approach directives*, imposing precise product specifications, or the *new-approach directives*, imposing essential (general) requirements (OECD, 2005e; Hagemeyer and Michalek, 2006). Under this last scheme, requirements are found through voluntary European harmonized standards or manufacturers own initiatives (WTO, 2009c). European standardization bodies (CEN, CENELEC, and ETSI) have developed harmonized standards for some of the new-approach directives. The application of these standards by a manufacturer presumes conformity with the essential requirements³⁸⁴. At the international level, regulatory activities are subject to the TBT and SPS Agreements, and can be part of Mutual Recognition Agreements (See sub-section 6.3.1.3). The EC is also a partner in various multilateral initiatives on technical harmonization³⁸⁵ and encourages its Members to implement international standards³⁸⁶.

6.3.4 Simplification and automation

6.3.4.1 Simplification of Customs procedures and formalities

Since a decade through numerous Communication and the *e-Government initiative*, the Commission has promoted a better regulation -which is not deregulation- by simplifying it, modernising the Customs legislation through a new Code and the creation of a paperless environment for Customs authorities and traders, the *e-Customs initiative* (EC, 2003c, 2005b). Electronic logging of Customs declarations and accompanying documents progressively become the rule as well as centralized Customs clearance. Authorized traders are able to declare goods electronically and pay their Customs duties in the Member State where they are based, regardless of their entry point into the Customs territory, or at the place of consumption. The EC (2009i) evaluates that this system should generate € 2.5 billion per year of benefits for traders.

³⁸³This principle has been confirmed by the Court of Justice (through the famous “Cassis” case) and several communication, such as the Communication from the Commission on Mutual recognition in the context of the follow-up of the action plan for the single market, COM(1999)299, and the Commission interpretative communication on facilitating the access of products to the markets of other Member States: the practical application of mutual recognition, C/2003/3944.

³⁸⁴The European Committee for Standardization (CEN), and the European Committee for Electrotechnical Standardization (CENELEC) develop European standards in a consensual process with national committees. ETSI is the European Telecommunications Standards Institute. About 85% of the work of the European standardization bodies is market-driven, with only 15% consisting of standards mandated by the Commission. In about 30% of the standards developed by CEN are identical to ISO, and 60% for CENELEC (WTO, 2009c). Between 1995 and 2003, Shepherd (2006) shows that the proportion of EU standards implementing ISO standards was around 50% for agricultural products and textiles.

³⁸⁵Such as the OECD, the international Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals (ICH), the United Nations Economic Commission for Europe, the Global Harmonization Task Force for Medical Devices, and the International Civil Aviation Authority.

³⁸⁶See also the guidelines of the Commission in this matter, SEC(2001)1296.

As pointed out by Grainger (2004), the paperless trade initiative is not easy to implement due to many implications for the governments in the areas of security, competitiveness, revenue, new technology, but also through the necessary international cooperation leading to interoperability and common risk management standards. However, the shift from paper to electronic documents would increase security and transparency in supply chains (UNECE, 2006), save billions of dollars every year for trader and increase revenue for governments. A recent review of the UNECE (2008) shows that the expected effects of e-business-based logistics applications are impressive³⁸⁷. Today trading partners are moving from a local trade environment to a global one that involves communication in different languages, different proprietary standards, practices, trade agreements and systems that “*must be understood by at least two trading partners*”. In this context, the interoperability between Customs, other administrations involved in the clearance process and traders, is essential. This process leads to the single window concept (UNECE, 2010) and the “one-stop shop” concept. These concepts enable traders to lodge all their electronic Customs declarations at a single access point, even if the goods are cleared in another member State, and all physical controls required by different authorities and agencies involved in Customs transactions may be performed at the same time and at the same place.

6.3.4.2 The e-Customs initiative

As stressed by the Multi-Annual Strategic Plan(s)³⁸⁸, the European Union is undertaking a series of operational actions to improve the interoperability and accessibility of e-Customs. Interoperability between Customs administrations through data exchange facilitates risk analysis and decisions on the physical control of goods at EU borders. Indeed, the European Community implemented a series of integrated Community Customs systems -*several ICT projects*³⁸⁹- and an information portal providing all the information necessary for import and export transactions in Member States. From the Communication COM(2003)452 to the Decision 70/2008/EC, the European Commission has successfully pursued the previous automation trend and developed new ICT in the Customs area. The annual activity reports of DG TAXUD indicate a growing use of IT tools and databases through the increasing number of declarations lodged electronically (table 6.6), the 257 millions of messages exchanged in 2006 within the common communication network and security interface (CCN/CSI),

³⁸⁷The UNECE (2008) provides numerous examples of paperless initiatives and impacts, such as TradeNet which was the world’s first electronic trade clearance system in 1989, integrating 34 controlling units’ requirements (from controlling agencies, to banks, insurance companies, supplier, or logistic operators). TradeNet has reduced processing times from seven days to two minutes and only 1 document may now be required where 3 to 40 were needed in the past and more than 200 data. “*Cost savings to traders are estimated at \$1 billion per year. This single window for Customs administration and trade facilitation serves more than 2,500 companies and 8,000 users per year, processing about 9 million permit applications annually. The vast majority (over 97 per cent) of applications are auto-processed*”.

³⁸⁸The electronic Customs multi-annual strategic plans (to date, there are nine revisions) provide information on the legal, operational and technological changes implemented by the European Commission to facilitate supply chain logistics and Customs process.

³⁸⁹Several databases such as the AEO, EBTI, EORI, EXPORT, QUOTA, SEED, TARIC, Taxes in Europe, Customs Offices, TRANSIT, VIES (...) are available on the website of the Commission, http://ec.europa.eu/taxation_Customs/common/databases/

the number of queries for TARIC³⁹⁰, the number of BTIs lodged (see figure F.4 in annex), the 1600 RIF issued or the 4249 AEO certificates issued in 2010³⁹¹ (EC, 2011). The implementation of these systems and databases is a long process with successive revisions enlarging their scope³⁹². Their implementation spreads progressively in all Member States, leading to several delays, even if almost -current- databases and systems should be fully in place by the end of 2011 (EC, 2009a). The “*e-development*” has also enlarges open hours, as IT availability has been evaluated to match 97% of business hours (EC, 2011).

Table 6.6: Declarations lodged electronically (%)
Source: Own compilation based on Annual Activity Reports

	Import	Export	Transit
2009	83,6	86,9	99,9
2009*	97	98	
2008	83	70	99,9
2007	81	55	99,9

* For simplified declaration

6.3.5 A summary chronology

Based on my researches on the European Customs legislation, the special reports of the Commission, some interviews with official staffs and the review of academic papers, I tried to summarize the Customs regulation, the EU strategy in the Customs area and the development of ICT programmes detailed in the previous sections. The following figures 6.10 and 6.11 focus on main Customs policies and trade facilitation issues. Due to the continuous delays between the adoption of a rule, its legal implementation and its effective implementation on the ground in all countries, I split -to the extent of my knowledge- core programmes according to their stage of implementation, *i.e. preliminary work, adoption, pilot, transition period and full implementation*. Additional information on the implementation schedule of several programmes could be found in the multi-annual strategic plan (EC, 2008e).

³⁹⁰Growing from 66 million of queries in 2008 to 110 million in 2010 (EC, 2011).

³⁹¹It is in line with observations available in Annex F.6.

³⁹²The EC (2008e) provides a time table of the current databases, splitting programmes by their development stage (from feasibility study to their final deployment). This ninth revision of 2008 is still in place due to several delays, however a new multi-annual strategic plan should be provided during the mid 2011 (EC, 2009a).

Figure 6.10: Key European Customs Legislation and Strategies

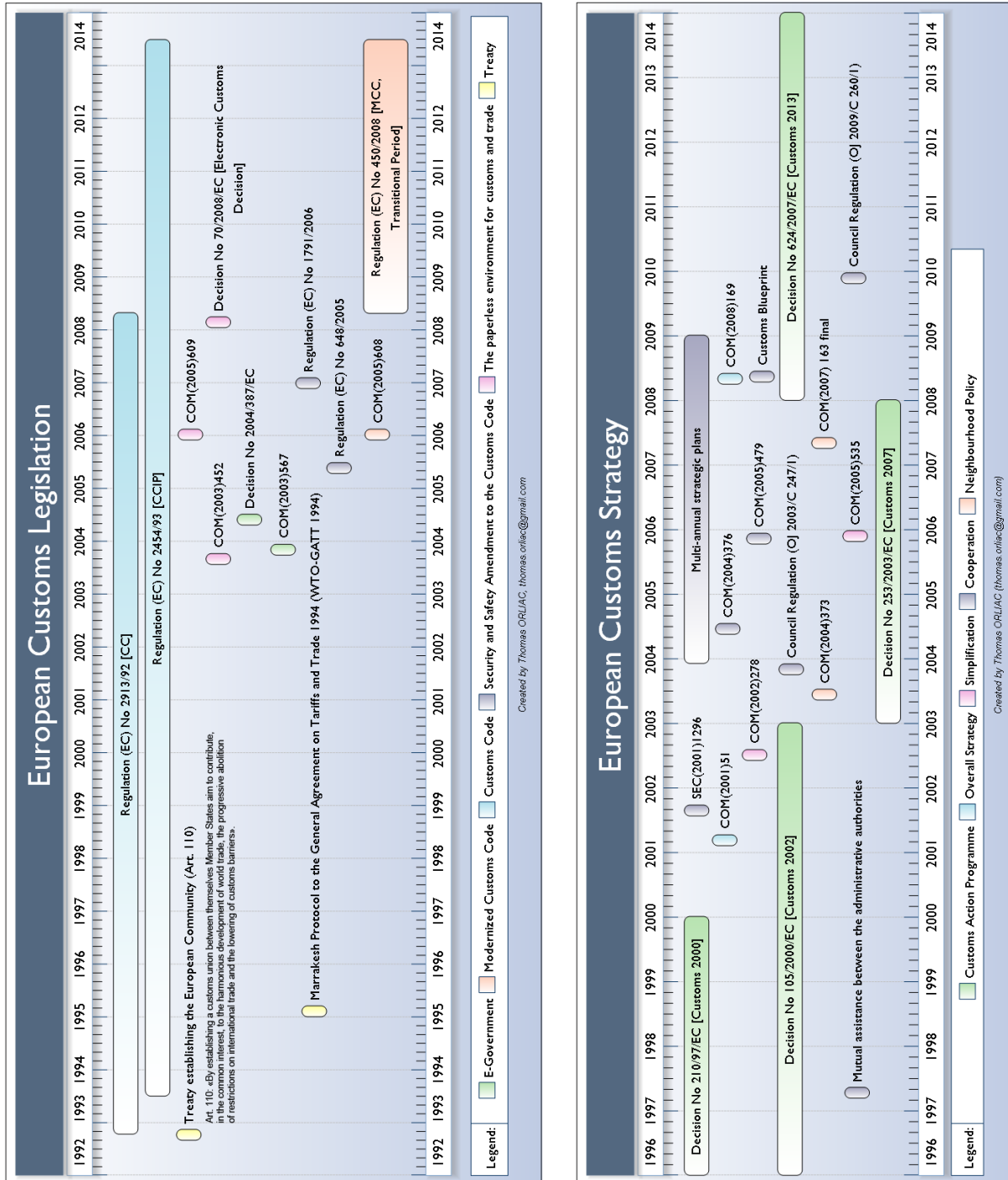
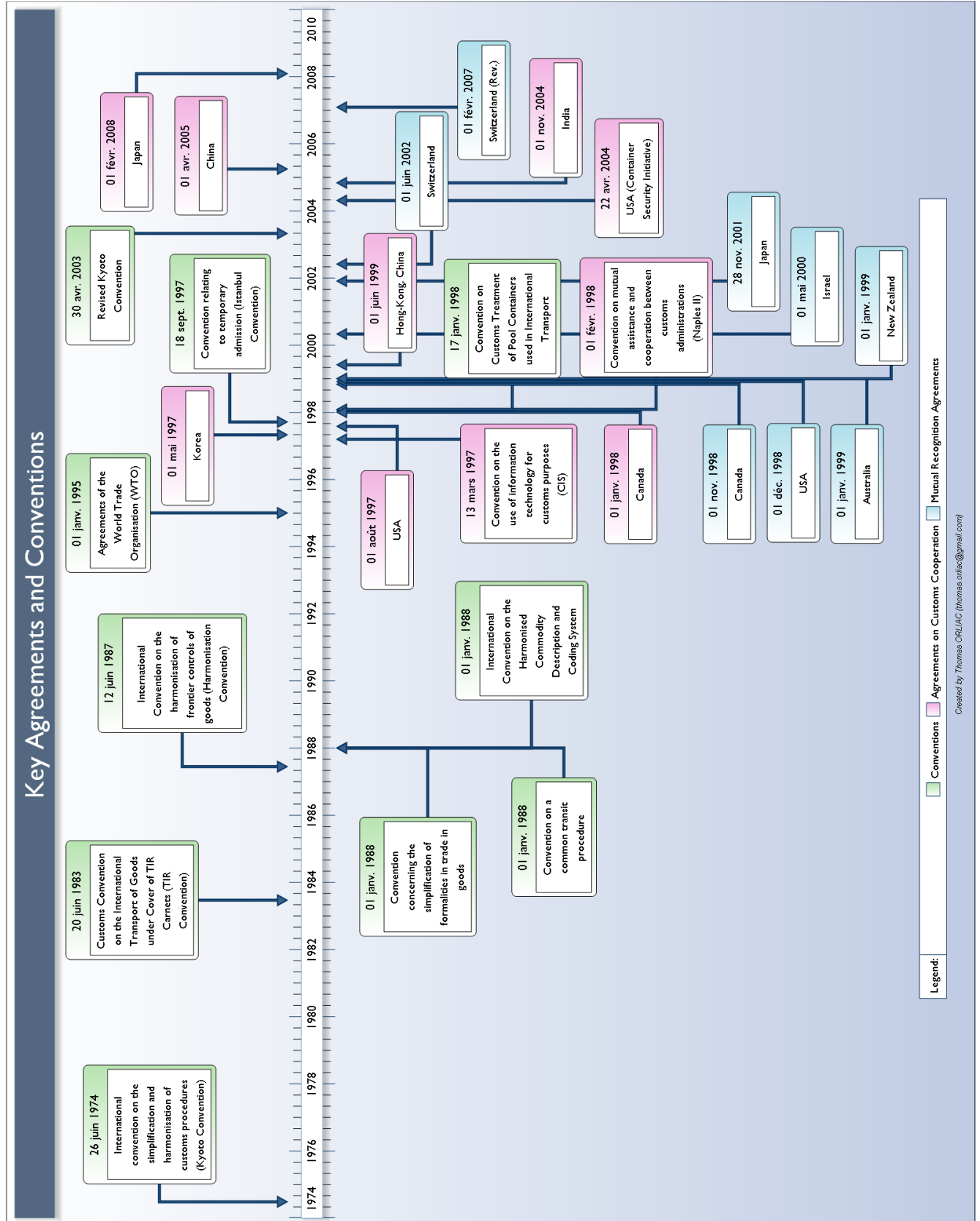


Figure 6.11: European Key Agreements and Conventions



6.4 How to handle the European Trade Facilitation?

Previous sections show up the trade facilitation strategy of the European Community. It is a continued policy facing several challenges such as a complex implementation schedule through numerous Member States who share different patterns, means and strategies. The measure of trade facilitation is not obvious. Indeed trade facilitation encompasses different definitions -more or less narrow- and different dimensions from the private to the public field at each point of the logistic chain. Transaction costs are composed by a wide variety of costs, from natural costs such as cultural distance or the impact of geography, to transport costs³⁹³, tariffs and other non-tariff measures³⁹⁴. As pointed out in the previous Chapter 2, several indicators are usually used to measure the level of trade facilitation around the world. Most of the time there are no specific indicators such as the Key Performance Indicators suggested by Holloway (2010) or those provided by the Time Release Studies (section A.2 in the Appendix) and specific surveys (Cantens et al., 2010). Recently Moïse and Orliac (2010) has developed a new framework to measure the trade facilitation across OECD Member States (Chapter 4), with the objective to become a common toolkit for countries to better encompass their needs (and benefits) in the area of trade facilitation. This composite indicator follows the dimensions negotiated at the WTO, such as the availability of information, the right of appeal or recommended practices for import procedures (WTO, 2011). It is planned to expand this index to developing countries, with several modifications in order to encompass other country specificities³⁹⁵. The degree of trade facilitation across the European Member States could be evaluated with this composite indicator.

Even if Member States share common patterns through the European Customs legislation, the measure of trade facilitation is not obvious within the EU since Member States encompass different working methods, perceptions of the risk, import schemes (different products and origins), implementation schedules and strategies³⁹⁶. This issue is intensified by the continuous enlargement of the Community. The European Commission was aware of such “potential” disparities and has tried to improve the cooperation between Customs administrations since the first Customs action programme, by developing best practices and guidelines, and even increasing the monitoring of the uniform application of EU law. The European Commission has also launched in April 2011 a series of working parties to discuss on the mean to evaluate trade facilitation in the European Union. Despite these various actions, it remains some signs of lack of uniformity in several areas. From the US dispute against the EU at the WTO on Customs matters (WTO, 2004), to a series of informal interviews with Customs officers, or recent researches and the picture drawn by traditional indicators, the EU may not be considered -strictly speaking- as a Customs Union or at least suffer

³⁹³See Chapter C in the Appendix.

³⁹⁴Recently Duval and Utoktham (2011) reviewed the different components of trade costs, focusing on trade facilitation issues. See Chapter 1 for a discussion on trade costs.

³⁹⁵Indeed, the OECD countries do not face the same challenges and patterns than developing countries.

³⁹⁶There is, to some extent, a “soft” competition between Customs administration of Member States to be the more attractive (Cailleteau, 2006). Moreover the lags between Member States in the implementation schedule of trade facilitation policy (Customs programmes) could be the consequence of a lack of political will in addition to technical issues.

of a lack of harmonization on specific Customs matters. Following Doing Business data on time to import, Bourdet and Persson (2010) show that the number of days needed to comply with all necessary import procedures, varies considerably across Member States, a full harmonization leading to substantial benefits³⁹⁷. The Commission itself ordered some analysis in this area (EC, 2009f), and admits some cases of non uniformity through the issuance of infringement cases and the feedback of different evaluations from European institutions, such as the Court of Auditors³⁹⁸. Recent surveys also pointed out several divergences (SITPRO, 2010). However, as earlier explained by the Commission in the WTO dispute on selected Customs matters against the United States: “*a complete uniformity in the application of Customs laws could never be achieved by any Member, even those with the most efficient systems of Customs administration. In a large country with a large bureaucracy, a minimum degree of non-uniformity is de facto unavoidable*”, WTO (2004). It is true, nevertheless a minimum harmonization should be in place as stated by the WTO who underlines that uniformity “*is not a unique concept, requires delays [but] minimal requirements of regularity of procedures*”. In addition, the degree of harmonization could vary according to the type of measure and its position in the transaction chain. Thus the application of Customs legislation should be highly harmonized whereas it could remain some tiny differences in risk system analysis, especially between Member States facing different import schemes.

In a first part, I review the degree of trade facilitation across several dimensions of trade facilitation through a series of surveys, traditional indicators³⁹⁹ and previous insights. It shows a lack of harmonization between Member States. Then, I discuss about the nature of trade facilitation issues and the challenges faced by Member States, from the implementation schedules to the main compliance issues and the remaining non-tariff barriers.

³⁹⁷They use three alternative scenarios: a full harmonization, an harmonization to the average performance, and a reduction of one day to comply with import procedures. However, data based on the global time to import is not sufficient to study trade facilitation issues in the European Union, as a large part of the time could be attributed to external factors of the Customs administrations, especially private factors or infrastructure issues. In addition, it only provides a broad picture of trade facilitation, without studying its specific dimensions.

³⁹⁸In 2008, a consultation on the European maritime transport space without barriers, has shown that administrative procedures were still a hot issues for traders and that induced delays and their probability varied across the European port. This survey pointed out that procedures and controls are not uniform across Member States.

³⁹⁹I refer to the European Court of Auditors, the European Court of Justice, the reports on the protection of the financial interests of the Union, the annual activity reports and management plans of DG TAXUD, but also the Trade Policy Reviews of the WTO, the National Trade Estimate reports of the USTR, the United States dispute against the EU at the WTO on Customs matters (WTO, 2004), and some academic papers (Donnelly and Manifold, 2005; Martinez et al., 2009; Wilson et al., 2010). I also rely on the Trade Facilitation Indicators (Moisé and Orliac, 2010), the OECD reviews of the European regulation (OECD, 2010) and the Global Exchange Association (GEA) surveys. Traditional indicators encompass Doing Business, the Logistic Performance Index or the Trade Enabling Report (non exhaustive list).

6.4.1 The degree of Trade Facilitation in the EU, a lack of uniformity?

6.4.1.1 A review of Trade Facilitation dimensions

Binding Tariff Information and Customs classification Classification of goods has always been a hot issue for traders⁴⁰⁰. Binding Tariff Information is a powerful tool to improve compliance in this area, but also the reliability and predictability of the import procedures. As stressed by previous insights, this procedure is in place across Member States since many years. A database is publicly available since 2005, in order to spread BTI decisions.

Despite their positive contribution on the classification issues, BTI may also be the source of several divergences. Customs classification divergences in EU were a big concern for the United States. In a WTO dispute against the EU (WTO, 2004), the United States highlighted a series of divergences. With the support of other countries, such as Korea, they reported that EU Member States did not have to follow other Member States classification and even BTI issued, a BTI only binding to Customs administrations if presented by the owner (Art. 10 §2 CCIP). Moreover, a BTI can be revoked with a relative autonomy of Customs authorities, based on their own reconsideration. There was also a temptation to “*BTI shopping*” as it seems difficult to expose divergent BTI. In addition, holder of BTI can import via the Member State providing the most favourable conditions without the binding effect of the BTI which was not extend to the holder⁴⁰¹. Recently, these issues were also pointed out by the Court of Auditors (CoA, 2008) and the recent survey of SITPRO (2010). The “race to the Best BTI” was underlined by a questionnaire of the Foreign Trade Association on trade facilitation issues faced by traders in the European Union⁴⁰². In 2008, the Court of Auditors examined the implementation of the Binding Tariff Information in six Member States (CoA, 2008) and indicated that the legal provisions were in general well applied. Nevertheless the report still underlined several weaknesses (See figure F.6 in the Appendix) such as the issuance of divergent BTI decisions⁴⁰³, some dysfunctions of the EBTI database and excessive issuance delays. Indeed, the report reveals various inefficiencies since the thesaurus of terms was not enough updated, there were systematic delays when entering BTI applications and issued BTI in the database⁴⁰⁴, refused BTI applications were not entered in the database even though the reason for refusal was “BTI

⁴⁰⁰According to several surveys such as Customs (2009a) or Dios (2009a), classification is one of the top issues among Customs border procedures. The following section on the nature of trade facilitation issues highlights that classification is also a hot issue in the European Customs Union.

⁴⁰¹The EC acknowledges this potential issue which damages the uniformity of the European Customs law, extending in the Modernized Community Customs Code “*the binding effect of the decision [i.e. the BTI] also to the holder(s) of the decision in order to avoid the system only being used where the applicant is satisfied with the result*”. It is the purpose of Art. 20 §2 of the MCC: “*the decisions shall be binding on the holder of the decision, as against the Customs authorities, only with effect from the date on which he receives, or is deemed to have received, notification of the decision*”.

⁴⁰²This questionnaire has been provided by the US government, but is not any more available.

⁴⁰³The Court reports 156 cases concerning classification in BTI brought before the Customs Code Committee, between 2004 and 2006.

⁴⁰⁴According to the Art. 8 (§1) of the CCIP, the Customs authorities of the Member States have to enter, without delay, BTI applications and issued BTI into the EBTI-3 database. Delays are particularly reported in 3 audited countries: Germany, Hungary and Slovenia.

shopping”⁴⁰⁵, and delays were found in entering canceled BTI⁴⁰⁶. The CCIP stipulates a 90 days time limit to issue a BTI (Art. 6 §4 of CCIP), however four of the Member States audited (Denmark, Germany, Greece, Slovenia) did not achieve this recommendation by the time of the audit. According to the replies to the OECD questionnaire on Trade Facilitation indicators, it is still the case in 2010 for some European Member States⁴⁰⁷. Moreover, three Member States (Denmark, Greece, Slovenia) did not notify applicants when they had received all the information needed to reach a decision (Art. 6 §4 of CCIP). The last trade policy review (WTO, 2009c) also highlights such divergences across Member States in the application of Customs law regarding to BTI.

However, the Commission reminds that some of them are quite limited, such as BTI shopping which only represents 1% of applications, even if others remain problematic, leading to a lack of uniformity across Member States. The number of BTI issued has grown during the last decade, but are not uniformly distributed across Member States. The section F.5 in the Appendix provides an overview of BTI issued and still in place since 2005 for each Member States, showing that some Members outperform the others in term of BTI issued. There is also some differences in the rate of BTI revoked. If it increases with the longevity of the BTI, some countries have lower rates⁴⁰⁸. The following figure 6.12 shows the total of European BTI issued and revoked since 2005⁴⁰⁹.

As shown in previous sections, BTI is an important tool of trade facilitation policies. However, measuring trade facilitation performance raises the question of its impact on trade flows and the reasons of using it by traders. Moïsé and Orliac (2009) stressed that the outcome of a trade facilitation indicator including the number of BTI issued is ambiguous. Indeed, is it the consequence of a good or a bad Customs efficiency, of some facilities granted by Customs⁴¹⁰, or to other external factors? And to what extent the number of BTI issued is linked to the level of import flows?

The European Union is a perfect candidate to study such relations, as regulation should be the same in each country and traders could apply a BTI, which binding in each Member States, everywhere in the Union. The first observations confirm that the number of BTI issued is highly

⁴⁰⁵When all BTI applications are not reported, it is difficult to prevent divergent BTI decisions for similar goods.

⁴⁰⁶If invalidated BTI are not transmitted to the EBTI database promptly, other Customs authorities may understand that those BTI are still valid. The audit reports that around 3000 invalidated BTI issued by one audited Member States (UK) were still recorded as valid in the database, due to technical problems.

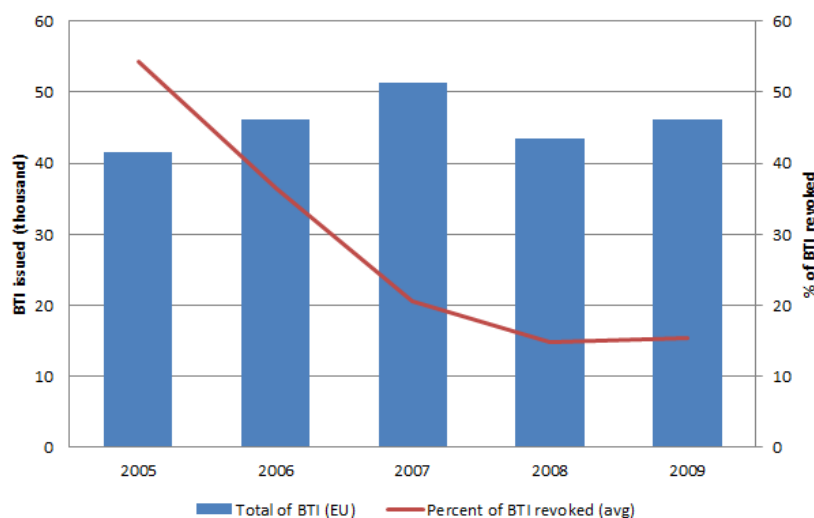
⁴⁰⁷Only 80% of BTI issued by Czech Republic, 85% for Germany and 65% for Denmark, respect the set of period of time (90 days) required by the EU legislation (Moïsé and Orliac, 2010).

⁴⁰⁸It could be a proxy of the “professionalism” of the Customs authority, issuing “stronger” BTI. However, one can imagine that a higher rate of revoked BTI could also be a sign of high professionalism. Moreover it may be subject to the import structure of a country, more or less linked to the manufactured goods. This question need to be further explored.

⁴⁰⁹It is the difference between BTI issued and still in place at the 21 March 2011 (date of extraction of the database). BTI are binding for 6 years and could be revoked if the environment change before this deadline, *e.g. the product or the legislation change*.

⁴¹⁰For example, the United Kingdom provided paying “BTI express” issued in 3 days which could be attractive for traders. However, such BTI known a high revoked rate.

Figure 6.12: BTI issued and revoked between 2005 and 2009

Source: own calculation, based on the current BTI

related to the share of extra-European imports⁴¹¹ (See table F.5). Studying the relations between the number of BTI issued and a set of different trade facilitation indicators, it shows up that BTI are generally positively correlated with such indicators. Among the different areas tested, infrastructure related indicators, such as port efficiency (GCR), Transshipment Index (UNCTAD) or the Liner Shipping Connectivity Index (UNCTAD), are particularly correlated, the relation being stronger with distribution proxies such as the control of international distribution (GCR) and the distribution infrastructure (WCY). Corruption and justice indicators are also positively significant. Specific indicators such as multiple inspections (0.7) and the related quality of services seem to be highly correlated to the number of BTI issued, whereas single inspections do not. Some indicators are negatively related, such as the number of documents or the time required to import (DB). These indicators as well as former ones, are more or less related to the level of imports too, involving some causality issues. Thus, previous negative relations could be attributed to the primary impact on imports (negative), followed by an impact on BTI applications. Another explanation could be a bias introduced by the structure of imports, where goods which are not time sensitive or not high-tech, such as raw material, do not require BTI applications. Indeed, the main consumers of BTI are electronic products and complex agricultural products.

Even if observations have to be taken with caution, strong trends appear. Firstly, it seems that specific goods which require multiple inspections from multiple agencies, such as health or technical agencies, are highly sensitive to BTI applications; secondly, BTI issued seem associated to Customs with high efficiency⁴¹²; and thirdly import levels, logistic and distribution schemes are

⁴¹¹Since 2005, the correlation between the number of BTI issued and the share of extra-European imports is 0.8 for each year (in average), being stronger for manufactured goods.

⁴¹²It is confirmed by a series of interviews with Customs officers, especially in the case of Germany.

highly correlated to BTI applications. Finally, the political will to apply such advance rulings is also a critical factor, some countries do not encourage the use of BTI but favour to bring traders on existing information⁴¹³. Some of these observations, such as the positive relation with Customs efficiency and transparency, could be specific to the European Union where these areas are already relatively high and to some extent homogeneous.

Authorized Economic Operators (AEO) As explained previously, the AEO status is one of the main contribution of the security package and it provides numerous advantage to traders but also to Customs administrations, by increasing the efficiency of their checks. The holder of an AEO certificate enjoys less physical and administrative controls and various opportunities⁴¹⁴. Customs authorities provide three types of certificates: the AEO Certificate for Customs Simplification, the AEO Certificate for Security and Safety and the AEO Certificate merging the two previous certificates. Economic operators must fulfill various criteria related to Customs compliance, right history records, financial solvency, and maintain appropriate security and safety standards according to the required certificates. Customs operates on the basis of trust rather than distrust, recognizing the guarantees given by participants in the chain themselves, particularly the use of international standards such as ISPS or ISO-certifications. Indeed the AEO certification is in line with a strong trend to securing the global supply chains, around the world.

Based on the extraction of the AEO database available on the Commission website⁴¹⁵, it appears that the issuance of AEO certificates varies across Member States and among the types of certificates. In 2008, the AEO certificates for Simplification, Security and Safety (AEOF) were the majority of AEO certificates issued. However their share in total of European certificates has decreased progressively, from near 80% to 40% in 2011. The second type of certificates is the AEO certificate for Customs Simplification (AEOC), increasing from 20% in 2008 to more than 50% in 2011. This augmentation may be the consequence of a cheaper and easier procedure. The AEO certificate for Security and Safety (AEOS) is rarely used, around 5% since 2008 (see Figure 6.13). This repartition varies also by countries. Thus more than 75% of AEO certificates issued by Portugal are AEOC type, whereas 80% of AEO certificates are AEOF type in the Netherlands. The number of certificates issued varies also for each Member States. Since 2008, Germany issued 38% of all European AEO certificates, followed by the Netherlands (9%), France (8%), Italy (7%) and Poland (7%). These five countries account for 69% of AEO certificates issued⁴¹⁶. This distribution is quite different than the distribution of BTI applications, especially with the absence of the United King-

⁴¹³According to an interview with a former Customs officer of Belgium, it was the case in his country who accounts for less than 1% of BTI issued at the European level. Own calculation based on the extraction of the EBTI database, the 21 March 2011.

⁴¹⁴According to M. Jean-Michel THILLIER, Deputy Director General of French Customs (International Trade Directorate), french Customs apply lower examination rates, less than the half of the traditional rate of inspection.

⁴¹⁵The database has been extracted the 22 March 2011. Tables and figures are available in the Appendix, section F.6.

⁴¹⁶Note that this picture was different at the beginning of the programme in 2008, where the Netherlands, the United Kingdom, Sweden and, to a less extent than today, Germany dominated the number of demands of AEO certificates.

dom in the top five⁴¹⁷. These figures corroborate some insights on the issuance of AEO certificates. If there are common basics at the Community level, some Customs administrations having a flexible interpretation of Customs legislation, granted more or less easily some facilities which should remain the exception⁴¹⁸, leading to several distortions. Finally, as stressed by Moisé and Orliac (2009), the number of days to process an application, assess the AEO criteria and issue a decision vary across Member States⁴¹⁹.

The impact in term of trade facilitation of the AEO programmes is not so obvious. The possibility to apply to such programmes is clearly an opportunity for traders to gain time, predictability, simplification, rationalisation of their logistic chain and finally to reduce the costs to import, but also to improve their internal security scheme, the protection of their brand and to develop trust relations with their partners. However, these programmes could disadvantage the SMEs if they are too costly to implement and intensive in human capital⁴²⁰, but also impair the current situation of non-AEO who will “enjoy” an increasing focus of Customs. Moreover, the non-AEO remoteness to the world village will grow with the increasing demand of security -and so AEO certificates- by partners⁴²¹. This ambivalent impact of the AEO scheme affects the intensive and the extensive margin of trade differently. If the benefits of the AEO programmes detailed previously would have a positive impact on the intensive margin of trade, the limited access to trade of non-AEO firms (mainly SMEs) would have a negative one on the extensive margin. A recent review of Furia et al. (2010) based on the US Customs - Trade Partnership Against Terrorism (C-TPAT) programme, an AEO programme launched after the 9/11, confirms previous insights. The report shows that larger companies are “*systematically more likely to perceive greater net benefits from C-TPAT membership*” and especially that the benefits increasingly outweigh the costs in a linear fashion with company size. In addition, the review shows that operators with longer certification history report higher benefits. It appears also that time sensitive sectors are intensive users of “AEO” certifications. Thus, the top three of sectors applying for AEO status are Foods and agricultural products (15.1%), Apparel and accessories (14.5%) and Electronic equipment (11.1%).

The AEO programmes have a differentiated impact according the size of firms and sectors. They also change the traditional measures of trade facilitation. Indeed, the growing number of AEO and the development of Local Customs Clearance authorizing 24/7 import procedures made several tra-

⁴¹⁷Since 2005, 47.7% of the BTI were issued by Germany, 14.1% by France and the United Kingdom, 6.82% by the Netherlands, 2.83% by Poland and 0.8% by Italy. Own calculation, based on the extraction of the EBTI database the 21 March 2011.

⁴¹⁸Customs officers and traders often corroborate this perception about the Netherlands or Sweden, where there is a lack of audits regarding to AEO certification. The number of AEO demands and certificates finally granted could be a good control. Unfortunately such information are not available.

⁴¹⁹Across the EU Member States, in 2010, the number of days ranges from 30 to 300 days.

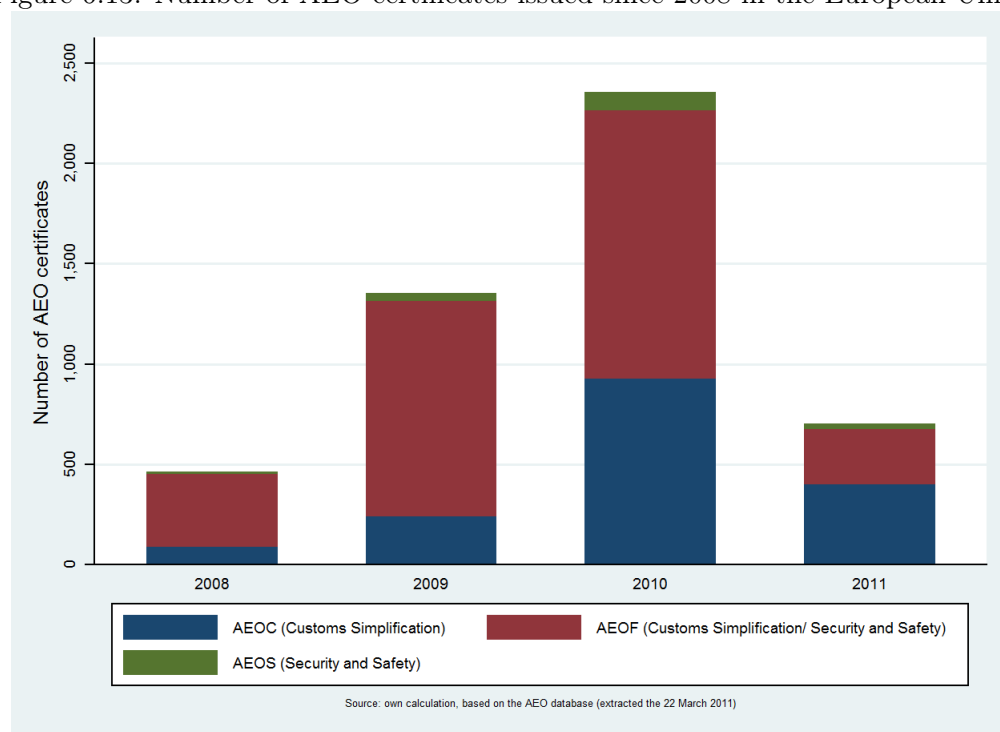
⁴²⁰Note that there is a transfer of charge to the private sector who will bear the cost of security, initially devoted to public authorities.

⁴²¹Indeed some AEO require AEO partners to secure their supply chain in order to keep “traceable flows” (Microsoft for example), the AEO certification becoming a commercial recognition within the business community as a certified partner.

ditional trade facilitation indicators outdated or biased. Thus, the number of documents required to import or the time to import will be over-estimate without specific controls. In this context, the rate of total trade handled by AEO could become a key indicator⁴²².

Following the framework of Standards to Secure and Facilitate Global trade (SAFE) provided by the WCO, many countries have implemented AEO programmes (at the 20/09/2010, 163 countries around the World have formally declared that they intend to introduce SAFE). There is a trend toward a mutual recognition of the different international AEO status provided to reliable economic operators. In each country, the number of requirements will vary according to the level of accreditation as well as their scope and depth. The European Union has launched advanced negotiations with the United States, China⁴²³ and Japan. The cooperation in the security area has been early developed through pilot initiatives, such as the “green lines” project involving the ports of Rotterdam (NLD), Felixstowe (GBR) and Shenzhen (CHN). Note that the main reason of the delays in the EU-US MRA on this topic is the lack of trust by the Americans in the “homogeneity” of the security chain across European Members... For them, some Members do not provide enough guaranties.

Figure 6.13: Number of AEO certificates issued since 2008 in the European Union



⁴²²According to Moisé and Orliac (2009), AEO handle 75% of trade in the Netherlands and 60% in Switzerland and Sweden.

⁴²³China launched an AEO programme in 2008, classifying operators into five categories from class AA for enterprises enjoying facilitation benefits to class D for enterprises under strict controls. According to Xu Qiuyue, Director General of the Department of Audit-based Control of China Customs, there were in June 2010, 1560 operators who enjoy of the AA status and 21198 operators classified in the A category, which is a preliminary AEO status. Economic operators have to fulfill the same set of criteria than European AEO operators.

Control and risk analysis Since a decade the European Union has developed common risk analysis criteria and working methods based on the best practices. However, successive reports has pointed out a series of divergences. Studying the Community transit system, the Court of Auditors provided evidences of non uniformity issues with different working methods, especially in risk analysis and controls (CoA, 2006). Recently, the Court of Auditors reviewed the application of simplified Customs procedures (CoA, 2010), which account for 70% of all import procedures⁴²⁴. Such simplified procedures are an important element of the EU trade facilitation policy. The report underlines several issues and non-harmonized working methods, despite the IT-based risk management system for Customs developed by the Commission⁴²⁵. According to the Court's observations, there is no systematic application of automated risk analysis (which binding to Member States since the 1st January 2011), there is a lack of control of minimum requirements as well as a lack of common standards used for post-audit analysis. Such divergences lead to a high frequency of errors and to an excessive use of such procedures. For the Court of Auditors, some Member States have "*a flexible interpretation of Customs legislation*" in regards to the local clearance procedures and carry out to few number of checks before release⁴²⁶. The EC (2011) also shows that, by the end of 2010, only 20 Member States had the capacity to receive electronic entry summary declarations, and only 22 Member States had the capacity to implement automatic risk analysis using common risk criteria and standards for import. There are still "*unclear and diverging procedures for Customs controls in current legislation for protecting citizens or the environment*". Finally the report stresses that electronic simplified procedures are more lodged than normal declaration, confirming previous insights of the Court of Auditors.

A review of the OWNRES statistics shows that the methods of detection of irregularities vary between Member States⁴²⁷. According to the Commission, different sources explain these divergences, such as "*the Customs control strategies applied, the way of classifying a method, the reporting authorities involved or the relative presence or absence of type of Customs procedures*", EC (2010i). There is a range of detection methods from the audit of accounts, to the Community inspections, the inspections by anti-fraud services, post-clearance inspections and primary national inspections (either physical inspections or inspections of documents, most frequently used according to the Commis-

⁴²⁴The main findings are available in Figures ??).

⁴²⁵The Common Risk Management Framework (CRMF) has been successively delayed due to computerization issues. Moreover, as noted by the Commission, "*EU legislation does not prescribe how Member States should organise their Customs control activities*", even if their should follow some guidelines and ensure a close cooperation with other Member States. In the end, this means that "*the Member States are responsible for putting in place an efficient Customs control framework, including effective, risk-based, ex-post audits*" (CoA, 2010).

⁴²⁶Under local Customs procedures, Customs may authorise a "*super-simplification*" in special circumstances and justified cases (Art. 266 §2b of the CCIP). In such cases the trader does not need "*to notify Customs about each individual consignment and his intention to have it released for free circulation*". However, in five of the nine Member States audited (Hungary, the Netherlands, Slovenia, Sweden and United Kingdom), such benefits are granted on a regular basis. Similar practices were found in Germany, Spain and Finland by the Commission in 2008.

⁴²⁷Statistics provided by Member States on irregularities related to the Traditional Own Resources.

sion). Since the mid of the last decade, there has been a clear shift from primary to post-clearance inspections, the former accounting for a third of inspections and the latter for almost half of the inspections, while the anti-fraud inspection are quite stable around 10%. This global picture also varies across Member States, particularly the rate of inspection. The following section on the nature of trade facilitation issues will discuss about the type of irregularities.

Appeal procedure The WTO (2004) dispute on Customs matters addresses several issues related to the appeal scheme of the EU, already stressed in the previous section. Indeed, the Code relies on national provisions first, giving to Member States a large possibility of interpretation (figure 6.14). That is why, according to the United States, the EC did not provide “*an opportunity to review and correct administration of Customs matters due to a lack of a common appeals procedure*”. Moreover, the USA also stressed that the process was not prompt, suffer from huge delays⁴²⁸ and vary considerably across Member States. They also underlined that national Courts have not the same power. If the ones can modify a decision⁴²⁹, the other ones can just cancel it. The Global Express Association reports confirm this European heterogeneity, showing that all European Member States do not provide online information, even if an appeal procedure before an independent Court exists in all European Member States. The possibility to appeal of Customs decision is an essential right, even in developed and “transparent” countries, where Customs can still made some mistakes. According to Moisé and Orliac (2010), the percentage of cases introduced by traders and resolved in favor of Customs ranges from 50 to 90% within EU Members.

From the wide variety of appeal process such as the mediation dealing with simple irregularities, to the judicial stage dealing often with criminal affairs such as drug cases, the use of such rates as trade facilitation indicators is not obvious⁴³⁰. The use of the number of cases is also an ambiguous indicator as it could be a sign of good vitality of the judicial system or a bad signal of the efficiency of Customs. It required to be weighted by a series of controls such as the level of trade flows, the level of transparency of Customs procedures or even other proxies of Customs efficiency.

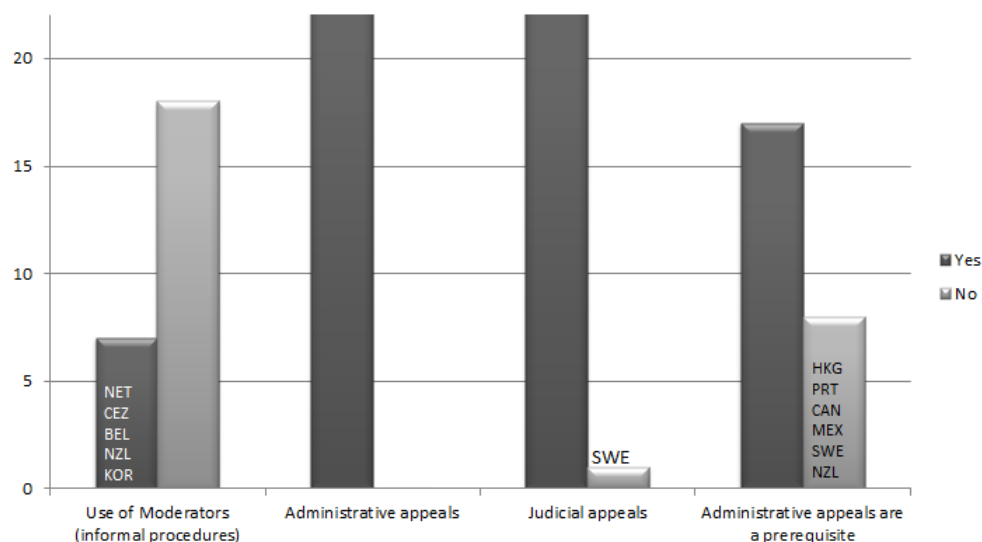
Customs valuation In 2000, a special report of the Court of Auditors (CoA, 2000) reviewed the valuation process of imported goods, the role of the Commission and international organizations. According to this report there were serious issues in this area. Customs valuation was affected by inconsistencies in the uniform application of Community law and irregularities. National Customs administrations faced to the lack of common working practices leading to different treatments and

⁴²⁸Delays were in average about twenty months for a procedure before the ECJ. According to Korea, “*given the fact that an aggrieved trader can reach the ECJ only upon the completion of judicial review at the member States, the ECJ is not a viable forum that provides "prompt" review of the challenged action*”, WTO (2004). As underlined by the USTR National Trade Estimate report of 2005: “*Obtaining corrections with EU-wide effect for administrative actions relating to Customs matters may take years*”. In addition, a trader encountering non-uniform administration of EU Customs law in multiple Member States must bring a separate appeal in each Member State whose agency rendered an adverse decision.

⁴²⁹It was the case of Denmark, Latvia, Netherlands, Sweden and Slovenia.

⁴³⁰See Moisé (2002) for a review of formal and informal appeal mechanisms.

Figure 6.14: Use of appeal mechanisms across the OECD countries



Source: Own calculation based on replies to the OECD questionnaire on TFIs (Moisé and Orliac, 2009, 2010)

valuation decisions across Member States. These differences as well as the absence of a Community wide database on valuation decisions, made reluctant Customs authorities to accept each other's decisions. Moreover, the report pointed out the lack of concrete harmonization power of the Committee who knew this issue since a while without taken any decisions due to a lack of majority among its members⁴³¹. The Court has recommended to develop a common database (as the EBTI) and to increase the number of post-audit controls. The Commission replied that “*the objective that for all trade in goods the Community should operate as a real Customs union with uniform treatment of imported goods can be fully obtained only if this Customs union is operating on the basis of a single Customs administration, which is not the case*”. More recently, during the WTO (2004) dispute, the United States explained that difficulties are higher than classification due to the absence of BTI like mechanisms. The following section on the nature of trade facilitation issues underlines such issues even if, as stressed by the EC, valuation depends on several factors which can vary in time.

Walsh (2003a), Wulf and Sokol (2005) or Rosenow and O’Shea (2010) provide a good review of the Customs valuation history and issues. It is an important dimension of trade facilitation. The report also noted a well known dilemma in the field of valuation, when considering transaction values, Customs services find themselves in conflict with the national tax authorities. The latter is concerned by overvaluation to avoid high national taxation on company profits, the exact opposite to the Customs valuation problem of undervaluation.

Simplified procedures A decade ago, the Court of auditors (CoA, 1999) pointed out several issues in the system of securities and guarantees, which were providing the possibility to traders for

⁴³¹Moreover there is no deadline to take a decision, and this Committee can not even take a decision but only recommendations without binding power.

delaying payment of Customs duties (debts). This report rose the question of the uniform application of Customs legislation across Member States as well as the inability of Customs to monitor such facility, especially in the case of simplified procedures too easy to obtain in some Member States. As pointed previously when studying the control and risk analysis policy, there is still some issues regarding to this specific procedures. In 2010, the Court of Auditors (CoA, 2010) has reviewed the application of simplified Customs procedures⁴³², which account for 70% of all import procedures. Such simplified procedures are an important element of the EU trade facilitation policy. The Court reports several issues and non-harmonized working methods.

Standards, TBT and SPS The review of the National Trade Estimate reports of the USTR, from 1996 to 2010⁴³³ highlights the lack of uniformity of the EU in the area of standardization, where Member States still have widely differing standards, testing and certification procedures in place for some products (and services). If the situation has improved, the report of 2007 still indicated that foreign [US] exporters were rarely involved in the consultation process, if not advised of draft regulation, pointing out a lack of transparency. Despite the development of mutual recognition agreements, the recent reports point out the EU's growing use of the "precautionary principle" to restrict or prohibit trade in certain products, in the absence of a scientific justification. Droque and Gozlan (2007), who study TBT and SPS for live plants and cut flowers, confirm such observations. The replies to their questionnaire indicate a lack of homogeneity in the administrative procedures at the various EU's points of entry leading to some opacity to the whole process: "*different ports or different staffs have their different inspections standards, even in the EU. Generally more quickly in Rotterdam than in Le Havre*" or "*there are not enough inspectors and the various competent bodies themselves are unclear on what needs to be done. Furthermore the inspectors are not necessarily clear on beneficials and pests*". They also found a high rate of inspections in these specific sectors (half of respondents indicated a rate higher than 25%, and a quarter higher than 95%). When asking the exporters how they perceive EU phytosanitary inspections, 45% consider them as a major barrier to trade. The main justification seems to be the additional costs and delays they imply. They also note that these results vary according to the origin of the exporter.

Transit system In 2006, the Court of Auditors (CoA, 2006) reviews the Community transit system and provides evidences of non uniformity issues with different working methods, especially in risk analysis and controls (see annex 1 of the report).

Penalties and sanction In the matter, the European court of Justice only refers to fundamental principles, where Member States are obliged to provide for effective, proportionate and dissuasive penalties for any violation of EC law. As pointed out during the WTO dispute, there is no information on penalties and no common sanctions across the EU. Moreover, definition of fraud are not the

⁴³²The report focused on the simplified declaration procedure and the local Customs clearance procedure, in nine Member States (See an overview of observations in Figures ??).

⁴³³Current and former reports are available on <http://www.ustr.gov/about-us/press-office/reports-and-publications/>

same. Recently, the EC (2009f) has launched a tender which aims to assess the impact of national Customs penalties regimes.

Infringements The Commission reports a series of infringements cases in each of its annual activity reports, related to the non-compliance to Customs law and a lack of uniformity. There are still some issues as regards to the national Customs practices of Member States. Thus, 32 opened infringements cases in Customs field were closed in 2009 after that the Member States concerned “*modified their legislation or practice to comply with EU law*” EC (2010h), showing that there is still some work to do.

6.4.1.2 What existing indicators tell to us?

Numerous potential indicators explore each trade facilitation area (see Chapter 2 for a review). The DG Taxation and Customs Union management Plan of 2011 (EC, 2011) refers to some of them and their rankings, to evaluate the performance of the Member States. The European Commission relies to Doing Business (ease of paying taxes), the Logistic Performance Indicator (global rank) and the Global Enabling Trade Report (Border Administration). They are displayed in table 6.7. The EC aspires to place each Member State into the top 100 of Doing Business and the top 50 of the Logistic Performance Indicator. Such rankings provide additional insights on the absence of uniformity across Member States about border matters and the objective of the EC shows that the Commission is aware of this dispersion⁴³⁴.

However, as explained in the first part of the thesis, these indicators are not well fitted to measure the trade facilitation performance of public administrations and the different trade facilitation dimensions. They are too broad and do not provide information by types of transport modes, goods or firms. They do not isolate the successive steps of the clearance procedure involving the Customs administration, but also other agencies and the private operators. Moreover, the use of these various indicators implies some methodological issues. These indicators encompass different assumptions and follow different weighting and standardization schemes. Some of them use hard data while others rely on soft data, based on perceptions⁴³⁵. Finally, the rankings retain only information on countries relative rank but not on the size of the gaps between countries.

⁴³⁴Table 6.7 provides the average rank of three traditional indexes (DB, LPI and the GETR) and two indexes related to the use of ICT (the NRI and the UN e-Government), between 2006 and 2009. This table confirms the wide dispersion across EU Member States. If the performance of the European Union was measured as the simple average of each Member State rank and that each Member State occupied the first places, the best aggregated score will be 14 for EU27 and 8 for EU15. As explored previously, there is also some differences between old Members (EU15) and the new ones, the former performing better when assessing the LPI and to a less extend DB, while performances are more homogeneous for the NRI and the UN e-Government index.

⁴³⁵Chapter 2 reviews these multiple issues.

Table 6.7: Traditional Indicators, Mean of respective ranks (2006-2009)

	Country	DB (1)	GETR (2)	LPI (3)	NRI (4)	UN (5)
AUT	Austria	23	11	12	17	16
BEL	Belgium	44	27	10,5	23,75	21
BGR	Bulgaria	105	63	59	71,5	44
CYP	Cyprus	15	45,5	47,5	37,25	36
CZE	Czech Republic	50	30,5	32	34,5	27
DEU	Germany	11	13	2	16,5	16,5
DNK	Denmark	5	4	14,5	1,5	2
ESP	Spain	52	25,5	25,5	32,75	29,5
EST	Estonia	3	14,5	45	20,75	16
FIN	Finland	4	6,5	13,5	5,5	12
FRA	France	22	22,5	17,5	20,25	16
GBR	United Kingdom	25	14	8,5	12,25	7
GRC	Greece	74	55,5	41,5	53,75	39,5
HUN	Hungary	71	32	43,5	39,25	28,5
IRL	Ireland	20	13,5	11	22,75	19,5
ITA	Italy	51	43	22	43,25	26
LTU	Lithuania	29	35	51,5	37	34
LUX	Luxembourg	32	17	14	21,75	21
LVA	Latvia	17	39,5	39,5	46,5	34
MLT	Malta			64	26,5	25
NLD	Netherlands	14	6	3	7,75	8,5
POL	Poland	41	41	35	63,5	35,5
PRT	Portugal	19	33,5	31	29,75	30,5
ROU	Romania	43	52,5	55	58,25	47,5
SVK	Slovakia	115	37,5	44	45,5	37
SVN	Slovenia	82	28	47	30,5	26
SWE	Sweden	6	2	3,5	1,75	2
Average EU27		37,42	27,42	29,37	30,42	24,35
Average EU15		26,80	19,60	15,33	20,68	17,80
Standard deviation EU27		30,68	16,80	18,89	18,43	12,20
Standard deviation EU15		20,28	15,19	10,88	14,81	10,70
Max - Min (EU27)		112,00	61,00	62,00	70,00	45,50
Max - Min (EU15)		70,00	53,50	39,50	52,25	37,50

Source: Own calculation, based on available reports

- (1) Doing Business, Trading across the border rank (183 countries)
- (2) Global Enabling Trade Reports, Border rank (127 countries)
- (3) Logistic Performance Index, Overall rank (123 countries)
- (4) Networked Readiness Index, Overall rank (134 countries)
- (5) United Nations, E-Government, Overall rank (192 countries)

	Rank	Score*	Date of entry
Sweden	1	3,83	1995
Netherlands	2	7,67	1958
Denmark	3	7,83	1973
Finland	4	8,00	1995
Germany	5	8,67	1958
Ireland	6	14,83	1973
Austria	7	15,33	1995
United Kingdom	8	15,83	1973
France	9	20,67	1958
Estonia	10	20,83	2004

* Average of DB, LPI and GETR ranks (2006-09)
(Simple average of the three sources)

In a first part I provide a summary of traditional indicators (ranks or scores) across different trade facilitation areas such as Customs performance (table 6.8), corruption and transparency (table 6.12), or infrastructures and ICT (table 6.14). For each source (q), the scores of the soft indicators (x_{qc}^t) for a country c and time t are normalized by the Min-Max method in I_{qc}^t which ranged between 0 (worst) and 1 (best).

$$I_{qc}^t = \frac{x_{qc}^t - \min_c (x_q^{t_0})}{\max_c (I_q^{t_0}) - \min_c (x_q^{t_0})}$$

Each indicator is the mean of the respective scores and ranks, between 2005 and 2010, according to their availability⁴³⁶. Ranks are usually used by Customs administrations or the Commission to evaluate their performance relatively to others. That is why I do not standardized rankings, even if country coverages vary according to the sources and the reported year⁴³⁷. In a second part, I provide insights from the Global Exchange Association (GEA) and the recent Trade Facilitation Index developed by the OECD (Chapter 4). They both rely on narrow indicators, based on questionnaires specially designed to measure various trade facilitation areas, following the framework of the negotiations at the WTO.

Customs performance There is a growing number of indicators that explore the effectiveness of the clearance procedure and the performance of border administrations. The oldest sources are the *World Competitiveness Yearbook* (WCY) provided by the IMD and the *Global Competitiveness Report* (GCR), a publication of the WEF. This latter publication has been completed by the *Global Enabling Trade Report* (GETR) since a couple of years. Recently, the World Bank has also developed new databases, increasingly used in the research community. Thus, *Doing Business* (DB) provides a series of variable related to trading across the border and the *Logistic Performance Index* (LPI) explores the perceptions of logistic operators on border operations (two surveys, 2006 and 2009). The following tables confirm the heterogeneity of the effectiveness of the clearance procedures system across the Member States as well as the disparities across sources which aim to measure the same attributes⁴³⁸.

⁴³⁶Thus, the LPI provides data for 2006 and 2009 only and several variables are only available in 2009.

⁴³⁷The country coverage for the last available year for each source used in the following tables are: 57 for the World Competitiveness Yearbook (WCY), 189 for the Global Competitiveness Report (GCR), 179 for the Freedom Index (FI), 213 for the World Governance Indicator (WGI), 183 for Doing Business (DB), 168 for the Logistic Performance Indicator (LPI), 125 for the Global Enabling Trade Report (GETR), 178 for the Corruption Perception Index (CPI), 117 for the specific variables used from the Enterprise Surveys (BEEPS), and 99 for the UNCTAD (LSCI and TCI).

⁴³⁸It stresses the importance of the choice of the source.

Table 6.8: Traditional indicators related to Customs efficiency (Rank)

cou	country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AUT	Austria	21,00	11,50	12,00	35,17	13,40	10,33	13,33	16,00	20,67	14,00	9,50	8,25
BEL	Belgium	44,75	32,75	19,17	103,17	27,00	28,00	34,33	32,33	44,00	12,50	15,50	23,50
BGR	Bulgaria	103,25	91,00	82,67	82,33	66,20	66,00	60,00	75,00	48,33	65,50	49,00	49,00
CYP	Cyprus	16,33	24,25	24,33	22,50	32,40	40,00	39,67	71,67	53,67	41,50		
CZE	Czech Republic	48,50	42,00	16,67	107,50	46,80	31,00	21,00	40,67	12,33	31,50	20,50	19,00
DEU	Germany	12,00	19,75	23,50	76,17	16,80	13,67	24,33	9,00	29,33	3,50	17,50	20,75
DNK	Denmark	4,50	6,25	19,00	22,00	3,80	3,67	8,67	2,33	18,33	10,50	2,00	2,00
ESP	Spain	53,75	40,75	39,83	77,00	30,60	26,33	20,67	40,67	10,33	26,00	38,25	19,00
EST	Estonia	4,25	12,75	15,17	8,67	26,20	13,33	9,00	8,33	10,67	37,50	8,00	16,75
FIN	Finland	4,75	6,50	6,17	7,67	4,40	7,00	22,00	5,33	59,50	10,50	5,75	8,50
FRA	France	24,75	28,00	23,33	108,00	24,20	22,00	29,67	14,33	28,33	19,00	31,50	27,50
GBR	United Kingdom	20,75	32,25	27,50	67,83	18,40	13,67	12,33	18,00	7,67	12,00	22,25	24,75
GRC	Greece	76,00	62,00	27,17	106,17	50,80	60,67	85,33	53,33	90,67	49,50	31,75	40,00
HUN	Hungary	65,75	51,00	19,50	105,67	37,80	32,67	26,33	48,67	16,00	39,50	11,75	23,50
IRL	Ireland	21,50	18,00	12,33	48,00	14,80	11,33	15,00	15,67	17,00	14,00	9,25	6,00
ITA	Italy	55,50	63,00	39,33	125,50	47,60	46,00	56,00	39,33	57,33	26,00	33,25	37,25
LTU	Lithuania	28,25	35,50	52,67	70,33	44,60	36,00	32,00	32,33	38,33	50,00	46,50	36,50
LUX	Luxembourg	31,25	9,25	6,83	21,83	8,80	18,00	33,00	19,67	76,50	8,00	20,50	14,50
LVA	Latvia	18,25	56,75	32,17	59,83	50,20	39,67	44,33	30,33	46,67	49,00		
MLT	Malta		34,75	19,17	93,17	35,50					55,00		
NLD	Netherlands	13,50	14,50	24,33	66,50	14,00	5,33	5,33	9,33	4,67	2,50	11,25	7,75
POL	Poland	43,50	64,00	60,00	97,00	59,80	41,33	47,00	36,00	41,67	36,00	52,25	47,50
PRT	Portugal	24,25	30,25	14,17	72,50	24,40	34,33	58,67	28,00	73,67	27,00	24,25	27,25
ROU	Romania	44,00	66,25	60,33	64,17	68,40	49,33	49,33	43,67	45,00	70,50	52,00	49,75
SVK	Slovakia	106,75	35,00	10,00	84,33	43,40	41,33	23,67	74,33	19,67	51,00	21,25	33,50
SVN	Slovenia	74,00	16,00	27,83	53,50	21,60	27,67	21,33	60,00	25,33	50,00	48,25	16,50
SWE	Sweden	6,50	3,50	6,00	33,17	4,80	2,00	2,67	3,33	6,00	5,00	12,50	10,00
Average EU27		37,21	33,61	26,71	67,40	30,99	27,72	30,58	31,83	34,68	30,26	24,77	23,71
Average EU15		27,65	25,22	20,04	64,71	20,25	20,16	28,09	20,44	36,27	16,00	19,00	18,47
Standard deviation EU27		29,06	22,42	18,61	33,48	18,84	17,48	19,90	22,19	23,75	20,05	15,86	14,07
Standard deviation EU15		21,05	18,87	10,81	36,04	14,37	16,63	22,90	15,20	28,63	12,17	11,02	11,58
Max - Min (EU27)		102,50	87,50	76,67	117,83	64,60	64,00	82,67	72,67	86,00	68,00	50,25	47,75
Max - Min (EU15)		71,50	59,50	33,83	117,83	47,00	58,67	82,67	51,00	86,00	47,00	36,25	38,00

Source: Own calculation, Mean of the respective available ranks between 2005 and 2010.

- (1) DB, Trading Across the Border
- (2) GCR, Customs procedures, i.e. formalities regulating the entry and exit of merchandise.
- (3) GCR, NTBs do not significantly reduce the ability of imported goods to compete in the domestic market.
- (4) GCR, Complying with administrative requirements (permits, regulations, reporting) is not burdensome
- (5) GCR, Firms never make undocumented extra payments connected with export/import permits
- (6) GETR, The border administration sub-index (Customs facilitates the entry and exit of goods).
- (7) GETR, Pillar2: Efficiency of Customs Administration
- (8) GETR, Pillar3: Efficiency of import-export procedures
- (9) GETR, Customs services index (based on the Global Express Association surveys)
- (10) LPI, Efficiency of the clearance process by border control agencies
- (11) WCY, Protectionism does not impair the conduct of your business.
- (12) WCY, Customs' authorities do facilitate the efficient transit of goods.

If the perception of the Customs efficiency (or shall we say the level of the *public* trade facilitation policy) varies across the Customs administration⁴³⁹, it appears that the application of the law and working methods also suffer of several disparities. Some variables such as the number of documents required to import (or export) are quite surprising and others confirm previous insights such as the disparities in the number of agencies involved or the rate of inspections at the border. Note that some performance could be attributed - to some extent - to the role of logistic operators (for example

⁴³⁹It was already stressed by the GCR special report on border issues in 2004 (see table 6.9).

the time to import) or to infrastructure issues.

Table 6.9: Indicators related to the Customs environment, from the GCR 2004-2005

cou	country	year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AUT	Austria	2004	5,000	4,700	4,600	5,900	17	22	21	14
BEL	Belgium	2004	4,900	4,800	4,700	5,700	18	20	20	18
BGR	Bulgaria	2004	3,200	3,200	3,700	3,600	72	81	75	84
CYP	Cyprus	2004	4,300	4,700	4,700	5,300	35	23	18	28
CZE	Czech Republic	2004	3,900	3,900	4,100	4,600	48	48	54	47
DEU	Germany	2004	5,200	5,200	5,000	5,800	14	10	12	15
DNK	Denmark	2004	5,600	5,300	5,000	6,000	8	9	13	11
ESP	Spain	2004	4,500	4,100	3,800	5,400	30	39	73	24
EST	Estonia	2004	5,100	4,600	4,800	5,700	16	27	15	19
FIN	Finland	2004	5,400	5,300	5,200	6,400	10	8	5	2
FRA	France	2004	4,200	4,000	4,000	5,200	39	45	62	30
GBR	United Kingdom	2004	5,300	5,500	5,100	6,100	12	5	8	9
GRC	Greece	2004	4,500	4,400	4,500	5,500	28	31	31	23
HUN	Hungary	2004	3,800	3,800	4,300	4,800	52	56	37	36
IRL	Ireland	2004	5,300	5,200	5,000	5,500	11	11	10	22
ITA	Italy	2004	4,400	3,700	3,700	4,700	33	63	74	41
LTU	Lithuania	2004	3,500	3,800	4,400	4,600	65	55	34	44
LUX	Luxembourg	2004	5,600	4,800	4,500	6,100	7	19	29	8
LVA	Latvia	2004	3,700	3,700	4,100	4,500	57	65	53	50
MLT	Malta	2004	4,000	3,400	4,000	4,700	46	73	59	39
NLD	Netherlands	2004	5,500	5,400	5,200	6,100	9	7	6	7
POL	Poland	2004	3,300	3,200	3,800	4,000	70	82	72	67
PRT	Portugal	2004	4,700	4,700	4,500	5,900	23	24	28	13
ROU	Romania	2004	3,300	3,600	3,400	3,500	71	67	91	86
SVK	Slovakia	2004	4,400	4,600	4,600	4,700	34	28	25	38
SVN	Slovenia	2004	4,300	3,900	4,100	5,200	37	52	57	31
SWE	Sweden	2004	6,000	5,500	5,300	6,300	4	6	4	4
Average EU27			4,552	4,407	4,448	5,252	32,074	36,148	36,519	30,000
Average EU15			5,073	4,840	4,673	5,773	17,533	21,267	26,400	16,067
Standard deviation EU27			0,796	0,733	0,532	0,802	21,626	24,831	26,214	22,423
Standard deviation EU15			0,526	0,577	0,515	0,451	10,676	16,880	24,166	10,512
Max - Min (EU27)			2,800	2,300	1,900	2,900	68	77	87	84
Max - Min (EU15)			1,800	1,800	1,600	1,700	35	58	70	39

Source: Own calculation, based on the GCR 2004-2005. Scores range from 1 to 7.

- | | |
|--|---|
| (1) Openness of Customs regime (Score) | (5) Openness of Customs regime (Rank) |
| (2) Business impact of Customs procedures (Score) | (6) Business impact of Customs procedures (Rank) |
| (3) Business impact of domestic trade barriers (Score) | (7) Business impact of domestic trade barriers (Rank) |
| (4) Hidden trade barriers (Score) | (8) Hidden trade barriers (Rank) |

Table 6.10: Traditional indicators related to Customs efficiency (Documents, Time and costs)

cou	country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
AUT	Austria	4,00	3,33	7,50		1025,67	5,00	3,00	8,33	3,52		1,50	0,66	1,32	0,70	1054,00
BEL	Belgium	4,00	2,40	8,00		1609,50	5,00	2,60	9,00	2,56		2,00	0,47	1,17	1,00	1600,00
BGR	Bulgaria	5,67	3,25	24,00	2,99	1420,50	8,00	3,00	22,33	2,44	3,41	1,00	0,59	1,00	1,00	1481,17
CYP	Cyprus	5,00	7,00	7,00		820,00	6,00		5,00	2,00		2,00			1,00	1030,00
CZE	Czech Republic	4,50	2,50	16,50	4,05	905,00	7,00	3,00	19,00	4,43	7,07	3,70	0,35	1,00	0,80	999,50
DEU	Germany	4,00	3,00	7,00	4,71	797,67	5,00	3,00	7,00	2,40	5,40	1,60	0,71	1,57	0,70	842,67
DNK	Denmark	4,00	2,00	5,00		673,50	3,00	3,00	5,00	1,15		1,30	0,50	1,41	0,70	673,50
ESP	Spain	6,00	2,33	9,00	4,87	1093,83	7,83	2,67	10,00	5,09	5,51	1,70	0,50	2,83	1,50	1093,83
EST	Estonia	3,00	2,67	5,00	1,77	701,67	4,00	2,67	5,00	3,15	2,41	1,30	0,31	1,00	0,50	705,00
FIN	Finland	4,00	2,85	8,00		472,50	5,00	2,82	8,00	2,22		1,50	0,36	0,60	0,80	512,50
FRA	France	3,50	11,83	11,83		1029,33	4,83		13,33	4,50		3,40			1,60	1154,33
GBR	United Kingdom	4,17	3,80	9,17		927,67	4,00	4,80	8,17	2,65		3,20	0,87	2,05	0,80	1140,83
GRC	Greece	5,00	2,00	20,00	5,47	1075,50	6,00	1,00	25,00	3,50	5,86	1,40	1,00	2,00	1,00	1255,00
HUN	Hungary	5,00	2,00	18,00	4,38	1112,50	7,00	2,00	17,00	4,85	5,32	3,00	2,00	4,00	0,80	1107,50
IRL	Ireland	4,00	1,00	7,00	2,62	1099,50	4,00	1,00	12,00	1,65	3,15	1,00	0,25	1,00	0,80	1130,00
ITA	Italy	4,00	2,40	20,00		1226,33	4,00	2,60	18,00	3,24		1,60	0,86	2,35	1,30	1226,33
LTU	Lithuania	6,00	2,67	10,00	2,10	845,00	6,00	3,33	10,83	3,40	5,63	1,00	0,40	0,63	4,20	980,00
LUX	Luxembourg	5,00	2,81	6,00		1352,00	4,00	4,14	6,00	1,59			0,39	0,64		1352,00
LVA	Latvia	5,83	3,00	11,83	1,95	605,00	5,67	3,33	11,83	2,00	3,89	1,70	0,40	0,79	0,70	831,00
MLT	Malta															
NLD	Netherlands	4,00	1,70	6,00		887,50	5,00	1,70	6,00	2,26		1,60	0,44	1,13	0,60	986,50
POL	Poland	5,00	2,44	17,00	4,47	859,00	5,00	3,78	25,00	3,28	6,49	2,00	0,79	1,42	3,20	859,00
PRT	Portugal	4,00	16,33	7,23		618,33	5,00		16,00	5,00	5,98	2,50			1,70	996,50
ROU	Romania	5,33	4,33	14,50	2,01	1212,50	7,50	4,00	15,50	2,50	2,60	1,40	1,00	1,59	1,20	1145,83
SVK	Slovakia	6,00	3,00	20,83	4,23	1244,17	8,00	3,00	24,00	4,00	4,44	2,20	0,25	0,50	0,80	1257,50
SVN	Slovenia	6,00	2,00	19,83	2,56	962,17	8,00	2,00	20,33	2,95	2,93	2,00	0,50	0,50	1,00	1013,67
SWE	Sweden	3,83	8,00	8,00		629,00	3,00		6,00	2,60		1,70			0,70	677,00
Average EU27		4,64	2,61	12,05	3,69	969,43	5,49	2,83	12,83	3,03	4,67	1,89	0,61	1,38	1,16	1042,51
Average EU15		4,23	2,46	9,92	4,98	967,85	4,71	2,69	10,52	2,92	5,18	1,85	0,58	1,50	0,99	1046,33
Standard deviation EU27		0,88	0,72	5,83	1,57	275,77	1,54	0,92	6,68	1,08	1,50	0,74	0,38	0,84	0,83	250,32
Standard deviation EU15		0,62	0,75	4,91	1,65	302,84	1,18	1,11	5,53	1,20	1,15	0,70	0,23	0,68	0,37	282,05
Max - Min (EU27)		3	3,33	19	5,46	1137	5	3,8	20	3,93	4,65	2,7	1,75	3,5	3,7	1087,5
Max - Min (EU15)		2,5	2,8	15	4,61	1137	4,83	3,8	20	3,93	2,83	2,4	0,75	2,23	1,1	1087,5

Source: Own calculation, based on the respective available scores between 2005 and 2010.

- (1) DB, Documents to export (number)
- (2) LPI, Number of documents to export
- (3) DB, Time to export (days)
- (4) BEEPS, Average Time to Clear Direct Exports (days)
- (5) DB, Cost to export (US\$ per container)
- (6) DB, Documents to import (number)
- (7) LPI, Number of documents to import
- (8) DB, Time to import (days)
- (9) LPI, Lead time to import, median case (days)
- (10) BEEPS, Average Time to Clear Imports (days)
- (11) LPI, Lead time import, best case (days)
- (12) LPI, Clearance time (days), without physical inspection
- (13) LPI, Clearance time (days), with physical inspection
- (14) LPI, Customs clearance (days in 2006)
- (15) LPI, Cost to import (US\$ per container)

Table 6.11: Other traditional indicators related to Customs efficiency

country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
AUT Austria		0.729	0.786	0.422	0.857	0.792	0.765	0.665	0.735	0.753	0.788	0.800	2.40	2.35	2.50	1.00	0.400	0.250	0.750	1.000	0.600	0.500	0.250	0.250
BEL Belgium		0.629	0.761	0.272	0.767	0.684	0.598	0.680	0.676	0.642	0.714	0.594	1.90	1.95	2.50	2.00	0.889	0.900	0.900	0.909	0.546	0.400	0.330	0.330
BGR Bulgaria	0.956	0.993	0.417	0.544	0.319	0.543	0.477	0.371	0.447	0.382	0.561	0.572	2.00	1.75	4.50	2.00	0.750	0.750	0.000	1.000	0.750	0.500	1.000	1.000
CYP Cyprus		0.650	0.736	0.464	0.733	0.598	0.581	0.461			0.548	0.550	3.00	3.00	22.00								0.500	0.500
CZE Czech Republic	0.852	0.965	0.588	0.769	0.261	0.630	0.647	0.704	0.533	0.660	0.661	0.683	0.814	1.90	2.00	1.50	1.00	0.500	0.500	0.500	1.000	0.500	0.500	1.000
DEU Germany	0.954		0.683	0.736	0.333	0.840	0.772	0.684	0.735	0.681	0.651	0.827	0.700	3.23	2.53	2.50	5.00	0.750	0.800	1.000	0.833	0.500	0.250	1.000
DNK Denmark		0.796	0.750	0.472	0.930	0.868	0.786	0.694	0.825	0.842	0.887	0.769	1.90	1.75	1.50	1.50	1.00	1.000	1.000	0.500	1.000	0.667	0.333	0.330
ESP Spain	0.937		0.592	0.658	0.331	0.740	0.690	0.713	0.580	0.546	0.652	0.684	0.822	4.10	4.10	3.50	1.00	0.000	0.667	0.333	1.000	0.667	0.333	0.330
EST Estonia	0.968	0.982	0.725	0.772	0.556	0.773	0.775	0.781	0.486	0.741	0.679	0.829	0.814	1.99	1.99	1.50	1.00	1.000	0.333	0.667	1.000	0.667	0.667	1.000
FIN Finland		0.788	0.842	0.583	0.927	0.821	0.691	0.693	0.770	0.761	0.854	0.567	1.80	1.83	2.00	2.00	0.733	0.733	0.600	1.000	0.769	0.615	0.920	0.920
FRA France		0.633	0.733	0.256	0.787	0.727	0.654	0.643	0.583	0.627	0.799	0.700	5.00	4.80	7.00	1.00	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000
GBR United Kingdom		0.613	0.722	0.350	0.813	0.772	0.758	0.685	0.645	0.640	0.774	0.883	3.15	3.30	2.50	2.00	0.714	0.429	0.143	1.000	0.286	0.286	0.750	0.750
GRC Greece	0.945		0.513	0.719	0.261	0.617	0.499	0.363	0.443	0.580	0.515	0.636	0.322	1.75	1.25	2.50	1.00	1.000	0.000	0.000	1.000	1.000	1.000	0.000
HUN Hungary		0.550	0.758	0.244	0.680	0.628	0.669	0.479	0.723	0.640	0.651	0.786	2.65	2.50	4.00	1.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500
IRL Ireland	0.939		0.688	0.789	0.411	0.860	0.784	0.751	0.678	0.757	0.782	0.788	0.814	1.35	1.35	1.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.500
ITA Italy		0.504	0.675	0.186	0.633	0.563	0.491	0.571	0.583	0.548	0.687	0.533	5.68	4.01	5.00	2.00	0.214	0.188	0.067	0.722	0.222	0.471	1.000	1.000
LTU Lithuania	0.960	1.000	0.600	0.622	0.347	0.643	0.624	0.630	0.429	0.443	0.506	0.669	4.75	2.59	14.00	1.00	0.667	0.000	0.333	1.000	1.000	0.667	1.000	1.000
LUX Luxembourg		0.767	0.836	0.478	0.887	0.745	0.616	0.714	0.650	0.691	0.766	0.446	1.71	1.81	5.00	2.00	0.722	0.706	0.800	0.889	0.647	0.667	0.667	0.670
LVA Latvia	0.911	0.987	0.525	0.689	0.367	0.613	0.599	0.542	0.434		0.717	0.592	2.17	2.07	2.50	2.00	0.333	0.333	0.333	1.000	0.667	0.667	0.667	0.670
MLT Malta		0.604	0.756	0.297	0.758																			
NLD Netherlands		0.704	0.731	0.347	0.853	0.836	0.813	0.746	0.709	0.752	0.822	0.889	1.55	2.30	3.50	3.00	0.500	0.900	0.700	1.000	0.900	0.923	0.769	0.800
POL Poland	0.865	0.982	0.496	0.597	0.286	0.573	0.589	0.542	0.500	0.382	0.405	0.698	0.619	3.28	2.22	4.00	3.00	0.539	0.167	0.250	0.923	0.923	0.769	0.000
PRT Portugal	0.873		0.621	0.775	0.336	0.780	0.626	0.484	0.569	0.631	0.626	0.722	0.425	2.30	2.00	3.00	3.00							0.500
ROU Romania	0.850	0.999	0.492	0.594	0.358	0.540	0.556	0.518	0.370	0.414	0.384	0.670	0.594	2.59	3.00	15.50	1.00	0.333	0.000	0.000	1.000	1.000	0.333	0.250
SVK Slovakia	0.944	0.982	0.613	0.800	0.314	0.650	0.594	0.686	0.425	0.659	0.573	0.563	0.742	1.50	1.65	4.50	1.00	0.000	0.500	0.000	1.000	0.500	1.000	1.000
SVN Slovenia	0.977	0.974	0.696	0.714	0.378	0.797	0.679	0.703	0.423	0.458	0.684	0.615	0.728	2.25	2.50	4.50	1.00	0.000	0.000	1.000	1.000	1.000	1.000	1.000
SWE Sweden		0.821	0.844	0.428	0.920	0.893	0.874	0.716	0.707	0.731	0.875	0.897	3.40	2.60	1.00	1.00	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Average EU27	0.924	0.986	0.631	0.730	0.358	0.746	0.686	0.649	0.625	0.630	0.726	0.679	2.665	2.430	4.750	1.682	0.567	0.506	0.453	0.887	0.673	0.539	0.684	0.684
Average EU15		0.672	0.757	0.364	0.814	0.738	0.669	0.654	0.672	0.681	0.775	0.678	2.748	2.528	3.000	1.917	0.686	0.684	0.628	0.882	0.653	0.559	0.656	0.656
Standard deviation EU27	0.043	0.011	0.103	0.076	0.095	0.120	0.113	0.123	0.126	0.122	0.123	0.096	0.153	1.143	0.853	4.936	0.995	0.353	0.372	0.379	0.281	0.293	0.308	0.341
Standard deviation EU15		0.098	0.056	0.103	0.096	0.110	0.139	0.081	0.080	0.089	0.074	0.186	1.321	1.060	1.626	1.165	0.323	0.337	0.364	0.268	0.286	0.308	0.334	0.334
Max - Min (EU27)	0.127	0.035	0.404	0.300	0.397	0.390	0.416	0.511	0.376	0.444	0.459	0.339	0.575	4.330	3.550	21.000	4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Max - Min (EU15)	0.081	0.000	0.317	0.186	0.397	0.313	0.393	0.511	0.304	0.280	0.327	0.251	0.575	4.330	3.550	6.000	4.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Source: Own calculation, based on the respective available scores between 2005 and 2010. Scores are normalized following the Min-Max method and arranged to the top (best efficiency).

- (1) BEEPS, Customs and Trade Regulations as a major constraint (Country Average)
- (2) BEEPS, Customs and Trade Regulation as a major obstacle (Country Average)
- (3) GCR, Efficiency of Customs procedures
- (4) GCR, Prevalence of trade barriers
- (5) GCR, Burden of government regulation
- (6) GCR, Irregular payments in exports and imports
- (7) GETR, The border administration sub-index (Customs facilitates the entry and exit of goods)
- (8) GETR, Pillar2: Efficiency of Customs Administration
- (9) LPI, Efficiency of Customs clearance process
- (10) WCY, Protectionism does not impair the conduct of your business.
- (11) WCY, Customs' authorities do facilitate the efficient transit of goods.
- (12) GETR, Pillar3: Efficiency of import-export procedures
- (13) GETR, Customs services index (based on the GEA surveys)
- (14) LPI, Number of agencies (import)
- (15) LPI, Number of agencies (export)
- (16) LPI, Physical inspection, % of shipments physically inspected
- (17) LPI, Multiple inspection, % of shipments physically inspected
- (18) LPI, Competence and Quality of Services, Customs agencies
- (19) LPI, Competence and Quality of Services, Quality/standards inspection agencies
- (20) LPI, Competence and Quality of Services, Health/SPS agencies
- (21) LPI, Clearance and delivery of imports
- (22) LPI, Customs clearance procedures (change since 5 years)
- (23) LPI, Other official clearance procedures (change since 5 years)
- (24) LPI, Possibility of a review procedure (percent)

Corruption and Transparency Corruption issues, transparency of Customs decisions and procedures are other key components of trade facilitation. Numerous researches have explored the sources and the approach to promoting integrity (Walsh, 2003b; Wulf and Sokol, 2005) as well as the impact of a lack of transparency on Customs efficiency and trade flows (Helble et al., 2007; Arvis et al., 2010; Moïsé, 2011). The current negotiations on trade facilitation at the WTO (WTO, 2011) have also stressed that transparency is an essential component of trade facilitation policies. As trade facilitation indicators, corruption indicators differ in their scope, definition and methodology⁴⁴⁰ and it is not easy to evaluate the lack of transparency in the clearance procedure system of a country⁴⁴¹. However, it is not the purpose of this section to create a new indicator of transparency and I only rely on existing proxies.

According to the following “traditional” indicators, it appears that the perception of corruption/transparency varies across Member States and it seems that the variance increases with the new Member States. The difficulties pointed out previously about the appeal procedures are underlined by the LPI which indicates that the possibility to review a procedure (2006) varies across the Member States. Another indicator provided by the LPI about the predictability of procedures shows that, despite the common Community Customs policy and the EC information channels (such as the EC website), the provision of adequate and timely information on regulatory changes (2009) is not harmonized across border administrations, confirming the importance of additional national relays, the efforts of each administration to support traders, and to some extent the political will. The french case study is a remarkable example of support policy towards MNEs and SMEs to promote trade and facilitate trade procedures (see appendix, section A.3).

⁴⁴⁰See Knack (2006) for a critical review of corruption indicators.

⁴⁴¹Due to these difficulties, Helble et al. (2007) suggested a measure of transparency based on variables related to the concepts of simplification and predictability.

Table 6.12: Traditional Indicators, Corruption and Transparency (Scores)

Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
AUT Austria	0,822	0,828	0,823	0,800	1,000	0,500	0,868	0,611	0,739			0,250	0,800
BEL Belgium	0,722	0,722	0,738	0,889	1,000	0,111	0,609	0,407	0,560			0,330	0,909
BGR Bulgaria	0,385	0,294	0,394	0,500	1,000	0,750	0,286	0,248	0,151	0,874	0,893	1,000	0,000
CYP Cyprus	0,598	0,725	0,665									0,500	
CZE Czech Republic	0,483	0,511	0,553	1,000	1,000	0,000	0,430	0,326	0,260		0,956	1,000	1,000
DEU Germany	0,797	0,906	0,804	1,000	0,667	0,500	0,812	0,507	0,633			1,000	0,800
DNK Denmark	0,938	0,897	0,931	1,000	1,000	0,000	0,915	0,786	0,920			1,000	1,000
ESP Spain	0,653	0,486	0,672	1,000	1,000	0,000	0,464	0,370	0,497			0,330	1,000
EST Estonia	0,655	0,711	0,713	1,000	1,000	0,667	0,598	0,552	0,550		0,992	1,000	1,000
FIN Finland	0,928	0,886	0,919	0,933	1,000	0,462	0,871	0,732	0,902			0,920	0,867
FRA France	0,713	0,678	0,728	1,000	1,000	0,000	0,650	0,474	0,621			1,000	1,000
GBR United Kingdom	0,810	0,842	0,781	0,857	0,857	0,429	0,710	0,421	0,657			0,750	0,714
GRC Greece	0,422	0,506	0,499	0,000	1,000	0,000	0,520	0,392	0,253			0,000	0,000
HUN Hungary	0,507	0,536	0,565	0,000	1,000	1,000	0,557	0,338	0,283	0,964	0,958	0,500	1,000
IRL Ireland	0,767	0,858	0,812	1,000	1,000	0,000	0,765	0,592	0,619			0,500	1,000
ITA Italy	0,468	0,419	0,511	0,643	0,846	0,500	0,361	0,320	0,269			1,000	0,722
LTU Lithuania	0,482	0,414	0,537	1,000	1,000	0,667	0,458	0,312	0,203	0,997	0,971	1,000	1,000
LUX Luxembourg	0,842	0,803	0,853	0,833	1,000	0,357	0,713	0,594	0,701				0,611
LVA Latvia	0,458	0,453	0,538	0,667	1,000	0,667					0,944	0,670	0,667
MLT Malta	0,590	0,697											
NLD Netherlands	0,882	0,886	0,873	0,875	0,875	0,143	0,854	0,609	0,746			0,800	1,000
POL Poland	0,437	0,458	0,526	0,615	1,000	0,769	0,274	0,255	0,153	0,637	0,964	0,000	0,385
PRT Portugal	0,625	0,700	0,671	0,000		0,000	0,293	0,429	0,356			0,500	
ROU Romania	0,352	0,358	0,477	0,333	1,000	0,500	0,304	0,401	0,135	0,749	0,930	0,250	0,000
SVK Slovakia	0,462	0,406	0,534	1,000	1,000	0,000	0,359	0,390	0,215	0,995	0,932	1,000	1,000
SVN Slovenia	0,647	0,550	0,721	1,000	1,000	0,000	0,399	0,406	0,377	0,935	0,980	1,000	0,000
SWE Sweden	0,923	0,853	0,929				0,827	0,622	0,785			0,800	1,000
Average EU27	0,643	0,644	0,683	0,748	0,967	0,334	0,579	0,462	0,483	0,879	0,952	0,684	0,728
Average EU15	0,754	0,751	0,770	0,774	0,942	0,214	0,682	0,524	0,617			0,656	0,816
Standard deviation EU27	0,183	0,194	0,158	0,341	0,081	0,321	0,216	0,146	0,251	0,138	0,029	0,341	0,369
Standard deviation EU15	0,158	0,162	0,136	0,343	0,103	0,226	0,196	0,137	0,204			0,334	0,269
Max - Min (EU27)	0,587	0,611	0,537	1,000	0,333	1,000	0,641	0,538	0,785	0,360	0,100	1,000	1,000
Max - Min (EU15)	0,517	0,486	0,432	1,000	0,333	0,500	0,622	0,466	0,668	0,000	0,000	1,000	1,000

Source: Own calculation, Mean of the respective available scores between 2005 and 2010.

- (1) Corruption Perception Index (Transparency International)
- (2) GCR, Judicial Independence
- (3) GETR, Transparency of border administration
- (4) LPI, Transparency of Customs clearance is efficient)
- (5) LPI, Solicitation of informal payments do not usually generate delays
- (6) LPI, Incidence of corruption (% of respondents answering improved or much improved since 2005)
- (7) WCY, Justice is fairly administered
- (8) WCY, Transparency of government policy is satisfactory
- (9) WCY, Corruption do not exist
- (10) BEEPS, Firms who do not Identify Corruption as a Major Constraint
- (11) BEEPS, Firms who do not Identify Corruption as a Major Obstacle (country average)
- (12) LPI, Possibility of a review procedure (2006)
- (13) Provision of adequate and timely information on regulatory changes (2009)

Table 6.13: Traditional Indicators, Corruption and Transparency (Ranks)

	Country	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AUT	Austria	83,17	13,33	13,33	4,50	11,25	9,75	95,08
BEL	Belgium	73,67	26,00	20,67	27,25	38,25	22,25	88,60
BGR	Bulgaria	39,50	102,00	71,67	49,33	51,67	49,67	55,32
CYP	Cyprus	57,50	25,17	28,67				81,96
CZE	Czech Republic	46,00	56,33	39,67	41,25	45,25	39,25	67,85
DEU	Germany	79,67	3,00	16,00	11,00	23,75	18,25	92,86
DNK	Denmark	94,50	3,83	2,33	1,25	1,25	1,75	99,71
ESP	Spain	68,33	61,50	27,67	38,75	42,50	26,75	83,41
EST	Estonia	62,83	27,50	23,67	27,75	16,25	22,50	79,63
FIN	Finland	95,00	6,33	4,33	4,75	4,75	2,25	99,33
FRA	France	71,83	33,67	23,00	23,50	26,75	19,00	91,22
GBR	United Kingdom	84,33	11,83	17,00	18,75	36,25	16,00	92,86
GRC	Greece	44,33	59,00	50,33	35,25	36,75	41,25	65,36
HUN	Hungary	50,33	51,67	38,33	31,25	45,50	37,25	71,63
IRL	Ireland	75,00	10,00	14,67	15,25	13,00	19,75	92,85
ITA	Italy	50,00	74,17	48,33	44,75	48,25	38,50	62,85
LTU	Lithuania	47,17	73,17	44,33	33,50	43,50	38,50	62,06
LUX	Luxembourg	84,83	17,17	11,00	18,50	14,50	13,75	94,49
LVA	Latvia	44,17	65,50	45,00				65,73
MLT	Malta	60,67	28,83					80,60
NLD	Netherlands	88,00	6,50	7,33	5,75	13,00	9,75	96,81
POL	Poland	38,33	65,00	44,67	51,50	50,75	48,25	66,10
PRT	Portugal	64,33	30,67	27,33	50,50	34,50	32,75	81,47
ROU	Romania	32,17	87,00	56,33	48,00	38,00	51,25	54,83
SVK	Slovakia	44,33	78,50	44,00	45,00	36,25	44,25	68,74
SVN	Slovenia	62,83	51,33	23,00	41,25	38,00	31,75	81,18
SWE	Sweden	92,50	11,33	2,67	9,25	14,50	6,50	97,78
Average EU27		64,27	40,01	28,67	28,24	30,18	26,70	80,38
Average EU15		76,63	24,56	19,07	20,60	23,95	18,55	88,98
Standard deviation EU27		19,13	29,05	18,22	16,61	15,46	15,36	14,31
Standard deviation EU15		15,17	23,02	14,71	15,67	14,73	12,17	11,36
Max - Min (EU27)		62,83	99,00	69,33	50,25	50,42	49,50	44,88
Max - Min (EU15)		50,67	71,17	48,00	49,25	47,00	39,50	36,86

Source: Own calculation, Mean of the respective available ranks between 2005 and 2010.

- (1) Freedom Index (FI), Freedom from corruption (Country's Percentile Rank)
- (2) GCR, Judicial Independence
- (3) GETR, Transparency
- (4) WCY, Justice is fairly administered
- (5) WCY, Transparency of Institutional Framework is satisfactory
- (6) WCY, Corruption do not exist
- (7) WGI, Control of corruption (Country's Percentile Rank)

Infrastructure and ICT The traditional indicators show a wide dispersion of the quality of infrastructures, such as ports, across the Member States. Disparities are particularly high about the competence and the quality of logistic services, such as maritime transport, warehousing, freight forwarders, consignees or shippers. Moreover, improvement of trade and transport infrastructures describes different paths since 2005 across the Member States⁴⁴². These observations tend to weigh the role of Customs and replace this administration as a part of the supply chain, a key element acting as a catalyst, but not the only one. The literature has always pointed out that infrastructure and

⁴⁴²France is one of the best rated countries. It may be the consequence of its voluntary policy in favor of operators, aiming to improve mutual cooperation and its Customs clearance procedure system. The early presentation of trade diversion phenomena pointed out by Cailleteau (2006) has probably been a catalyst.

Table 6.14: Traditional indicators related to Infrastructures and ICT (Rank)

cou	country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
AUT	Austria	37,17	12,33	6,00	19,33		15,00	12,00	17,00	13,00	21,00	5,00	14,75
BEL	Belgium	6,00	10,67	8,00	20,67	2,33	11,50	7,50	8,00	11,00	19,00	11,75	14,25
BGR	Bulgaria	76,50	73,00	58,33	41,33	86,67	78,50	54,00	50,50	69,00	52,00	47,67	42,67
CYP	Cyprus	32,33	24,33	38,67	32,67	67,67	43,00	58,00	41,50	68,50	27,00		
CZE	Czech Republic	60,50	45,67	35,00	31,00	90,67	35,00	38,50	31,00	30,50	33,00	20,75	38,00
DEU	Germany	4,50	7,33	2,67	8,33	4,00	2,00	3,50	4,50	5,50	15,00	4,75	5,00
DNK	Denmark	6,33	4,00	17,33	4,67	52,00	14,50	15,00	17,50	12,50	6,00	2,50	2,50
ESP	Spain	27,33	12,00	15,00	26,33	7,00	24,50	24,00	19,00	25,00	31,00	28,25	27,75
EST	Estonia	20,50	43,67	42,67	17,33	80,00	47,00	41,50	61,50	53,00	26,00	27,75	14,00
FIN	Finland	6,00	7,67	21,67	15,67	73,67	12,50	12,00	6,50	20,00	7,00	7,75	4,00
FRA	France	10,17	1,33	10,00	19,00	3,00	15,00	15,50	15,00	16,00	18,00	12,25	18,25
GBR	United Kingdom	24,17	15,33	7,00	7,33	1,00	13,00	8,00	6,50	9,50	12,00	27,25	28,00
GRC	Greece	54,00	24,67	29,67	36,00	31,00	40,00	46,50	35,00	41,50	24,00	35,50	32,00
HUN	Hungary	74,33	70,00	29,33	31,67		35,50	45,00	57,50	48,00	32,00	27,75	38,25
IRL	Ireland	53,33	28,67	23,00	24,33	75,67	19,00	13,50	14,00	6,50	16,00	44,00	34,50
ITA	Italy	84,17	46,67	20,33	27,67	7,33	21,50	19,50	21,00	25,50	36,00	53,00	50,50
LTU	Lithuania	49,67	33,33	52,33	29,67	83,00	67,00	60,00	60,00	42,50	39,00	24,50	32,50
LUX	Luxembourg	29,67	9,33	13,67	6,67		11,00	27,00	22,50	13,00	29,00	15,25	23,00
LVA	Latvia	48,83	33,00	45,33	39,33	83,67	53,50	47,00	35,00	42,00	47,00		
MLT	Malta	28,17					48,00	52,00	104,00	117,00	28,00		
NLD	Netherlands	2,50	14,33	2,33	6,33	5,67	1,50	2,00	6,50	5,50	14,00	16,50	4,25
POL	Poland	94,50	80,33	44,33	39,67	65,67	47,00	37,00	36,50	21,00	41,00	44,75	53,00
PRT	Portugal	39,83	26,67	27,00	30,00	26,67	33,00	33,50	34,50	30,50	34,00	26,25	26,25
ROU	Romania	92,50	81,33	44,67	45,33	65,00	74,50	59,00	61,00	69,50	61,00	52,00	42,50
SVK	Slovakia	64,67	38,00	26,33	39,00		47,00	40,50	43,00	47,00	50,00	36,75	41,25
SVN	Slovenia	36,83	31,00	36,67	27,00	80,00	43,50	43,00	51,00	68,00	22,00	31,00	27,75
SWE	Sweden	11,83	7,67	12,00	1,33	42,00	7,50	4,00	3,00	7,50	2,00	11,50	8,75
Average EU27		39,9	30,1	25,7	24,1	47	31,9	30,3	31,96	34,02	27,5	25,6	26
Average EU15		26,5	15,2	14,4	16,9	25,5	16,1	16,2	15,37	16,17	18,9	20,1	19,6
Standard deviation EU27		28,2	24	16,1	12,8	34,1	21,6	19,2	23,89	27,08	14,7	15,3	15,2
Standard deviation EU15		23,8	11,8	8,61	10,7	27,4	10,4	12,3	10,06	10,45	10,3	15,2	13,8
Max - Min (EU27)		92	80	56	44	89,7	77	58	101	111,5	59	50,5	50,5
Max - Min (EU15)		81,7	45,3	27,3	34,7	74,7	38,5	44,5	32	36	34	50,5	48

Source: Own calculation, Mean of the respective available ranks between 2005 and 2010.

- | | |
|---|--|
| (1) GCR, Quality of port infrastructure | (7) LPI, Logistic quality and competence |
| (2) GETR, Pillar5, Availability and quality of transport infrastructure | (8) LPI, Tracking and tracing |
| (3) GETR, Pillar6, Availability and quality of transport services | (9) LPI, Timeliness |
| (4) GETR, Pillar7, Availability and use of ICTs | (10) NRI, Infrastructure environment |
| (5) UNCTAD, Transshipment Connectivity Index | (11) WCY, Distribution Infrastructure |
| (6) LPI, Infrastructure | (12) WCY, Water Transportation |

logistic services were a major component of trade costs⁴⁴³. These insights have been confirmed by the researches in the field of trade facilitation, from Wilson et al. (2003) who stressed the importance of ports, to Portugal-Perez and Wilson (2010) or recently Duval and Utoktham (2011) who underlined that improvement in “hard infrastructure” quality would bring the greatest benefits. However, as stressed by Cantens et al. (2010), logistic services, infrastructure issues and Customs services are mixed and require a disaggregated approach to fully assess each dimension of the clearance procedure system.

⁴⁴³See Clark et al. (2004), Hummels (2007), Djankov et al. (2010) [...] or ref to thesis chapter.

Table 6.15: Traditional indicators related to Infrastructure and ICT (Scores)

country	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
AUT Austria	0.719	0.965	0.737	0.782	0.726	0.718	0.960	1.000	1.000	0.729	0.739	0.725	0.815	0.650	1.000	0.800	0.800	0.800	0.800	0.690	0.547	0.855	0.750		
BEL Belgium	0.712	0.880	0.744	0.751	0.714	0.714	0.950	1.000	1.000	0.760	0.844	0.773	0.818	0.633	1.000	0.273	0.636	0.500	0.750	1.000	0.655	0.573	0.772	0.780	76
BGR Bulgaria	0.556	0.435	0.437	0.456	0.475	0.346	0.400	1.000	1.000	0.464	0.389	0.513	0.593	0.861	0.500	0.500	0.500	0.500	0.500	0.433	0.363	0.496	0.502	5	185
CYP Cyprus	0.551	0.665	0.672	0.519	0.568	0.481	0.500	1.000	1.000	0.449	0.400	0.554	0.586	0.800	1.000	0.500	0.500	1.000	1.000	0.556	0.492	0.562	0.496	16	198
CZE Czech Republic	0.616	0.849	0.997	0.785	0.554	0.544	0.534	0.700	1.000	0.449	0.278	0.609	0.715	0.833	1.000	0.500	0.500	1.000	1.000	0.562	0.463	0.662	0.515	1	173
DEU Germany	0.760	0.984	0.902	0.762	0.817	0.802	0.816	1.000	1.000	0.794	0.841	0.788	0.851	0.692	1.000	0.500	0.500	0.500	0.500	0.698	0.593	0.871	0.874	83	254
DNK Denmark	0.866	0.893	0.797	0.668	0.822	0.726	1.000	1.000	1.000	0.708	0.833	0.713	0.811	0.833	1.000	0.000	0.500	0.500	0.500	0.787	0.725	0.896	0.897	23	212
ESP Spain	0.649	0.892	0.678	0.743	0.685	0.663	0.636	0.800	1.000	0.646	0.574	0.699	0.748	0.694	1.000	0.667	1.000	1.000	0.570	0.472	0.650	0.647	64	250	
EST Estonia	0.718	0.945	0.990	0.727	0.560	0.508	0.740	0.458	1.000	1.000	0.521	0.704	0.474	0.629	0.889	1.000	0.667	1.000	1.000	0.673	0.502	0.650	0.760	6	191
FIN Finland	0.771	0.883	0.772	0.650	0.744	0.736	0.825	0.875	1.000	0.721	0.756	0.783	0.783	0.458	0.929	0.615	0.846	0.692	0.751	0.700	0.862	0.889	10	195	
FRA France	0.721	0.832	0.848	0.729	0.736	0.728	1.000	1.000	1.000	0.704	0.889	0.735	0.799	0.167	1.000	1.000	1.000	1.000	0.678	0.580	0.818	0.751	67	255	
GBR United Kingdom	0.836	0.723	0.729	0.766	0.807	0.750	0.743	1.000	1.000	0.743	0.635	0.779	0.828	0.333	1.000	0.143	0.571	0.571	0.716	0.637	0.581	0.621	80	260	
GRC Greece	0.567	0.547	0.661	0.587	0.587	0.534	0.499	0.400	1.000	0.503	0.222	0.605	0.703	0.500	1.000	1.000	1.000	1.000	0.489	0.517	0.570	0.614	32	222	
HUN Hungary	0.607	0.947	0.996	0.738	0.443	0.581	0.574	0.525	0.600	1.000	0.493	0.333	0.484	0.651	1.000	1.000	1.000	1.000	0.536	0.463	0.597	0.517	8	195	
IRL Ireland	0.709	0.889	0.532	0.629	0.644	0.683	0.685	0.800	1.000	0.719	0.444	0.748	0.849	0.750	1.000	1.000	1.000	1.000	0.662	0.593	0.460	0.569	61	249	
ITA Italy	0.654	0.418	0.557	0.656	0.654	0.655	0.557	0.889	1.000	0.671	0.183	0.686	0.751	0.578	0.938	0.353	0.611	0.667	0.522	0.450	0.399	0.384	6	189	
LTU Lithuania	0.593	0.537	0.607	0.467	0.602	0.378	1.000	1.000	1.000	0.444	0.556	0.484	0.665	0.778	1.000	0.333	1.000	0.667	0.546	0.430	0.709	0.581	7	189	
LUX Luxembourg	0.677	1.067	0.759	0.713	0.817	0.740	0.878	1.000	1.000	0.611	0.808	0.685	0.823	0.630	1.000	0.667	0.824	0.813	0.665	0.473	0.773	0.679	6	189	
LVA Latvia	0.567	0.565	0.609	0.496	0.498	0.498	0.430	0.933	0.667	0.488	0.704	0.576	0.676	0.778	1.000	0.667	1.000	0.667	0.511	0.393	0.611	0.485	30	252	
MLT Malta	0.659	0.671								0.473	0.000	0.390	0.505	1.000											
NLD Netherlands	0.805	0.942	0.724	0.819	0.809	0.818	0.980	1.000	1.000	0.800	0.662	0.783	0.849	0.620	0.889	0.778	0.800	0.400	0.741	0.613	0.734	0.879	83	252	
POL Poland	0.587	0.925	0.995	0.385	0.402	0.499	0.495	0.459	0.629	1.000	0.538	0.509	0.571	0.764	0.806	0.846	0.769	0.923	0.923	0.460	0.418	0.460	0.376	8	202
PRT Portugal	0.615	0.912	0.608	0.653	0.606	0.611	0.541			0.563	0.000	0.603	0.738	1.000					0.588	0.460	0.640	0.628	25	220	
ROU Romania	0.538	0.883	0.994	0.408	0.401	0.503	0.439	0.373	0.600	1.000	0.443	0.167	0.470	0.579	0.611	0.667	0.500	1.000	1.000	0.476	0.325	0.452	0.487	20	203
SVK Slovakia	0.565	0.916	0.988	0.802	0.583	0.610	0.509	0.460	0.600	1.000	0.519	0.278	0.551	0.648	0.833	1.000	1.000	1.000	0.515	0.372	0.575	0.543	29	24	
SVN Slovenia	0.650	0.957	0.939	0.642	0.621	0.539	0.641	0.484	0.600	1.000	0.499	0.556	0.509	0.604	0.667	1.000	0.000	1.000	0.582	0.530	0.588	0.620	15	186	
SWE Sweden	0.855	0.810	0.774	0.716	0.861	0.768	1.000	1.000	1.000	0.785	1.000	0.796	0.844	0.833	1.000	0.000	0.000	0.000	0.786	0.788	0.796	0.829	26	215	
Average EU27	0.671	0.916	0.981	0.705	0.645	0.627	0.658	0.591	0.778	0.977	0.604	0.515	0.633	0.727	0.671	0.949	0.530	0.827	0.795	0.610	0.517	0.661	0.654	33	216
Average EU15	0.728	0.779	0.726	0.706	0.732	0.704	0.850	0.983	0.697	0.629	0.629	0.727	0.800	0.625	0.983	0.557	0.738	0.678	0.667	0.581	0.712	0.720	49	234	
Standard deviation EU27	0.098	0.186	0.126	0.112	0.124	0.150	0.205	0.072	0.125	0.296	0.123	0.101	0.122	0.122	0.334	0.242	0.267	0.102	0.112	0.148	0.156	0.29	29	29	
Standard deviation EU15	0.088	0.186	0.073	0.072	0.091	0.090	0.183	0.043	0.086	0.292	0.062	0.046	0.206	0.355	0.271	0.288	0.090	0.101	0.155	0.146	0.29	24	24		
Max - Min (EU27)	0.328	0.136	0.058	0.682	0.447	0.363	0.421	0.471	0.600	0.333	0.358	1.000	0.406	0.346	0.833	0.500	1.000	1.000	0.354	0.463	0.498	0.522	83	87	
Max - Min (EU15)	0.300	0.095	0.000	0.648	0.291	0.232	0.326	0.319	0.600	0.125	0.298	1.000	0.194	0.149	0.833	0.111	1.000	1.000	0.298	0.338	0.498	0.513	75	65	

Source: Own calculation, Mean of the respective available scores between 2005 and 2010. Scores are normalized following the Min-Max method and arranged to the top (best efficiency).

- (1) UN-EGOV, Quality of government's delivery of online services
- (2) BEEPS, Firms that do not identify Transportation as a Major Constraint (country average)
- (3) BEEPS, Transportation is not a major obstacle (country average)
- (4) GCR, Quality of port infrastructure
- (5) GETR, Pillar5, Availability and quality of transport infrastructure
- (6) GETR, Pillar6, Availability and quality of transport services
- (7) GETR, Pillar7, Availability and use of ICTs
- (8) LPI, Quality of transport related Infrastructures (sub-index 2006, 2009)
- (9) LPI, Quality of transport infrastructure are not low (simple average 2009)
- (10) LPI, Quality of telecommunications and ICT are not low (2009)
- (11) LPI, Quality and competence of logistic services (sub-index 2006, 2009)
- (12) LPI, Competence and Quality of Services (apart Customs) are high (simple average 2009)
- (13) LPI, Ability to track and trace consignments (sub-index 2006, 2009)
- (14) LPI, Timeliness of shipments in reaching destination (sub-index 2006, 2009)
- (15) LPI, Charges and Fees are not high (simple average 2009)
- (16) LPI, Maritime transshipment do not usually generate delays (2009)
- (17) LPI, Trade and transport infrastructure has improved since 2005
- (18) LPI, Telecommunications and IT infrastructure has improved since 2005
- (19) LPI, Private logistics services has improved since 2005
- (20) NRI, Networked Readiness Index
- (21) NRI, Infrastructure environment sub-index
- (22) WCY, The distribution infrastructure of goods and services is generally efficient.
- (23) WCY, Water transportation (harbors, canals, etc.) meets business requirements.
- (24) UNCTAD, Liner Shipping Connectivity index (LSCI)
- (25) UNCTAD, Transshipment Connectivity index (TCI)

The Customs reports of the Global Exchange Association (GEA) Contrary to the majority of previous traditional indicators, the scope of the variables provided by the GEA Customs reports are narrow, focusing on specific trade facilitation issues. Data are based on the replies to a questionnaire on Customs issues faced by GEA Members who are highly sensitive to border impediments⁴⁴⁴. The methodology is explained in Chapter 5. I cover regions (and sub-regions) according to the United Nations classification and income groups according to the World Bank classification. This paragraph focuses on the performance of the European Union, studies the disparities across its Members and a series of trade facilitation dimensions. Indeed, the GEA Customs reports follow the framework of the WTO negotiations and explore transparency and predictability issues, automation issues and the effectiveness of the Customs procedures. The Customs reports are available for all the EU Member States from 2005 to 2009, even if the rate of availability varies across questions⁴⁴⁵. I also put the replies of current Members (EC27) into perspective with the oldest Members (EC15). The results are quite similar to the observations related to the OECD described in the previous Chapter 5. It is not a surprise as 60% of OECD countries are also members of the European Union. The replies to the Customs reports can be classified into two categories, according to their degree of harmonization:

- Areas where harmonization is almost completed, *i.e. at least 90% of replies are the same*
- Areas where harmonization is only partial

As explained previously, there is not a unique definition of the harmonization and even in one country it is possible to observe some disparities due to different working methods or trade patterns (goods, environment, flows). In the case of the European Union, it is also possible that some countries do not apply the law or give a different interpretation of the law. Moreover, all areas are not covered by the EU legislation and some of them rely on national provisions. However, such disparities should be limited in a common Customs territory. In order to account of reasonable disparities and possible mistakes in the Customs reports (reporting issue), I retain a threshold of 90%⁴⁴⁶. After reviewing the various dimensions explored by the GEA Customs reports, it is obvious that many areas do not apply in the same way across EU members.

Only a third of the areas covered by the GEA Customs reports are harmonized within the European Union. *Regarding to transparency issues*, all members allow for the possibility to appeal decisions from Customs officials to a higher level or an independent tribunal (100%). Almost all members provide advance rulings (93%), even if 20% apply them on an unregulated basis. In addition, almost all members provide a full and precise description of Customs procedures on their website (92%), downloadable forms and documents (95%). *Regarding to the clearance procedure*,

⁴⁴⁴As stressed by the GEA on a note on trade facilitation: “*Because express delivery are highly time-sensitive, inefficient and obsolete Customs procedures present a serious obstacle for global express delivery companies and their operations*”.

⁴⁴⁵The rate of availability of each question is available in the appendix, section E.1.

⁴⁴⁶This threshold is based on the overview of the GEA surveys. It is a subjective choice to account of previous artefacts listed.

almost all Customs administrations inspect and release goods arriving by air at the operator's facility (93%), all Member States separating physical release of goods from fiscal control by using EDI (100%) and almost none applies fees for EDI links (5%). Finally, few EU countries require a certificate from a pre-shipment agency (8%)⁴⁴⁷, in line with the current WTO negotiations. These observations are not surprising as the right to appeal, the availability of information and forms, or the use of advance rulings are binding to Member States by the EU Customs law. The fact that some countries do not provide information or downloadable documents can be the consequence of the quality of the EU communication channels. Indeed, in many cases the national Customs websites rely directly to the EU Customs website. As explained in the previous sections, ICT are part of the successive Customs action programmes and the Member States tend to apply these new technologies by following a progressive schedule. That is why the use of EDI technology is well spread across the Member States. The observations about the use of advance rulings confirm that there is some disparities across the EU, at least in their application. Indeed, Binding Tariff Information (advance rulings) are binding to each Customs administration and 100% of them should issue such rulings. However, one explanation of this result could be that their use remains limited to specific border offices only⁴⁴⁸. The fact that almost all Members inspect and release goods arriving by air at the operator's facilities was not obvious, as it is not provided by the European legislation. However, the new Authorized Economic Operator status allow such arrangements and the Local Clearance Procedure should be increasingly used in the future. The questionnaire relies mainly on the express delivery industry who probably benefits from such status and arrangements since a while.

If around a third of the areas are relatively harmonized, 70% are still not! Most of the following replies should be harmonized but it is only partially the case. Among all these areas there are some disparities between former (EC15) and new members (EC27). That is why I put into bracket the number of EU countries applying each measure, respectively for EC15 and EC27. Due to the numerous issues addressed, I group the different replies into three categories: transparency and predictability, release and clearance of goods, and fees⁴⁴⁹.

Transparency and Predictability. Firstly, if the right of appeal is available across the Member States (and at the European level), the information on appeal procedures of Customs' decisions are partially available on Customs website (10 and 20). Secondly, only 75% of members provide an advance notice of the effective date to allow traders to make necessary changes and arrangements. In the same area of information and predictability, Customs and other import regulations are published in an Official Journal for 85% of members (this rate increases with new Members). Moreover, new regulations and changes are published for public comment prior implementation for 80% of members⁴⁵⁰. Thirdly, the limit of time within which Customs are allowed to demand additional

⁴⁴⁷This percentage increases to 17% when I take into account the 27 EU Members.

⁴⁴⁸Indeed, the question of the GEA questionnaire is the following: "Does Customs issue advance rulings on *all* Customs ports?"

⁴⁴⁹Some replies could be classified in multiple groups.

⁴⁵⁰For a third of these members, such publications are reported only sometimes (25% and 37%).

duties is not harmonized (12 and 20). Fourthly only the half of Customs' members regularly use the reference prices to invoice values (7 and 13). As explained previously, the quality of the EU information channels and its consultation scheme could be an explanation of such disparities across Member States about information availability. Another explanation could be the various "quality" of transposition of the EU law, leading to potential gaps in the application or the interpretation of the law⁴⁵¹. About the additional duties, the time limit should be limited to three years according the Modernized Customs Code if we refer to the time limit to keep documents (Art. 29). The replies to this particular question (post-release 1b) from the GEA Customs reports indicate that the average time limit for EU Members is actually 3 years. However, the delay can be higher and even not limited in few Member States. Finally, regarding to the use of reference prices to invoice values, the EC rely on the WTO Customs Valuation Agreement.

Release and clearance of goods. The second set of questions relies to the release and clearance of goods. Three quarters of European Member States use EDI prior arrival to release shipments immediately after arrival (12-19). When data are not transmitted prior the arrival, the average time between post-arrival data submission and shipment release for dutiable items increases, particularly in new Member States. About the inspection method, more than half of them use automated risk assessment as the primary basis for physical examinations of shipments (10-17) while inspector discretion is still intensively used by new Members. Few Customs administrations require clearance by a third-party Customs brokers (2-2). There are multiple inspections by agencies other than Customs in more than half of member States (10-16), generating delays in delivery in 85% of time. Physical release of goods is separated from fiscal control in 12 and 16 countries and the use of a certificate of origin from a chamber of commerce (7-17) or a consular invoice/visa for a commercial invoice (2-9) is not a common practice across the Member States. A full-time automated processing for Customs ports is only partially available (10-19) and the majority of the Customs working hours are well adapted to commercial needs (85%). A third of member States apply fees during working hours (4-9). There is many disparities across Member States in this category and it is not surprising as many of the areas explored rely on working methods or national provisions. Thus, if there is a common framework and common criteria for the risk management policy, it is not yet well developed and not binding to Members, to date. In the matter, only the results account for the Commission. Finally, traders also pointed out that other procedures not listed in the GEA questionnaire restrict express delivery (4-6), showing the necessity to improve the European trade facilitation strategy and its harmonization.

Fees. It is a hot question as countries generally do not provide public information on this topic, at least it is difficult to find. There is a lack of transparency and predictability for traders which must rely on their own experience. The use of processing fees are equally distributed (45%) across the Member States, without distinction between old and new Members. The GEA Customs reports

⁴⁵¹See the first section of chapter 9 for a discussion on this topic and the impact of the *acquis communautaire*.

provide a typology of existing fees faced by its members, which also reveals several disparities. The questionnaire explores the fees for express clearance (3-3), the fees for on-site Customs facilities (3-4), the fees for value added network operators (16%) and other processing fees (3-8). There is no European law in the matter, but charges and fees must be proportionate to the service and limited.

The Trade Facilitation Indicators (TFIs) The TFIs has been designed by the OECD (Moisé and Orliac, 2010) and focus on several trade facilitation dimensions (Chapter 4). The different components of the index follow the framework of the WTO negotiations. The replies to the OECD questionnaire and the final TFIs show a series of disparities across Member States. It was surprising to note that some administrations do not rely to the European legislation on some questions which should binding to all Members. I attribute such replies as a simple ignorance of some current specific legislation by the management, even if Customs officers already apply the legislation, or to the use of different definitions.

Firstly, about *the information availability*, there are some differences in the publication of the penalties for non compliance, the publication of the judicial decisions, the availability of summary guides on import procedures or the publication of information on BTI⁴⁵². The latter observations raise again the question of the European communication channels, while the formers are binding on national provisions. There is also some disparities in the nature of the enquiry point (the Customs administration or not) and the size (scope) of the structure. There is a clear lack of harmonization about the opening hours of the Customs support services. The questionnaire also reveals that the time generally applicable between the publication and the application of a new regulation varies across the Member States⁴⁵³. There is also different structures of consultation with operators (from MNEs to SMEs, or logistic operators) and citizens, who are rarely consulted⁴⁵⁴. Finally, information on fees and charges are scarce, confirming the lack of transparency in this area.

Secondly, as stressed previously, *the appeal procedures* rely on national provisions and there are different systems across EU Members, such as the use of moderators. The number of appeals also varies, but it has not been possible to conclude on these data, as such outputs are too ambiguous. However the questionnaire confirms that the Member States do not provide the same information on the modalities and issuance time of the appeal procedures.

Thirdly, the *Customs clearance system* also suffers of the lack of harmonization across the European Union. It may be the consequence of different ICT implementations (following various lags in the initial schedule of ICT programmes) and different working methods too. From the application of a Single Windows⁴⁵⁵ to the rate of procedures cleared electronically, there are numerous disparities.

⁴⁵²Half of the Member States rely on the European Customs website.

⁴⁵³It could be very different within a same country too (Denmark, Netherlands) depending on the legislation.

⁴⁵⁴However, note that many consultations are hold at the European level.

⁴⁵⁵Single Windows or similar systems are in place in the Netherlands, Portugal, Sweden and the United Kingdom.

The percent of pre-arrival processing vary among Members and few countries perform in this area. Some countries do not provide for the separation of release from final determination and the payment of Customs duties. Moreover, this possibility is always linked to guarantees (with the exception of Sweden) or to the authorized trader status. The TFIs confirm the performance of some countries in the area of *authorized traders* (the Netherlands and Sweden). In addition, the questionnaire shows up that the time to obtain AEO certificates and even the benefits granted from this status differ across the Member States⁴⁵⁶. Finally, the ratio of irregularities, of physical inspections and post-clearance audits also vary across the Customs administrations⁴⁵⁷, confirming previous insights from the Court of Auditors and the different European reports.

Fourthly, about the *domestic cooperation* with other border agencies, the TFIs pointed out a series of disparities in the possibility to have a single location for one-time documentary controls and for physical inspection. It also appears that government agencies do not delegate controls to Customs to the same extent across the European Union. A group of countries do not delegate at all, whereas others delegate many of their respective authorities⁴⁵⁸.

6.4.2 The Nature of Trade Facilitation issues in the EU

6.4.2.1 Still some barriers and needs to facilitate

Tariff and Non Tariff Measures (NTMs), including border measures and behind-the border measures, are still an issue for the European Union. According to Donnelly and Manifold (2005) and Martinez et al. (2009)⁴⁵⁹, import-related measures represent an increasing share of cases recorded in 2009 (near the half) of the European NTMs, following by TBT and SPS. Focusing on transatlantic trade between the US and the EU, a recent review of Berden et al. (2009) confirms the existence of such barriers. It is also pointed out by the USTR National Trade Estimate Reports which regularly provide insights about barriers to entering the European market, despite the bilateral consultations, cooperation agreements, mutual recognitions or even dispute settlement provisions of the WTO. Agricultural, pharmaceutical, health care and information technology products are generating the major concerns, from the reclassification of IT products leading to higher import duties⁴⁶⁰, to the lack

⁴⁵⁶The benefits listed by the TFIs are the possibility of periodic declarations and payment of duties, reduced physical inspections, reduced documentary and data requirements, the right to submit for processing a single document, more rapid release time, and local clearance.

⁴⁵⁷Note that few countries apply different treatments between perishable and non-perishable goods.

⁴⁵⁸France currently develops such cooperation, Customs acting as the focal point (see in the appendix the French Customs case study).

⁴⁵⁹Donnelly and Manifold (2005) and Martinez et al. (2009) provide a compilation of reported Non-Tariff Measures (NTMs) in place in 2002 and 2009, based on the National Trade Estimate reports provided by the Office of the United States Trade Representative (USTR), the European Market Access Database and the Trade Policy Reviews provided by the WTO.

⁴⁶⁰This issue led to a dispute at the WTO, in 1997. If this issue has disappeared since several years, the last report of 2010 shows a revival of issues related to Information Technology products. [New dispute in 2008 at the WTO, with China and Japan too]

of standardization and certification recognition⁴⁶¹, and the non-uniformity of the European Customs Union to apply its legislation. This situation is also sustained by the continuous enlargement of the European Union, increasing the complexity of the Customs administration.

6.4.2.2 Compliance, irregularities and fraud

This section explores the main issues of border compliance, also called irregularities, recorded by the European Customs administrations. It is a hot topic for Customs administrations but also for traders. As stressed by the respondents to a Canadian survey in 2004 who explained that becoming border compliant improved their timing and efficiency (88%), their credibility (49%) in the supply chain, and generated costs reductions (59%). The “*companies see the necessity of becoming compliant*”, Canada (2004). Moreover, about half of them (40%) indicated that Customs compliance was the greatest challenge they faced in the export process (before duties and shipping), particularly due to a lack of information⁴⁶². Reviews from the Australian government (Customs, 2009a), Duval (2006b), Dios (2009a) or Hintsa et al. (2011) confirmed that compliance issues are important, ranking tariff classification (*i.e. misclassification errors*) and Customs valuation are at the top of trader concerns, before TBT, SPS or penalties⁴⁶³. As stressed in a recent study on the cost to UK traders of compliance by SITPRO (2010), uncertainty in tariff classification could generate trade diversion with businesses choosing to move their activities elsewhere in the European Union, “*such as Rotterdam where it is deemed that advice is clearer and more certain*”. As pointed out earlier by Cailleateau (2006), such trade diversion phenomena exist within the EU, raising the question of the efficiency of respective Customs authorities across Member States. Compliance issues prevail in the European Union and their nature or their size could be used to identify priority policies and to measure the efficiency of Customs. However, as explained by Moïse and Orliac (2009), compliance issues and related proxies such as BTI or BTO provide ambiguous outcomes. Indeed, a high number of irregularities can be attributed to an efficient control system (risk management) or the consequence to a lack of information provided to traders. The level of irregularities should be controlled by these two aspects.

Irregularities are reported since a long time by each Member States to the Commission, for policy purpose but also budgetary reasons as such irregularities impact the own resources of the European Union⁴⁶⁴. However, the data communicated by Member States is sometimes incomplete

⁴⁶¹However, the reports underlined the progresses with the adoption of the “new approach” based on minimum requirements [report97] and the development of Mutual Recognition Agreements.

⁴⁶²This observation underlines the potential of information and transparency indicators in trade facilitation studies, such as the information availability index of Moïse and Orliac (2010).

⁴⁶³A recent report of the Australian government (Customs, 2009a) shows that 46.63% of non-compliance cases are related to classification irregularities, following by valuation issues per-se (misclassification could lead to valuation irregularities too).

⁴⁶⁴European legislation provides for the protection of the Union’s financial interests in all areas of activity, particularly of the Traditional Own Resources. Member States must communicate to the Commission all frauds and irregularities involving more than 10000€ of community finances, under Art. 6 §5 of Regulation (EC) No 1150/2000. Two main systems are in place for the reporting of irregularities to the Commission: **Own Resources** (OWNRES) managed by the Directorate General for Budget and the Irregularity Management System (IMS) managed by the European Anti-Fraud Office (OLAF).

and the discovery year can diverge with the the Customs operation. As a consequence, Member States are continually adding new cases and updating existing items. So the information generated by OWNRES represents a snapshot at the date of the query. Furthermore, the distinction between “suspected fraud” and other irregularities is not consistent as Member States do not always have the same definition of criminal risk⁴⁶⁵. That is why, the annual statistic reports should be interpreted with caution⁴⁶⁶.

The review of the statistic reports (since 1996) shows nevertheless that irregularities increased in volume since a decade and account for 3% of the TOR in average, *i.e.* 300 to 400 million of euros (table 6.16). I do not focus the analysis on each Member State due to the difficulties evoked previously to analyze the data, but explore aggregate data. The breakdown of irregularities by Customs procedure shows that most cases relate to the procedure of release for free circulation (75% in average since a decade, the remainder mainly to transit procedures), while the breakdown by mechanism type (table 6.17) shows that the most frequently mentioned cases are related to classification, undeclared goods, value and origin⁴⁶⁷. Earlier, the USTR National Trade Estimate reports (2003) also pointed out that substantive approaches to valuation and tariff classification can vary from one Member State to another. The share of wrong classification issues increased since a decade with the growing complexity of electronic equipments, accounting for a third of irregularities, overtaken tobacco since 2004 which was at the first place⁴⁶⁸. The Commission’s reports show a constant rise in the amount of products originating from China who taken the lead since 2001, accounting for almost half of the amounts of irregularities in 2009⁴⁶⁹. Finally, as stressed previously,

⁴⁶⁵Irregularity means “*any infringement of a provision of Community law resulting from an act or omission by an economic operator which has, or would have, the effect of prejudicing the general budget of the Communities by charging an unjustified item of expenditure to the Community budget*” (EC, 2010i). The distinction between irregularities and fraud is that fraud is a criminal act that can only be determined by the outcome of judicial proceedings. As such, it is only when the judicial procedure has come to an end that the actual amount of fraud can be determined. While awaiting the results, the Commission works on the basis of the information supplied by Member States concerning cases of irregularities some of which, in the opinion of the reporting Member States, give rise to suspicions of fraud. The Commission’s statistical assessment of and ability to respond to, irregularities are influenced by the accuracy and timeliness of the notifications made by the Member States. Since 1996, the share of fraud among the stock of irregularities is around 20% in average, varying across Member States.

⁴⁶⁶As pointed out by the Commission: “*It would be particularly inappropriate to draw simple conclusions about the geographical distribution of fraud or on the efficiency of the services which contribute to the protection of financial interests. The findings can not be considered as empirical evidence of the level of fraud and irregularity*”, EC (2010i).

⁴⁶⁷These figures are in line with the former Communication COM(2000)107 which reviewed the irregularities faced by Customs administrations in 1998 (despite the successive updates). This Communication indicated that the total amount of Customs irregularities relating to the release of goods for free circulation identified across the European Union was 306 860 262 € of which 52 682 753 € concerned irregularities in Customs valuation, 28 265 530 € undeclared imports, 64 327 823 € wrong tariff classification, 29 774 574 € origin, 1 412 380 € quantity and 130 397 205 € unspecified irregularities. Finally, data are not available for recent years in table 6.17, but the EC (2010i) explains that these type of irregularities are still the most mentioned.

⁴⁶⁸The Annual Activity Reports of DG TAXUD confirm also this issue, showing an increasing number of divergent tariff classification since 2005 due to the growing difficulty of classify new technological goods. In addition, the EC (2011) also reports that 18 months are necessary in average for solving a case, which is not very efficient (the Commission intends to target a maximum of 1 year). This delays was already pointed out by the USTR National Trade Estimate reports which argue that if “*the Community Customs Committee exists to help reconcile differences and thereby help to achieve uniformity of administration, in practice its success in this regard has been assessed limited*”.

⁴⁶⁹The originated countries of irregularities are related to a certain extent to the main trade partners of the EU.

the methods of detection of irregularities or fraud cases registered vary also across Member States.

Table 6.16: Irregularities reported in OWNRES database*

* Only irregularities above 10000€ are communicated by Member States, following Regulation (EC) No 1150/2000
The database is regularly updated and Member States communicate several change in reported cases each year.

	Cases (1)	Amounts (1)	Amounts (2)	TOR (3)	Procedure (4)	Amounts (5)
1996	2428	162 380 355 €				78,00
1997	2535	327 668 781 €				81,00
1998	2470	280 000 000 €	220 000 000 €			81,00
1999	2601	270 000 000 €	205 000 000 €			73,00
2000	2579	516 655 940 €	240 000 000 €	3,64		80,00
2001	2433	284 352 351 €	280 000 000 €	2,06		73,40
2002	2569	367 019 883 €	345 000 000 €	4,15		72,87
2003	3163	270 273 835 €	270 000 000 €	2,58		68,04
2004	3205	212 366 396 €	210 000 000 €	1,78		68,92
2005	5943	328 000 000 €	330 000 000 €	2,45		55,80
2006	6101	348 651 552 €	350 000 000 €	2,34		64,28
2007	6294	394 074 848 €	400 000 000 €	2,37		65,63
2008	6075	375 365 101 €	350 000 000 €	2,26		68,43
2009	4684	343 440 266 €		2,39		73,19

Source: Own compilation, based on the EC annual reports on the protection of the Communities financial interests.

(1) Compilation of the last updated data available on Cases and Amounts, based on EC reports and their annexes.

(2) Data proxied from an updated figure in EC(2009h)

(3) Share of irregularities (amounts) of the Traditional Own Resources (TOR)

(4) Share of irregularities (cases) under the procedure of Release for free circulation.

(5) Amounts of irregularities for cases under the procedure of Release for free circulation.

Table 6.17: Breakdown by type of irregularities (% of cases)

	Classification	Origin	Value	Undeclared	Weightquantity
1996	20,00	9,60	20,50	26,00	1,60
1997	23,60	8,80	17,70	14,80	1,60
1998	26,00	6,00	23,00	13,00	1,40
1999	19,50	7,70	19,00	21,50	0,70
2000	32,00				
2001	28,80				
2002					
2003	46,00	5,00	11,00		
2004	44,00	9,00	13,00		
2005	37,00	12,00	14,00		

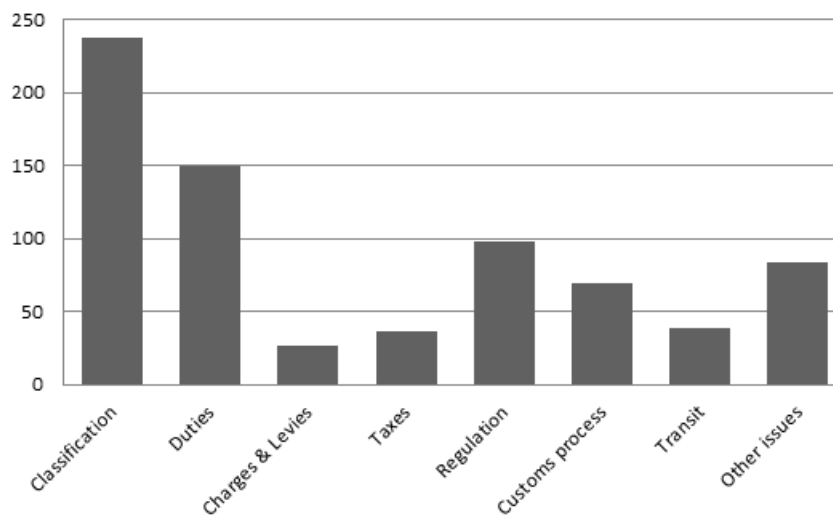
Source: Own compilation, based on the reports on the protection of the Union s financial interests

The study of cases reported by the European Court of Justice confirms previous insights. Based on a wording analysis, I used a compilation of all cases in the Customs area provided by the ECJ (2010). All observations are resumed in the following figure 6.15, showing a predominance of classification issues. As the European Union Customs policy and its application has changed since 1995, I split cases into four equal periods of four years to capture some potential changes since 1995 (see

Note that the type of irregularities vary according to partners, China mainly concentrated origin irregularities, while the USA -the second source of irregularities- report mainly tariff classification errors.

table F.1 in the appendix). It appears that the number of cases increases regularly, particularly classification cases which have increased by 154% since 1995. The WTO (2004) also provided insights showing the predominance of tariff classification, between 1995 and 2005 using a previous compilation of the ECJ⁴⁷⁰. Regulation issues, especially the one related to Customs Code and its interpretation, also increased since 2003. This recent trend could be related to the amount of new amendments, the security package (2005) and also the new procedures introduced by the New Community Customs Code (even if it is not yet fully applied). The Customs process seems quite stable and could be the consequence of the efficiency improvement strategy of the Commission in this area.

Figure 6.15: Repartition of cases by type of issues (1995-2010)
Source: Own calculation, based on the compilation of the ECJ (2010)



The Member States also provide information relating to the fight against infringements of intellectual property rights. There has been an increasing number of cases since 1999 (see appendix) and China continued to be the main source country from where goods suspected of infringing an IPR were sent to the EU (64% of the total amount of articles), even if in certain product categories some countries can outperform China. Luxurious is the main industry concerned with more and more health products. The number of cases recorded varies according to the Member States (see appendix) and the air and postal transport mode represent 75% of cases, even if most articles (90%) are seized by sea⁴⁷¹. Finally, the majority of goods (85%) are seized under the import procedures and the relicat during the transit procedures. Customs rely on the use of risk management methods to target its inspections. The effectiveness of these methods for detecting suspected IPR infringing goods is difficult to measure. As stressed by the EC (2009d), one indication of the effectiveness of

⁴⁷⁰Note that their evaluation reported less cases.

⁴⁷¹Note that, as for irregularities, definitions differ across European Members between cases and articles leading to some overestimates. Moreover, Customs authorities do not have the same power as regard to detention of goods.

the selections made by Customs can be taken from the amount of cases that were released because they appeared to cover non-infringing original goods (5%). However, these figures only tell us about the detentions made by Customs concerning goods suspected of infringing an IPR but do not give an indication on the total amount of controls carried out in relation to the detentions. A better indicator will be the ratio of inspection and positive matches, even if the intensity of trade flows and its structure (origin, type of goods) can vary across Member States who do not face the same issues, leading to ambiguous outcomes.

6.4.2.3 A lack of uniformity?

Previous sections have exposed the lack of uniformity, to some extent, across Member States regarding the application of the European Customs legislation in several areas, and a wide disparity in the efficiency of Customs administrations. In 2006, the majority of the United States allegations against the EC was rejected, apart specific cases (WTO, 2004). However, according to the EC itself, it was mainly “*for purely procedural reasons the USA did not win the case*”, EC (2009f). Numerous initiatives have been hold through the successive Customs programmes such as the development of Modernized Customs Code and the IT systems aiming to improve the consistency and uniformity of the application of the European Customs law, but some concerns remain current and the uniform implementation of Customs procedures remains a challenge. Previous insights run all along the last decade and may be put in perspective to evaluate the current representation of the European Customs as well as its evolution.

Firstly, Member States do not always encompass the same interpretations of Customs initiatives and Customs programmes follow different implementation schedules generating disparities, interoperability issues, difficulties to act as a single Customs administration and potential breaches in the security chain. Secondly, there is a lack of political will of some Member States to cooperate leading to excessive “delays” of the Community Customs Committee or to different interpretations given to the EC Customs law. In the matter, the increasing number of national Customs administrations is not helping. Moreover, several procedures rely on national legislation or practices, generating duplicates and complexity for traders, which mean additional costs⁴⁷². Thirdly, the national Customs administration apply different working methods and face different patterns. Indeed, each Member States face different types of goods from a various origins, more or less trade flows, and different national legislation or even cultural approaches⁴⁷³. Fourthly, the monitoring of the Commission (EC, 2011) is an essential tool to improve the uniformity of the European Customs and the impact of trade facilitation policies, but it is limited by the absence of a common definition on several indicators of the effectiveness of Customs procedures, at least to date⁴⁷⁴. Finally, there is still a

⁴⁷²As explained by the president of the French Business Confederation (MEDEF), “*too many procedures are still committed nationally, generating as many approaches as implantation*”, Laurence Parisot in *Les Cahiers de la Compétitivité* (Douane, 2010b).

⁴⁷³For example, some countries will assume good compliance until an issue comes up while others will require a series of deep controls before to grant any authorisations.

⁴⁷⁴This question is now on the center of a series of working parties at the European level.

competition between the different Customs administrations to be/stay the more attractive place, leading to trade diversion phenomena between Member States⁴⁷⁵. It could be viewed as “a race to the top” improving the global efficiency of the European Union, but also “a race every man for himself” leading to a lack of uniformity and to unfair practices, both implying negative outcomes for traders and the European Union as a block.

6.5 Conclusion

The experience of the European Union in the area of trade facilitation is a model to follow, even though it remains perfectible. It is a laboratory of all kind of implementation issues and best practices related to various trade facilitation dimensions. Many insights draw the European Union as a non-harmonized area in several Customs related matters. It shows that even in the most developed countries who -in addition- share common regulations, it remains some issues and so, potential gains in the area of trade facilitation. However, as stressed during the dispute at the WTO on Customs related matters, the uniformity is not a unique concept, requires delays and minimal requirements of regularity of procedures. For the European Community, “*A complete uniformity in the application of Customs laws could never be achieved by any Member, even those with the most efficient systems of Customs administration. In a large country with a large bureaucracy, a minimum degree of non-uniformity is de facto unavoidable*”, WTO (2004). There is a certain minimal threshold which implies that a variation in administrative practice must have a significant impact on the administration of Customs laws in order to constitute a breach of Article X (3a) of the GATT.

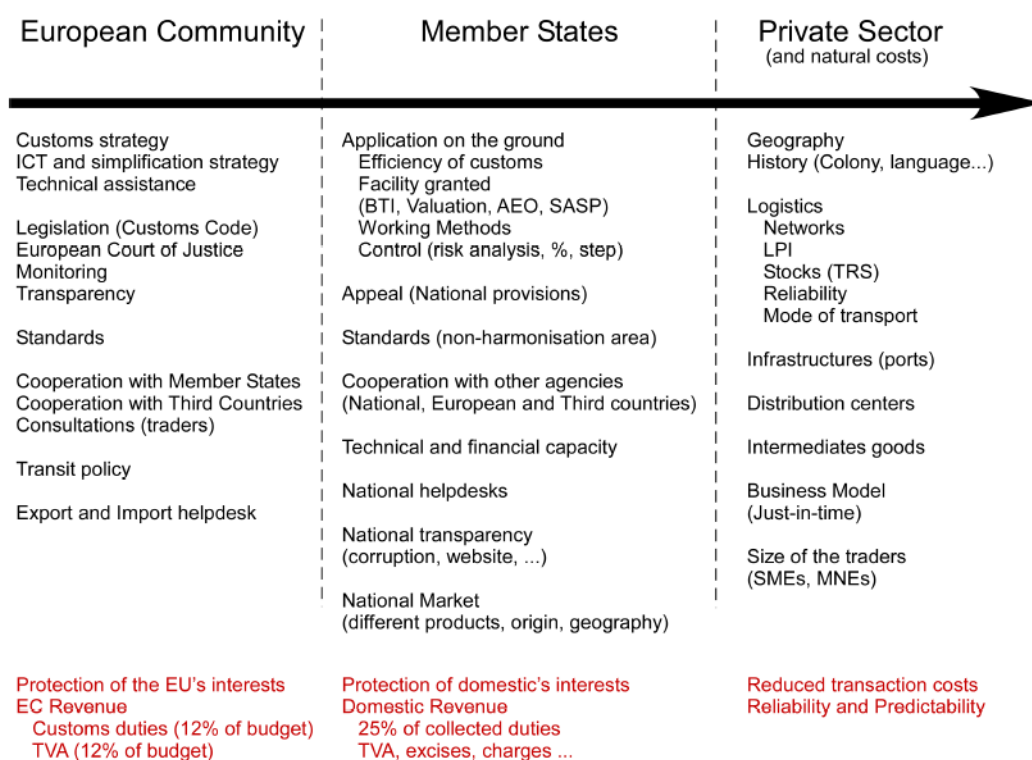
As explained in the first part of this thesis, there is a lack of accurate and comparable indicators to assess the relative performance of each trade facilitation area across the Member States as well as the efficiency of each national Customs administration. It is an important question since such indicators could be valuable tools for the Commission to evaluate the situation across the Member States, improve the harmonization of its border regulations and assess the best fitted trade facilitation policy. Moreover, such indicators should provide insights on the benefits of a full harmonization in Customs matters.

It is not trivial to measure the trade facilitation performance of the European Union. Firstly, the Customs Union is built around twenty seven national administrations who share a different history, different patterns and challenges. In addition, it is not obvious to evaluate the level of trade facilitation in the European Union by the addition of each Member States performance. Secondly,

⁴⁷⁵Few years ago, Cailleteau (2006) explained that about 25% of french imports transited from the ports of Netherlands, Belgium and Germany, instead of the french ports. He attributed this gap to a series of additional services or facilities granted by the respective Customs administrations, such as the picking or a more intensive use of ICT. This proportion seems to be still current in 2011 according to Jean-Michel THILLIER, Deputy Director General of French Customs (International Trade Directorate). Of course, such a gap is not only the consequence of the efficiency level of Customs, but also due to the criteria for the location of the European Distribution Centers such as infrastructure issues or the logistic behaviours of operators (CGEY, 2003) and the interpretations of the law by different Customs administrations.

a trade facilitation policy has different “lives”, *i.e.* *different stages*, the European and domestic levels (the public stage) but also the participation of economic operators (the private stage). A schematic view is drawn in figure 6.16. Each programme -or policy- spreads through these three levels, generating potential bottlenecks or disparities across Member States. A comparison between each Member State of the efficiency of Customs and trade facilitation policies should taken this chain into account. For example, Member States can not act -at least not directly- on some private factors. Being placed in a network of transport does not depend of public authorities willingness⁴⁷⁶, but of natural patterns (such as geography) and logistic providers strategy first.

Figure 6.16: Trade facilitation in the EU: 3 actors, 3 dimensions



These stages lead to the choice of dedicated indicators, which go beyond the global indexes of some traditional indicators. According the focus required, a narrow approach or a broader one through global indicators could be used. The French Customs has been particularly innovative in this area since several years, by providing a series of indicators to measure the performance of its services at different stages of the procedure. The Time Release Studies also provide valuable indicators by following this disaggregated approach. The measure of trade facilitation should ideally follow such indicators. However, they are not always available at the European level and do not encompass the same definitions when they exist.

⁴⁷⁶Even if public authorities can act to some extent by improving infrastructures or simplifying Customs procedures, to increase their attractiveness.

Finally, the measure of trade facilitation performances within the European Union should taken into account the various implementation schedules of the European Customs initiatives. It is a major source of disparities across Member States. The timelines drawn in this chapter and the Appendix may help to assess time series indicators.

Future researches to evaluate the European performance in trade facilitation areas should encompass these particularities. A dedicated indicator must go beyond the EU regulation, to measure the potential disparities between the binding rules and their application. The TFIs which rely mainly on binding rules may serve as a baseline but require a reshape to favor individual particularities. A first step could be to propose a classification of indicators according their coverage, *i.e.* European level or domestic, or their place in the procedures stages (as stated previously). A second step would study the distance between the domestic application of a rule and the European rule, *i.e.* its “harmonization friendliness”.

General Conclusion

Many activities aim to facilitate trade. However, the concept of “trade facilitation” is usually restricted to a small set of trade costs components. Thus, transport costs are not part of it *per se*. As stressed in Chapter 1, despite the growing number of studies on the impact of trade facilitation, the frontiers of trade facilitation are still blurred. There is no universal definition. Nevertheless, a consensus towards an agreed definition has emerged from the WTO negotiations on trade facilitation since a couple of years.

Based on these latest developments, this dissertation has explored various areas covered by trade facilitation, particularly its narrowest dimensions. Chapter 2 reviewed the indicators commonly used in trade facilitation studies, what I call the traditional indicators. I show that these indicators suffer several technical issues and encompass various assumptions. Before using these indicators, these assumptions must be outlined. Beyond these issues, they often cover broad dimensions of trade facilitation. However, the time release studies and several case studies have shown that trade facilitation should be viewed under a disaggregated approach. Indeed, trade facilitation policies involve many actors, from Customs and other border agencies, to trade operators. It is essential to assess the potential bottlenecks all along the supply chain and the effectiveness of the import clearance system in order to provide the best fitted policies. In addition, these trade facilitation policies are embedded in a multilevel model: from international, to national and regional level. Chapter 3 explored the international arrangements related to trade facilitation. It pointed out the increasing use of dedicated provisions and the role of international conventions in the development of trade facilitation. These first chapters stressed that cooperation, both national and international, is an essential component of trade facilitation policies.

Chapter 4 developed a series of new indicators to measure various dimensions of trade facilitation. These draw on ninety-nine variables and cover twenty six OECD countries. They follow the WTO framework which relies on a narrow approach of trade facilitation and particularly on public prerogatives. As pointed out in many studies, the efficiency of the private sector, such as logistic operators, is a key link in the chain. However, public authorities have very little leverage on the private sector’s effectiveness. That is why the measure of trade facilitation should first focus on areas where public authorities may act. The Trade Facilitation Indicators aim to fill a gap in the literature by evaluating the impact that various narrow components of trade facilitation have

on trade. Preliminary insights showed up that several disparities remain across OECD countries. Among the different dimensions measured, information availability, advance rulings and formalities have the strongest impact on trade flows and trade costs. This confirms that trade facilitation can generate substantial benefits even in developed countries. This research also stressed that the impact of trade facilitation varies across sectors, with the strongest effects in the manufacturing sectors.

Chapter 5 studied several dimensions of trade facilitation by using data from an extended set of countries, based on numerous surveys provided by the Global Express Association. These surveys also follow the WTO negotiations framework. This world review showed that disparities are higher when we compare developed countries and developing countries despite some “catching up”. It also showed that each income group has different needs, confirming the need to expand the TFIs. I suggest two extended indicators for future research in order to assess the impact of such disparities. Preliminary insights showed that the country rankings are quite different than that of traditional global indexes. This illustrates the impact of measuring other dimensions of trade facilitation than the traditional broader ones. Chapter 6 reviewed the European Customs Union. It appears that even in this developed area which encompasses common regulations on Customs matters, many differences remain. The heterogeneity of its Members in terms of political will, trade patterns, information and communication technologies as well as cooperation issues, remains an impediment to the implementation of the European trade facilitation policy. Such issues have been progressively overcome, but they generate a lack of harmonization at the border in the short run. The European case study showed that implementation issues exist, yet countries face a large variety of issues according to their level of development. However, a proactive policy may overcome such difficulties. The development of a close cooperation at each level and the increasing use of information technologies are useful tools to pursue this path.

This seminal work has tried to design a set of narrow indicators to serve as a baseline for future research. Such indicators aim to measure various trade facilitation dimensions at a more disaggregated level than traditional indicators. It is important for policy makers to assess the effectiveness of the import process by going beyond global indexes such as provided by Doing Business. Previous literature suggests that formalities contribute significantly to trade costs. The results presented here confirm that policies aimed at reducing formalities significantly reduce the costs to trade. Interestingly these results also suggest that policies aimed at improving the availability of information lead to a similar reduction of trade costs. This can generate huge benefits without bearing such high implementation costs. Future research should improve the construction of these narrow indicators by taking into account developing countries particularities as well as firm heterogeneity. Indeed, these countries may face several particularities which are not covered by current TFIs. Moreover, the impact of trade facilitation dimensions seems different according to sectors, the type of goods and also the size of firms. Only few variables of the TFIs intend to measure these particularities, for example time sensitivity or the perishable nature of goods. However, due to a lack of responses

to these particular queries from the questionnaire, they have not been used to date. It may also be possible to reshape some variables in order to evaluate additional specificity. The literature relies on the traditional classifications used by Rauch (1999) or Djankov et al. (2006), but such dedicated indicators may provide new insights. Firm heterogeneity is also a hot topic. Many narrow dimensions such as information availability, involvement of traders, cooperation, advance rulings, or simplified procedures, may have a direct and stronger impact on SMEs. It is expected this impact will be positive at the extensive margin as SMEs do not yet participate much in international trade. Such outcome would be in line with Persson (2010) who pointed out the impact of trade facilitation policies at the extensive margin. The export promotion agencies are also under the spotlights in this area, as stressed by the french case study. However, to date, they are not taken into account as a trade facilitation policy *per se*, either by the academic community or institutions related to trade facilitation issues.

This dissertation does not explore implementation costs and sequencing issues of trade facilitation policies which, as noted by Duval (2006a), are particularly important in the success of a trade facilitation strategy. A lot of work remains in this area. Future research may also improve the methodology and overcome some technical issues related to the nature of our indicators and to the gravity models. Since the first release of our paper on the construction of trade facilitation indicators at the OECD, some improvements have already been made and many more are still possible. A seminal work of Novy (2008) has provided a simple theory-based methodology to assess comprehensive trade costs. The recent research of Duval and Utoktham (2011) relies on it and provides a good example of the possibility raised by this methodology to assess the impact of trade facilitation on trade costs. The TFIs may be tested by using their trade costs database, which is now publicly available. Finally, the gravity models are constantly stimulated by the improvement of econometric tools and gravity specifications will certainly be reshaped in the future.

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Appendix

Appendix A

Summary of Key Performance Indicators

A.1 A comparison of traditional indicators

The definition of trade facilitation varies over time and across Institutions. That is why, researches in this area encompass various scopes, relying on a broad or narrow definition of trade facilitation. Traditional indicators on trade facilitation usually refer on a set of proxies measuring Customs clearance procedures, governance, ICT and transport infrastructures issues. They aim to evaluate the effectiveness of border management, but also infrastructure and logistic operators.

The performance of border operators, both public and private, is a very sensitive issue. That is why, hard data are rarely publicly available, even if they exist. In consequence, indicators are often based on perception data. Moreover, they encompass various *-different-* assumptions (Chapter 2). The following tables draw some basic statistics on traditional indicators and provide some insights about a series of inconsistencies between these variables.

Table A.1: Dispersion of time to import/export, by category and OECD Members (1)
Dispersion of time (days) between sources for each country, averaged by category

	mean(sd)	sd(sd)
High income: OECD	4.166831	2.222845
High income: non-OECD	5.486757	5.285429
Low income	19.94643	10.17876
Lower middle income	13.11752	9.383308
Upper middle income	9.756497	6.329325
Africa	17.00104	9.619423
Americas	9.26033	5.713921
Asia	12.34217	11.38835
Europe	5.930497	4.182541
Oceania	8.719099	4.698236
Total	11.63244	9.488245

Own calculation based on DB, LPI and BEEPS.

	mean(sd)		mean(sd)		mean(sd)		mean(sd)
AUS	2.571125	EST	1.633745	JPN	4.000438	SVN	7.086124
AUT	2.751426	FIN	2.813795	KOR	3.444914	SWE	2.267892
BEL	3.090377	FRA	4.336281	LUX	2.277681	TUR	5.806029
CAN	3.775227	GBR	2.568695	MEX	5.514352	USA	1.543961
CHE	3.21528	GRC	9.250675	NLD	1.973342		
CHL	9.12516	HKG	1.765125	NOR	2.268131		
CZE	6.774277	HUN	5.132031	NZL	3.166146		
DEU	2.242329	IRL	4.520693	POL	8.759398		
DNK	1.783864	ISR	4.205522	PRT	6.954854		
ESP	3.349147	ITA	6.449009	SVK	8.26545		

(1) I included the new Members of 2010

Table A.2: Summary of traditional Trade Facilitation databases

	Sources		Scope			Type of data		Depth (1)	Year (2)	Countries (3)	Coverage		
	Acronym	Own	Other(s)	Customs	Infrastructure	Transparency	Time				Hard	Soft	OECD (4)
Corruption Perception Index	CPI		X			X			1995-2010	208	35	15	27
Doing Business	DB	X		X		X	X	Broad	2004-2011	183	35	15	26
Economic Freedom Index	EFI	X				X	X	Broad	1995-2010	183	35	15	27
Enterprise Survey (5)	ES	X		X		X	X	Narrow	2002-2010	124	15	5	15
Global Competitiveness Report	GCR	X	X	X		X	X	Broad	1999-2010	143	35	15	27
Global E-Government Reports	GEG	X		X		X	X	Broad	2001-2007	197	35	15	27
Global Enabling Trade Report	GETR	X	X	X		X	X	Broad	2007-2009	127	35	15	26
Global Express Association	GEA	X	X	X		X	X	Narrow	2005-2009	139	35	15	27
International Monetary Fund (6)	IMF	X	X	X		X	X	Narrow	1995-2009	139	27	8	20
International Telecommunication Union	ITU	X			X			Both	1995-2009	217	35	15	27
Logistic Performance Index (7)	LPI	X		X		X	X	Both	2006-2009	123	32	13	23
UN E-Government Surveys	UNEG	X	X	X		X	X	Both	2003-2010	192	34	15	27
World Competitiveness Yearbook	WCY	X	X	X		X	X	Broad	2000-2009	58	35	15	24
World Customs Organization (6)	WCO	X	X	X		X	X	Narrow	2003-2008	140	14	0	1
World Development Indicators	WDI		X	X		X	X	Broad	1995-2010	232	35	15	27
World Governance Indicators	WGI	X	X	X		X	X	Broad	1996-2009	213	35	15	27
World Trade Indicators	WTI	X	X	X		X	X	Broad	1995-2009	210	35	15	27
World Trade Organization (Tariffs)	WTO	X		X		X	X	Narrow	1995-2010	210	35	15	27

Source: Own compilation of the main "traditional" sources, based on available data since 1995 and collected by the end of 2010.
 (1) Indicate if some indicators are narrow enough in their scope to evaluate a specific trade facilitation policy or rely on a specific category (type of good, procedures).
 (2) Some indicators - particularly in trade facilitation area- are only available recently.
 (3) It is the maximum of countries across all indicators and reports. It is possible that a country was not reported in each survey.
 (4) OECD Members, including new Members of 2010 (Israel, Slovenia, Estonia and Chile) and Hong-Kong, China (34+1 countries).
 (5) Countries are not reviewed on a regular basis.
 (6) Statistics rely on the measure of Customs revenue.
 (7) I report statistics for detailed data (domestic scope). Broad data cover 155 countries in 2009 (115 in 2006), and narrow data cover 123 countries in 2009 (111 in 2006).

Table A.3: A comparison of original and back-calculated data for Doing Business, the Australian case

Area	Indicator	2005		2006		2007		2008		2009		2010		2011	
		Original	Updated	Original	Updated	Original	Updated	Original	Updated	Original	Updated	Original	Updated	Original	Updated
A	Procedures (number)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Time (days)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Cost (% of income per capita)	2.1	2.1	1.9	1.9	1.8	1.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
B	Paid-in Min. Capital (% of income per capita)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Procedures (number)	16	16	16	16	17	16	16	16	16	16	16	16	16	16
	Time (days)	121	221	140	221	140	221	221	221	221	221	221	221	221	221
C	Cost (% of income per capita)	12.3	15.2	13.8	14.4	13.8	14.4	13.2	13.2	13.2	13.2	12.9	12.9	11.7	11.7
	Procedures (number)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Time (days)	7	7	5	5	5	5	5	5	5	5	5	5	5	5
D	Cost (% of property value)	4.5	4.5	7.1	7.1	4.8	4.8	4.8	4.9	4.9	4.9	4.9	4.9	4.9	5.0
	Strength of legal rights index (0-10)	9	9	9	9	9	9	9	9	9	9	9	9	9	9
	Depth of credit information index (0-6)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
E	Public registry coverage (% of adults)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Private bureau coverage (% of adults)	95.4	95.4	100	100.0	100	100.0	100	100.0	100	100.0	100	100.0	100	100.0
	Extent of disclosure index (0-10)	8	8	8	8	8	8	8	8	8	8	8	8	8	8
F	Ease of shareholder suits index (0-10)	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Strength of investor protection index (0-10)	8	8	8	8	7	7	7	7	7	7	7	7	7	7
	Payments (number per year)	11	13	11	12	11	12	12	12	12	12	12	12	11	11
G	Time (hours per year)	107	107	107	107	107	107	107	107	107	107	107	107	109	109
	Total tax rate (% profit)	37	52.8	52.2	51.9	52.2	51.9	50.6	50.6	50.3	50.3	48.0	47.9	47.9	47.9
	Documents to export (number)	5	5	6	6	6	6	6	6	6	6	6	6	6	6
H	Time to export (days)	12	12	12	12	9	9	9	9	9	9	9	9	9	9
	Cost to export (US\$ per container)	795	795	795	930	930	930	930	1200	1200	1200	1060	1060	1060	1060
	Documents to import (number)	11	10	5	5	5	5	5	5	5	5	5	5	5	5
I	Time to import (days)	16	12	12	12	12	12	12	12	12	12	12	12	12	12
	Cost to import (US\$ per container)	945	945	945	1120	1120	1120	1120	1239	1239	1239	1119	1119	1119	1119
	Procedures (number)	11	29	11	29	19	28	28	28	28	28	28	28	28	28
J	Time (days)	157	395	157	395	181	395	262	395	395	395	395	395	395	395
	Cost (% of claim)	14.4	20.7	14.4	20.7	12.8	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
	Recovery rate (cents on the dollar)	80	80.3	79.9	79.9	79.7	79.7	79.2	79.2	78.8	78.8	78.8	78.8	78.8	81.8
K	Time (years)	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0	1	1.0
	Cost (% of estate)	8	8	8	8	8	8	8	8	8	8	8	8	8	8

Source: own compilation based on original Doing Business Releases (pdf reports) and updated data (back-calculating) downloaded in May 2011. Areas account for Starting a business (A), Dealing with Construction Permits (B), Registering Property (C), Getting Credit (D), Protecting Investors (E), Paying Taxes (F), Trading Across Borders (G), Enforcing Contracts (H) and Closing a Business (I). Note: Data presented are for the immediately preceding year and should be lagged by one year.

A.2 Time Release Studies (TRS): an overview

A.2.1 Japan TRS

Japan was one of the first provider of TRS. Since 1991, nine programmes have been launched⁴⁷⁷ in order to measure the time consumed at each step of the clearance process and to identify bottlenecks. These surveys measure the **import lead time**, *i.e. time required for the release of goods from the arrival of cargo to Customs import permission in this presentation*. The Japan TRS cover all regional Customs, all types of goods, air and sea transport modes and several Customs offices. The ninth TRS is based on random sampling using computer system. Recommendations have led to several structural reforms and improvements, such as the pre-arrival declarations (1991), extended office hours (2003), simplified procedures, active cooperation with other government agencies (parallel examination of documents since 1994), the single windows (2003) and the computerization of the whole process. Loading facilities and services have been also improved.

The TRS showed huge differences between air and sea cargo, the import lead time was respectively 0.7 and 2.6 days in 2009⁴⁷⁸. However, the reforms resulted in a global improvement of import lead time in both transport modes since 1991 (see figures A.1 and A.2). The TRS also showed differences according to the day of the week, the use of pre-arrival examination, specific procedures or the implication of other government agencies. Thus, the Sea cargo Pre-Arrival Examination System has become one of the major trade facilitation measures in Japan while maintaining adequate Customs control⁴⁷⁹. According to the TRS of 2004, the average time required for the release of goods using the pre-arrival examination system was 30% less than the time without it. According to my own calculation this gap is much higher for air shipments, 80% in 2009 (and it remains stable for sea cargoes). More recently, the TRS evaluated the time saved by computerization to 1-2 days, 1 day for procedural improvement and another day for the use of new technologies, such as container X-ray equipment. The last TRS of 2009 also provides an evaluation of time saved by the owners of the Authorized Economic Operators (AEO) status. Introduced in 2008, the AEO import lead time decreased from 2.6 days (for traditional operators) to 1.6 days. The higher reduction was for the *declaration-permission* stage, *i.e.* the Customs stage, which decreases from 3.1 hours to 0.1 hours. Finally, according to Takashi Matsumoto, Head of the WCO ROCB, the quantitative impacts for cargo owner were large⁴⁸⁰.

⁴⁷⁷ 1st : February 1991, 2nd : February 1992, 3rd : March 1993, 4th : March 1996, 5th : March 1998, 6th : March 2001, 7th : March 2004, 8th : March 2006, and the 9th in March 2009.

⁴⁷⁸ Note that air cargo processing had been computerized since 1978 and the difference was already huge in 1991: 2.2 days for air cargoes against 7 days for sea cargoes.

⁴⁷⁹ As stressed by Japan in a communication at the WTO: "*Pre-arrival documentary examination further expedites the release of cargoes through documentary examination prior to cargo arrivals while reserving the right of the authorities to conduct further examinations where necessary, and maintaining appropriate border control with the use of the risk management concept*", WTO (2005a).

⁴⁸⁰ In a presentation of March 2009, Takashi Matsumoto provided a quantitative assessment of TRS reforms. The impact of the reduction of stock and storage costs were approximately 35 billion yen.

Figure A.1: Japan Import Lead Time Required for Release of Goods for sea shipments
 Data compiled from Japan TRS (in hours)

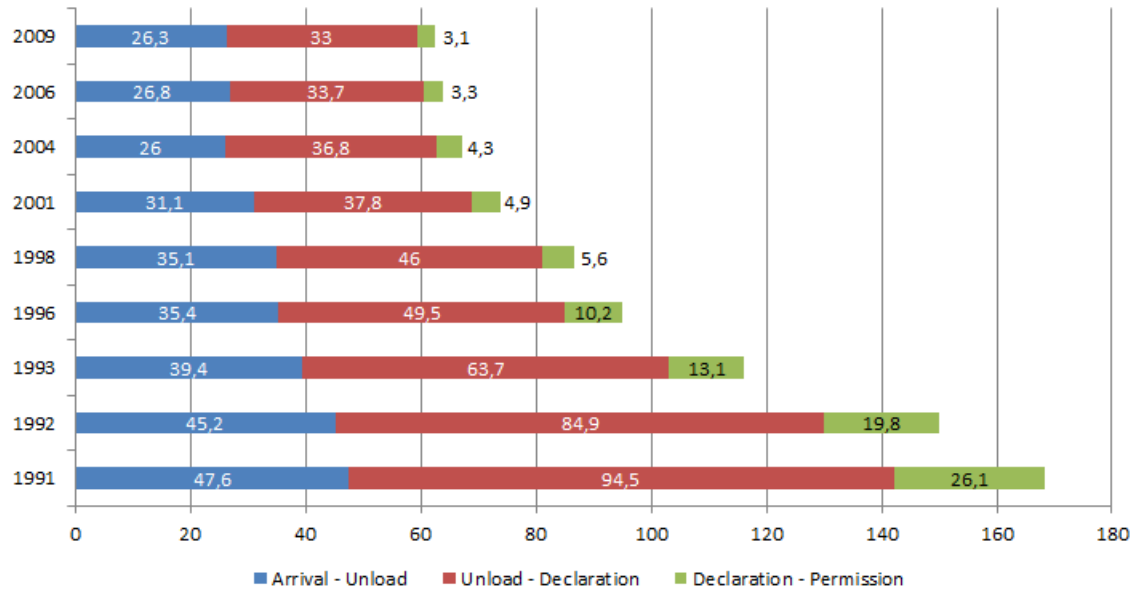
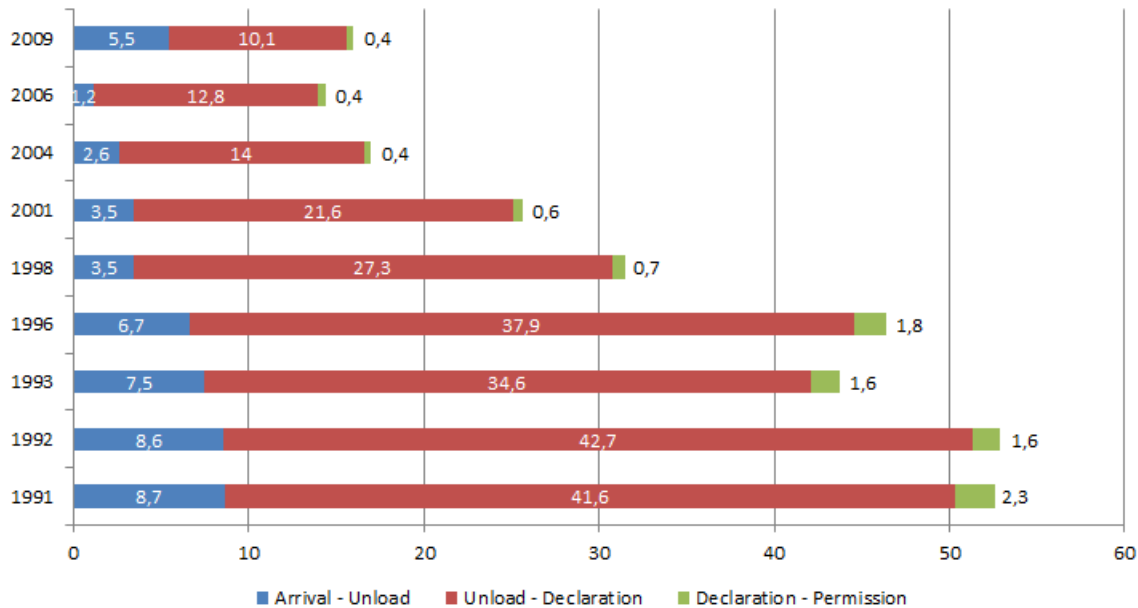


Figure A.2: Japan Import Lead Time Required for Release of Goods for air shipments
 Data compiled from Japan TRS (in hours)



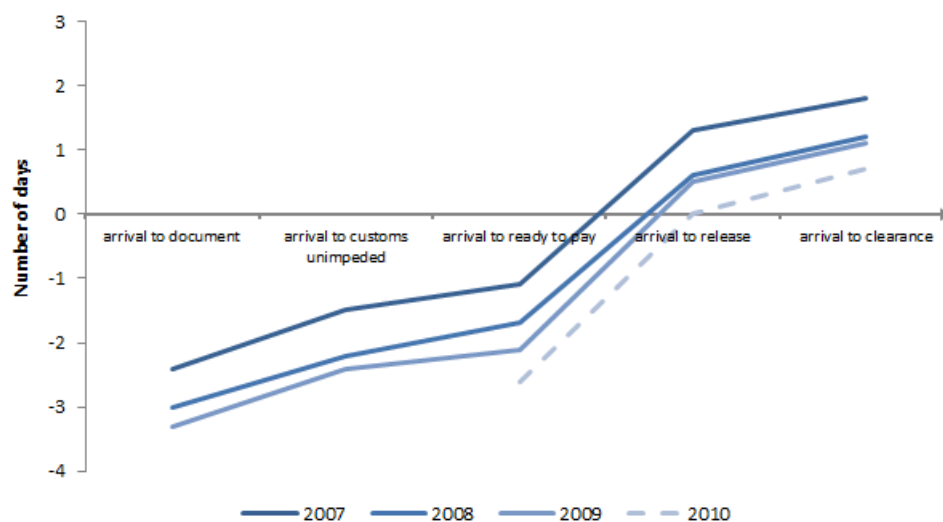
A.2.2 Australian TRS

Recently Australia has been extremely active to evaluate the efficiency of its Customs, running Time Release Studies since 2007 on a yearly basis. Moreover the last TRS has innovated, the survey being

jointly conducted with New Zealand (Customs, 2010b), one of its main trade partners. Nevertheless, as “traditional” TRS, the Australian TRS primary measure the time from arrival to release, along numerous steps. The Australian TRS cover different shipment characteristics: sea and air modes, all types of goods, all types of cargo, all regions, different final destinations and different types of declarations. Only import data are collected, mainly via the Integrated Cargo System (ICS). Finally, results have been consolidated by a series of post-survey interviews with stakeholders. The surveys provide information on the average time to release goods (see figures A.3 and A.4) but also on the distribution of cargoes status at the arrival (see figures A.5 and A.6). The successive TRS provide insights about a positive trend of the efficiency of the Customs clearance system. The studies underline a strong correlation between the provision of advance information by traders and the early release and clearance of cargo by the border agencies. The last TRS available also shows that traders “rely on the border clearance systems and transport arrangements for this trade to deal with their cargo in a timely manner”, Customs (2010b). Finally, the Australian TRS confirm the variation of performances across the different characteristics of shipments, such as the type of goods, the country of export, the port of arrival or the size of the exporters⁴⁸¹. Ran in collaboration with New Zealand, the last review shows the positive impact of the close cooperation between both countries⁴⁸². The comparative study shows that Trans-Tasman trade is processed faster. Indeed, Customs in both countries release Trans-Tasman cargo before other cargo, particularly for sea shipments. However the TRS reports a series of differences between both border systems, leading to border effects which influence the timing at the border⁴⁸³.

Figure A.3: Release time for sea shipments, import in Australia

Own compilation from Australian TRS (2007-2009) and the joint TRS with New Zealand (2010)



⁴⁸¹Indeed, a key finding of the last TRS is that large traders achieve clearance earlier.

⁴⁸²Both countries have concluded the Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA).

⁴⁸³These differences include a higher Customs flexibility in lodgement information in New Zealand, different thresholds that determine whether an import declaration is required, different payment arrangements (deferred scheme in NZL, while AUS requires payment before release), and deeper risk management criteria in Australia.

Figure A.4: Release time for air shipments, import in Australia

Own compilation from Australian TRS (2007-2009) and the joint TRS with New Zealand (2010)

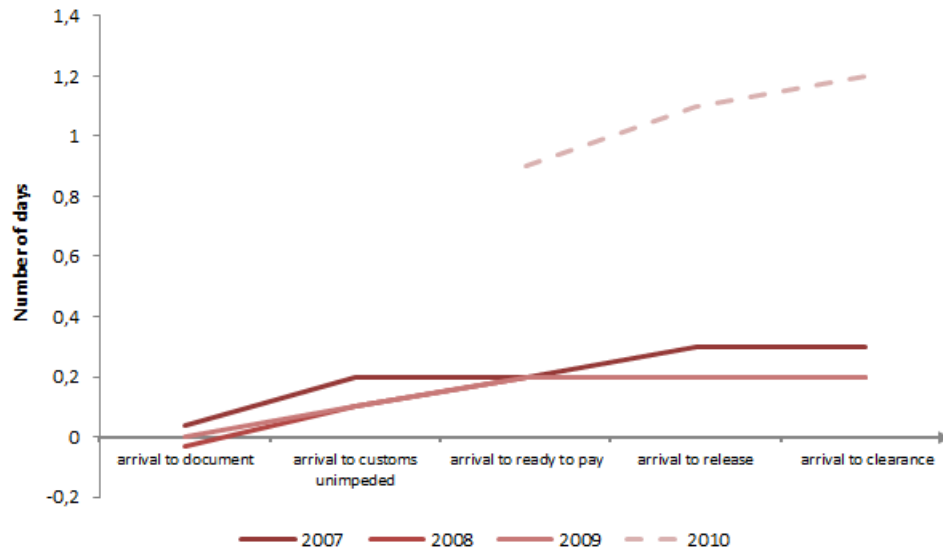


Figure A.5: Import in Australia, Sea cargo status at arrival (%)

Own compilation from Australian TRS (2007-2009) and the joint TRS with New Zealand (2010)

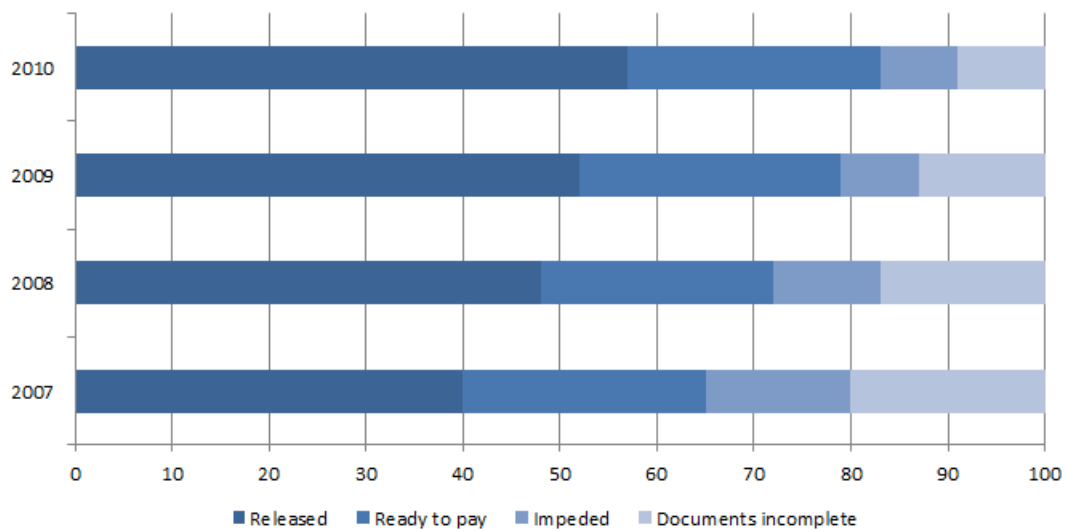


Figure A.6: Import in Australia, Air cargo status at arrival (%)

Own compilation from Australian TRS (2007-2009) and the joint TRS with New Zealand (2010)

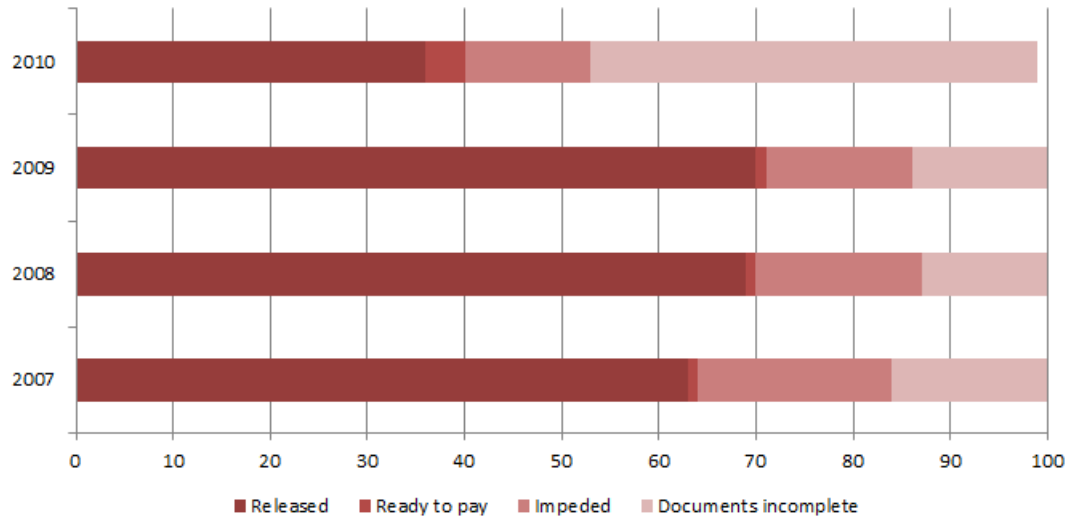
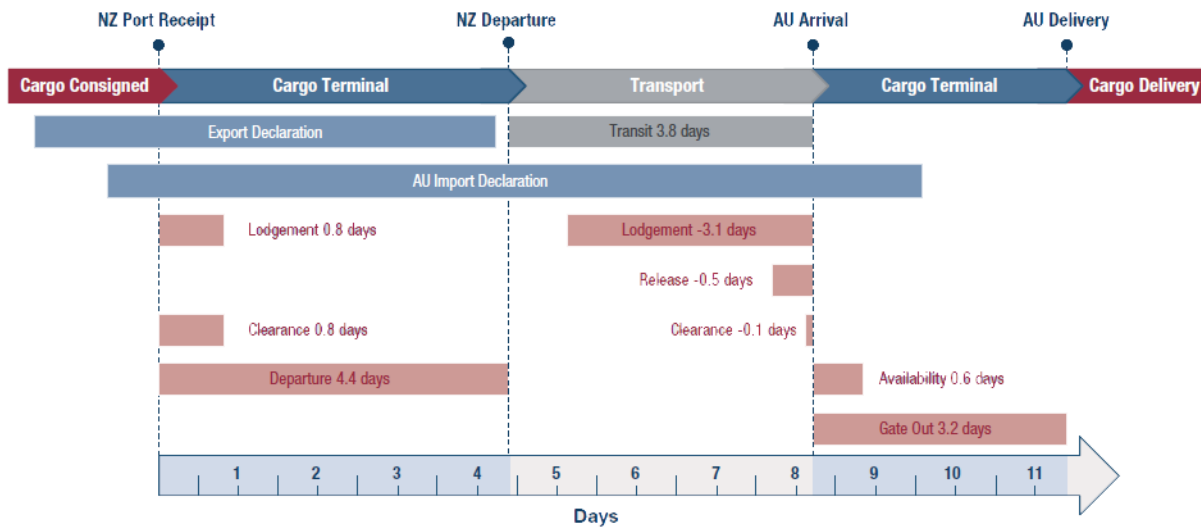


Figure A.7: New Zealand to Australia, sea cargo timeline

Extracted from the Australian TRS of 2010, p.21 (Customs, 2010b)

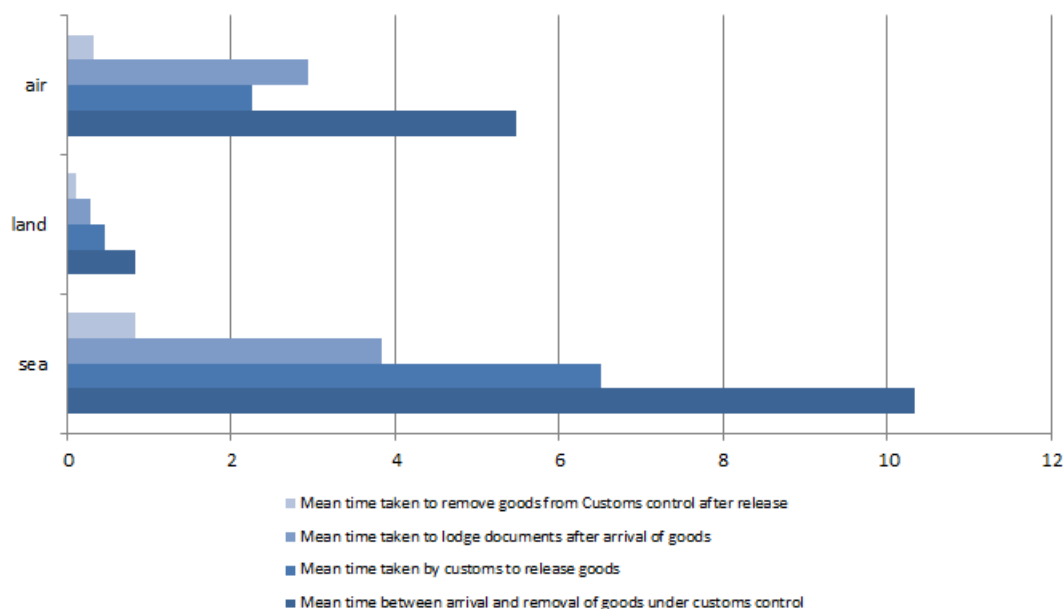


A.2.3 Others

Kenya (2004) The Kenya Revenue Authority (KRA) has recognized the potential impacts of trade facilitation policies. Reducing transaction costs is “a crucial determinant of Kenya’s ability to participate competitively in a global economy”. In order to enhance revenue collection and the efficiency of the different actors at the border, the Kenya ran a modernization programme of its Customs in 2004. The Time Release Study (TRS) was a major contribution by helping to measure

the time taken at various stages in the Customs clearance process⁴⁸⁴ and providing a series of recommendations. Kenya has received a technical assistance from the World Bank and the World Customs Organization to launch this TRS. The Kenya TRS covers air, sea and land border posts⁴⁸⁵ and all types of goods. The sampling method was based on random scheme. The average time taken between the arrival of goods and their release is 6 days, 12 hours and 2 minutes. However, this time varies across the modes of transport and the timing of lodgement (see the following figures A.8 and A.9). Indeed, there is a significant gap between the process of shipments lodged before arrival or after. Note that, on average, lodgement to release takes almost half the time it takes to remove goods from Customs control. The TRS also reveals variations across the same category of offices (seaports for example) and across goods regimes⁴⁸⁶. There is also some differences in the rate of inspection across border offices. Rates remain high as almost all shipments are controlled, apart in the main airport (JKIA). The selection basis is based on a random selection in the vast majority of cases. According to the survey, main compliance issues concern wrong value (13.2%) and classification (9.9%). The recommendations of the survey were in line with current trade facilitation tools. Thus, the Report recommends to implement an electronic environment with the introduction of a single window, to introduce random quality control (*i.e. an automatic risk management scheme*), to introduce post clearance audits, to improve the co-ordination of Customs and other agency controls and to continue to develop dialogue with the business community. Finally, the TRS advises the KRA to consider the introduction of an authorized trader scheme (like the future AEO status).

Figure A.8: Time between arrival and removal of goods in Kenya, by mode of transport
Own compilation from the Kenya TRS of 2004, time in days

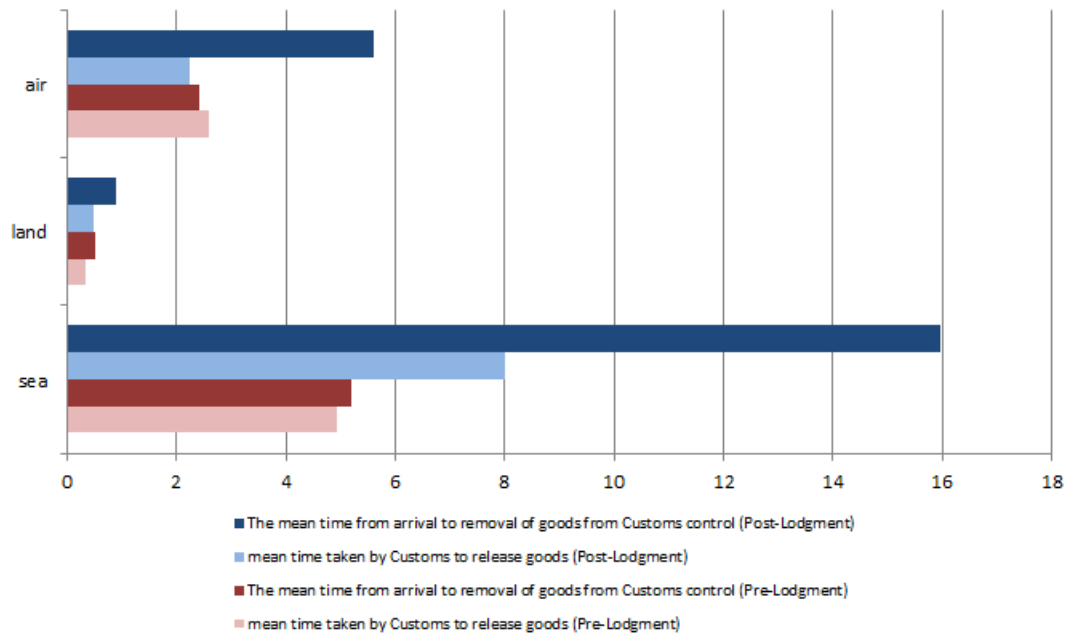


⁴⁸⁴The Kenya TRS evaluates the average time taken between the arrival of goods and their release.

⁴⁸⁵The busiest Customs offices were chosen for the study.

⁴⁸⁶It appears that release time are shorter for dutiable goods than not dutiable ones.

Figure A.9: Time between arrival and removal of goods in Kenya, by timing of lodgement
Own compilation from the Kenya TRS of 2004, time in days



Tanzania (2005) At the beginning of the last decade, the Tanzania Revenue Authority (TRA) was implementing a Customs modernisation program improving compliance, ensuring revenue collection and minimizing transaction interventions. In this way the TRA implemented a series of trade facilitation programmes, such as a computerized risk management system, X-ray scanning, ASY-CUDA++ and Post Clearance Audits. In order to determine the efficiency of Customs, the TRA launched a Time Release Study (TRS) in 2005 with the support from the World Bank and DFID. Following the WCO guideline, the TRS explores the time taken between arrival and release of goods. The Tanzanian TRS covers different types of goods, offices (busiest offices), modes of transport and Customs regimes, including all key stakeholders. The surveys are based on a stratified sampling method. The TRS shows delays at all stages of clearance processes and various results across border offices even in the same category⁴⁸⁷. The time release taken from arrival to removal of goods from Customs control is quite long (see figures A.10 and A.11). The surveys report also that mean time taken to process documents for imports are longer than exports, and that interventions by other government agencies increase release time substantially.

⁴⁸⁷One explanation could be the different level of automation across the offices.

Figure A.10: Time between arrival and removal of goods in Tanzania, by mode of transport
Own compilation from the Tanzanian TRS of 2005, time in days

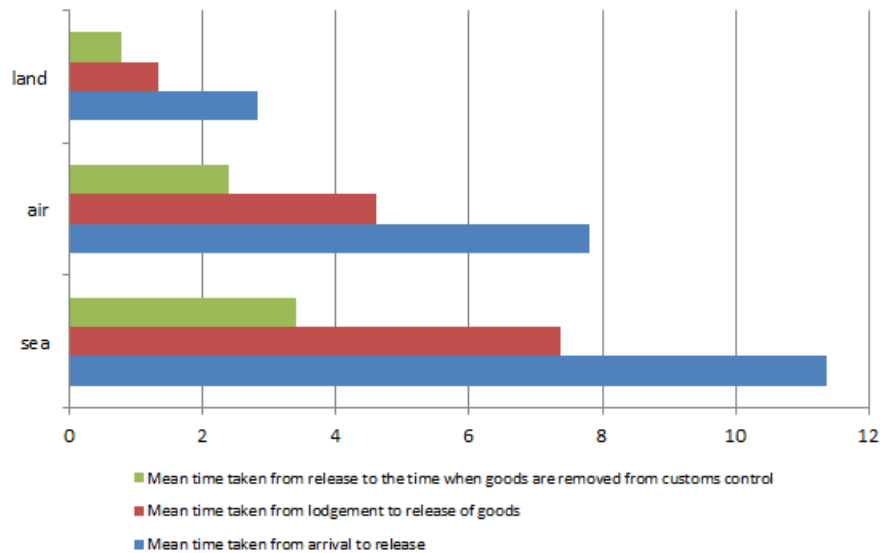
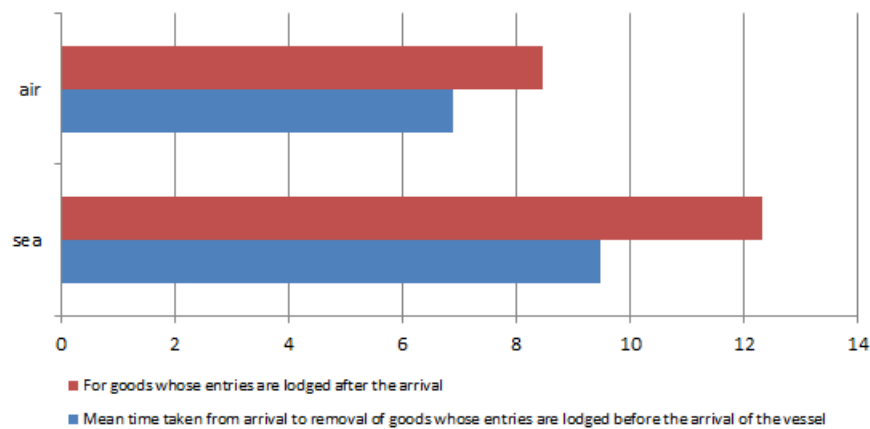


Figure A.11: Time between arrival and removal of goods in Tanzania, by timing of lodgement
Own compilation from the Tanzanian TRS of 2005, time in days



Jordan (2008) Jordan is aware of the challenges of trade facilitation and implemented the Jordan Customs Administration Modernization Program. Since several years Jordan provided regular surveys to monitoring progresses of its policies and needs. In 2008, a Time Release Study (TRS) using WCO guidelines has been conducted, to determine the level of effectiveness of Customs operations and procedures through the measure of the average time taken between the arrival of goods and their release⁴⁸⁸. The geographic stratification follows the distribution of previous surveys. As other TRS, the Jordan TRS provides insights of the variation of time release across offices, modes and the lane classification of data (green, yellow or red). The TRS of 2008 recorded significant reductions

⁴⁸⁸The Jordan TRS investigates 19 stages of the clearance process.

in the time release of goods (by over 70% in some cases) but also pointed out several issues which differ across border offices.

A.3 French Customs, a case study

The French Customs works actively to enhance its efficiency and trade facilitation. Since several years, the Customs administration has launched a series of initiatives to develop the cooperation with traders and other agencies, and improve the monitoring of its activities. It was a good candidate for a case study on the approach of the national Customs administrations to deal with the new challenge they face. I am grateful to Jean-Michel THILLIER, Deputy Director General of French Customs (International Trade Directorate) and XAVIER PASCUAL, for helping me to better understand the french Customs approach and for providing all key data.

Organization The French Customs, which depends on the Ministry of Budget and Public Accounts, have been organized around 42 regional directions (193 offices) following the concentration of trade flows, since the beginning of the European Market. The French Customs has two main missions: the fight against frauds and the support to french firms to export or import. This approach is resumed by the 3S approach, which means “Service, Simplicity and Security”. In addition to the smoothness of international legitimate trade, Customs collected duties and tax for the government (55%), the collectivity (42%) and the European Union (3%). The French Customs is one of the administrations who increased the most its productivity since a decade. Despite a constant decrease of its workforce (17435 agents in 2010, including 3500 for clearance operations), the missions of the Customs administration have known a growing success following the high level of formation of the officers to its new missions (78%) and the development of advanced procedures.

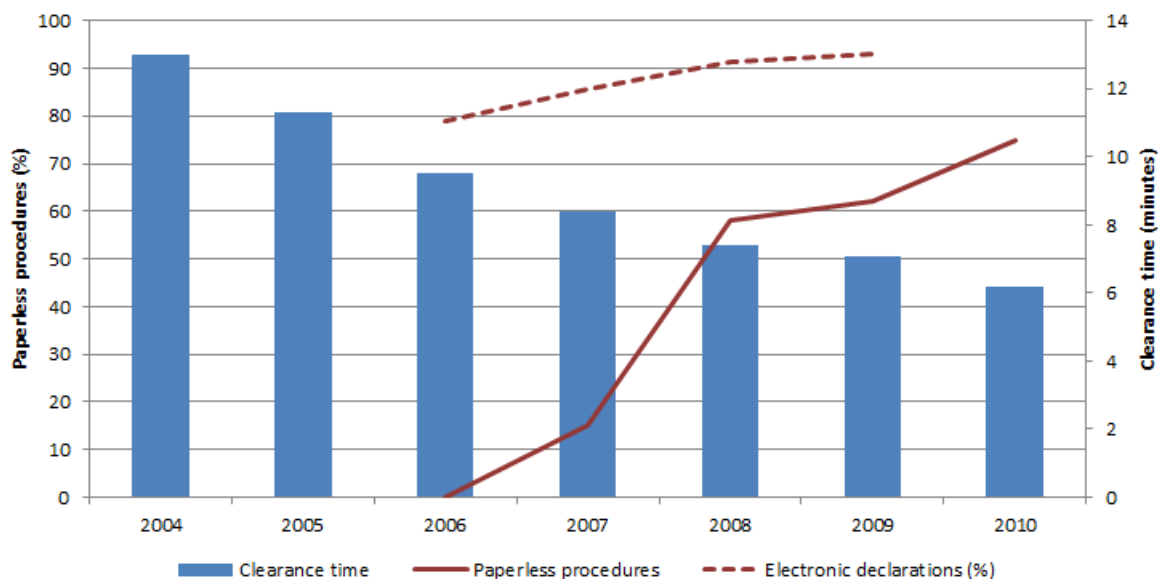
A paperless environment France was one of the first country to develop a paperless environment for Customs procedures. Since the creation of SOFI for logistic operators in 1977 and DELTA more recently, available for all operators and procedures, the french Customs administration has increased the use of electronic declarations (2001) and paperless environment. This policy is a U-turn in the strategy of the Customs administration, moving from a post-arrival to a pre-arrival strategy. With such a paperless environment, Customs can anticipate the arrival of the shipment and performs in advance a deeper risk analysis⁴⁸⁹. The spirit is “*less controls, but better controls*”. This strategy has enhanced the effectiveness of controls with a better targeting of suspicious shipments⁴⁹⁰, reducing clearance time for traders (see figure A.12). As the focal point of all agencies involved in the clearance procedure system, the french Customs continue its effort towards a 100% paperless world by including additional documents and certificates required by other agencies. This objective requires a high level of cooperation between agencies and the share of common databases.

⁴⁸⁹The forecast is about 20 million of declarations using ICS in 2011.

⁴⁹⁰According to *Les Cahiers de la Compétitivité*, this improvement of targeting of controls has increased the efficacy of risk management by 10% in 2010.

Figure A.12: The French Customs, Clearance time and Paperless procedures

Source: Own compilation, based on French Customs Reports



Competitiveness As stressed by BRUNO LACOMBE, Deputy Director General of the french Customs (Information and Communication Systems Directorate), these efforts increase the competitiveness of the french Customs: “*The e-declaration is less expensive and so more competitive. With identical regulations, it is an argument which can make the difference between two Member States of the European Union*”⁴⁹¹. This growing competitive environment, even between Member States, is clearly underlined by JEAN-MICHEL THILLIER.

A deep partnership with traders, large and SMEs The French Customs has also developed since few years its cooperation with large firms and more recently SMEs. This partnership is a win-win cooperation, leading to gains for Customs and traders. This cooperation aims to reduce procedures, smooth trade flows and rationalize the Customs working methods by re-affecting Customs officers to the hottest issues. In 2010, the Mission for Large Firms⁴⁹² worked with 98 groups accounting for almost 50% of the external trade. Since 2009, this in-deep cooperation has been extended to SMEs, proposing a “360° review” of their procedures. Note that the french Customs does not wait the solicitation of firms but anticipates their needs, using a “door-to-door” strategy.

The appeal mechanism Regarding to the use of appeal outputs as indicators, JEAN-MICHEL THILLIER explains that, in France, there is an extensive use of conciliation, and that most of cases at the judicial stage concern criminal affairs (drugs...).

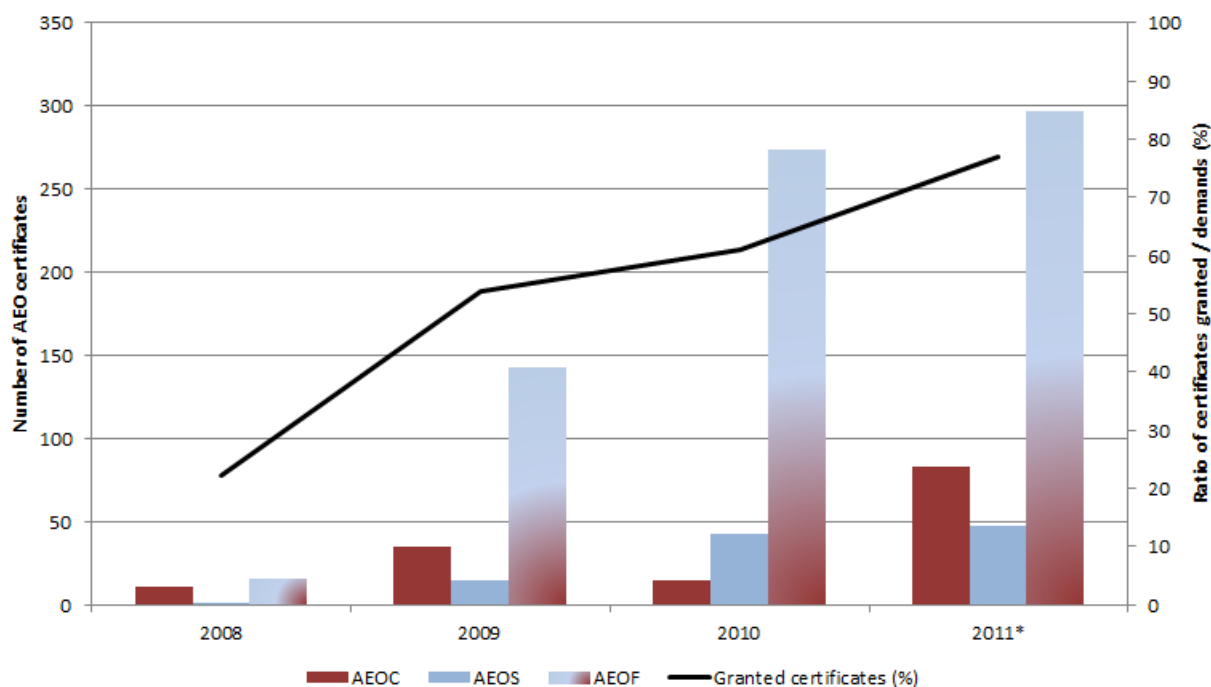
⁴⁹¹He quoted the recent example of Fedex which installed its second world hub at the airport of Roissy.

⁴⁹²Mission Grandes Entreprises (MGE)

The AEO certificates The Authorized Economic Operator status has been launched in 2008 according to the European legislation. It was difficult to promote this new status to the operators who were afraid to “open their door” to Customs officers and to risk a review of some existing arrangements. However it seems that operators have now understood the benefits of this status, which leads to a gain of time about 90% according to JEAN-MICHEL THILLIER. It generate also substantial gains to the Customs who, after granted its trust to AEO, can focus its efforts to the 10% of trade flows the more sensible. Three years after its introduction the percent of demand issued is now higher than 75% (see figure A.13). The earlier high level of satisfied demands in several Member States could be the consequence of a (too) quick accreditation process following a less stringent application of criteria to obtain the AEO status, particularly for countries with a high number of demands.

Figure A.13: The French Customs, AEO certificates issued and demands

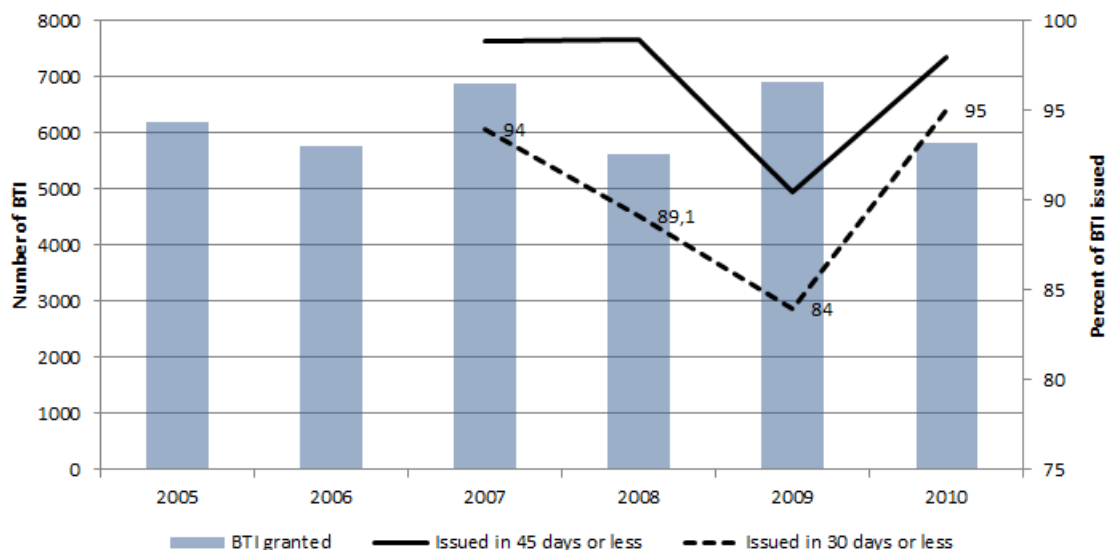
Source: Own compilation, based on French Customs Reports (* Situation at the 15th April 2011)



The Binding Tariff Information (BTI) The french Customs provides numerous BTI to traders and the majority are issued in less than 30 days (see figure A.14). According to JEAN-MICHEL THILLIER, the invalidated rate of BTI is about 1% which is a sign of a good efficacy of Customs in this area.

Figure A.14: The French Customs, BTI issued and timing

Source: Own compilation, based on French Customs Reports



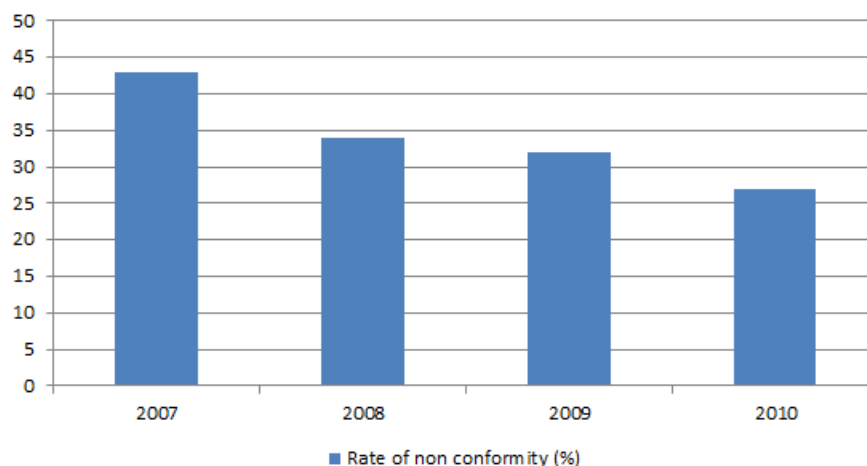
Controls and targeting One of the oldest mission of Customs is the control of goods to check whether they meet the technical and regulatory requirements or not, and if there is no irregularities in regards to the Customs declaration. French Customs uses an automated risk analysis system, following the international and the European criteria. The successive reports show a constant increase of detentions with 85000 frauds detected in 2010. Previous strategies (such as the AEO, the BTI...) impact the performance of the targeting⁴⁹³ as well as the intensive cooperation with other agencies, laboratories or even industries (such as the wine industry or *Price Minister*). In 2010, on 3000 controls the rate of non conformity to technical requirements was about 27% (see figure A.15).

Indicators of Customs efficiency Since several year the french Customs have launched a monitoring programme of its procedures in order to improve its efficiency. In 2003, a series of indicators (24) has been put in place to monitor the action of french Customs. Since, additional indicators have been included, particularly to measure the quality of service. Home made Customs indicators as well as the international rankings (WEF), highlight the recent improvement of the french Customs. Among the various indicators of performance, the following seem particularly useful to assess the performance of Customs and so part of trade facilitation dimensions.

The first group of indicators relies to the targeting of Customs (risk analysis dimension) with the rate of physical controls and the related rate of irregularities and frauds. The rate of non conformity to the technical requirements could also be used as a proxy of the targeting. A second group of indicators relies on the financial performance of the Customs and its productivity with the amount

⁴⁹³For example, on the two millions of containers in transit at Le Havre each year, 10000 are deeply controlled after the targeting.

Figure A.15: The French Customs, Rate of non-conformity to Technical Norms

Source: Own compilation, based on French Customs Reports

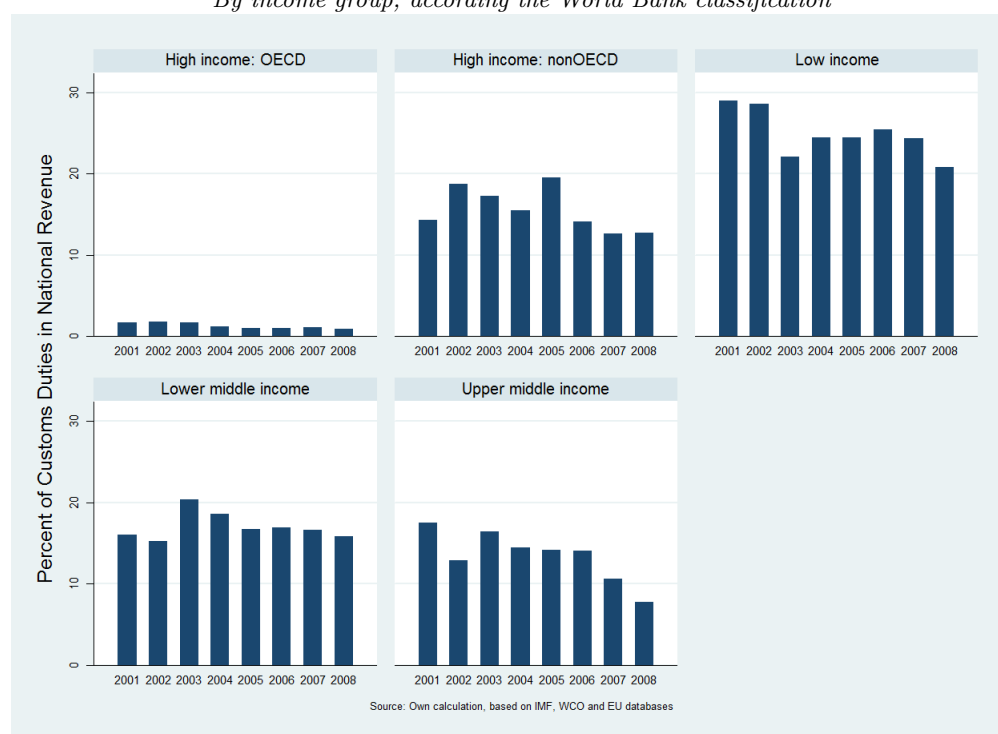
of duties, tax collected and the related cost of this collect (51 centimes for 100€ collected in 2010), but also the number of officers engaged in regards to a series of performance outcomes. A third group of indicators relies on the technical performance of Customs, with the clearance time, the rate of paperless procedures and electronic declarations. A fourth group of indicators relies on the services provided by Customs, with the rate of BTI and AEO certificates issued, demanded and invalidated, and the timeliness of the both procedures. The measure of the benefits of the holder of the AEO status could also be a good indicators, such as the gain of time. Finally, a fifth group of indicators relies on the satisfaction of operators and traders (in 2010, 91% of the operators were satisfied) or to the rate of replies to users questions (by phone or emails).

A.4 Customs duties and Revenue

The share of Customs duties in the national revenue of a country is an essential factor. It is a proxy of the level of efficiency of Customs and it indicates the degree of dependance to import duties. Indeed, the implementation of trade facilitation policies -*and the political will*- is sensible to the level of import duties in the national revenue, which matters in the impacts of these policies. I built a database which encompasses the IMF and the WCO databases⁴⁹⁴, and the financial reports of the European Union (EC, 2010e). The database includes 170 countries and ranges from 1990 to 2009. The following figures provide an overview of the evolution of the share of Customs duties in the National Revenue, by income group and region⁴⁹⁵ (data are available on demand).

Figure A.16: Evolution of the share of Customs duties in National Revenue*

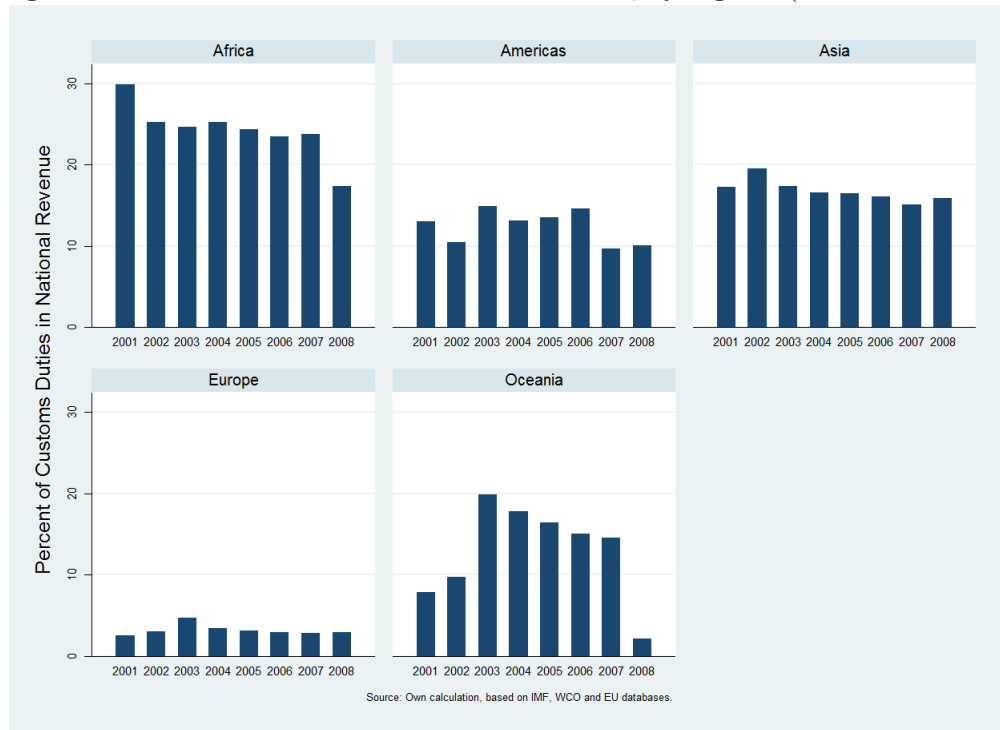
* By income group, according the World Bank classification



⁴⁹⁴In January 2011, the WCO has provided a survey on the percentage of national revenue represented by Customs duties.

⁴⁹⁵Note that Oceania includes only one country in 2008.

Figure A.17: Customs duties in National Revenue, by regions (UN classification)



Appendix B

RTAs & FTAs, Conventions and Guidelines

B.1 The UNESCAP compilation of Asia-Pacific trade agreements

I extracted the UNESCAP compilation on trade agreements available on their website⁴⁹⁶, the 28 December 2010. I updated this source the 04 June 2011. There are two kinds of support, in *Excel* and *pdf* format. Unfortunately, there are some matching issues between these two sources. That is why, I rely on the former format which seems more accurate. I built two databases in STATA format, available on my website. The first covers all agreements with their related provisions. The second covers all country pairs in a “gravity friendly” format. The following tables provide summary statistics based on these databases. Note that the UNESCAP reviewed only Asia-Pacific trade agreements.

Table B.1: Number of Trade Agreements (TA) by country pairs, in 2010

Source: own calculation, based on the UNESCAP compilation extracted the 04 June 2011

TA	Pairs (1)	%	Pairs (2)	%	Pairs (3)	%	Pairs (4)	%	Pairs (5)	%	Pairs (6)	%	Pairs (7)	%	Pairs (8)	%
0	1808	72.32	2178	87.12	1988	79.52	2342	93.68	2376	95.04	2366	94.64	2290	91.60	2268	90.72
1	368	14.72	202	8.08	352	14.08	146	5.84	122	4.88	94	3.76	208	8.32	224	8.96
2	204	8.16	30	1.20	66	2.64	10	0.40	2	0.08	38	1.52	2	0.08	8	0.32
3	28	1.12	88	3.52	4	0.16	2	0.08			2	0.08				
4	90	3.60	2	0.08	90	3.60										
5	2	0.08														
Total	2500	100	2500	100	2500	100	2500	100	2500	100	2500	100	2500	100	2500	100

Legend: (1) Customs Procedures, (2) Customs Valuation, (3) Trade regulation publication, (4) Use of ICT, (5) Mobility of business people (6) Freedom of transit, (7) Transport and logistics and (8) Trade finance

The data set ranges from 1976 to 2011 (at the 4 June 2011). The databases cover 114 agreements still in force in 2011, but also 2506 country pairs. The UNESCAP explores eight trade facilitation dimensions, related to a broad definition of it (table B.1).

⁴⁹⁶Downloaded at http://www.unescap.org/tid/aptiad/agg_db.aspx

Figure B.1: The Asia-Pacific trade agreements covered by the UNESCAP (in force)
 Source: own calculation, based on the UNESCAP compilation extracted the 04 June 2011

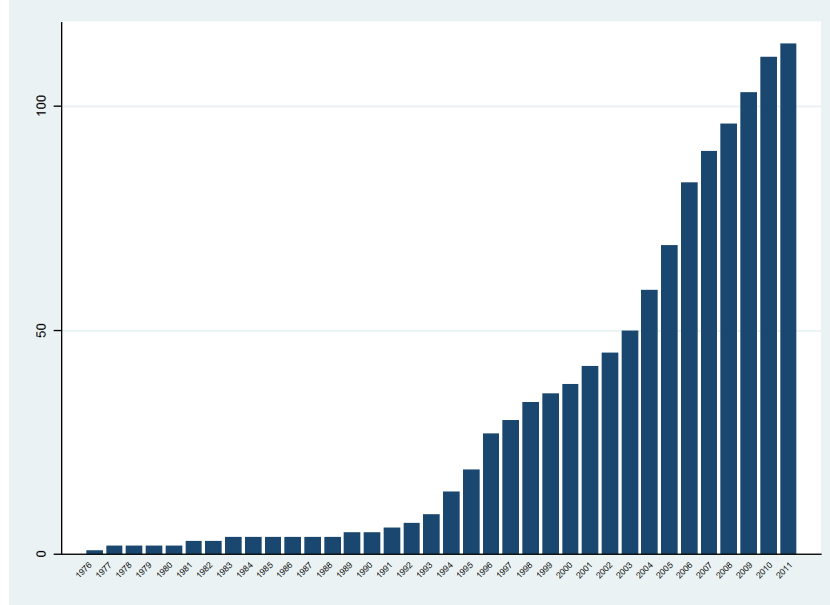
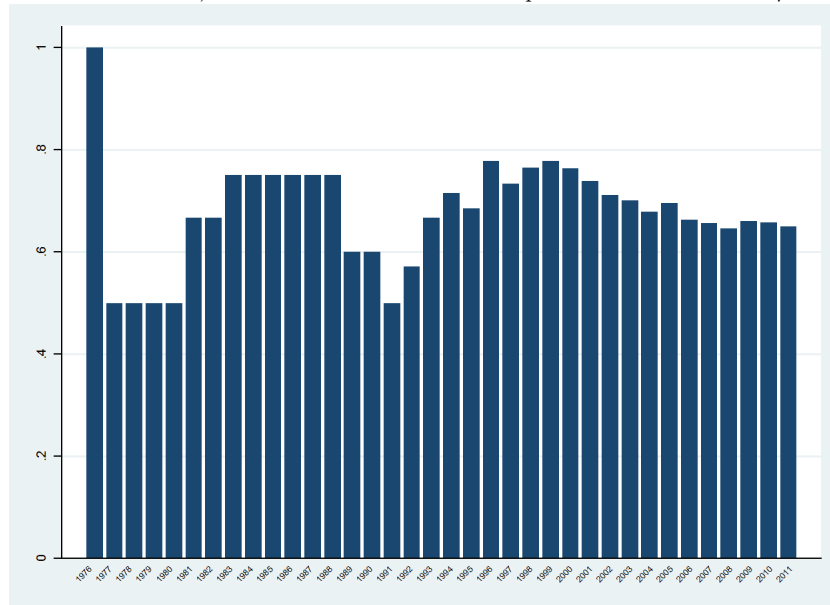


Figure B.2: Percent of Trade agreements related to trade facilitation (at least one dimension)
 Source: own calculation, based on the UNESCAP compilation extracted the 04 June 2011



B.2 The WTO RTAs database

The WTO compiles the trade agreements reported by its Members in the Regional Trade Agreements Information System (RTA-IS), which is available on its website. This database encompasses several descriptions of each trade agreement, such as its type (table B.2). Based on this source extracted by the end of 2010, I built a new database on trade agreements with a particular focus on trade facilitation issues. This new database covers 210 countries and 204 agreements, from 1958 to 2010⁴⁹⁷. It is a gravity friendly database in a STATA format, which covers 271012 country pairs sharing at least one agreement. This number includes several duplicates, many pairs being part of multiple agreements.

Table B.2: Trade Agreements reported to the WTO, by Types

Source: own calculation, based on the WTO RTA-IS extracted the 6 June 2011

Type	Freq.	Percent
CU	15	7.14
CU and EIA	6	2.86
EIA	1	0.48
FTA	96	45.71
FTA and EIA	77	36.67
PSA	14	6.67
PSA and EIA	1	0.48
Total	210	100.00

According to the WTO classification, around 40% of agreements are related to Customs procedures. Regarding to the number of country pairs that share at least one agreement, this rate is lower. The following figure B.3 provides the distribution of agreements still in force in 2010, by country pairs, according to their related category. I reported some broad categories related to trade facilitation issues. Note that some agreements can share several categories. Figure B.4 provides the rate of country pairs who share at least one agreement covering Customs-related procedures, by introduction date⁴⁹⁸. There is a wide disparity across years, with a growing activity the year of the Ministerial Conference of Singapore in 1996 and after the beginning of the Doha Round.

The following tables B.5 and B.6 show the increasing development of trade agreements (as reported by WTO Members and still in place in 2010) and the rate of country pairs that share at least one agreement covering Customs-related procedures, since the 90ies. Such rates are lower than the rate of agreements related to Customs procedures. However, it should be put in perspective with the increasing number of agreements (and so country pairs) of the last decades.

⁴⁹⁷There were 210 agreements listed by the RTA-IS by the mid 2011.

⁴⁹⁸Note that only agreements still in force in 2010 are covered.

Figure B.3: Number of agreements reported to the WTO by country pairs, according to different categories

Source: own calculation, based on the RTA-IS extracted by the end of 2010.

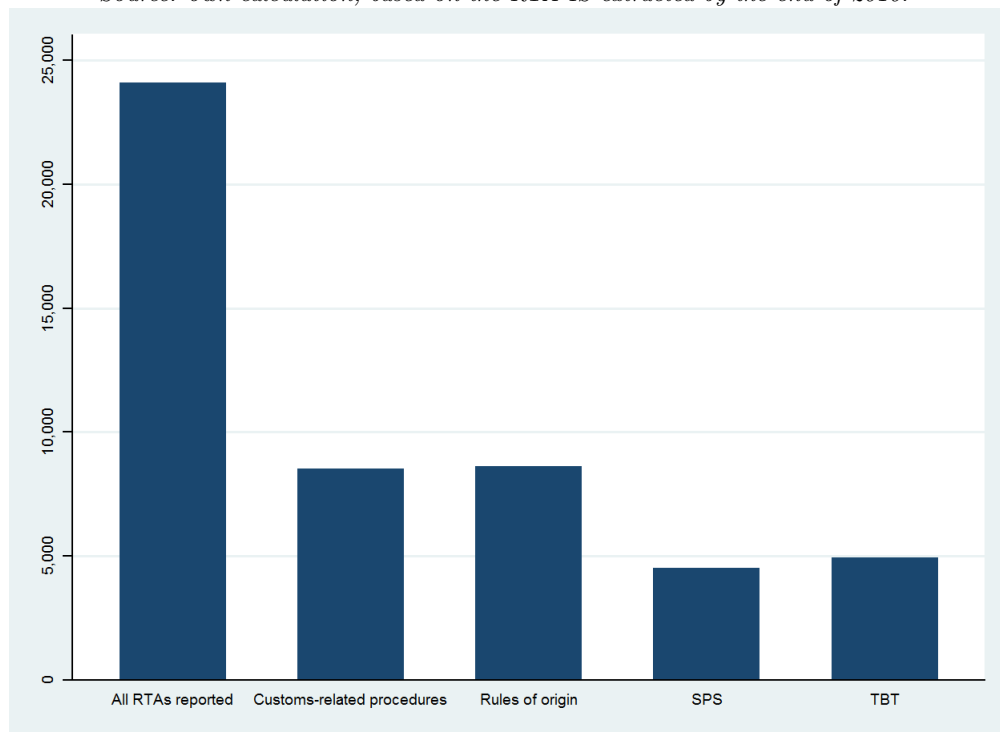


Figure B.4: Share of Agreements covering Customs-related procedures, by introduction date
 Source: own calculation, based on the RTA-IS extracted by the end of 2010.

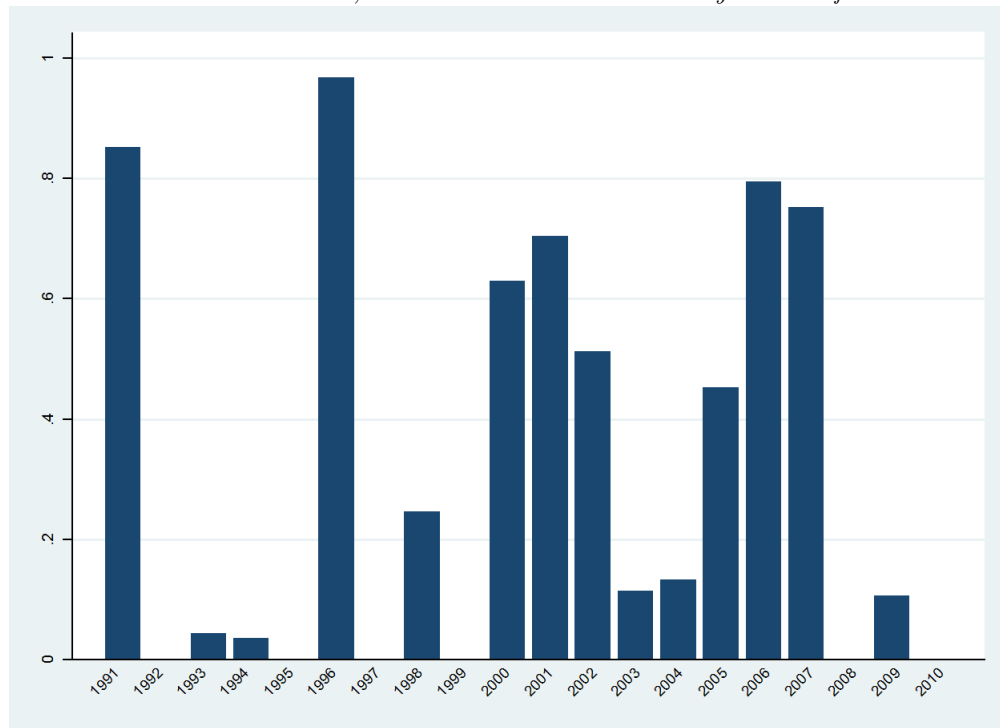


Figure B.5: Number of Agreements covered by the new database, since 1958
 Source: own calculation, based on the RTA-IS extracted by the end of 2010.

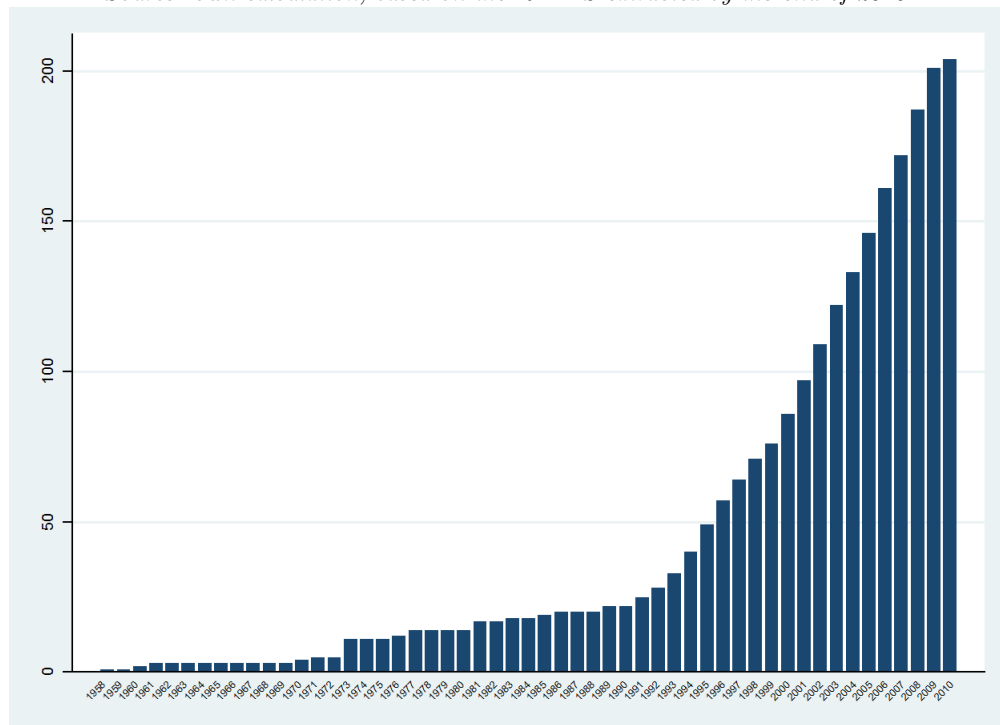
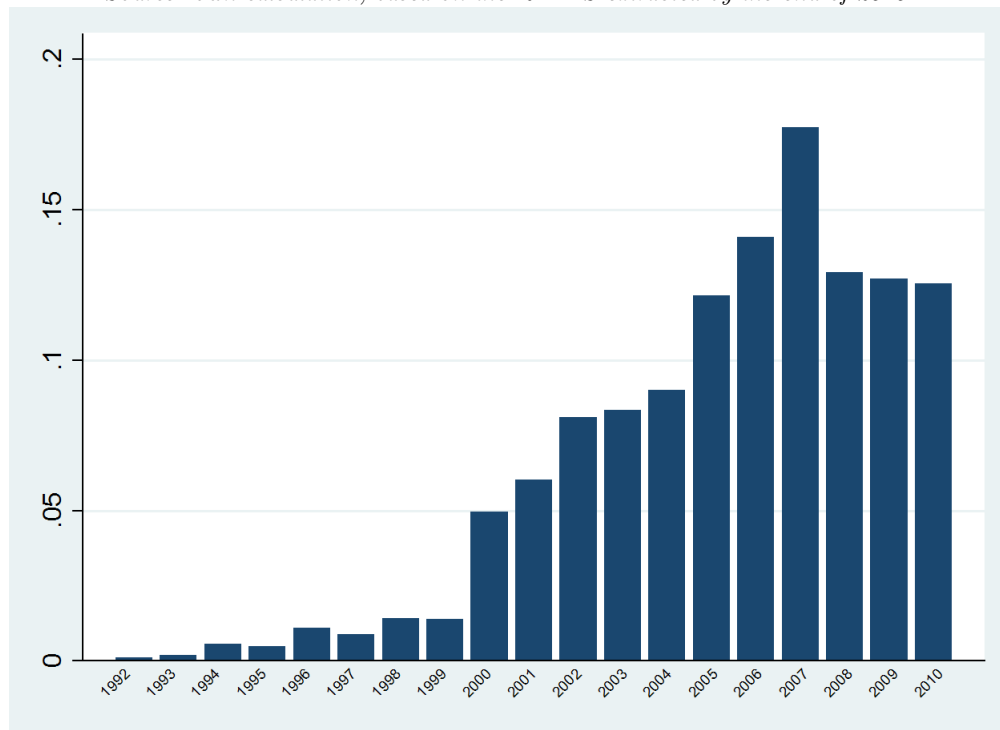


Figure B.6: Share of country pairs with agreements covering Customs-related procedures
Source: own calculation, based on the RTA-IS extracted by the end of 2010.



Appendix C

Transport costs

A common definition of trade facilitation is the measure of transaction costs. Either agreed as broad or narrow, trade facilitation is one component of trade costs (Pomfret and Sourdin, 2010a). That is why, as explained previously, many additional variables -*dimensions*- of trade facilitation are added in almost all empirical studies. As stressed by Portugal-Perez and Wilson (2010), it may be describe as *soft* and *hard* infrastructures, or as Raven (2001) earlier, as the invisible infrastructures of border entry. Such variables do not dispense to rely on specific trade facilitation dimensions but, on the contrary, are useful to control them. Moreover, these variables can be used to quantify the unexplained residuals which can rely on narrow trade facilitation costs.

The previous sections have already shown that some traditional indicators of trade facilitation refer on logistic performance and infrastructure efficiency. As stressed by Korinek and Sourdin (2011), logistics quality using indicators have a strong impact on trade. Inefficient logistics services generate extra financial costs as well as delays. As a key element of the supply chain (Hellqvist, 2003), transport costs and particularly maritime transport costs are often proxied in trade facilitation empirical studies. Indeed, about 90% of trade flows use the maritime transport mode (UNCTAD). It is reflected by the evolution of the use of containers, which has known a huge increase since 1970 (figure C.1). Unfortunately, data on transportation costs are difficult to obtain. This component of trade costs is measured in a variety of ways in the literature, often proxied by indirect measures. As stressed by Behar and Venables (2010), there are numerous determinants of maritime transport costs which go beyond the common proxy of distance. In addition, recent evidences suggest that “*distance is imperfectly correlated with transport costs: their relationship may be non-linear and is influenced by many factors*”, Korinek and Sourdin (2009).

C.1 Measure and determinants of transport costs

C.1.1 The measure of transport costs

The older proxy (and the most studied) remains the distance between countries. Recent evidences from the meta-analysis of Disdier and Head (2008) or the study of Márquez-Ramos and Martínez-Zarzoso (2008) show that distance is far from died as claimed by Cairncross (1997). Even if the correlation of distance to transport costs has changed over time due to technological innovation⁴⁹⁹, other indirect costs have increased such as the price of the “quality” of services including reliability and predictability issues⁵⁰⁰. Note that there are various measures of distance. Thus, the UNCTAD provides the maritime distance between the major container ports and the distance on the “best” service between the country pair (i.e. the transshipment combination that has the minimum distance, or the direct routes), while Wilson (2007a,b) proposed a time-weighted distance.

It appears that various factors contribute to transport costs across transport mode, sectors and even countries (see below). Another usual measure relies on mirror trade data, using export values (CIF) minus import values (FOB). It assumes that the difference represents transport and insurance costs. However, this method suffers from numerous statistical issues and mismatched errors. As stressed by Hummels and Lugovskyy (2006), such ratios are “*badly error-ridden in levels, and contain no useful information for time-series or cross-commodity variation*”. Another method relies on direct measures compiled by Customs, such as Golub and Tomasik (2008) or recently Korinek and Sourdin (2009) who compiled a database on maritime trade costs⁵⁰¹. Finally, one can rely on specific indexes measuring shipping rates, such as the DRY BALTIC INDEX, and various determinant of transport costs. Thus, recent indicators of logistic performance, such as the LINER SHIPPING CONNECTIVITY INDEX (LSCI) or the Logistic Performance Indexes (LPI) of the World Bank, provide valuable proxies of maritime services and are increasingly used in trade facilitation models, as pointed out by or Korinek and Sourdin (2011). In addition, they are associated with an increase along the extensive and intensive margin (Behar et al., 2009).

C.1.2 The determinants of (maritime) transport costs

The reviews of Micco and Perez (2002), Hummels (1999, 2001, 2007), Martínez-Zarzoso and Wilmsmeier (2008), Korinek and Sourdin (2009, 2011), Pomfret and Sourdin (2009, 2010a,b), Rodrigue et al. (2009), Stopford (2009) or recently the UNCTAD (2010) and Behar and Venables (2010), show that the maritime transport costs encompass numerous components, such as distance, time, fuel prices, the weight/value ratio, trade imbalances, volume of trade, port infrastructure, port efficiency, com-

⁴⁹⁹The history of maritime transportation as well as its characteristics are detailed by Levinson (2006), Branch (2007), Rodrigue et al. (2009) and Stopford (2009).

⁵⁰⁰In addition, longer loading/unloading times or congestion issues may arise when arriving in large ports (Schade et al., 2006; Kommers, 2009). The impact of unpredictability over logistics costs has been estimated to 25 or 30% of factory price (Arvis et al., 2010).

⁵⁰¹The Maritime Transport Costs (MTC) database contains data since 1991 of bilateral maritime transport costs, for 43 importing countries at the 6 digits commodity level of the Harmonized System.

petition, risk, supply and demand, etc. However, as noted by Korinek and Sourdin (2009), “*many of these determinants (...) are intertwined and their combined effect on transport costs is complex*”. Thus, as stressed by Refas and Cantens (2011) who studied the Container dwell time in Cameroon, various factor may explain this key component of port performance⁵⁰². They show that dwell time vary according to the arrangements between the Port Authority and the Terminal Operating Company⁵⁰³, but also with the fiscal pressure or the Customs clearance performance⁵⁰⁴. Beyond the “simple” measure of dwell time, they show up three components: operational dwell time, transactional dwell time and discretionary dwell time.

Limao and Venables (1999) find that shipping an extra 1000 kilometers by sea raises transport costs by US\$ 190 per container. Hummels (1999, 2001, 2007) estimates the effect of time in transit on transport costs⁵⁰⁵, stressing the importance of this factor. It has been confirmed by Nordås et al. (2006). In the same way, Djankov et al. (2006, 2010) find that each additional day in transit reduces trade by one percent, and that this impact was higher for “time-sensitive” goods. Wilson (2007a,b) proposed a time-weighted distance. Wilmsmeier and Hoffmann (2008) explore the role of transshipment delays to ports that are not hubs, a time dimension which is not included in distance variables. Directional imbalance in trade between countries implies that many carriers are forced to haul empty containers on their return trips and, so, that freight rates are not balanced. Clark et al. (2004), Wilson et al. (2004) and Nordås and Piermartini (2004) find that the effect of port efficiency on transport costs and the effect of transport costs on maritime trade flows are significantly negative. Wilmsmeier et al. (2006) examine six different port characteristics as possible determinants of international transport costs in Latin American countries. They find that port efficiency is the most determinant element, followed by port infrastructure, private sector participation and inter-port connectivity. Francois and Manchin (2007) confirm the impact of infrastructures and institutions on trade. Recent researches focus on the quality of services provided as well as the networks implications (Frémont, 2007, 2008).

⁵⁰²A wide literature reviews port performance factors, such as Monie (1987), Tongzon (1995), Clark et al. (2004), Tongzon and Heng (2005), Blonigen and Wilson (2006), Notteboom (2006), De Langen et al. (2007), Tongzon and Sawant (2007), Branch (2007), Chang et al. (2008), or EC (2009h).

⁵⁰³They may “*define a free dwell time according capacity constraints, profit maximization, container traffic patterns or other consideration such as the differentiation between transit and domestic goods, and they tend to reduce it for example when facing high congestion patterns*”.

⁵⁰⁴Such as the introduction of a one-stop shop for clearance procedures

⁵⁰⁵He estimates the tariff equivalent in transit is 0.8 percent per day which amounts to a tariff equivalent of 16 percent on a 20 day sea transport route, which is the average for imports to the United States. Hummels (2007) finds that every day in ocean travel that a country is distant from the importer reduces the probability of sourcing manufactured goods from that country by one percentage point.

C.1.3 Main data provider about maritime transport components

The main source about maritime trade flows is Containerization International (CI). It provides many data related to container trade flows and the shipping industry. Thus, one can find information on the increasing TEU capacity (figure C.6), speed, draught and length of ships, as well as the decrease of geared on ships. Their database also provides information on port⁵⁰⁶ and the Liner Services⁵⁰⁷. Other valuable sources include the LLOYD'S List Ports of the World⁵⁰⁸, the Institute of Shipping economics and Logistics (ISL) and its shipping statistics yearbook⁵⁰⁹, the statistics from EQUASIS on several areas such as the Port State Control or the inspection rate of ships, the World Port Source⁵¹⁰, the distance table and time equivalent from the World Port Index, or various infrastructure variables from the World Economic Forum or the IMD's World Competitiveness Yearbook. Since a couple of years, the World Bank has started to assess numerous logistics indicators (Arvis et al., 2010) and recently the OECD has compiled a database on maritime trade costs (Korinek and Sourdin, 2009). Finally, as explained previously, the UNCTAD provides various information through its reviews on maritime transport (UNCTAD, 2011a) and useful indexes of liner shipping connectivity and transshipment.

The Liner Shipping Connectivity Index (LSCI) measures the number of container ships that provide services to each country's port, total container carrying capacity of the ships, number of companies (as an indicator of competition), number of liner services and size of the largest container ship that provides services (as an indicator of container port infrastructure). As stressed by Jan Hoffmann, 17% of pairs of countries are connected with direct services and three quarters have only one transshipment. The Transshipment Index measure the container carrying capacity on direct services, the number of companies on direct services, and the largest ship deployed on direct services. For pairs who require transshipment, the Index relies on the container carrying capacity on the "best" service between the country-pair (i.e. the transshipment combination that has the "maximum minimum" TEU capacity) and the largest ship on the "best" service between the country pair (i.e. the transshipment combination that has the "maximum minimum" maximum vessel size).

⁵⁰⁶News about the future projects, information on the facilities (Office Hours, Quayside Hours, Receive/Delivery Hours, Total Area, Storage Capacity, Electric Reefer Points, Rail Facilities and Computer Systems in place), on operators, but also on the quantity, type, length and depth of berths/quays.

⁵⁰⁷Trade Route, Shipping Line, Type of Service, Frequency, Fixed Day, Total Vessels and Capacity, and also Transit Time and Day of Calling at each port.

⁵⁰⁸It covers various indicators related to Authority, Anchorage, Working Hours, Weather, Repair, Type of Labour Available, User Facilities, Transportation Access, History and Type of User.

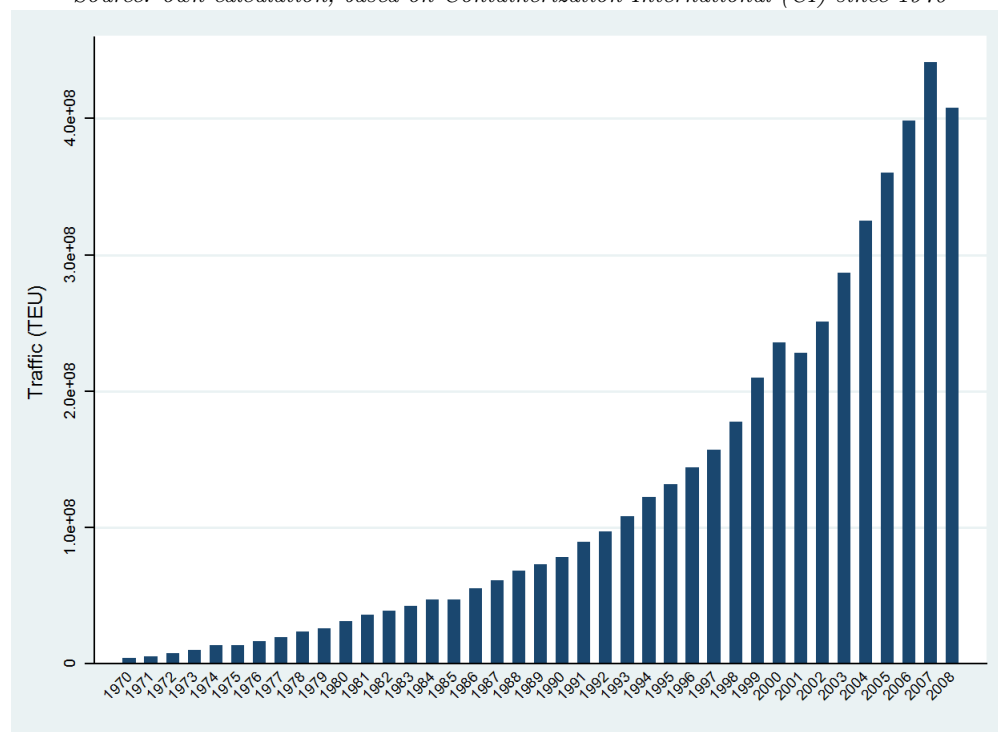
⁵⁰⁹It provides the Hamburg Index for Container ship Time-Charter-Rates, based on a broad database of approximately 20-30 Ship Brokers in Hamburg and therefore offers a profound information of the market for selected container ship types.

⁵¹⁰It provides historical background, Liner service, and further details on ports infrastructures (Lifts & cranes, Water Depth, etc.).

C.2 Trends and key characteristics of transport costs

C.2.1 Maritime traffic (in TEU)

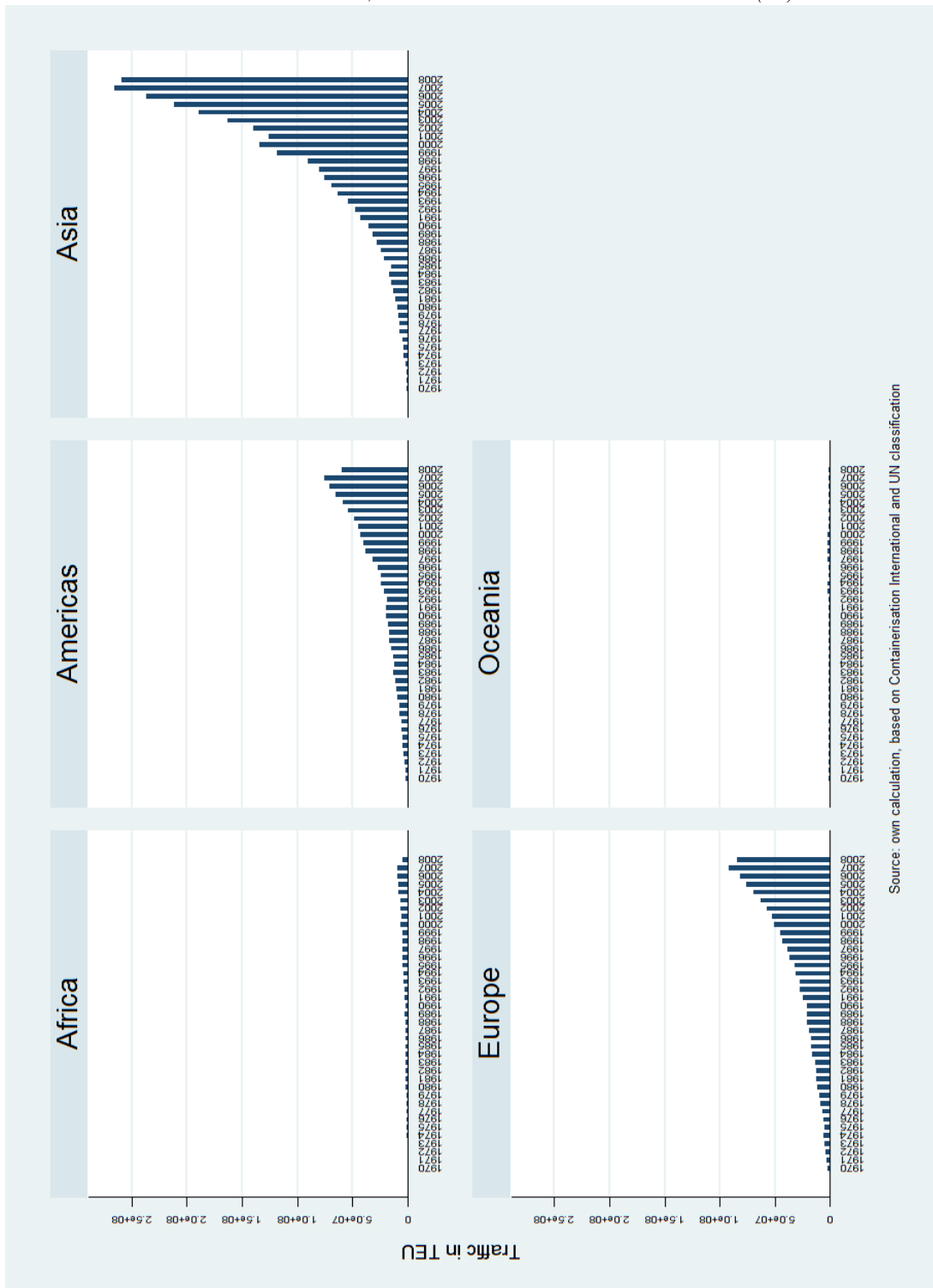
Figure C.1: Total Traffic in TEU, collected between January and December
 Source: own calculation, based on Containerization International (CI) since 1970



As shown in the previous figure, the container traffic has increased continuously since its introduction in 1956 (Levinson, 2006). When we look at the regional level (figure C.2), the Asian countries saw the higher increased. It is in line with the (UNCTAD, 2011a) who states that Chinese mainland ports accounted for around 23% of the total world container port throughput in 2010.

Figure C.2: Traffic in TEU by Regions, since 1970 (UN classification)

Source: own calculation, based on Containerization International (CI)



Source: own calculation, based on Containerisation International and UN classification

C.2.2 Freight rates

Freight rates exhibit a high volatility over time (figure C.3), across transport mode, goods and shipping routes as stressed by the UNCTAD (2011a) or Korinek and Sourdin (2009). Figure C.4 confirms such disparities across shipping routes and even according to the sens of the route (mainly due to trade imbalances). These observations show that distance is a poor proxy to account of transport costs.

Figure C.3: The Baltic Dry Index (DBI), an index of raw material maritime costs
 Source: Own calculation, based on the Baltic Exchange (<http://www.balticechange.com>)

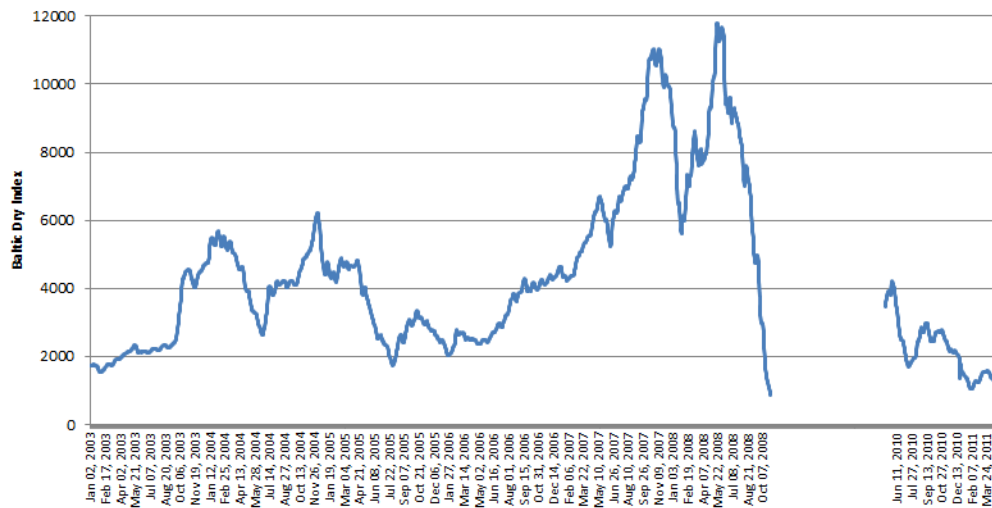
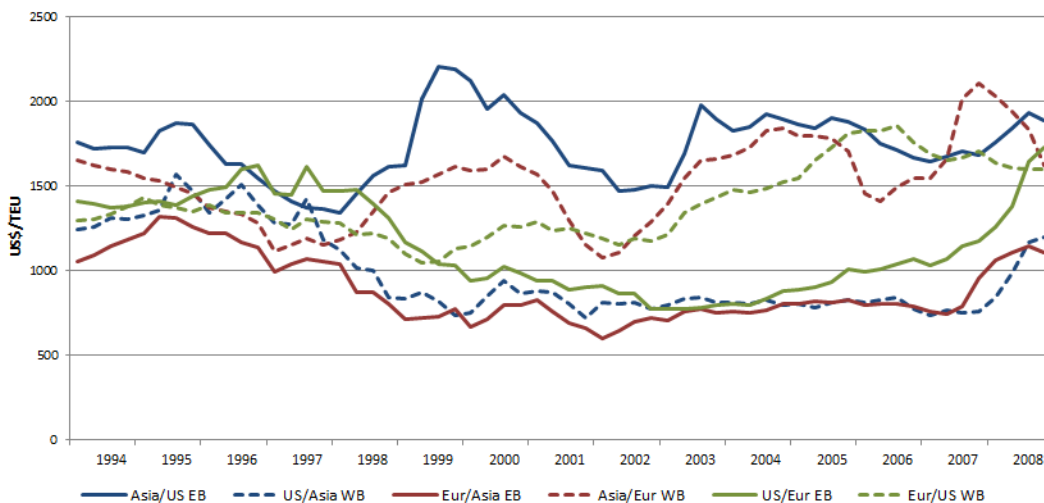


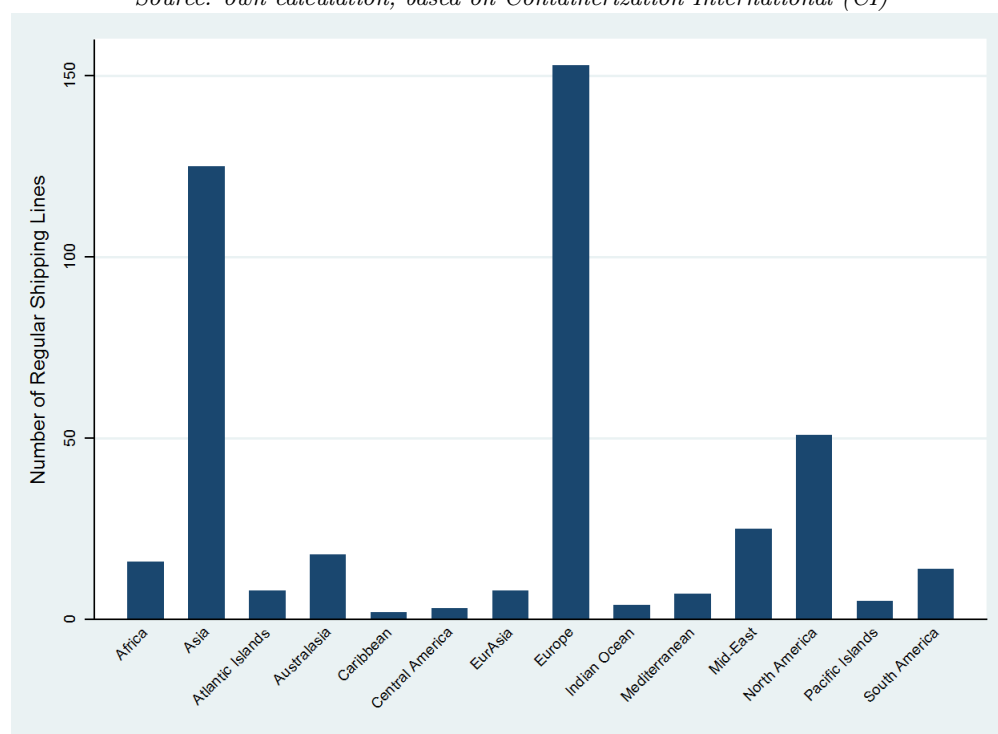
Figure C.4: Freight rates by main Maritime Routes, from 1994 to 2008
 Source: Own calculation, based on Containerization International (CI)



C.2.3 Shipping lines and shipping routes

The number of regular shipping lines is an essential factor of maritime transport costs, as underlined by the Liner Shipping Connectivity Index success. As pointed out by Verhetsel and Sel (2009), now we come from “*a space of places*” to “*a space of flows*”. Networks and hubs take an increasing importance (Frémont, 2007, 2008). The following figure C.5 show that shipping lines are concentrated in few regions (namely Europe, Asia and to some extend North America).

Figure C.5: Regular Shipping Lines by Regions (2008)
 Source: own calculation, based on Containerization International (CI)



The routes are another key factor. Indeed, direct and shorter routes lead to substantial gains. If transshipments generate delays and additional costs, the new opportunities for international transportation networks around the North pole (due to global climate changes) could cut by more than half the current distance between London and Tokyo (Rodrigue et al., 2009). The relative volatility of shipping routes (table C.1) shows that such routes are subject to various factor such as port efficiency, risk (piracy) or geography issues (canals...).

Table C.1: Busiest Shipping Routes since 2001 (total TEU, each January)

Rank	2009	2008	2007	2006	2005	2004	2003	2002	2001
1	E-FE	EA-SEA	EA-NEA	E-FE	FE-NAWC	FE-NAWC	FE-NAWC	E-FE	FE-NAWC
2	FE-NAWC	EA-NEA	EA-SEA	FE-NAWC	E-FE	E-FE	E-FE	FE-NAWC	E-FE
3	FE-ME	E-FE	FE-NAWC	FE-M	FE-M	FE-M	FE-M	FE-M	FE-M
4	FE-M	FE-NAWC	E-FE	EA-NEA	EA-NEA	EA-NEA	E-M	E-M	E-M
5	EA-NEA	FE-M	FE-M	FE-ME	FE-NAEC	FE-NAEC	FE-NAEC	FE-NAEC	FE-NAEC
6	M-ME	E-M	E-M	FE-NAEC	FE-ME	E-M	FE-IS	EA-NEA	FE-IS
7	FE-IS	FE-ME	CA-NAEC	E-ME	FE-IS	EA-SEA	E-NAEC	FE-IS	IS-SEA
8	EA-SEA	FE-IS	FE-ME	FE-IS	E-M	FE-IS	FE-ME	FE-ME	E-NAEC
9	CA-FE	NEA-SEA	NEA-SEA	E-M	E-ME	FE-ME	EA-NEA	EA-SEA	EA-NEA
10	IS-ME	CA-FE	CA-FE	EA-SEA	EAC	EAC	EA-SEA	E-NAEC	E-NAWC
11	FE-NAEC	CA-NAEC	FE-NAEC	E-NAEC	EA-SEA	CA-FE	EAC	IS-SEA	FE-ME
12	E-ME	IS-SEA	M-ME	M-ME	CA-FE	M-ME	CA-FE	CA-NAEC	EA-SEA
13	E-M	FE-RS	E-NAEC	EAC	E-NAEC	E-NAEC	E-ME	EAC	CA-NAEC
14	CA-NAEC	FE-NAEC	E-ME	CA-FE	M-ME	E-ME	M-ME	E-NAWC	M-ME
15	IS-M	M-ME	FE-RS	CA-NAEC	CA-NAEC	M-NAEC	CA-NAEC	CA-FE	CA-FE
16	E-NAEC	IS-ME	IS-SEA	M-NAEC	M-NAEC	CA-NAEC	M-NAWC	E-ME	M-RS
17	E-IS	IS-M	M-RS	IS-SEA	IS-M	IS-M	M-NAEC	FE-RS	E-IS
18	M-NAEC	E-NAEC	M-NAEC	IS-M	IS-SEA	E-IS	E-NAWC	M-ME	EAC
19	NEA-SEA	M-RS	IS-ME	E-IS	E-NAWC	IS-SEA	IS-M	E-IS	IS-NAEC
20	SA-FE	E-ME	FE-IS	IS-ME	E-IS	IS-ME	FE-RS	M-RS	FE-RS

Source: own calculation, based on Containerization International (CI)

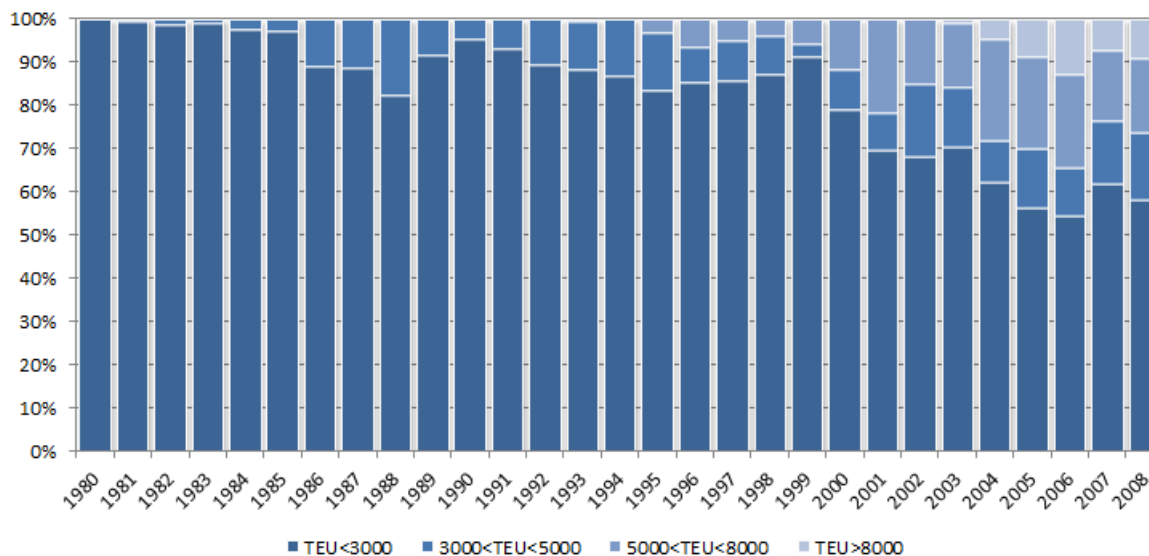
Shipping Routes		Occurrences*	
Code	Names	Top 10	Top 20
FE - NAWC	(415) Far East - North America West Coast	9	9
FE - M	(405) Far East - Mediterranean	9	9
EA - NEA	(441) East Asia - North East Asia	8	8
E - M	(311) Europe - Mediterranean	8	9
FE - ME	(407) Far East - Mid-East	8	9
FE - IS	(403) Far East - Indian subcontinent	8	9
EA - SEA	(443) East Asia - South East Asia	7	9
E - FE	(305) Europe - Far East	6	6
FE - NAEC	(411) Far East - North America East Coast	6	9
E - NAEC	(319) Europe - North America East Coast	3	9
CA - FE	(220) Caribbean/Central America - Far East	3	9
CA - FE	(221) Caribbean/Central America - Far East	3	9
E - ME	(313) Europe - Mid-East	2	8
NEA - SEA	(461) North East Asia - South East Asia	2	3
EAC	(447) East Asian coastal	2	6
M - ME	(605) Mediterranean - Mid-East	1	9
IS - SEA	(515) Indian subcontinent - South East Asia	1	7
CA - NAEC	(223) Caribbean/Central America - North America East Coast	1	9
E - NAWC	(323) Europe - North America West Coast	1	4
IS - ME	(503) Indian subcontinent - Mid-East	1	5
FE - RS	(417) Far East - Red Sea	0	5
M - NAEC	(607) Mediterranean - North America East Coast	0	6
IS - M	(501) Indian subcontinent - Mediterranean	0	6
E - IS	(309) Europe - Indian subcontinent	0	6
M - RS	(613) Mediterranean - Red Sea	0	4
IS - NAEC	(507) Indian subcontinent - North America East Coast	0	1
M - NAWC	(611) Mediterranean - North America West Coast	0	1
SA - FE	(021) Southern Africa - Far East	0	1

Source: own calculation, based on Containerization International (CI)
 *Number of occurrences of each route in the top 10 and 20, since 2001.

C.2.4 Fleet statistics

Figure C.6: Evolution of the capacity of new ships (in TEU) since 1980

Source: own calculation, based on Containerization International (CI)



C.2.5 Maritime Transport Costs (MTC) database

Provided by the OECD (Korinek and Sourdin, 2009), it contains data from 1991 to the most recent available year of bilateral maritime transport costs. Transport costs are available for 43 importing countries (including EU15 countries as a custom union) from 218 countries of origin at the detailed commodity (6 digit) level of the Harmonized System 1988. The database includes original Customs data as well estimates from a limited number of countries: Australia, New Zealand, and the United States as well Argentina and Brazil. For other countries, a combination of shipping rates actually charged data with the UN Comtrade statistics have been used to estimate actual transport costs at the product level⁵¹¹. The maritime shipping modes are broken into four categories: *Clean or dry bulk carriers*, *Dirty or industrial goods bulk*, *Tankers* and *Containers*. Maritime transport costs are displayed using three measures: *Transport cost*, *Unit transport cost* and *Ad valorem equivalent*.

Based on this database, I evaluated the maritime transport costs across categories at different HS levels, and according to different reporters. The following tables confirm that transport costs vary across sectors and countries. Figure C.7 provides a summary of this disparities across sectors.

⁵¹¹The shipping rates have been collected from selected sources, such as: the United Nations Conference on Trade and Development (UNCTAD), Containerization International, Drewry Shipping Consultants, International Grains Council (IGC), and the Baltic Exchange.

Table C.2: Ad valorem transport* (6digit, Average)

Year	Agriculture	Crude oil**	Manufacturing	Raw material
1995	0,0933212			0,11701
1996	0,0884355			0,1177177
1997	0,0866271			0,1178479
1998	0,0860815	0,1460756		0,1135617
1999	0,0790464	0,1283732		0,1083809
2000	0,0811908	0,1285968	0,0561002	0,1047128
2001	0,0821349	0,1210242	0,0554117	0,1134601
2002	0,0775117	0,1205168	0,0543957	0,1072538
2003	0,0756234	0,1197243	0,0529463	0,1048054
2004	0,0760899	0,1191362	0,0530717	0,097851
2005	0,0794099	0,1185516	0,054655	0,0959508
2006	0,0780446	0,0985017	0,0535136	0,0942075
2007	0,0720679	0,1046604	0,0498541	0,0882886

Source: Own calculation, based on the Maritime Transport Cost Database (OECD)

* Importers: AUS, NZL and USA; Exporters: OECD (in the MTC database)

** Importers: OECD countries (in the MTC database)

*** For 2000 to 2007

Table C.3: Ad valorem transport* (2digit, Average)

Year	Agriculture	Crude oil	Manufacturing	Raw material
1991	0,1177399	0,1514615	0,0885228	0,1811873
1992	0,1145417	0,1449812	0,089074	0,1870386
1993	0,1160413	0,1481099	0,0902404	0,1887719
1994	0,112182	0,1491825	0,0874644	0,1952471
1995	0,1065252	0,1398907	0,0828193	0,1881616
1996	0,1021208	0,1371706	0,0828736	0,1853234
1997	0,1020722	0,1569105	0,080769	0,174822
1998	0,0981161	0,1433778	0,0799075	0,1684137
1999	0,0945577	0,127683	0,0783279	0,1620143
2000	0,0989982	0,1142435	0,0806222	0,1644658
2001	0,1015448	0,1267195	0,078372	0,1648997
2002	0,0952032	0,1054785	0,078312	0,1623745
2003	0,0942295	0,1076232	0,0777982	0,1624789
2004	0,096704	0,1128088	0,0781972	0,1579458
2005	0,1014262	0,1102962	0,0800662	0,1551314
2006	0,0960753	0,0982864	0,0768817	0,1536151
2007	0,0918454	0,0960423	0,073091	0,1439608
Average**	0,097	0,109	0,078	0,158

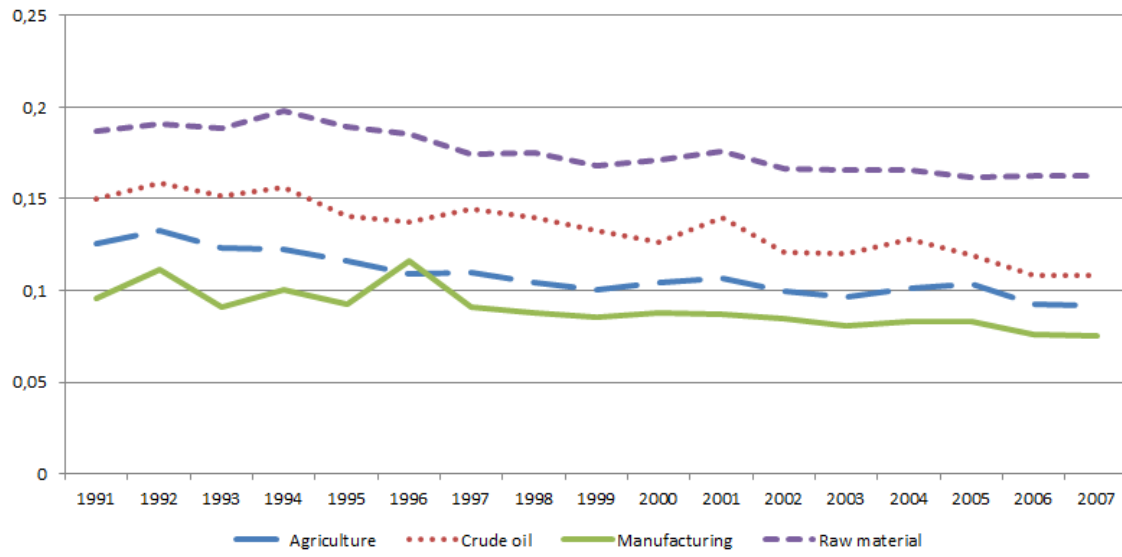
Source: Own calculation, based on the Maritime Transport Cost Database (OECD)

* Importers: AUS, NZL and USA; Exporters: All MTC database

** For 2000 to 2007

Figure C.7: Maritime Transport Costs (2 digits, importers: all, exporters: all)

Source: Own calculation, based on the Maritime Transport Cost Database (OECD)



Appendix D

The Trade Facilitation Index

D.1 Structure of the databases, a technical note

The indicators are based on three main sources: our own observations, a questionnaire designed for the project and a trade facilitation database based on existing proxies. These three datasets share different characteristics and covered years.

D.1.1 Three databases

Observations (OBS) Since 2008, I have gathered various information related to trade facilitation issues, following the on-going trade facilitation negotiations at the WTO. Some data are publicly available and can be computed by our own observations. Such data, as most of the ones included in the availability of information set of variables (one of the dimension of the Trade Facilitation Indicators), are incorporated in a dedicated database called *the observation database (OBS)*. This database covers the OECD Members including Hong-Kong, China⁵¹². Data have been compiled during 2008-2009 and revised partially in 2010. I attributed a unique year of reference (2009) for OBS.

Questionnaire (QUE) Unfortunately, it was not possible to obtain all the required information to compute our variables by public means. That is why, it has been decided to construct a questionnaire⁵¹³, sent to the relevant administrations of all participating countries in order to collect missing data. The questionnaire has been quite useful to fill the gaps⁵¹⁴ but also to understand each country specificity and historical background, as their current strategy of development in the area of trade facilitation. Section D.2 provides various statistics on questionnaire replies and highlights several

⁵¹²By the time of the construction of this database in 2009, the OECD encompassed thirty countries (thirty one including HONG-KONG, CHINA).

⁵¹³See below, section D.2.1.

⁵¹⁴It remains some missing value and five countries did not reply to the questionnaire (AUSTRIA, FINLAND, IRLAND, ISLAND and LUXEMBOURG). The average rate of reply is around 79% (Figure 4.2 provides the average rate of reply for each country), with many disparities across the categories of the Trade Facilitation Indicator (see below, figure D.1).

country specificities useful to apply the right scoring and weighting scheme. Replies are stored in *the questionnaire database (QUE)*. Even if countries had the possibility to revise their data in 2010, I finally attributed a unique year of reference (2009) for QUE. First, the policy framework does not change quickly and figures rarely show a huge variation from one year to another. Second, the revised questionnaire only focuses on possible mistakes -or *mis-understanding issues*- and missing values, without being an update *per se*.

The Trade Facilitation Proxies database (TFPs) Finally, I rely on a third database based on existing datasets related to trade facilitation issues. As explained in section 2.1, studies on trade facilitation refer to a set of well-established database in the academic research field, such as Doing Business, the Logistic Performance Index, the Global Competitiveness Report, and various specific databases related to institutional issues⁵¹⁵. I merged all these traditional indicators related to trade facilitation to a unique database called *the Trade Facilitation Proxies database (TFPs)*. These variables are used to fill some gaps, but also as control variables to test the robustness of the Trade Facilitation Indicators. Note that I refer to a home made database on Trade Agreements and Conventions related to trade facilitation issues (Chapter 3).

D.1.2 The computing process

Raw data come from different sources and supports⁵¹⁶. Data have been first compiled in EXCEL files (with cross-references) and then put in STATA format. The construction of the variables and the indicators as well as the robustness checks and the regressions have been done by using STATA 11⁵¹⁷. It was critical to evaluate the level of confidence to put into the final database on Trade Facilitation Indicators. Indeed, each step of the construction could include some mistakes and lead to a spurious database. That is why, I put some controls at every critical points to check the accuracy of the data⁵¹⁸. I also built two versions of the database according to the level of confidence to put into the inputs (see below, section D.3.5).

⁵¹⁵Such as the Institutional Profiles database of the CEPII or the World Development Indicators from the World Bank.

⁵¹⁶The replies to the questionnaire and many traditional databases are in *pdf* format. Some are available in *Excel* format or by *online software* with restricted access. In addition, some databases are not publicly available.

⁵¹⁷The *Do* files have been divided by following each step of the construction.

⁵¹⁸For example, I introduced a correspondence check between variables coming from the questionnaire and our own observations. This simple test has revealed some mis-understanding issues from the respondents on several questions as well as some reporting errors.

D.2 Basic statistics from the questionnaire

D.2.1 The questionnaire

The questions are designed so as to target information that is readily available to concerned administrations, do not require additional work to be determined and is not confidential, even if it is not necessarily publicly accessible.

Internet publication (a)

1. Is there information available online on:

1.1 Applicable legislation, Yes No

1.2 Import procedures, Yes No

1.3 Export procedures, Yes No

1.4 Penalties for non compliance? Yes No

1.5 Do you provide examples of judicial decisions? Yes No

1.6 Do you provide a summary guide on import procedures? Yes No *Please specify the address:*

2. Is there a possibility to ask for supplementary information, Yes No

3. Who manages/updates the online information? Customs, Yes No Other *Please specify:*

Establishment of an Enquiry Point (a)

4. Is there a structure which answers enquiries on trade related legislation and procedures, providing the documents requested?

4.1 One structure: Yes No and/or more than one

4.2 This structure is the Customs or/and another one *Please specify:*

Possibility to ask questions to Customs (a)

5. What are the opening hours of your Customs Support service? (Direct or Phone contact)

Customs Support: Yes No

Opening hours: 7/7 24/24 or other *Please specify: _ / 7 and _ _ / 24*

6. Do you have a specific hub for professional users, like a Pro version of the Customs website? Specific Hub: Yes No

7. Do you have an EDI system? You have implemented an EDI system: Yes No *Date of implementation (if known):*

Procedures published at least xx days before entry into force (a)

8. What is the average time generally applicable between publication and entry into force of regulation? : _ _ _ days.

8.1 Is this time period also applicable to border regulations and procedures?

Border regulations are published in advance of implementation date: Yes No

It is the same period than general regulation average: Yes , shorter or longer

Involvement of the trade community (b)

9. Do you have permanent structures of consultation between traders and government? Yes No

Which of the following categories are involved in those structures?

9.1 SMEs (Small and Medium Enterprises)? Yes No

9.2 Large traders? Yes No

9.3 Transporters, freight forwarders? Yes No

9.4 Customs brokers? Yes No

9.5 Citizens? Yes No

9.6 Others ? *Please specify:*

10. Do you organise specific consultations when introducing or amending trade related laws, regulations and administrative rulings of general application? Yes No

11. How many consultations open to all parties take place per year?

Advance Rulings (c)

Do you provide Advance Rulings mechanism? Yes No

12. What is the average yearly number (2008) of advance ruling requests? Total number of Advance ruling:

12.1 Tariff classification:

12.2 Customs valuation:

12.3 Duty drawback, deferral or other relief from Customs duties:

12.4 Quotas:

12.5 Country of origin/Preference eligibility:

If a measure is not apply in your country, please write not apply.

13. Where traders can find information about procedures for obtaining advance rulings?

Customs website: Yes No Other *Please specify:*

14. Do you publish advance rulings of general interest?

14.1 Yes No

14.2 If yes, how many were published over the last three years?

14.3 Where can they be found? If there are published on the Internet, indicate the direct link.

15. Is there a set period of time by which an advance ruling is issued if all the necessary information is provided?

15.1 Yes (_ _ _ _ days) No

15.2 What percentage of advance rulings is issued within that time period? _ _ , _ %

16. What is the validity of advance rulings as defined in your regulation?

16.1 The validity is the same in all areas: Yes No and it is days

17. Is it possible to request a review of an advance ruling? Yes No

Appeal Procedures (d)

18. Appeal procedures include:

18.1 Use of Moderators (informal procedures) Yes No

18.2 Administrative appeals, Yes No

18.3 Judicial appeals, Yes No

18.4 Are administrative appeals a prerequisite before introducing a judicial appeal? Yes No

19. What is the total yearly number of administrative appeals over the last three years?

19.1 Number of administrative appeals in 2006:

19.2 Number of administrative appeals in 2007:

19.3 Number of administrative appeals in 2008:

20. What is the total yearly number of judicial appeals over the last three years?

20.1 Number of judicial appeals in 2006:

20.2 Number of judicial appeals in 2007:

20.3 Number of judicial appeals in 2008:

21. During the above period, what is the percent of cases introduced by users resolved in favour of Customs? Percent of cases:

22. During the above period, what is the percent of cases introduced by Customs resolved in favour of users? Percent of cases:

Question 22 is not the reverse of question 21. The question 21 refers to cases introduced by users (typically, disagreement over tariff classification or the duty applied) while the question 22 refers to cases introduced by Customs (typically, cases of fraud, misdeclaration, etc.).

23. Information on appeal procedures is available:

23.1 On Customs website, Yes No Please specify the address:

23.2 In official gazette, Yes No

Fees and charges (e)

24. What is the total amount of fees and charges collected by border agencies in one civil year?

Total amount of fees and charges for last financial year (2008):

Please indicate the currency used.

25. How many types of fees and charges are applied in your country?

25.1 Number of fees and charges collected by Customs:

25.2 Number of fees and charges collected by other licensing authorities:

25.3 Please specify the collecting entities:

25.4 Please specify the type of fees according the collecting entities:

26. How information on fees and charges is made available?

26.1 On internet site Yes No *Specify the address:*

26.2 In official gazette, Yes No

Formalities - documents (f)

27. Is there a single document covering all formalities by Customs and other government agencies? Yes No

For selected goods only *Please specify the sectors:*

For selected types of transport only *Please specify:*

28. Do you accept copies? (Commercial documents or authenticated copies when a government agency already holds the original and multiple authorities are involved)

28.1 Yes No Yes, with exceptions: *Please specify:*

28.2 Specify the exceptions (type of goods):

28.3 Specify the exceptions (circumstances):

28.4 Specify the exceptions (agencies)

28.5 Percentage of import procedures that accept copies? __, __ %

29. In case of electronic lodging, do you also request originals? Yes No For selected goods only

30. Do you maintain a single window for data submission? Yes No

30.1 Is it supported by information technology? Yes No

30.2 Is it a full time service (24/24, 7/7) Yes No *Please specify:*

30.3 Number of entities included in the system? (Harbour; Customs...) *Please enumerate:*

Formalities - automation (g)

31. What is the percent of procedures cleared electronically?

31.1 Percent of import procedures cleared electronically: __, __ %

31.2 Percent of export procedures cleared electronically: __, __ %

32. What is your overall public spending on automation during the last 3 years? (ICT spending, training in IT for both Customs agents and private agents if relevant, scanner, other)

32.1 Customs spending:

32.2 Other agencies' spending:

33. What is your ratio of irregularities? (number of irregularities / number of examinations) Percentage of irregularities:

By “Irregularities” we mean all things wrong in a declaration/procedure (i.e. false or incomplete declaration, discrepancies etc.). We use the word of “irregularity” because we want to include both good faith mistakes by the trader and cases of fraud.

Formalities - procedures/process (h)

34. Physical inspections as a percentage of total imports: __ __ %

34.1 Are there differences as regards perishable/ non-perishable goods: Yes No

Please specify, perishable __ __ %, non-perishable __ __ %

35. Percentage of pre arrival processing / volume of total trade: __ __ %

If there are differences, you can scatter by mode of transport (air, sea or road cargo).

36. Do you provide for the separation of release from final determination and payment of Customs duties, taxes and fees?

36.1 Do you provide? Yes No

36.2. Is it done on the basis of some type of guarantee? Yes No *Please specify*:

36.3 Is it linked to the Authorized Trader status? Yes No

36.4 What percentage of goods is released in this manner? __ __ %

36.5 Is there a difference of treatment between perishable or non perishable goods? Yes No

If yes, you can provide the different percentage.

37. Percent of post-clearance audits carried out / volume of total trade

37.1 Do you provide post clearance audit? Yes No

37.2 On import __ __ % and export __ __ %

38. What is the number of authorized traders (AT)? Number of current AT:

38.1 Authorized traders as a percentage of total traders: __ __ %

38.2 ATs certified over the last three years:

38.3 Annual percentage of trade handled by ATs: __ __ %

39. How long it takes on average to obtain AT certification? Number of days: __ __ __ days

40. What are the benefits linked to AT status?

40.1 The possibility of periodic declarations and payment of duties, Yes No

40.2 Reduced physical inspections, Yes No

40.3 Reduced documentary and data requirements, Yes No

40.4 Right to submit for processing a single document covering all goods contained in a consignment, Yes No

40.5 More rapid release time, Yes No

40.6 Local clearance, Yes No

Consularization (i)

41. Do you impose consular transaction requirements Yes No

Internal Border Agency Co-operation (j)

42.1 Single location/time for one-time documentary controls: Yes No

42.2 Single location/time for physical inspection: Yes No

43. How many government agencies delegate controls to Customs authorities?

None , several (less than 10) or numerous (more than 10)

Could you enumerate all agencies that delegate controls to Customs authorities:

External Border Agency Co-operation (k)

44. Do you have exchange programmes with other countries? (Agents present in other countries, technical assistance, conferences...)

44.1 Exchange programmes with neighbouring countries Yes No

44.2 Exchange programmes with third countries? Yes No

45. Do you have cross border agency agreements with neighbouring countries? Yes No

45.1 Joint operations? Yes No

45.2 Customs control delegation Yes No

45.3 Customs agents crossing the border? Yes No

Governance and impartiality (l)

46. Do you have a code of conduct? Code of conduct: Yes No

Additional variables Indicate currency used

47. What is the duty revenue collected by Customs during the 3 previous years?

47.1 Total Duty collected (in millions): In 2006, 2007, 2008

47.11 Import duty collected (in millions): In 2006, 2007, 2008

47.12 Excise duty collected (in millions): In 2006, 2007, 2008

47.2 Total Duty collected as a percentage of the total revenue collected by central government? (in millions) In 2006, 2007, 2008

48. What is the annual operating budget of your Customs Service? In 2006, 2007, 2008

49. What is the average cost/collection ratio of your Customs Service?

The average ratio for the last three financial years is:

50. Do you apply a de minimis procedure under which Customs duties and taxes are not assessed for goods under a specified value? Yes No

If yes, specify the de minimis threshold.

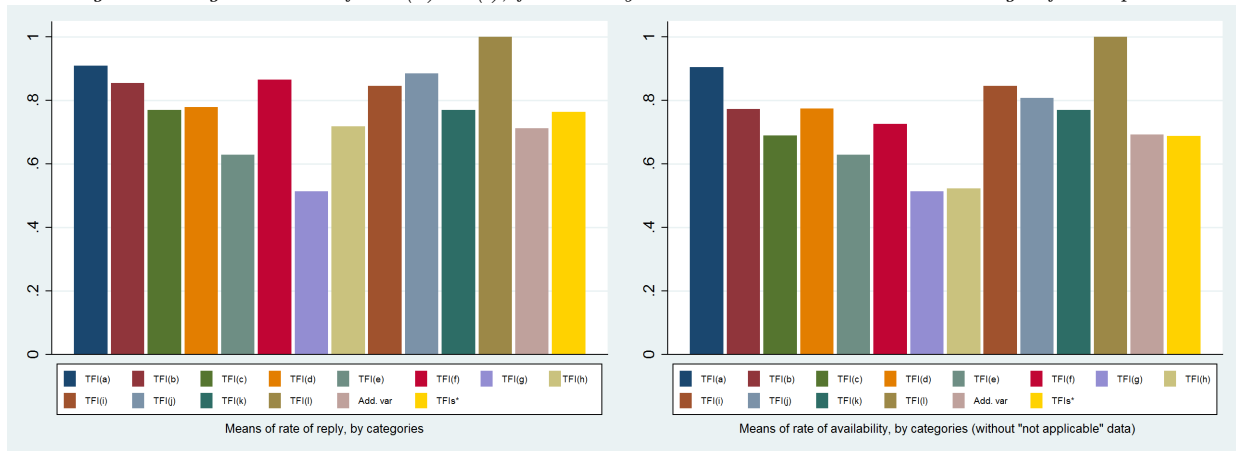
How many goods use this process regarding all trade? _ _ % of trade.

D.2.2 Rate of reply

The rate of reply to the questionnaire varies across countries, as stressed in figure 4.2 (Chapter 4). If there are some disparities across countries, it varies across categories too. The following figure D.1 draws the distribution of the rate of reply across categories. Some missing replies are not relevant as the related questions are not applicable due to hierarchical issues⁵¹⁹. For example, a country who does not provide advance rulings, will not reply to the following questions related to their number or the length of validity. Beyond the rate of reply, such empty replies, which do not account as missing replies, may hide the true volume of information provided by the questionnaire⁵²⁰. That is why, the following figure D.1 also reports the rate of availability of data after dropping “not applicable” data. Finally, figure D.2 provides an overview of the rate of reply by country and category.

Figure D.1: Means of rate of reply, by categories

Legend: Categories stand from (a) to (l), followed by additional variables and the average of all replies.



⁵¹⁹Classified as “empty” data (*em* in the dataset), they differ from missing data which account for “no replies” (*nr*).

⁵²⁰An empty reply is an information *per se*, but it reduces the number of countries covered by a category. As our sample is limited, it may have some consequences.

Figure D.2: Rate of reply to the questionnaire, by country and category



D.3 The variables

D.3.1 Definitions

I follow the latest revised version of the definitions developed by Moisé and Orliac (2010). However, I changed the scoring scheme of several variables and kept all initial variables as available in the first version of the paper. That is why, there are 99 variables, even if some of them will be dropped in the following steps due to availability issues or underlying links (double counting issues). Scores follow a multiple binary scheme where the top score (2) generally corresponds to the best performance. I also report the related provisions of the third Draft Consolidated Negotiating Text (DCNT) on trade facilitation.

INDICATOR (A) INFORMATION AVAILABILITY

Variable 1. Establishment of a national Customs website*

Scale	Definition	DCNT
0 1 2	(0) There is no clearly identified Customs website on the Internet. (1) There is an official website. (2) The website makes available a minimal set of information related to import or export procedures** in one of the official WTO languages***.	1.2

* A national Customs website can be part of a wider website like the Ministry of Trade and Finance website. Official directories, the replies to the questionnaire and the replies from Google to the following keywords “Country Name + Customs”, “Nom du Pays + douane” and “Pais + Aduanas” were used to identify such Customs’website.

** An official Customs website should at least cover the description of importation, exportation and transit procedures, electronic links to the forms and documents required, and the relevant legislation.

*** The official WTO languages are English (EN), Spanish (ES) and French (FR).

Variable 2. Customs online feedback

Scale	Definition	
0 1 2	(0) There is no possibility to provide feedback*. (1) There is a possibility by telephone or human contact only. (2) There are online means (email, forms) to provide feedback.	

* i.e. the possibility for users to provide feedback on the organization of the website: user-friendliness of the website, availability of information, explanation on new systems. . .

Variable 3. Publication of rate of duties

Scale	Definition	
0 1 2	(0) It is not possible to find the rate of duties on the Customs website. (1) There is information (or an electronic link) on the rate of duties. (2) Information is regularly updated*.	

* The date of the last update must be displayed.

Variable 4. Establishment of Enquiry Points

Scale	Definition	DCNT
0 2	(0) There are no Enquiry points to answer reasonable enquiries*. (2) There are one or more enquiry points.	1.3.1

* Enquiries of traders may refer to issues covered by [DCNT 1.1.1] such as: importation, exportation and transit procedures, applicable rate of duties, rules for classification or valuation, fees and taxes, restrictions or prohibitions, penalty provisions, appeal procedures and agreements with third countries.

Variable 5. Possibility to ask questions to Customs

Scale	Definition	
0 1 2	(0) There is no possibility to ask questions on Customs related matters*. (1) It is possible to ask question by electronic means or a telephone hotline. (2) There is a full time hotline (7/24).	

* Questions cover the same areas as the “reasonable enquiries” (See variable 4). Here, the enquiry point is the Customs.

Variable 6. Information on import and export procedures

Scale	Definition	DCNT
0 1 2	(0) There is not enough information on procedures and required forms and documents. (1) There is enough information*. (2) There are summary guides and/or specific highlights on these topics.	1.1.1 (a)

* The quantity of information is enough to understand the basic steps of the import or export procedures. It is not possible to provide a standardized minimum level of information, it varies across the regulations of each country which are more or less burdensome and the friendliness of each Customs website.

Variable 7. Procedures of border agencies

Scale	Definition	DCNT
0 1 2	(0) There is no possibility to download the required documents and forms. (1) Some documents and forms are available for downloading on the Customs website. (2) All required forms and documents are available online.	1.1.1 (a)

Variable 8. Procedures published at least xx days before entry into force

Scale	Definition	DCNT
0 1 2	(0) There is no interval between the publication of new or amended trade related laws and regulations, and their entry into force. (1) The average time between publication and entry into force* is below the OECD average. (2) The average time between publication and entry into force is on or above the OECD average.	2.1.1

* Average time is the interval generally applied in the country, either on the basis of applicable rules, such as an Information Act, or on the basis of practice.

Variable 9. Publication of agreements with third countries relating to the above issues

Scale	Definition	DCNT
0 1 2	(0) There is no information on the official Customs website about international agreements relating to importation, exportation or transit. (1) Such agreements are available on the official Customs website*. (2) Agreements are available together with topic-specific annotations**.	1.1.1 (h)

* At least an electronic link exists.

** The most relevant parts of the agreements (related to export, import or transit matters) are explained and highlighted.

Variable 10. Information on Appeal procedures on internet

Scale	Definition	DCNT
0 1 2	(0) The official Customs website does not provide any information on appeal procedures. (1) The information is displayed on the Customs website. (2) Information is displayed and there is user-friendly guidance on procedures.	1.1.1 (g)

Variable 11. Publication of decisions and examples of Customs classification

Scale	Definition	DCNT
0 2	(0) Decisions and examples of Customs classification are not published. (2) Decisions and examples of Customs classification are publicly available	1.1.1 (c)

Variable 12. Publication of necessary information on advance rulings*

Scale	Definition	DCNT
0 1 2	(0) Information is not displayed on the Customs website or it is only available in the relevant legislation (Customs Code). (1) There is a specific page on the Customs website dealing with Advance Ruling procedures. (2) There is a specific page and an online request procedures is available (forms sent by email)	3.1

* An advance ruling is a written decision provided by the competent authority to an applicant prior to the importation of the good covered by the application that sets forth the treatment the (Customs) authority shall provide to the good at the time of importation. It may cover tariff classification, valuation methods and their application, duty drawback, quotas, or origin of the good. Following this definition, Binding Tariff Information (BTI) is regarded as an advance ruling mechanism.

Variable 13. Publication of Penalty provisions for breaches of import and export formalities

Scale	Definition	DCNT
0 1 2	(0) There is no information on penalty procedures and the amount of penalties*. (1) There is no information available on the Customs website, but it is available in the relevant legislation (Customs Code). (2) Information is displayed on a dedicated page in the Customs website.	1.1.1 (f)

* Including in the relevant legislation.

Variable 14. Publication of Applicable legislation

Scale	Definition	DCNT
0 1 2	(0) There is no information on the Customs website (no electronic links). (1) Traders can find the relevant legislation on the Customs website. (2) There are quick references among the different pages of the website or user friendly guidance on key issues.	1.2.1 (c)

Variable 15. Publication of judicial decision examples

Scale	Definition	DCNT
0 2	(0) No examples of judicial decisions are published on the Customs website. (2) Examples of judicial decisions are published on the Customs website (or electronic link).	

Variable 16. Use of a specific hub for professional users*

Scale	Definition	DCNT
0 2	(0) There is no hub for professional users. (2) There is a dedicated page for companies or a "pro" version of the website.	

* A specific hub for professional users should be understood as a dedicated page for companies that provides specific information on tools for electronic interfaces and downloadable forms. It is more than a simple (or quick) distinction between companies and private individuals.

Variable 17. User manuals

Scale	Definition	DCNT
0 2	(0) There are no electronic manuals to help users when a new system is implemented. (2) Electronic manuals are available.	

Variable 18. Quality/User friendliness of the research/help function of the Customs website*

Scale	Definition	DCNT
0 1 2	(0) There is no research function or less than 2 positive matches**. (1) There are positive matches for at least 2 key words. (2) There are positive matches for at least 4 key words.	

* Almost each website has a research function (or a help or FAQ section), but their user-friendliness varies. This variable explores the answers of the research function to six key words: appeal, import procedures, penalty, advance ruling, classification and fees.

** We count a positive match when an answer is linked to relevant and sufficient information. Another approach would be to count the number of hits to these queries.

INDICATOR (B) INVOLVEMENT OF TRADE COMMUNITY**Variable 19. Communication of policy objectives***

Scale	Definition	Rev.19
0 2	(0) Policy objectives are not available. (2) Policy objectives are publicly available.	B.2

* Members [shall afford] appropriate opportunities to [interested parties] within their territories to comment on proposed introduction or amendment of trade-[related laws], regulations [and administrative rulings] [of general application]. [Members shall provide information of their policy objectives pursued and allow reasonable period for interested parties to submit comments]. [TN/TF/W/165/Rev.2]

Variable 20. Consultations between traders and government

Scale	Definition	DCNT
0 1 2	(0) There are no consultations between traders and governments. (1) There are specific consultations when introducing or amending trade related laws, regulations and administrative rulings of general application. (2) There are one or more structures for regular consultations.	2.2 and 2.3

Variable 21. Targeted stakeholders*

Scale	Definition	DCNT
0 1 2	(0) There are less than 2 stakeholder groups** involved. (1) There are at least 3 stakeholder groups involved. (2) There are 4 or more stakeholder groups involved.	

* This variable refers to the scope of the consultations launched by the authorities on Customs and border related matters.

** The stakeholder groups are: Small and Medium Enterprises (SMEs), Large traders, Transporters, Customs brokers and Citizens.

Variable 22. Number of Consultations*

Scale	Definition	DCNT
0 1 2	(0) There are no consultations. (1) The number is below the OECD average. (2) The number is on or above the OECD average.	

* Average number of consultations, including both regular and specific consultations, open to all parties, taking place per year.

Variable 23. Publication of drafts

Scale	Definition	DCNT
0 2	(0) Drafts* are not published before the entry into force of a rule. (2) The trading community is involved at the stage of drafting new trade related legislation.	2

* Drafts (or summaries) of trade related laws, regulations or administrative rulings of general application.

INDICATOR (C) - ADVANCE RULINGS**Variable 24. Number of advance ruling requests on tariff classification**

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and the 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	3.1.6

Variable 25. Number of advance ruling requests on origin

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and the 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	3.1.6

Variable 26. Number of advance ruling requests (total*)

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and the 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	3.1.6

* There is a collinearity issue with variables 24 and 25. So, this variable will be only used in case of the enlargement of the study to developing countries if there are more data for total advance rulings than tariff classification advance rulings. It is an alternative variable, dropped for the moment.

Variable 27. Length of time for which the advance ruling is valid (duration*)

Scale	Definition	DCNT
0 1 2	(0) The number is below the OECD average. (1) The number is on or above the OECD average. (2) There is no limit.	3.1.2

* Advance rulings apply with respect to the applicant during a set period of time, unless the facts or circumstances supporting the original ruling have changed. The validity of the ruling may vary according to the policy area. The variable focuses on tariff classification. For EC Members, I rely on the European Customs Code which applies a period of 6 years.

Variable 28. Publication of average issuance time

Scale	Definition	DCNT
0 1 2	(0) An average issuance time is not published on the Customs website or the related legislation. (1) The issuance time is below the OECD average. (2) The issuance time is on or above the OECD average.	3.1.3

Variable 29. Percentage of advance rulings issued within the published time period

Scale	Definition	DCNT
[0 2]	It is the score of variable 28 (issuance time) weighted by the percentage of advance rulings issued within that time period (Question 15.2). This is a continuous variable which ranges between 0 and 2*.	

* Assuming that the score of the variable 28 is 2 and the percentage of advance rulings issued within the published time period is 80%, then the final score of variable 29 will be 1.6 (e.g. 2 x 80%).

Variable 30. Publication of advance rulings of general interest

Scale	Definition	DCNT
0 2	(0) Advance rulings of significant interest to other interested parties are not published. (2) Advance rulings of general interest are publicly available.	3.1.5

Variable 31. Possibility to request a review of an advance ruling or its revocation / modification

Scale	Definition	DCNT
0 2	(0) It is not possible. (2) It is possible.	3.1.4

Variable 32. Refusal to issue or revocation of advance ruling are motivated

Scale	Definition	DCNT
0 2	(0) Refusal to issue or revocation are not motivated. (2) They are motivated.	3.1.1

INDICATOR (D) - APPEAL PROCEDURES**Variable 33. Publication of information on procedural rules for appeal***

Scale	Definition	DCNT
0 2	(0) There is no appeal mechanism for Customs matters or the related laws are not publicly available. (2) There is an appeal mechanism and it is explained in the Customs Code.	

* This variable is different from variable 10, which only refers to information displayed on the Customs website.

Variable 34. Appeal procedures

Scale	Definition	DCNT
0 2	(0) There is no possibility of judicial appeal. (2) Possibility of judicial following, or independent of, the administrative appeal.	4.1

Variable 35. Availability of information on the motives of the administration's decisions

Scale	Definition	DCNT
0 2	(0) There is no information on the motives. (2) Information about the motives of the administration's decision is provided.	4.1.5

Variable 36. Percent of appeals introduced by Customs or other border agencies resolved in favour of traders

Scale	Definition	DCNT
0 2	(0) The percentage is above the OECD average. (2) The percentage is on or below the OECD average.	

Variable 37. Percent of appeals introduced by traders resolved in favour of Customs or other border agencies

Scale	Definition	DCNT
0 2	(0) The percentage is below the OECD average. (2) The percentage is on or above the OECD average.	

Variable 38. Number of administrative appeals per year*

Scale	Definition	DCNT
0 1 2	(0) The ratio is above the 70th percentile of the sample. (1) The number is between the 30th and the 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

* I refer to the ratio of judicial appeals on administrative appeals. I rely on the ratio rather than the absolute number for which outputs are too ambiguous. The assumption is to favour administrative appeal than judicial ones.

Variable 39. Number of judicial appeals per year*

Scale	Definition	DCNT
0 2	(0) The average yearly number of judicial appeals is above the OECD average. (2) The average yearly number of judicial appeals is on or below the OECD average.	

* This variable is dropped of the composition of the indicator.

INDICATOR (E) - FEES AND CHARGES

Variable 40. Publication of Fees and Charges*

Scale	Definition	DCNT
0 1 2	(0) Information on fees and charges is not published**. (1) Information is available in paper publications (Gazette, Bulletin, Customs Code). (2) Information is displayed on the Customs website (on a dedicated page).	6.1.1 (d)

* This variable refers to all fees and charges (other than import/export duties or other than taxes within the purview of GATT Article III) imposed by Customs and other government agencies (including bodies that act on behalf of government agencies) for services rendered in connection with importation or exportation of goods or for any formality required for undertaking such importation or exportation.

** This information shall include the reason for the fee or charge for the service to be rendered, the responsible authority, the fees and charges that will be applied, and when and how payment is to be made. The information shall be published via an officially designated medium, and where feasible and possible, an official website. [DCNT 6.1.1(d)]

Variable 41. Evaluation of fees and charges

Scale	Definition	DCNT
0 2	(0) Fees and charges are calculated on an ad-valorem basis.* (2) Fees and charges are not calculated on an ad-valorem basis.	6.1.1 (b)

* However, the score is (2) if the fees and charges are less than the approximate cost of the service rendered.

Variable 42. Total Fees collected (quantity in \$US)

Scale	Definition	DCNT
0 1 2	(0) The ratio* is above the 70th percentile of the sample. (1) The ratio is between the 30th and the 70th percentile of the sample. (2) The ratio is below the 30th percentile of the sample.	

* i.e. the value of fees collected in one year divided by the value of trade flows (the same year).

Variable 43. Fees Transparency

Scale	Definition	DCNT
0 1 2	(0) There is no information about fees and charges*. (1) Insufficient information about fees and charges**. (2) The top score is granted if all applicable fees or charges have been accounted for.	

* There are no answers to Q25.1 to Q25.4 of the questionnaire.

** The answers do not reflect the whole set of fees and charges applied in the country.

Variable 44. Total Fees collected (number - diversity)

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample (1) The number is between the 30th and 70th percentile of the sample (2) The number is below the 30th percentile of the sample	

Variable 45. Reduction of the Number of Fees*

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample (1) The number is between the 30th and 70th percentile of the sample (2) The number is below the 30th percentile of the sample	6.1.1 (g)

* This variable needs several years to be computed.

INDICATOR (F) - FORMALITIES / DOCUMENTS**Variable 46. Use of copies***

Scale	Definition	DCNT
0 1 2	(0) Customs and other border agencies do not accept copies of documents. (1) Copies are accepted with exceptions (related to the type of good, the circumstances or the agency). (2) Copies are accepted without exceptions	10.4.2

* [For goods subject to control of legislation conformity and documentation requirement, Customs and other border agencies shall endeavour to accept copies of [documents, in particular (a)] commercial documents (invoices, [bills of lading]) and (b) where a government agency already holds the original and multiple authorities are involved. In the case of (b), Members shall accept authenticated copies by the agency holding the original in lieu of the original document]. [DCNT 10.4.2]

Variable 47. Percent of procedures that accept copies

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample (1) The number is between the 30th and 70th percentile of the sample (2) The number is above the 70th percentile of the sample	

Variable 48. Copies in cases of electronic lodging*

Scale	Definition	DCNT
0 1 2	(0) In cases of electronic lodging Customs and other border agencies do not accept copies of documents. (1) Copies are accepted with exceptions (related to the type of good, the circumstances or the agency). (2) Copies are accepted without exceptions	10.4.4

* [In cases where Goods declarations [and other supporting documents] are lodged electronically and authenticated by electronic signatures or electronic procedures and received by Customs and other border agencies [for the release and clearance of goods], [no other original of these documents shall be requested by Customs and other border agencies]. [DCNT 10.4.4]

Variable 49. International Standards compliance*

Scale	Definition	DCNT
0 1 2	(0) The rate of ratification is below the 30th percentile of the sample. (1) The rate of ratification is between the 30th and 70th percentile of the sample. (2) The rate of ratification is above the 70th percentile of the sample.	10.3.6

* The term "international standards" shall be understood to refer to [international] [standards] [conventions], or [agreements], [guidelines or recommendations developed or promulgated by] the relevant [relating to facilitating international trade and administered by] international intergovernmental organizations: World Customs Organization (WCO), and United Nations Organisations Center for Trade Facilitation and Electronic Business [DCNT 10.3.6]. To calculate this variable we have counted ratifications to the following conventions: Convention (2005) on Facilitation of International Maritime Traffic, Convention (2006) on International Civil Aviation, Convention (1990) on the Temporary Admission of Goods (Istanbul Convention), International Convention (1986) on the Harmonized Commodity Description and Coding System (HS Convention), General Annex of the International Convention (1999) on the Simplification and Harmonisation of Customs procedures (Revised Kyoto Convention) as proposed in DCNT 10.3.6

Variable 50. Number of documents for import*

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

* We refer to the Doing Business indicator [Trading Across the Border – Number of documents to import]. It records documents required for clearance by government ministries, Customs authorities, port and container terminal authorities (transport documents), health and technical control agencies and banks. Since payment is by letter of credit, all documents required by banks for the issuance or securing of a letter of credit are also taken into account. Documents that are renewed annually and that do not require renewal per shipment (for example, an annual tax clearance certificate) are not included. Doing Business data are based on specific assumptions about the business and the traded goods. The full methodology is provided on the Doing Business website.

Variable 51. Number of documents for export*

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

* We refer to the Doing Business indicator [Trading Across the Border – Number of documents to export]. See variable 50 for methodological details.

Variable 52. Number of documents for import - According to Customs*

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

* Doing Business refers to several assumptions to set the number of documents required to import which are not always accurate, depending on the cases. This variable reflects the number of documents for import required in a typical case provided by

Customs in the questionnaire.

INDICATOR (G) - FORMALITIES / AUTOMATION

Variable 53. Percent of import declarations cleared electronically

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

Variable 54. Percent of export declarations cleared electronically

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

Variable 55. Percent of procedures that can be expedited electronically*

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* Lacking sufficient replies from OECD Members to the questionnaire, a variable from the Logistic Performance Index (LPI) was used as a proxy. It is the reply to the following question: “can Customs declarations be submitted and processed electronically?” (percent of respondents answering high/very high).

Variable 56. Automation spending* (in \$US)

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* This variable refers to the amount spent for automating formalities connected with importation, exportation or transit, either in charge of the Customs agencies or other agencies dealing with goods import, export or transit, such as sanitary and phytosanitary control agencies, port authorities, etc. during the current year.

Variable 57. Ratio of Irregularities*

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* This variable refers to the number of irregularities divided by the number of examinations. Irregularities here cover both fraud and unintentional mistakes [called “Minor breaches” in DCNT 6.2.11] i.e inadvertent omissions or mistakes, including mistakes in interpretation of a Customs law, regulation or procedural requirements, made without fraudulent intent or gross negligence.

Variable 58. Use of Risk Management*

Scale	Definition	DCNT
0 1 2	(0) There are no risk management procedures in place. (1) In the process of implementation, not yet fully operational. (2) There is a fully operational procedure.	7.3

* Risk Management means the systematic application of management procedures and practices providing Customs [and other relevant border agencies] with the necessary information to address movements or consignments [on the basis of risks they represent] [DCNT 7.3.8]. “Risk” is defined as the potential for non-compliance with Customs and/or other relevant laws [DCNT 7.3.8]. [Countries shall concentrate Customs control, particularly documentary examinations and physical inspection, on high risk consignments while expediting the release of low risk consignments] [DCNT 7.3.3].

Variable 59. IT Systems capable of accepting EDI and exchanging data electronically*

Scale	Definition	DCNT
0 1 2	(0) IT systems are not ready for EDI. (1) In the process of implementation, not yet fully operational. (2) IT systems are ready for EDI.	

Variable 60. Digital certificates and signatures are in place

Scale	Definition	DCNT
0 2	(0) No use of electronic signatures. (2) Use of electronic signatures	

INDICATOR (H) - FORMALITIES / PROCEDURES**Variable 61. Single Window***

Scale	Definition	DCNT
0 1 2	(0) There is no Single Window. (1) A single window is planned or in the process of implementation**. (2) There is a Single Window.	10.5.1

* A Single Window is defined as a facility that allows parties involved in trade and transport to lodge standardized documentation and/or data with a single entry point to fulfill all import, export and transit-related regulatory requirements [UN/CEFACT Recommendation No.33]. Where information provided by national Customs websites or the Questionnaire (Q30) is not sufficient, the data is completed from overviews on national single windows available on the WCO and SITPRO websites.

** It can be a facility already in place acting as a Single Window (i.e not covering all the aspects of a Single Windows facility) or a facility in the process of implementation but not yet fully operational.

Variable 62. Publication of Average Clearance Time

Scale	Definition	DCNT
0 2	(0) The average time for the release and clearance of goods is not published in a consistent manner on a periodic basis. (2) The average time for the release and clearance of goods is published in a consistent manner on a periodic basis, for major Customs offices.	7.5.1

Variable 63. Clearance Time*

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	7.5.2

Variable 64. Percent of Pre-arrival Processing*

Scale	Definition	DCNT
[0 2]	The score is the percentage multiplied by the top score (2). So, 20% of pre-arrival processing gives a score of 0.4 (i.e. 0.20*2) <i>This is a continuous variable, i.e. the score of the variable ranges from 0 to 2.</i>	7.1.1

* Pre-arrival processing [is defined as] administrative procedures of Customs and other relevant border agencies to [accept][receive] and examine import [documentation (or data)] and other required information [submitted] by traders prior to the arrival of [goods and means of transport], in order to further expedite the [clearance][release] of goods [and/or the immediate release of goods upon arrival].

Variable 65. Percent of physical inspections

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

Variable 66. Percent of physical inspections - as regards perishable/ non-perishable goods

Scale	Definition	DCNT
0 2	(0) There is no difference of treatment. (2) There are differences of treatment.	

Variable 67. Percent of Post-clearance Audits (PCAs) carried out*

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	7.4

* Including both regular audit and targeted audit, in accordance with DCNT 7.4.2

Variable 68. Separation of release from final determination and payment of Customs duties*

Scale	Definition	DCNT
0 1 2	(0) There is no such mechanism. (1) Yes, but it is restricted to the Authorized Trader status. (2) Yes, without conditions other than the submission of guarantee	7.2.1

* Procedures [allowing] an importer to [remove] goods from Customs' [control] [prior to the [final] determination and payment of [Customs] duties, taxes, [fees and charges] [when these [are not] determined [due to difficulties of determination] prior to arrival][where it is decided that neither examination, physical inspection, nor any other submission is required]. [Subject to the commitment to produce, in addition to the guarantee for the amount owed, all documents subsequently required.] [when there is dispute between the Customs and the importer in determining the payment of duties, taxes and charges].

Variable 69. Treatment of perishable and non perishable goods concerning the separation of release*

Scale	Definition	DCNT
0 2	(0) There is no difference of treatment. (2) There are differences of treatment.	

Variable 70. Percent of releases prior to final determination and payment of Customs duties

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

Variable 71. Elimination of Pre-shipment Inspection

Scale	Definition	DCNT
0 2	(0) The country requires pre-shipment inspection on Customs matters. (2) No pre-shipment inspection is required on Customs matters.	10.6

Variable 72. Authorized traders* as a percentage of total traders

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	7.6

* These operators (including SMEs) meet specific criteria specified in DCNT 7.6.2 related to compliance with Customs (and other agencies) requirements. They benefit from additional facilitation measures [DCNT 7.6.3 and 7.6.4].

Variable 73. Annual percentage of trade handled by Authorized traders

Scale	Definition	DCNT
0 1 2	(0) Less than 10% (1) Between 10 and 50% (2) More than 50%	

Variable 74. How long it takes to obtain AT certification

Scale	Definition	DCNT
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

Variable 75. Authorized traders'benefits

Scale	Definition	DCNT
0 1 2	(0) Less than 2 positive replies to Q40.1- 6 of the Questionnaire (1) Between 2 and 4 positive replies. (2) More than 4 positive replies.	7.6.3 7.6.4

Variable 76. Laboratory accreditation

Scale	Definition	DCNT
0 1 2	(0) The rate* is below the 30th percentile of the sample. (1) The rate is between the 30th and 70th percentile of the sample. (2) The rate is above the 70th percentile of the sample.	

* It relies on the signatory of the International Laboratory Accreditation Cooperation (ILAC) and particularly on the number of accreditation bodies.

Variable 77. Simplification of procedures* (time)

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* As a proxy, we use the percent of respondents answering high/very high to the following question from the Logistic Performance Index (LPI): "Evolution of Customs clearance procedures over the 3 years".

Variable 78. Simplification of procedures* (cost)

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* As a proxy, we use the variation over the last 3 years of the cost to import (US\$ per container), according to the Doing Business database [Trading Across Border].

Indicator (I) - Border Agency Cooperation (Internal)**Variable 79. Cooperation between agencies at the national level (internal cooperation)**

Scale	Definition	DCNT
0 1 2	(0) There is no cooperation between the various border agencies. (1) National legislation allows for cooperation and mutual assistance between Customs and other relevant authorities. (2) National legislation encourages cooperation and roles and responsibilities are clearly established.	9.1.1

Variable 80. Cooperation between agencies on the ground at the national level (internal cooperation)

Scale	Definition	DCNT
0 1 2	(0) There is no cooperation on documentary and physical controls*. (1) There is cooperation on either documentary or physical controls. (2) There is cooperation on both documentary and physical controls.	

* Establishing a single location for one time documentary controls and/or a single location for physical verification of consignments.

Variable 81. Control delegation at the national level*

Scale	Definition	DCNT
0 1 2	(0) The number is below the 30th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is above the 70th percentile of the sample.	

* It refers to the number of government agencies which delegate controls to Customs authorities.

Variable 82. Regular meetings are held at the national level (including training seminars)

Scale	Definition	DCNT
0 1 2	(0) There are no meetings between the different public agencies involved in the procedures required to import or export goods. (1) Regular meetings are held to improve cooperation. (2) These meetings also include the private sector.	

Indicator (J) - Border Agency Cooperation (External)

Variable 83. Exchange programmes at the international level (external cooperation)

Scale	Definition	DCNT
0 1 2	(0) There are no programmes. (1) There are exchange programmes with neighbouring countries. (2) There are exchange programmes with neighbouring and third countries.	9.1.2

Variable 84. International Alignment*

Scale	Definition	DCNT
0 1 2	(0) The proximity with neighbouring countries is low**. [0%-25%] (1) The proximity with neighbouring countries is medium. [25%-75%] (2) The proximity with neighbouring countries is high. [75%-100%]	

* This variable checks if there is an alignment of the procedures and formalities with neighbouring countries [DCNT 9.1.2 (b)]. The “proximity” is proxied through a set of procedures and formalities including working days and hours, where the percentage of common factors measures the similarities, ranged from low to high (thresholds are 25% and 75%). The set includes the following variables: 46, 48, 49, 50, 53, 58, 59, 60, 61, 63, 68, 71, 76 and the working days and hours of the busiest Customs Offices, i.e. Customs Offices with a large volumes of traffic and a large type of consignments.

** We apply the following formula to determine the percentage of similarity (and so the score):

$$Proximity = \frac{100 \sum_{j=1}^N \beta_j \psi_{ij}^Y}{15N}$$

$$\psi_{ij}^V = \sum_{v=1}^{15} \psi_{ij}^v \text{ where } \begin{cases} \psi_{ij}^v = 1 & \text{if } s_i^v = s_j^v \\ \psi_{ij}^v = 0 & \text{if } s_i^v \neq s_j^v \end{cases}$$

$$\text{and } \beta_j = \frac{GDP_j}{\sum_{j=1}^N GDP_j}$$

Where the subscript (i) represents the domestic country and (j) the neighbouring countries (i.e. countries sharing a common border with the domestic country); the subscript (v) refers to the variables included in the reference set; (s_i^v) the score of country (i) for the variable (v); ψ_{ij}^v is a dummy variable which takes the value of one if the variable (v) is the same in both countries; and finally β_j is a weight which represent the relative economic weight of each neighbour. Note that there are 13 variables and 2 additional dimensions (working days and hours), numerated from 1 to 15.

Variable 85. Authorization for Customs agents to cross the border / Customs control delegation

Scale	Definition	
0 1 2	(0) The respondent replied "yes" to none or only one question among Q45.1, Q45.2 and Q45.3 (1) The respondent replied "yes" to two of the previous questions listed (2) The respondent replied "yes" to all of the previous questions listed	

INDICATOR (K) - CONSULARIZATION

Variable 86. Consular transaction requirements*

Scale	Definition	
0 2	(0) The country imposes consular transaction requirements. (2) The country does not impose consular transaction requirements.	8.1

* Defined as “the procedure of obtaining from a consul of the importing country in the territory of the exporting country, or in the territory of a third party, a consular invoice or a consular visa for a commercial invoice, certificate of origin, manifest, shippers’ export declaration, or any other Customs documentation in connection with the importation of the good”. [DCNT 8.1.1]

INDICATOR (L) - GOVERNANCE AND IMPARTIALITY

Variable 87. Clearly established and transparent structures and functions

Scale	Definition	
0 2	(0) Structures and functions of the Customs administration are not publicly described. (2) Structures and functions are publicly available.	

Variable 88. Effective sanctions against misconduct

Scale	Definition	
0 2	(0) Sanctions against misconduct are not published. (2) The code of conduct includes disciplinary provisions specifying what constitutes misconduct and the sanctions which apply.	

Variable 89 Establishment of a code of conduct

Scale	Definition	
0 2	(0) There is no Code of conduct. (2) A code setting out ethics policy is developed, published and made available to all employees.	

Variable 90. Ethics Policy and relevant training

Scale	Definition	
0 2	(0) There is no ethics policy. (2) A help desk is established to guide staff on ethical issues. The ethics policy observes all of the principles of the Revised Arusha Declaration.	

Variable 91. Clear provisions for the financing of the Customs administration

Scale	Definition	
0 2	(0) There is no public information as to the financing of the Customs administration. (2) Financing is determined and set out in legal provisions and related information is publicly available.	

Variable 92. Customs Valuation

Scale	Definition	
0 2	(0) There is not enough information on the Customs website. (2) There is a clear information on the Customs website*.	

Variable 93. Efficient internal communication about policies and procedures

Scale	Definition	
0 2	(2) Arrangements are in place to ensure that staff receives relevant information in good time about new legislation and regulation, and changes to existing legislation and regulation.	

Variable 94. Internal systems audit function

Scale	Definition	
0 2	(0) There is no internal audit mechanism. (2) An audit function for internal systems is established, adequately empowered and operational.	

Variable 95. Transparency and proportionality of non-compliance penalties

Scale	Definition	
0 2	(0) There is no publicly available information on non-compliance penalties. (2) Systems of non-compliance penalties are transparent and balanced.	

Variable 96. Publication of an annual Customs report

Scale	Definition	
0 1 2	(0) Customs do not publish annual activity reports. (1) Annual reports are available, but they contain insufficient information on Customs activities*. (2) Annual reports are available and contain sufficient information on Customs activities.	

* No information on budget and duties collected, complaints or efficiency indicators.

ADDITIONAL VARIABLES**Variable 97. Customs Revenue***

Scale	Definition	
[value]	Import duty, Excise duty, Total duty Percent of total duty in the government revenue. Annual Operating Budget of the Customs Service.	

* Three last years

Variable 98. The average cost/collection ratio of your Customs Service*

Scale	Definition	
0 1 2	(0) The number is above the 70th percentile of the sample. (1) The number is between the 30th and 70th percentile of the sample. (2) The number is below the 30th percentile of the sample.	

* This ratio is the value of duties collected for every \$1 (or 1€) received by public fund (operational budget). [It could be also the Customs expenditures for every \$1 (or 1€) collected].

Variable 99. A de minimis procedure*

Scale	Definition	
0 2	(0) Customs do not apply a de minimis procedure. (2) Yes, such a procedure exists.	

* Procedure under which Customs duties and taxes are not assessed for goods under a specified value. Where no Customs duties are in place a de minimis procedure is irrelevant.

D.3.2 Notes on variables

Variable (noted V.xx) refers to the 99 data points used to build the 12 categories of the Trade Facilitation Index and Question (noted Q.xx) refers to the data provided by the Questionnaire.

A. Variable 01 on the “establishment of a national Customs website”

V01 checks the establishment of a website clearly identified as the Customs’ window on the Internet. The content itself of the website is evaluated in the following variables, V02 to V18. The top score (2) is applied only if the website includes content in at least one of the WTO official languages (i.e. English, French or Spanish). However we do not take into account the amount or user-friendliness of information provided in one of these languages. Such data could be included in a future development of the Index, if it is expanded to non-member countries.

B. Variables 02 and 05 on “feedback” and “questions to Customs”

V02 checks the possibility for users to provide feedback on the organization of the website (user-friendliness of the website, availability of information, explanation on new systems). V05 refers to the possibility to contact Customs in order to get information on Customs related matters, like import procedures, classification issues.

C. Variables 06 and 07 on “procedures of border agencies”

V06 evaluates the degree of information provided on import and export procedures. V07 measures the possibility or not to download forms (for online use or not). The top score (2) is applied where all required documents for import (and export) are downloadable.

D. Variable 09 on the “publication of agreements”

The top score (2) is applied if agreements are available on the Customs website and also listed according to a topic-specific classification (e.g. all provisions of the agreement related to origin). The website of Swiss Customs administration could be used as a reference .

E. Variables 24 to 26 on “advance rulings”

An “advance ruling” is defined as in WTO document TN/TF/W/43/Rev.19 (30 June 2009), “*a determination of a Member, provided in writing to an applicant prior to the commencement of trade in the good concerned that sets forth the treatment the Member shall provide the applicant, in connection with an importation covered by the application, with regard to (a number of areas, still debated, including classification, valuation, origin, duty drawbacks and quotas)*”. In the our sample, advance rulings are mainly available for tariff classification and origin.

F. Variables 28 and 29 on “the issuance time”

V29 corresponds to Q15.2 and weights the score of V28. Consequently, V28 is not included in the final composition of the related categories. Assuming that the score of V28 is 2 and Q15.2 is 80%,

then the final score of V29 will be 1.6 (2×0.8).

G. Variables 40 to 45 on “fees and charges”

“Fees and charges” are defined as in WTO document TN/TF/W/43/Rev.19 (30 June 2009) “*all fees and charges, including shipping royalties or similar charges/taxes, imposed by Customs authorities or by any other government body of any Member, including tasks undertaken on their behalf, on or in connection with importation or exportation, or as a condition for importation or exportation*”.

H. Variable 43 on “Fees transparency”

Incomplete answers to Q25.1, Q25.2 and Q25.3 of the Questionnaire (number and type of fees and charges collected by Customs and other collecting entities) are taken to imply an insufficiently transparent fees structure for the administration and all the more so for economic operators. The top score (2) is granted if all applicable fees or charges have been accounted for.

I. Variables 44 and 45 on “the number of fees”

In the absence of information about the burden of individual fees, the number of fees is a proxy for assessing the more or less transparent or complex fees structure of a country.

J. Variable 45 on “reduction of the number of fees”

V45 refers to the evolution of the fees structure, as opposed to V44, assessing the stock of applicable fees. Data on V45 are currently not available due to the lack of time series on V44.

K. Variables 50 to 52 on “number of documents”

The number of documents is drawn from three sources: the Doing Business database (DB), the Questionnaire (Q27) and national Customs websites (information on import procedures). The number of documents indicated by DB (variable 50) should be higher than the list of necessary documents provided by Customs (variable 52), as the former includes documents required by private entities, such as banks.

L. Variables 68 to 70 on “release of goods”

These variables refer to the separation of release of goods from the final determination and payment of Customs duties and correspond to Q36.1 to Q36.5 from the questionnaire. V70 is the percentage of consignments benefiting from such separation.

M. Variables 77 and 78 on the “simplification of procedures”

V77 and V78 use proxies respectively from the LPI and DB databases. V78 on the cost of procedures should be controlled for inflation and for possible quality change issues. Note that, to date, the information provided by the LPI used for variable 77 are not anymore available on their website (so this variable is now dropped).

D.3.3 Ambiguous variables

Several variables lead to ambiguous outcomes. They can be interpreted as a sign of high or poor effectiveness. Their impact on trade may be ambiguous as well as the sense of causality. Such issues have been explored and we have retained one interpretation based on expert judgements and econometric tests. In addition, we have used the gravity regression outcomes to evaluate the most suitable interpretation⁵²¹. According to our interpretation, we have dropped some variables, weighted others or made some suggestions about possible issues.

Variables measuring “advance rulings” The first set of variables that lead to ambiguous interpretation was the variables related to advance rulings. Firstly, there is obviously a correlation with the volume of trade flows and so a causality issue. Absolute advance rulings figures need to be used carefully. Secondly, the use of advance rulings in a country may be the consequence of some facilities granted by Customs administrations (so high efficiency) or the signal of a poor efficiency leading traders to refer on such binding documents to increase the predictability and transparency of the import procedures. The statistical analysis of the EU Binding Tariff Information database as well as numerous interviews with Customs officers indicate that the efficiency of Customs administration -or at least some extended facilities- are one of the factors explaining the performance of several OECD countries. A recent analysis provided by the OECD confirms these insights [(Moïse and Orliac, 2010) Rev2]. So, we consider the number of advance rulings as trade facilitating proxies, even if the impact of trade flows must be kept in mind.

Variables 36 to 39 related on “appeal procedures” The variables measuring the percent of appeals resolved in favour of traders or Customs (V36 and V37) could be used as a proxy of Customs efficiency and/or traders compliance, which vary in the same way⁵²². One could also link these variables to judicial independence issues. The number of administrative and judicial appeals (V38 and V39) should be used to balance V36 and V37. The absolute number of cases are ambiguous and need to be used carefully. There are different explanations to a high/low number of cases. Thus, few cases could result from an inefficient appeal procedure but also from a good compliance environment. Moreover, we need to weigh these variables with the volume of trade flows. The distinction between administrative and judicial appeals is not obvious too. Indeed, in several countries only the criminal affairs go before the judicial system. All cases are closed at the administrative stage (or following a conciliation).

Variable 57 on “irregularities/number of examinations” Irregularities refer to all mistakes in a declaration/procedure (*i.e.* a false or incomplete declaration, discrepancies, etc.), so as to include both good faith mistakes by the trader and cases of fraud. The sign of this variable is indeterminate

⁵²¹As suggest by Hoffmann et al. (2008), the final step when you built an indicator, is to test it and to go back to the data in order to see the impact of its underlying structure.

⁵²²The Logistic Performance Index provides a useful proxy of the “*professionalism of Customs*” that could be used to extract such efficiency component.

due to opposite aspects: the ratio of irregularities against the number of examinations may relate to the efficiency of risk management as well as to a poor level of traders compliance. However, V57 can be controlled for other variables related to compliance.

D.3.4 Analysis of underlying links between variables

In order to avoid some methodological issues such as double counting issues or divergent outcomes, it was important to study the underlying structure of the dataset. That is why, we study the matrix of correlations of the variables for preliminary insights⁵²³. The average correlation rate among variables within each indicator is not very high and the majority of rates are positive, indicating factors that go in the same direction. The most significant exceptions are variables 1 and 2 (online information) included in the information availability indicator, which are negatively correlated to the other variables within the indicator. High correlations within the indicators can often be explained by obvious shared dimensions between variables. For instance:

- For advance rulings, variables 24 and 25 are sub-totals of variable 26 (AR number on classification, on origin, and total) and are not used simultaneously in the indicator.
- For formalities/documents, variables 47 (acceptance of copies) and 49 (international standards compliance) are correlated to some extent, presumably because acceptance of copies is consistent with the relevant standards contained in Chapter 3, General Annex of the Revised Kyoto Convention (in particular: GA 3.15, 3.16, 3.17 and 3.19). About this indicator, note that variables 51 and 52 are negatively correlated with the others. These divergent outcomes may be an explanation of the not expected sign that we find in our gravity regressions for this particular category⁵²⁴.
- For formalities/procedures, variables are quite correlated between them and in particular to the set of variables regarding authorized traders.

We also tested the variables with datasets commonly used as trade facilitation indicators (see section 2.1). Such characteristics could be usefully exploited as robustness checks and for the future extension of the study. It appears that several variables are correlated with traditional indicators measuring the effectiveness of border procedures, the quality of transparency and ICT development from Doing Business, the Freedom Index, the Global Competitiveness Report, the Global Enabling Trade Report, the Logistic Performance Index, and the World Competitiveness Yearbook⁵²⁵. Last but not least, they bear the expected signs.

⁵²³The correlation coefficient is not enough to conclude about the quality of the link between two variables. It does not encompass non linear relationships, missing data could lead to misleading interpretations and our variables are binaries ranging from 0 to 2.

⁵²⁴Numerous countries have not ratified all key “trade facilitating” arrangements (see section 3.2) but apply them (and *vice versa*). Thus, JAPAN does not have a high rate of ratification among trade facilitating Conventions (even if it may apply some of their provisions).

⁵²⁵Particularly variables 7, 18, 50, 55, 65 and 66. It is not surprising as some of them rely, by construction, on traditional indicators. It is not the case of variable 7, which is extremely correlated with other traditional indicators.

D.3.5 Accurate vs Ambiguous datasets

Data have been collected from publicly available sources and a specific questionnaire (section D.2.1) sent to OECD Members. There are some contradictions between our own observations and the questionnaire. It may be the consequence of reporting issues or mis-understanding issues (a respondent using an alternative definition for example). In order to account of such disparities and possible mistakes, I built two databases from our dataset. The first, called *the accurate database*, only reports double checked data or data where no doubts subsist. The second database, called *the ambiguous database*, reports all available data including the most “ambiguous”, either from the questionnaire or our own observations. These two databases are tested and used for robustness checks. Most of the time, I rely on the accurate dataset. As described in the following tables, these databases are quite similar in the end. However, despite tiny differences in the aggregate scores, the “ambiguous” database encompasses more variables (70) than the “accurate” one (63) and also covers more Members for numerous variables.

D.3.6 Statistics on the variables

The database initially encompasses ninety-nine variables and covers twenty six countries⁵²⁶. However, as explained previously (section 4.3.2.1), we do not include all variables in the final construction of the indicators. The following table D.1 provides an overview of the key statistics of variables - directly- kept in the construction of the TFIs. It is the set of variables remaining after data cleaning operations (double counting issues, reporting issues...) and satisfying the minimal rate of availability (60%). Note, that some variables are available for thirty one OECD countries. In such cases, I dropped the “extra-sample” data. However, all data and variables are kept for robustness checks and future expansion issues. Missing data cannot be extrapolated due to the nature of many variables and the absence of time series -to date- in most cases. Due to such limitations, the index is calculated as the simple average of the measures for which observations are available. It is a second best as this methodology involves to lose a piece of information. At least it is a transparent trick.

⁵²⁶The dataset covers twenty five OECD Members: AUSTRALIA, BELGIUM, CANADA, CZECH REPUBLIC, DENMARK, FRANCE, GERMANY, GREECE, HUNGARY, ITALY, JAPAN, KOREA, MEXICO, the NETHERLANDS, NEW-ZEALAND, NORWAY, POLAND, PORTUGAL, SLOVAKIA, SPAIN, SWEDEN, SWITZERLAND, TURKEY, the UNITED-KINGDOM and the UNITED STATES, and one observer HONG-KONG, CHINA.

Table D.1: Basic statistics on variables (scores range from 0 to 2)

Source: own calculation, based on data satisfying all conditions

Variable	Mean	Std. Dev.	Min.	Max.	N	Variable	Mean	Std. Dev.	Min.	Max.	N
v01	1.88	0.33	1	2	25	v01	1.85	0.37	1	2	26
v02	1.4	0.91	0	2	15	v02	1.3	0.93	0	2	23
v03	1.74	0.56	0	2	19	v03	1.64	0.64	0	2	25
v04	1.92	0.39	0	2	26	v04	1.92	0.39	0	2	26
v05	1.27	0.46	1	2	22	v05	1.26	0.45	1	2	23
v06	1.88	0.33	1	2	26	v06	1.88	0.33	1	2	26
v07	1.71	0.73	0	2	14	v07	1.78	0.6	0	2	23
v08	0.95	0.4	0	2	19	v08	0.95	0.39	0	2	20
v09	1.29	0.91	0	2	14	v09	1.14	0.91	0	2	21
v10	0.91	0.97	0	2	22	v10	0.88	0.95	0	2	24
v11	1.2	1.01	0	2	15	v11	1	0.97	0	2	20
v12	1.65	0.57	0	2	23	v12	1.74	0.54	0	2	23
v13	1.31	0.74	0	2	26	v13	1.64	0.76	0	2	25
v14	1.85	0.37	1	2	26	v14	1.88	0.33	1	2	26
v15	0.92	1.02	0	2	26	v15	0.92	1.02	0	2	26
v16	1	1.02	0	2	24	v16	0.96	1.02	0	2	25
v18	1.13	0.81	0	2	16	v17	1.44	0.86	0	2	18
v20	1.88	0.33	1	2	25	v18	0.82	0.85	0	2	22
v21	1.52	0.82	0	2	25	v19	1.73	0.46	1	2	15
v22	1.24	0.44	1	2	17	v20	1.88	0.33	1	2	25
v24	1.04	0.86	0	2	24	v21	1.52	0.82	0	2	25
v25	0.93	0.70	0	2	15	v22	1.24	0.44	1	2	17
v27	1	0.58	0	2	25	v24	1.04	0.84	0	2	25
v28	1.57	0.68	0	2	21	v25	0.93	0.70	0	2	15
v29	1.62	0.46	0.76	2	16	v27	1	0.58	0	2	25
v30	1.37	0.96	0	2	19	v28	1.52	0.67	0	2	23
v31	1.9	0.44	0	2	21	v29	1.55	0.48	0.76	2	18
v33	1.62	0.8	0	2	26	v30	1.37	0.96	0	2	19
v34	1.92	0.39	0	2	26	v31	1.9	0.44	0	2	21
v37	1.29	0.99	0	2	17	v33	1.62	0.8	0	2	26
v38	1	0.73	0	2	16	v34	1.92	0.39	0	2	26
v40	1.77	0.53	0	2	22	v37	1.22	1	0	2	18
v41	2	0	2	2	26	v38	1	0.79	0	2	17
v42	1	0.76	0	2	15	v40	1.82	0.5	0	2	22
v43	1.11	0.74	0	2	19	v41	2	0	2	2	26
v46	1.58	0.78	0	2	24	v42	1	0.76	0	2	15
v48	1.2	0.87	0	2	25	v43	1.2	0.70	0	2	20
v49	1.04	0.66	0	2	26	v44	1	0.73	0	2	16
v50	1	0.75	0	2	26	v46	1.56	0.77	0	2	25
v51	0.85	0.46	0	2	26	v48	1.2	0.87	0	2	25
v53	1	0.79	0	2	20	v49	1.04	0.66	0	2	26
v54	0.70	0.47	0	1	20	v50	1	0.75	0	2	26
v55	1.08	0.72	0	2	24	v51	0.85	0.46	0	2	26
v59	2	0	2	2	25	v53	1	0.77	0	2	21
v61	0.67	0.96	0	2	24	v54	0.71	0.46	0	1	21
v63	0.92	0.69	0	2	26	v55	1.08	0.72	0	2	24
v64	0.82	0.84	0	2	14	v58	2	0	2	2	14
v65	1	0.77	0	2	21	v59	2	0	2	2	26
v66	0.56	0.92	0	2	18	v61	0.77	0.99	0	2	26
v68	1.56	0.77	0	2	25	v62	0.14	0.48	0	2	21
v74	0.88	0.81	0	2	16	v63	0.92	0.69	0	2	26
v75	1.19	0.51	0	2	21	v64	0.82	0.84	0	2	14
v76	1.08	0.39	0	2	26	v65	1	0.77	0	2	21
v78	0.81	0.49	0	2	26	v66	0.56	0.92	0	2	18
v80	1.26	0.81	0	2	23	v68	1.52	0.77	0	2	25
v81	1.15	0.75	0	2	20	v72	1	0.78	0	2	14
v83	1.83	0.56	0	2	24	v74	0.88	0.81	0	2	16
v84	1	0.73	0	2	20	v75	1.24	0.54	0	2	21
v85	1	0.82	0	2	19	v76	1.08	0.39	0	2	26
v86	1.9	0.45	0	2	20	v78	0.81	0.49	0	2	26
v87	2	0	2	2	19	v80	1.26	0.81	0	2	23
v89	2	0	2	2	26	v81	1.14	0.73	0	2	21
v96	1.12	0.99	0	2	17	v83	1.83	0.56	0	2	24
						v84	1.1	0.64	0	2	20
						v85	1	0.82	0	2	19
						v86	1.9	0.45	0	2	20
						v87	2	0	2	2	22
						v89	2	0	2	2	26
						v92	1.6	0.83	0	2	15
						v96	1.04	0.98	0	2	23

Source: the accurate dataset

Source: the ambiguous dataset

D.4 The Trade Facilitation Indicators (TFIs)

D.4.1 Basic statistics on the Trade Facilitation Indicators

The following tables D.2 and D.3 provide key statistics about each component (category) of the TFIs. Despite some obvious similarities between OECD countries, which share a high level of development and common standards on many topics, it remains some disparities across countries. Figures and statistics confirm our preliminary insights⁵²⁷. Note that additional insights about Customs disparities among OECD countries are developed in Chapters 5 and 6.

Table D.2: Basic statistics about each category of the TFIs, based on the accurate dataset

Variable	Mean	Std. Dev.	Min.	Max.	N
Indicator (a) Information Availability	1.42	0.27	0.81	1.93	26
Indicator (b) Involvement of Trade Community	1.58	0.46	0.5	2	25
Indicator (c) Advance Rulings	1.31	0.4	0.6	2	25
Indicator (d) Appeal Procedures	1.56	0.45	0.67	2	26
Indicator (e) Fees and Charges	1.57	0.35	1	2	26
Indicator (f) Formalities - Documents	1.13	0.35	0.4	1.75	26
Indicator (g) Formalities - Automation	1.26	0.39	0.5	2	26
Indicator (h) Formalities - Procedures	0.98	0.29	0.3	1.37	26
Indicator (i) Border Agency Cooperation (Internal)	1.15	0.62	0	2	24
Indicator (j) Border Agency Cooperation (External)	1.28	0.52	0	2	26
Indicator (k) Consularization	1.9	0.45	0	2	20
Indicator (l) Governance and Impartiality	1.78	0.35	1	2	26
Naïve Global Indicator	1.4	0.2	0.92	1.73	26

Table D.3: Basic statistics about each category of the TFIs, based on the ambiguous dataset

Variable	Mean	Std. Dev.	Min.	Max.	N
Indicator (a) Information Availability	1.4	0.27	0.88	1.88	26
Indicator (b) Involvement of Trade Community	1.58	0.46	0.5	2	25
Indicator (c) Advance Rulings	1.31	0.36	0.71	1.83	25
Indicator (d) Appeal Procedures	1.54	0.54	0.5	2	26
Indicator (e) Fees and Charges	1.51	0.36	1	2	26
Indicator (f) Formalities - Documents	1.13	0.35	0.4	1.75	26
Indicator (g) Formalities - Automation	1.35	0.37	0.5	2	26
Indicator (h) Formalities - Procedures	0.91	0.26	0.38	1.3	26
Indicator (i) Border Agency Cooperation (Internal)	1.15	0.62	0	2	24
Indicator (j) Border Agency Cooperation (External)	1.33	0.46	0	2	26
Indicator (k) Consularization	1.9	0.45	0	2	20
Indicator (l) Governance and Impartiality	1.67	0.4	1	2	26
Naïve Global Indicator	1.39	0.2	0.93	1.71	26

The Indicators are constructed by using variables that satisfying the minimal rate of availability (60%) and follow a simple average aggregation scheme.

⁵²⁷Our methodology encourages such disparities as the sample was restricted to OECD countries. Only few variables do not vary across the sample (see table D.1). Consularization do not vary a lot as almost all countries have the top score (2). Its standard deviation is not null due to missing values.

D.4.2 Composition of the indicators

Each category (alternatively referred as indicator) relies on a different set of variables. We apply an equal weight to each variable, *i.e.* a weight of one⁵²⁸. However, the number of variables vary across each indicator, particularly when the required conditions on the rate of availability are applied. Thus, a variable may have more or less impact on the final composite indicator. The following table D.4 draws the distribution of variables across each category and the percent of variables kept, according to the used dataset (accurate or ambiguous). There are few differences, particularly for categories which do not cover many variables. Regarding the initial set of variables, around a third are not included in the construction of the TFIs⁵²⁹.

Table D.4: Distribution of variables across the indicators

Source: own calculation, based on data satisfying all conditions (%)

	TFI (a)	TFI (b)	TFI (c)	TFI (d)	TFI (e)	TFI (f)	TFI (g)	TFI (h)	TFI (i)	TFI (j)	TFI (k)	TFI (l)	TFI
Initial range (V.xx)	1 - 18	19 - 23	24 - 32	33 - 39	40 - 45	46 - 52	53 - 60	61 - 78	79 - 82	83 - 85	86	87 - 96	1 - 99
Accurate dataset	94.44	60	87.5	57.14	66.67	71.43	50	55.56	50	100	100	30	63.64
Ambiguous dataset	100	80	87.5	57.14	83.33	71.43	62.5	66.67	50	100	100	40	70.71

D.4.3 Weighting Schemes

In order to build each component of the TFI, the original paper refers to two weighting schemes, based on equal weights or expert judgements (Moisé and Orliac, 2010). I rely on the former in this version of the paper and do not explore the latter. In the expert judgement case, the weights were attributed to account of several particularities, such as hierarchical issues. However, in our sample which is restricted to -a part of- OECD countries, such considerations seem to have limited impact on the scores. Thus, previous researches have shown that this second configuration have only limited impact on the final indicators⁵³⁰. In addition, the lack of correlation among variables included in each category and the number of missing values, limit the use of statistical tools such as the Principal Component Analysis.

The aggregation of each component to create a composite indicator raises also the question of the weighting scheme. To date, no expert judgements have been used to deal of this issue. That is why, I rely on a simple average to build a “Naive” Trade Facilitation Indicator, based on its twelve components. Such an aggregate should be used for quick overview only. Indeed, obviously the

⁵²⁸An alternative weighting scheme has been used too. Indeed, we also referred to Expert Judgements (EJ) to weigh some variables, according to their specificities such as hierarchical or sequencing issues (see the following section D.4.3).

⁵²⁹Note that the indicator measuring the governance, *TFI (l)*, saw most of its variables dropped.

⁵³⁰The weights and preliminary insights are available in Moisé and Orliac (2009).

categories should not have the same importance. According to the correlation analysis (see below, section D.4.5), it was not possible to apply a principal component analysis.

D.4.4 The Trade Facilitation Indicators (scores)

The following tables D.5 and D.6 provide the TFIs scores for each country, according to the used dataset. There are few differences between the accurate and the ambiguous versions. The absolute scores must be viewed in the context of a sample limited to OECD countries. The TFIs have been designed to encompass as much variability as possible. But the methodologies used, such as the percentile tools, are sensible to the number of countries covered. Thus, the extension of the TFIs to a larger set of countries, particularly developing countries, should increase the scores of OECD countries.

Table D.5: The TFIs, according to the accurate dataset

Source: own calculation, based on 26 countries and an equal weighting scheme.

	TFI (a)	TFI (b)	TFI (c)	TFI (d)	TFI (e)	TFI (f)	TFI (g)	TFI (h)	TFI (i)	TFI (j)	TFI (k)	TFI (l)	TFI*
AUS	1.67	1.67	1.29	1.67	1.75	1	1.25	0.91	2	1	2	2	1.52
BEL	1.31	2	1.2	2	1.25	1.4	0.75	1.13		1.67	2	1	1.43
CAN	1.64	1.67	2	1	2	1.75	2	1.25		2		2	1.73
CHE	1.47	2	0.98	2	1.75	1.6	1.25	1.33	1.5	1	2	2	1.57
CZE	1.08	1.67	1.1	2	1	1.4	1	0.67	1	1	2	2	1.33
DEU	1.27	1.67	1.78	1	1.67	0.6	1.5	0.86	2	1.67	2	2	1.5
DNK	1.27	1.67	1.05	1	1.75	1.6	1.75	1.01	1.5	1.33		2	1.45
ESP	1.33	2	1	1	1	1	1.5	0.9	0	1.5	2	1.33	1.21
FRA	1.62	2	1.66	2	1.25	0.6	0.5	1.14	1.5	0.67		2	1.36
GBR	1.6	2	1.6	1.67	2	1.5	1.5	1.01	1	1.5	2	2	1.62
GRC	1.1	0.67	1.38	2	1	1	1	0.43	1	0	0	1.33	0.91
HKG	1.47	2		2	1.5	1.4	1.5	1	1.5	1	2	1.33	1.52
HUN	1.27		1	1	2	1.4	0.75	0.3	0	1		1.33	1.01
ITA	1.1	0.5	1	2	1	1.2	1	0.75	0	1	2	1	1.05
JPN	1.8	0.67	1	1.5	2	0.4	1.5	1.13	1.5	0		2	1.23
KOR	1.75	1	0.83	1.33	1.75	1.2	1.67	1.31	1.5	2	2	2	1.53
MEX	0.81	2	1.4	1	1.5	0.8	1.67	0.78	1	1	2	2	1.33
NLD	1.81	1.67	1.67	2	1.67	1	1.25	1.3	2	1.67	2	2	1.67
NOR	1.27	1.67	1.8	2	1.25	1.2	1.75	1.25	1.5	1.67	2	1.67	1.58
NZL	1.29	1.67	0.6	1.33	1.75	1	1.5	1.37	1	1.5	2	2	1.42
POL	1.5	1.33	1	1.5	2	1.2	1	0.5	1	1.67	2	2	1.39
PRT	1.55	1	0.83	1.33	2	1.2	1.25	1	1	2	2	2	1.43
SVK	1.67	1.67	1.5	1.67	1.67	0.8	0.5	0.7	1	1.33	2	2	1.37
SWE	1.21	2	1.2	0.67	1.33	1.4	1.25	1.25	1.5	1.67	2	1.33	1.4
TUR	1.18	1.67	1.25	2	1.75	0.6	1.25	1	0	1		2	1.24
USA	1.93	1.67	2	2	1.25	1.2	1	1.13	1.5	1.33	2	2	1.58

TFI* refers on the simple average of all the components of the TFI, *i.e.* the naïve version. It is only provided for a quick overview, but should not be interpreted *per se* as all components share the same importance under this configuration⁵³¹.

⁵³¹TFI (k) on *Consularization* should be dropped of the average for example.

Table D.6: The TFIs, according to the ambiguous dataset

Source: own calculation, based on 26 countries and an equal weighting scheme.

	TFI (a)	TFI (b)	TFI (c)	TFI (d)	TFI (e)	TFI (f)	TFI (g)	TFI (h)	TFI (i)	TFI (j)	TFI (k)	TFI (l)	TFI*
AUS	1.69	1.75	1.29	1.75	1.6	1	1.4	0.8	2	1	2	2	1.52
BEL	1.35	2	1.2	2	1	1.4	0.75	1.1		1.67	2	1	1.41
CAN	1.63	1.75	1.75	1.25	2	1.75	2	1		2		2	1.71
CHE	1.33	2	0.98	2	1.6	1.6	1.4	1.28	1.5	1	2	2	1.56
CZE	1.28	1.67	1.1	2	1.25	1.4	1.2	0.64	1	1	2	2	1.38
DEU	1.22	1.75	1.78	0.67	1.75	0.6	1.67	0.75	2	1.67	2	2	1.49
DNK	1.33	1.67	1.05	1.25	1.8	1.6	1.75	1.01	1.5	1.33		1.75	1.46
ESP	1.35	2	1	0.67	1	1	1.5	0.75	0	1.5	2	1.33	1.18
FRA	1.67	1.67	1.66	2	1.75	0.6	0.8	1	1.5	0.67		2	1.39
GBR	1.53	2	1.6	1.75	2	1.6	1.6	1.09	1	1.5	2	2	1.64
GRC	1.18	0.75	1.38	2	1	1	1.67	0.38	1	1	0	1	1.03
HKG	1.5	2		2	1.2	1.4	1.6	0.89	1.5	1	2	1	1.46
HUN	0.93		1	0.5	2	1.4	0.75	0.42	0	1		1.33	0.93
ITA	1	0.5	1	2	1	1.2	1	0.67	0	1	2	1	1.03
JPN	1.8	0.67	1.25	1.67	1.75	0.4	1.67	0.99	1.5	0		2	1.24
KOR	1.61	1	0.83	1.5	1.6	1.2	1.75	1.19	1.5	2	2	1.5	1.47
MEX	0.88	2	1.4	0.67	1.6	0.8	1.67	0.78	1	1	2	2	1.32
NLD	1.82	1.75	1.67	2	1.67	1	1.4	1.3	2	1.67	2	2	1.69
NOR	1.35	1.75	1.8	2	1	1.2	1.5	1.2	1.5	1.67	2	1.25	1.52
NZL	1.33	1.75	0.67	1.5	1.6	1	1.5	1.29	1	1.5	2	2	1.43
POL	1.38	1.25	1	1.25	1.67	1.2	1	0.67	1	1.67	2	2	1.34
PRT	1.69	1.33	0.83	1.5	2	1.2	1.25	0.92	1	2	2	2	1.48
SVK	1.41	1.67	1.5	1.75	1.67	0.8	0.5	0.58	1	1.33	2	1.33	1.3
SWE	1.2	1.75	1.2	0.5	1	1.2	1.4	1.1	1.5	1.67	2	1.33	1.32
TUR	1.11	1.75	1.25	2	1.6	0.6	1.25	0.88	0	1.5		1.5	1.22
USA	1.88	1.75	1.83	2	1.2	1.2	1.25	1	1.5	1.33	2	2	1.58

D.4.5 Correlations between each component

As for the variables, we have explored the correlations between each component and with traditional indicators. I only display the matrix of correlations related to the accurate dataset⁵³². According to the following matrix (Table D.7), there are not many correlations between each category⁵³³. As explained previously, it does not mean that they do not share similar dimensions.

Table D.7: Correlation Matrix of the TFIs (accurate dataset)

Source: own calculation, based on 26 countries and an equal weighting scheme.

	TFI (a)	TFI (b)	TFI (c)	TFI (d)	TFI (e)	TFI (f)	TFI (g)	TFI (h)	TFI (i)	TFI (j)	TFI (k)	TFI (l)
TFI (a)	1.0000											
TFI (b)	-0.0597	1.0000										
TFI (c)	0.2507	0.3116	1.0000									
TFI (d)	0.1760	-0.1156	0.1856	1.0000								
TFI (e)	0.4091*	-0.0278	-0.1273	-0.3468	1.0000							
TFI (f)	-0.0335	0.2233	-0.0509	-0.0888	0.0538	1.0000						
TFI (g)	-0.0551	0.0339	0.0440	-0.4171*	0.2751	0.2064	1.0000					
TFI (h)	0.4029*	0.3087	0.1095	0.0520	0.1067	0.0908	0.4359*	1.0000				
TFI (i)	0.4541*	0.1930	0.3947	0.0676	0.1549	-0.0287	0.2372	0.4886*	1.0000			
TFI (j)	0.1763	0.2951	0.0833	-0.3480	0.2421	0.4191*	0.3030	0.3685	0.1179	1.0000		
TFI (k)	0.2574	0.4730*	-0.0688	-0.2110	0.3412	0.1423	0.1828	0.4596*	0.0909	0.6907*	1.0000	
TFI (l)	0.4032*	0.1046	0.1809	-0.0629	0.5406*	-0.2331	0.2424	0.2583	0.4736*	0.1217	0.2632	1.0000

Stars stands for pairwise correlation coefficients significant at the 5% level

The analysis of correlations with traditional indicators shows several indicators that are significant at 5%. In addition, these coefficients bear the expected signs. Indicators (g) (h) and (i) are particularly correlated with indicators from Doing Business (trading across the border), the Freedom Index (business freedom and free of corruption), the Global Competitiveness Report (Customs procedures and government regulation), the Global Enabling Trade Report (Border sub-index, Customs -Pillar2, procedures -Pillar3 and transparency -Pillar4), the Logistic Performance Index (overall score and Customs score), and the World Competitiveness Yearbook (Customs Authorities). Indicator (a) on *information availability* is also widely correlated with the Corruption Perception Index, the Networked Readiness Index, the Global Enabling Trade Report (Customs -Pillar2 and the quality of ICT -pillar7), the Customs Services Index, and the Logistic Performance Index (overall score and Customs score). Such correlations are encouraging. However, note that indicator (d) on *appeal procedures* does not match any positive correlations with proxies of transparency, corruption or judicial independence.

D.4.6 Complementary thoughts about the indicators

As mentioned in chapter 4, the nature of the variables and the related scoring schemes could lead to several biases or misleading interpretations. However, such biases remain limited in the current

⁵³²The ambiguous dataset draws similar coefficients.

⁵³³It is also confirmed after the Sidak and the Bonferroni adjustments.

database, even if some would arise with the introduction of additional countries such as the developing countries. The composition of the indicators could also be a source of debate. Indeed, it is not common to use a mix of outcomes and policy variables even if some providers do it⁵³⁴. This strategy has been followed in order to cover the maximum trade facilitation dimensions within each category and the variance between binding policies and their transposition in reality. Table D.8 describes the composition of the TFIs according the type of variable.

Table D.8: Policy variables and outcomes in the TFIs

Indicators	range	original		available			
		variables	outcomes	(%)	variables*	outcomes	(%)
TFI(a)	1-18	18	1	5,56	17	1	5,88
TFI(b)	19-23	5	2	40,00	3	2	66,67
TFI(c)	24-32	9	5	55,56	6	4	66,67
TFI(d)	33-39	7	4	57,14	4	2	50,00
TFI(e)	40-45	6	3	50,00	4	1	25,00
TFI(f)	46-52	7	5	71,43	5	3	60,00
TFI(g)	53-60	8	5	62,50	4	3	75,00
TFI(h)	61-78	18	10	55,56	10	6	60,00
TFI(i)	79-82	4	1	25,00	2	1	50,00
TFI(j)	83-85	4	1	25,00	3	1	33,33
TFI(k)	86	1	0	0,00	1	0	0,00
TFI(l)	87-96	10	0	0,00	3	0	0,00
TFIs	1-99	99	37		62	24	

Based on the accurate database

* Data satisfying all conditions

It appears that a set of indicators are mainly based on outcomes variables, *i.e* categories (b)(c)(f)(g) and (h), while another set does not, *i.e* categories (a)(e)(j)(k) and (l). If some issues could arise, it would be in categories (d) and (i) where variables are equally distributed between outcomes and policy variables, or in the composite indicator. To avoid possible biases one can

- Restrict the construction of the indicator to one type of variables
- Transpose outcomes variables into policy variables

If we split the database between the two sets of variables, the basic statistics (Table D.9) show that standard deviations are quite similar between the current database and the split databases. It appears also that policy variables lead to higher scores than outcomes variables. It could be the consequence of numerous extreme dummy variables (0;2) for the policy variables as many countries apply trade facilitation policies (homogeneous sample - OECD countries). The smaller scores within the outcomes dataset are accentuated by the multiple binary scoring strategy based on percentiles as well as the various applications - or performance - of each policy across OECD Members. The impact analysis should take into account of such disparities. It may be also possible to explore these particular datasets in order to observe potential biases. However the number of variables is limited under such configurations, at least to date.

⁵³⁴Such as the index of Economic Freedom or some indicators provided by Doing Business.

Table D.9: Basic statistics about each category of the TFIs according the type of variables

Categories	Policy variables					Outcomes variables				
	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs
TFI(a)	1,45	0,27	0,87	2	26	0,95	0,40	0	2	19
TFI(b)	1,88	0,33	1	2	25	1,38	0,67	0	2	25
TFI(c)	1,69	0,40	0,97	2	24	1,04	0,55	0	2	26
TFI(d)	1,92	0,39	0	2	26	1,10	0,70	0	2	20
TFI(e)	1,57	0,35	1	2	26	1,11	0,74	0	2	19
TFI(f)	1,42	0,66	0	2	26	0,96	0,33	0,33	1,67	26
TFI(g)	2,00	0,00	2	2	25	0,97	0,50	0	2	26
TFI(h)	0,99	0,58	0	2	26	0,98	0,32	0,33	1,67	26
TFI(i)	1,26	0,81	0	2	23	1,15	0,75	0	2	20
TFI(j)	1,48	0,56	0	2	24	1,00	0,73	0	2	20
TFI(k)	1,90	0,45	0	2	20					
TFI(l)	1,78	0,35	1	2	26					
TFIs	1,60	0,19	1,16	1,96	26	1,07	0,25	0,59	1,52	26

Based on data satisfying all conditions (accurate database)

D.5 The Gravity and Novy's Specifications

D.5.1 The gravity models (trade flows)

As explained previously, we face a series of issues to test the TFIs under their current form. There is not any ideal gravity specification. That is why, we run a series of gravity specifications to control different interpretations. We first run a regression (Reg1) without country or country-pair fixed effects, reintroducing the output variables which are country-year specific and were dropped from the naive specification.

$$\ln x_{ijt}^k = \beta_0^k + \beta_1^k \ln d_{ij} + \beta_2^k Contig_{ij} + \beta_3^k Lang_{ij} + \beta_4^k Col_{ij} + \beta_5^k Y_{it} + \beta_6^k E_{jt} + \beta_7^k TFI_j^{c,v} + D_t + D_k + \varepsilon_{ijt}^k \quad (D.1)$$

We also run a similar regression (Reg1bis) introducing the geometric average of the TFIs:

$$TFI_{ij}^{c,v} = \sqrt[2]{TFI_i^{c,v} TFI_j^{c,v}} \quad (D.2)$$

This computation is adopted for the Novy's methodology (see below). We use it in the gravity specification too, as it provides a more accurate index. Indeed, a "poor" index (with several missing variables) can be merged with a more accurate one. The geometric average of these two index will smooth some accuracy issues. As a counterpart of such transformation, it is more difficult to conclude on the country specific part⁵³⁵.

Then, we run another regression introducing country-pair year fixed effects. They should account for all attributes related to this dimension and so we drop all variables sharing this dimension like distance. If this specification is better than the previous one, as it accounts for more dimensions, it is not possible to use it due to the important lack of degree of freedom in the regression. That is

⁵³⁵Note that it accounts for both importer and exporter dimensions.

why we prefer to use the country-pair fixed effects. This leads to the regression (reg2_cp):

$$\ln x_{ijt}^k = \beta_0^k + \beta_1^k TFI_j^{c,v} + \beta_2^k TFI_i^{c,v} + D_{ij} + D_t + \varepsilon_{ijt}^k \quad (\text{D.3})$$

We could also include other country specific attributes to avoid that TFIs' variables rely on underlying elements. Indeed, under such a configuration the TFIs could play the role of fixed effects as they do not vary across time (at this stage of the compilation). We called this phenomenon "the fixed effects artifact". So results of reg2 should be used carefully. Finally we also run a third specification (reg3) introducing a remoteness variable:

$$\ln x_{ijt}^k = \gamma_{ij} + \beta_5^k Y_{it} + \beta_6^k E_{jt} + \beta_7^k TFI_j^{c,v} + \beta_8^k REM_{it} + D_t + D_k + \varepsilon_{ijt}^k \quad (\text{D.4})$$

Where $\gamma_{ij} = \beta_0^k + \beta_1^k \ln d_{ij} + \beta_2^k Contig_{ij} + \beta_3^k Lang_{ij} + \beta_4^k Col_{ij}$. Baseline results are estimated by the Ordinary Least Square (OLS) with robust standard errors. The following tables provide a summary of the results for several sectors. As a robustness check we also report the results obtained by a *Poisson Pseudo-Maximum Likelihood* (PPML) estimation and a cross section estimation. The PPML has the advantage of dealing with the heteroskedasticity issue (Wooldridge, 2003) and the presence of zeros (Silva and Tenreyro, 2006). With the PPML, the gravity model can be estimated in its original multiplicative form, without be log-linearized.

The Remoteness Index The Global Enabling Trade Report follows the following construction for the economic remoteness:

$$REM_i = \sum_{i \neq j} DIST_{ij} \frac{GDP_j}{\sum_{k \neq i} GDP_k} \quad (\text{D.5})$$

where $\frac{GDP_j}{\sum_{k \neq i} GDP_k}$ is proxied by the share of country (j)'s GDP in world GDP less country (i)'s share. It corresponds to the sum of distances between (j) and all the other countries weighted by the share of each country in world's GDP. We use 2005 and 2007 as reference year.

D.5.2 The Novy's specification (trade costs)

Novy (2008) has developed a simple measure of bilateral trade costs derived from the gravity model of Anderson and van Wincoop (2003, 2004). After several rearrangements of the basic gravity equation and the multilateral resistance, he derived an expression for the geometric average trade costs in both directions, a measure of bilateral trade costs relative to domestic trade costs. Chen and Novy (2009) generalized the model at the sectoral level, leading to the following expression of trade costs:

$$\theta_{ij}^k = \left(\frac{t_{ij}^k t_{ji}^k}{t_{ii}^k t_{jj}^k} \right)^{\frac{1}{2}} = \left(\frac{x_{ii}^k x_{jj}^k}{x_{ij}^k x_{ji}^k} \right)^{\frac{1}{2(\sigma_k - 1)}} \quad (\text{D.6})$$

Where x_{ii}^k denotes domestic production for country i and sector k , x_{ij}^k the exports from i to j , for

sector k , and σ_k the elasticity of substitution across goods for sector k . As reminded previously, these trade costs are a geometric average of trade costs in both directions. More explanations are available in section 4.5.2 and the derivation from the Anderson and Wincoop model is developed in Novy (2008) and summarized by Duval and Utoktham (2011).

In our analysis we run the following specifications:

- Specification 1 (S1): We introduce an interacted variable of the TFIs as independent variable in the regression. The variables are computed as a geometric mean of both directions.
- Specification 2 (S2): We include the country specific TFIs (for country i and country j).

Whatever the specification, in order to calculate trade costs we need specific data, like intra-national trade⁵³⁶. To do that, we use a new database provided by Miroudot et al. (2010), which includes all necessary variables to run such models.

In the first specification we use a transformation of the TFIs. The interacted variable is computed as a geometric mean of both directions: $TFI_{ij}^{c,v} = \sqrt{TFI_i^{c,v}TFI_j^{c,v}}$. This computation appears well adapted to Novy's methodology and also provides a more accurate index as explained previously. As a counterpart of such transformation, it is more difficult to conclude on the country specific part. We face the same issues as in the gravity equations:

- The list of controls varies within each study and it is not possible and even desirable to add too many variables.
- If we include fixed effects, regressions must be more accurate, but we have to deal with perfect co-linearity between the attributes and the fixed effects of the same dimension.

So, we run a first specification (reg4):

$$\ln \sigma_{ijt}^k = \beta_0^k + \beta_1^k \ln d_{ij} + \beta_2^k Contig_{ij} + \beta_3^k Lang_{ij} + \beta_4^k Col_{ij} + \beta_5^k TFI_{ij}^{c,v} + D_{it} + D_t + D_k + \varepsilon_{ijt}^k \quad (D.7)$$

Subscripts and variables are the same as in the gravity equation. Other variables stand for trade costs σ_{ijt}^k , the interacted index $TFI_{ij}^{c,v}$ and a country-time dummy D_{it} . Tables in Annex 8 provide the results, with OLS estimation and robust standard errors. Then, we test a second specification, following the previous specification without an interacted index but a country specific index, in order to extract the impact of each country on trade costs. Note that as for gravity regressions, country-pair-time dummies are dropped due to the lack of degree of freedom, so we favour the country-pair dummies. This leads to the following regression (reg5_cp):

$$\ln \sigma_{ijt}^k = \beta_0^k + \beta_1^k TFI_j^{c,v} + \beta_2^k TFI_i^{c,v} + D_{ij} + D_t + D_k + \varepsilon_{ijt}^k \quad (D.8)$$

⁵³⁶Intra-national trade is simply the difference between production (domestic output) and export. But we cannot use GDP directly due to construction issues.

As for the corresponding gravity equation (2), we are faced with fixed effect artifacts as the TFIs could account for country-specific fixed effects by construction under such specification. Indeed, as the indicators do not vary across time and are the unique country-specific variables included in the regressions, they could act as fixed effects covering the same dimension. Accordingly, this regression should be used as a complementary tool only.

D.5.3 Sources and Expected signs of variables

The traditional variables such as *distance*, *contiguity*, *common language* or *colony ties* come from the database provided by the CEPII (French Research Center in International Economics). We use the logarithm of the geodesic distance, following the great circle formula, which uses latitudes and longitudes of the most important cities (density of population) in kilometers between reporting country and its trade partner. Under the gravity specifications, it is expected to find a negative coefficient for distance and all trade impediments such as tariffs, and a positive one for other variables, including the TFIs. Under the Novy's specification, expected signs are the reverse of the gravity specifications.

The trade costs are generated from the Miroudot et al. (2010) database by setting $\sigma=8$, following Novy (2008). In order to measure trade costs, the database follows Novy's methodology at a sectoral level. It uses a classification of 29 sectors based on ISIC Rev.3 which is the industry classification used in national accounts data such as input-output tables. As the total domestic demand for a given sector is required under the Novy's specification, the database uses gross sectoral output⁵³⁷. The database covers a wide range of countries and years, so different sources are used to fill the gaps. It favours data from the OECD's Input-Output tables, but also relies on Eurostat Input-Output tables, the OECD's STAN database and the EU-KLEMS project. It also computes gross output/value added ratios when all alternative sources have already been exhausted. All values are converted in US\$ and deal with basic and purchaser price issues too. Finally, the database relies on the OECD's ITCS database which provides data on bilateral trade flows and uses additional sources for services. Despite great efforts, according the date and the sectoral aggregation level, the database coverage is not the same and it remains some missing values⁵³⁸.

The following tables (D.10, D.11 and D.12) provide basic statistics about the distribution of trade costs between 2000 and 2008 across sectors. There is a continuous decrease in trade costs since a decade in all sectors except manufacturing goods. It appears also as evoked previously that some data are missing according the year, the sector and the country. It is confirmed in table D.13 where trade costs are detailed by countries in a cross-section sample (2005). Note that trade costs cover only bilateral trade between OECD countries for which data are available.

⁵³⁷It comprises intermediate consumption contrary to the sectoral GDP.

⁵³⁸Thus Hong Kong, China or Belgium seem to suffer of several missing values.

Table D.10: Distribution of trade costs, all sectors taken into account

	Variable	Obs	Mean	Std. Dev.	Min	Max
2000	tijk	14944	4,238	6,358	0,000	42,122
2001	tijk	14540	4,403	6,545	0,000	42,724
2002	tijk	15749	4,178	6,136	0,000	43,439
2003	tijk	15501	4,080	6,051	0,000	42,607
2004	tijk	15801	3,721	5,517	0,000	45,626
2005	tijk	16550	3,699	5,459	0,000	45,632
2006	tijk	13377	3,832	5,375	0,932	46,558
2007	tijk	10514	3,393	4,676	0,988	47,195
2008	tijk	2395	2,512	2,518	0,876	25,660

Miroudot and al. (2010) restricted to our country coverage

** All sectors based on ISIC Rev.3 (01-99)*

Table D.11: Distribution of trade costs at the agricultural level

	Variable	Obs	Mean	Std. Dev.	Min	Max
2000	tijk	406	2,849	1,285	1,413	12,484
2001	tijk	401	2,830	1,405	1,377	16,117
2002	tijk	441	2,811	1,216	1,337	13,162
2003	tijk	442	2,776	1,060	1,273	12,951
2004	tijk	409	2,697	0,748	1,382	5,660
2005	tijk	418	2,719	0,989	1,254	11,781
2006	tijk	370	2,596	0,986	1,208	12,351
2007	tijk	295	2,450	0,696	1,166	5,154
2008	tijk	126	2,117	0,469	1,131	4,290

Miroudot and al. (2010) restricted to our country coverage

** Agricultural aggregate, based on ISIC Rev.3 (01-05)*

Recently Duval and Utoktham (2011) has developed another database on trade costs. Based on alternative sources they defined x_{ii} and x_{jj} as Gross Domestic Product (GDP) less export, but still set $\sigma=8$. They also calculate trade costs adjusted for the share of services in GDP⁵³⁹. Their database is available online on the UNESCAP website. I reshape their database to our sample and use it as a robustness check of the value of trade costs. Comparisons are based on the “Total Economy” aggregate as Duval and Utoktham (2011) do not rely on sector analysis. The following tables D.14 and D.15 show that trade costs are quite similar across years and countries.

⁵³⁹According to Novy (2008) “the percentage change of trade costs over time using GDP in the calculation is similar to those computed with gross output” even if it can overestimates trade costs by including non-tradable services.

Table D.12: Distribution of trade costs at the manufacturing level

	Variable	Obs	Mean	Std. Dev.	Min	Max
2000	tijk	506	1,494	0,386	0,851	2,921
2001	tijk	462	1,890	0,504	0,939	3,447
2002	tijk	506	1,891	0,451	0,936	3,320
2003	tijk	505	1,905	0,434	0,986	3,245
2004	tijk	506	1,835	0,466	0,842	3,284
2005	tijk	462	1,458	0,346	0,887	3,032
2006	tijk	380	2,002	0,421	1,269	3,420
2007	tijk	272	1,885	0,340	1,276	2,905
2008	tijk	110	1,681	0,318	1,038	2,411

Miroudot and al. (2010) restricted to our country coverage

** Manufacturing aggregate, based on ISIC Rev.3 (15-37)*

Table D.13: Distribution of trade costs across countries and sectors, in 2005

	All sectors	Agriculture	Manufacturing
AUS	5.512557	3.541082	1.640138
BEL	4.541677	2.184917	
CAN	3.519343	2.972264	1.544827
CHE	2.790488	2.869311	1.583785
CZE	3.919208	2.70077	1.432377
DEU	2.215823	2.242941	1.14994
DNK	2.647279	2.64793	1.337288
ESP	2.791246	2.31588	1.371678
FRA	2.755066	2.4574	1.270565
GBR	2.650743	2.560609	1.248264
GRC	4.414456	3.012211	1.635002
HKG	6.354114		
HUN	3.526675	2.782221	1.453908
ITA	3.275354	2.433282	1.307506
JPN	4.063692	3.034732	1.496603
KOR	4.915265	3.144607	1.541169
MEX	4.525222		
NLD	2.413151	2.109945	1.235548
NOR	3.566295	3.14689	1.475126
NZL	9.533217	3.273789	2.101202
POL	4.228854	2.561759	1.453621
PRT	2.958619	2.941451	1.560157
SVK	4.596453	3.391841	1.546221
SWE	2.704175	2.453636	1.325738
TUR	3.226235		
USA	2.999064	2.647777	1.362502

Table D.14: Trade costs across years based on our database and Duval and Utoktham (2011)

	The current database*					UNESCAP database**				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
2000	506	2,352	0,658	1,457	9,110	573	2,333	0,549	1,267	4,610
2001	506	2,385	0,504	1,449	4,302	571	2,337	0,562	1,268	5,047
2002	552	2,399	0,491	1,436	4,470	595	2,353	0,591	1,257	5,455
2003	552	2,412	0,503	1,465	4,531	598	2,345	0,551	1,267	4,155
2004	506	2,353	0,489	1,418	4,255	600	2,325	0,565	1,240	4,965
2005	506	2,284	0,477	1,416	4,494	600	2,306	0,559	1,206	4,775
2006	462	2,338	0,491	1,420	4,416	600	2,265	0,551	1,159	4,183
2007	342	2,193	0,371	1,416	3,555	600	2,245	0,545	1,134	4,249
2008	110	2,208	1,200	1,404	10,706	600	2,234	0,542	1,126	4,323

* *Miroudot et al. (2010) database limited to our sample and sector "Total Economy"*

** *Reshaped according our database by matching countries and years*

Table D.15: Trade costs across countries based on our database and Duval and Utoktham (2011)

	The current database*					UNESCAP database**				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
AUS	22	2,617	0,503	1,807	3,678	24	2,680	0,545	1,713	3,780
BEL	22	2,004	0,299	1,416	2,563	24	1,732	0,275	1,206	2,220
CAN	22	2,466	0,369	1,492	3,212	24	2,500	0,447	1,433	3,358
CHE	22	2,175	0,325	1,580	3,093	24	2,174	0,345	1,557	2,818
CZE	22	2,310	0,508	1,507	3,677	24	2,205	0,614	1,322	3,939
DEU	22	1,826	0,264	1,540	2,544	24	1,804	0,315	1,270	2,487
DNK	22	2,186	0,292	1,570	2,600	24	2,246	0,397	1,558	3,187
ESP	22	2,194	0,373	1,678	3,176	24	2,145	0,369	1,598	2,989
FRA	22	2,028	0,284	1,557	2,708	24	2,033	0,357	1,317	2,755
GBR	22	2,003	0,214	1,684	2,409	24	2,028	0,276	1,451	2,660
GRC	22	2,536	0,429	1,972	3,635	24	2,719	0,521	2,065	4,088
HUN	22	2,343	0,528	1,617	3,888	24	2,276	0,624	1,509	4,081
ITA	22	2,084	0,268	1,675	2,769	24	2,052	0,322	1,542	2,794
JPN	22	2,359	0,370	1,748	3,133	24	2,431	0,419	1,725	3,313
KOR	22	2,412	0,339	1,748	3,162	24	2,346	0,326	1,725	3,132
NLD	22	1,996	0,282	1,416	2,581	24	1,913	0,319	1,206	2,590
NOR	22	2,289	0,424	1,599	3,296	24	2,385	0,536	1,597	3,404
NZL	22	2,973	0,655	1,807	4,494	24	2,962	0,713	1,713	4,775
POL	22	2,342	0,513	1,667	3,754	24	2,314	0,615	1,583	3,738
PRT	22	2,565	0,517	1,678	3,706	24	2,515	0,517	1,613	3,555
SVK	22	2,550	0,673	1,507	4,494	24	2,553	0,819	1,322	4,775
SWE	22	2,133	0,323	1,570	2,895	24	2,153	0,391	1,558	2,977
USA	22	2,141	0,286	1,492	2,644	24	2,200	0,390	1,433	2,880

* *Miroudot et al. (2010) database limited to our sample in 2005 and sector "Total Economy"*

** *Reshaped according our database by matching countries and years*

D.5.4 Regressions for each specification and sector

This section displays the TFIs across the different specifications detailed previously, particularly the main specifications which are *reg3* and *reg4*. The dependant variable is alternately exports from *i* to *j* (*reg1* to *reg3*) or the geometric average trade costs in both directions (*reg4-5*). The TFIs are based on the accurate dataset. Summary tables report the indicators related to the importer country. Regressions are studied at three aggregate levels following the ISIC Rev3 classification of goods and services. Trade flows are aggregated around agricultural goods (ISIC Rev3, 01-05) and manufacturing goods (ISIC Rev.3, 15-37). Finally, regressions are also launched by including all sectors around various aggregates and related fixed effects. This latter configuration increases the number of observations.

Some variables commonly introduced in gravity models are not included in the following regressions. Such variables as FTAs or EU dummies cover some of the dimensions already measured by the TFIs, leading to several issues⁵⁴⁰. In addition, the sample is limited to OECD countries which ones share a deep integration and various common agreements and arrangements.

D.5.4.1 Cross section regressions for main specifications

The following tables draw the coefficient of the TFIs for the accurate database in 2005. Cross section analysis rely on this specific year which covers the maximum of basic data (trade flows and trade costs). We state that the TFIs are quite stable on short period. Regressions include the TFIs one by one but also together under two specifications⁵⁴¹.

Traditional variables bear the expected signs and remain in common ranges. It appears that the TFIs are less significant with the agricultural goods than manufacturing goods. Coefficients are globally in line with panel regressions and analysis developed in chapter 4. TFI(d) and TFI(e) are not working very well, while TFI(f) and TFI(h) may bear unexpected signs according the specification. It remains some issues when all indicators are included in the regressions. After having dropped not significant variables, coefficients can change substantially even if such fluctuations seems limited under the manufacturing specification.

⁵⁴⁰Moreover, some variables included in the TFIs are based on such agreements.

⁵⁴¹Regressions that include all indicators together and available TFIs after data cleaning, *i.e.* by dropping non significant variables.

Table D.16: Reg3 one by one, all sectors

	reg3naive	reg3 a	reg3 b	reg3 c	reg3 d	reg3 e	reg3 f	reg3 g	reg3 h	reg3 i	reg3 j	reg3 l	reg3 all
log_dist	-0.8785*** (-75.4025)	-0.8897*** (-75.6792)	-0.8604*** (-72.5742)	-0.8678*** (-74.7532)	-0.8873*** (-75.5114)	-0.8838*** (-75.2000)	-0.8774*** (-74.9559)	-0.8957*** (-75.5115)	-0.8816*** (-75.6406)	-0.9057*** (-75.0357)	-0.8756*** (-75.1312)	-0.8863*** (-74.9800)	-0.8824*** (-76.1466)
comlang_off	0.4349*** (10.5366)	0.4234*** (10.3014)	0.3982*** (9.5473)	0.4067*** (9.8619)	0.4510*** (10.9126)	0.4267*** (10.3136)	0.4283*** (10.1648)	0.4127*** (9.9993)	0.3929*** (9.3051)	0.4891*** (10.5208)	0.4218*** (10.1898)	0.4317*** (10.4940)	0.3638*** (8.7424)
contig	0.5189*** (12.8889)	0.5149*** (12.7910)	0.5332*** (13.0842)	0.5196*** (12.9197)	0.5040*** (12.5231)	0.5193*** (12.8950)	0.5245*** (12.8852)	0.5283*** (13.2872)	0.5278*** (13.1571)	0.4525*** (10.8539)	0.5202*** (12.9840)	0.5018*** (12.3719)	0.5208*** (13.0200)
colony	0.1521*** (3.1510)	0.1309*** (2.6834)	0.1207*** (2.4784)	0.1370*** (2.8818)	0.1387*** (2.8623)	0.1435*** (2.9672)	0.1535*** (3.1819)	0.1668*** (3.4007)	0.1744*** (3.5677)	0.1722*** (3.3547)	0.1504*** (3.1211)	0.1403*** (2.8975)	0.1595*** (3.3078)
log_yik	0.8535*** (112.1201)	0.8558*** (112.6394)	0.8549*** (110.1329)	0.8551*** (112.6310)	0.8537*** (112.2583)	0.8543*** (112.3017)	0.8536*** (112.1028)	0.8547*** (112.5584)	0.8541*** (112.3669)	0.8576*** (108.5114)	0.8537*** (112.2458)	0.8548*** (112.1964)	0.8563*** (112.9653)
log_ejk	0.8127*** (99.1725)	0.7894*** (91.5454)	0.8194*** (97.2275)	0.7808*** (89.9780)	0.8209*** (99.2645)	0.8165*** (98.3855)	0.8148*** (95.9913)	0.8080*** (98.3665)	0.8026*** (96.4870)	0.8052*** (97.4755)	0.8196*** (99.7502)	0.8102*** (99.0711)	0.8016*** (97.6390)
REM	0.2184*** (4.8638)	0.2394*** (5.3403)	0.1946*** (4.2557)	0.1980*** (4.3829)	0.2281*** (5.0728)	0.2266*** (5.0425)	0.2172*** (4.8281)	0.2465*** (5.4956)	0.2211*** (4.9358)	0.2430*** (5.2540)	0.2089*** (4.6366)	0.2300*** (5.1263)	0.2197*** (4.9121)
TFIj(a)		0.3037*** (7.4581)											
TFIj(b)		0.1736*** (7.7062)											
TFIj(c)			0.3032*** (10.9624)										
TFIj(d)				-0.1523*** (-6.8133)									
TFIj(e)					0.1002*** (3.6634)		0.0276 (0.9019)				0.1214*** (6.2940)		
TFIj(f)								0.2604*** (10.3073)					
TFIj(g)									0.2355*** (6.5389)				
TFIj(h)										0.2032*** (11.5947)			
TFIj(i)											0.1312*** (4.4062)		
TFIj(j)												0.5699*** (11.7164)	
TFIj(l)													0.8564*** (-23.1218)
TFIj													0.5699*** (11.7164)
Constant	-8.5980*** (-22.6966)	-8.9143*** (-23.4424)	-8.8708*** (-23.0589)	-8.5869*** (-22.6011)	-8.4610*** (-22.3375)	-8.8281*** (-22.9590)	-8.6498*** (-22.6388)	-8.9933*** (-23.7364)	-8.7309*** (-23.0972)	-8.8194*** (-22.4941)	-8.7655*** (-23.0859)	-8.8564*** (-23.1218)	-9.2881*** (-24.4046)
N	1.5e+04	1.5e+04	1.4e+04	1.5e+04	1.5e+04	1.5e+04	1.5e+04	1.5e+04	1.5e+04	1.4e+04	1.5e+04	1.5e+04	1.5e+04
R2 Adj.	0.7271	0.7280	0.7301	0.7293	0.7279	0.7273	0.7271	0.7289	0.7278	0.7281	0.7278	0.7274	0.7294

*OLS and standard robust errors. Fared effects are not displayed. Significance level: *** p<0.01, ** p<0.05, * p<0.1*
Based on the accurate database, Cross-section in 2005.

Table D.17: Reg3 one by one, manufacturing

	reg3naive	reg3 a	reg3 b	reg3 c	reg3 d	reg3 e	reg3 f	reg3 g	reg3 h	reg3 i	reg3 j	reg3 l	reg3 all
log_dist	-0.8667*** (-13.0941)	-0.9044*** (-13.7028)	-0.8654*** (-12.8212)	-0.8151*** (-13.1442)	-0.8740*** (-13.1910)	-0.8511*** (-12.6821)	-0.8788*** (-13.6168)	-0.8860*** (-13.0455)	-0.8455*** (-13.1181)	-0.8910*** (-13.1771)	-0.8685*** (-13.0332)	-0.8612*** (-12.7829)	-0.8729*** (-13.1078)
comlang_off	-0.0292 (-0.0988)	-0.0530 (-0.1873)	-0.0591 (-0.1997)	-0.1292 (-0.4597)	-0.0250 (-0.0848)	0.0068 (0.0226)	0.0530 (0.1755)	-0.0639 (-0.2224)	0.0446 (0.1513)	-0.1515 (-0.4612)	-0.0480 (-0.1623)	-0.0191 (-0.0637)	-0.0880 (-0.2962)
contig	0.2717 (1.2714)	0.2602 (1.2260)	0.2952 (1.3817)	0.3113 (1.5104)	0.2595 (1.2184)	0.2724 (1.2789)	0.2095 (0.9806)	0.2814 (1.3353)	0.2611 (1.2085)	0.2008 (0.9237)	0.2653 (1.2535)	0.2824 (1.2974)	0.2717 (1.2823)
colony	0.6300*** (2.9063)	0.5626*** (2.5994)	0.6638*** (2.9276)	0.5120*** (2.5500)	0.6239*** (2.8524)	0.6462*** (2.9836)	0.6132*** (2.7686)	0.6518*** (2.9555)	0.5784*** (2.7208)	0.7136*** (3.1075)	0.6246*** (2.9094)	0.6338*** (2.9126)	0.6307*** (2.9673)
log_yik	0.8899*** (20.3350)	0.8926*** (20.4053)	0.8786*** (19.6894)	0.8941*** (21.1892)	0.8903*** (20.3218)	0.8884*** (20.3505)	0.8890*** (20.3132)	0.8908*** (20.3786)	0.8855*** (20.4076)	0.8900*** (19.8550)	0.8909*** (20.3385)	0.8893*** (20.2987)	0.8918*** (20.3912)
log_ejk	0.7611*** (16.2717)	0.7170*** (14.2255)	0.7429*** (15.6896)	0.7192*** (15.8814)	0.7696*** (16.6689)	0.7562*** (16.2823)	0.7456*** (15.0021)	0.7518*** (16.1834)	0.8063*** (18.1133)	0.7447*** (16.4257)	0.7693*** (16.4257)	0.7635*** (16.5111)	0.7481*** (16.2101)
REM	-0.5711** (-2.4308)	-0.4928** (-2.1215)	-0.4696** (-2.0594)	-0.6760*** (-2.8986)	-0.5581** (-2.3730)	-0.6071** (-2.5425)	-0.5589** (-2.4163)	-0.5271** (-2.2658)	-0.6228*** (-2.6740)	-0.5693** (-2.3823)	-0.5681** (-2.4099)	-0.5821** (-2.4550)	-0.5543** (-2.3640)
TFIj(a)	0.7101*** (3.2106)												
TFIj(b)		-0.0032 (-0.0309)											
TFIj(c)			0.8793*** (7.0443)										
TFIj(d)				-0.1426 (-1.3420)									
TFIj(e)					-0.2495** (-1.9697)								
TFIj(f)						-0.3001* (-1.8274)							
TFIj(g)							0.2536** (2.0635)						
TFIj(h)								-0.5030*** (-2.6088)					
TFIj(i)									0.2591*** (3.0268)				
TFIj(j)										0.1413* (1.6888)			
TFIj(l)												-0.0942 (-0.6426)	
TFIj													0.4339* (1.8869)
Constant	2.1829 (1.1912)	1.1975 (0.6512)	1.6165 (0.8982)	1.9491 (1.0926)	2.2568 (1.2311)	2.8292 (1.4795)	2.6880 (1.4316)	1.7250 (0.9480)	2.5052 (1.3786)	2.2138 (1.1824)	1.8958 (1.0308)	2.3861 (1.2648)	1.5965 (0.8526)
N	462.0000	462.0000	441.0000	462.0000	462.0000	462.0000	462.0000	462.0000	462.0000	441.0000	462.0000	462.0000	462.0000
R2 Adj.	0.7016	0.7074	0.7033	0.7307	0.7019	0.7030	0.7033	0.7031	0.7058	0.7044	0.7024	0.7011	0.7029

OLS and standard robust errors. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
 Based on the accurate database, Cross-section in 2005.

Table D.18: Reg3 TFIs together

	reg3 - all sectors		reg3 - agriculture		reg3 - manufacturing	
	naive	significant	naive	significant	naive	significant
log_dist	-0.8785*** (-75.4025)	-0.9496*** (-8984.3237)	-1.1829*** (-15.9812)	-1.2035*** (-11.4364)	-0.8667*** (-13.0941)	-0.8794*** (-12.6269)
comlang_off	0.4349*** (10.5366)	0.4743*** (9.2452)	0.2578 (1.0726)	0.7159** (2.5295)	-0.0292 (-0.0988)	0.3253 (1.0622)
contig	0.5189*** (12.8889)	0.5318*** (11.2493)	0.4278* (1.7735)	0.3159 (1.1285)	0.2717 (1.2107)	0.2105 (0.9104)
colony	0.1521*** (3.1510)	0.1771*** (2.8909)	-0.0019 (-0.0067)	0.1580 (0.4303)	0.6300*** (2.9063)	0.3839* (1.6597)
log_yik	0.8535*** (112.1201)	0.8628*** (99.6659)	0.7823*** (10.3660)	0.7676*** (9.5908)	0.8899*** (20.3350)	0.8810*** (18.9046)
log_ejk	0.8127*** (99.1725)	0.6328*** (38.0792)	0.7112*** (59.7464)	0.7952*** (6.3021)	0.7611*** (16.2717)	0.5746*** (7.5081)
REM	0.2184*** (4.8638)	0.2988*** (5.5725)	0.2463*** (4.7650)	1.1014*** (4.5952)	-0.5711** (-2.4308)	-0.6242*** (-2.5901)
TFIj(a)	1.4329*** (14.0776)	0.8168*** (11.1253)	0.8168*** (11.1253)	-0.3939 (-0.5137)	1.9310*** (4.8989)	1.8351*** (5.0797)
TFIj(b)	-0.6078*** (-8.1956)	-0.2107*** (-5.4510)	-0.2107*** (-5.4510)	-0.3565 (-0.6840)	-0.9847*** (-2.9475)	-0.8212*** (-4.4221)
TFIj(c)	0.7709*** (10.7384)	0.4891*** (11.8257)	0.4891*** (11.8257)	0.1728 (0.3628)	1.4301*** (4.5431)	1.1988*** (6.8268)
TFIj(d)	-0.9716*** (-11.4720)	-0.5178*** (-12.0116)	-0.5178*** (-12.0116)	0.0187 (0.0322)	-1.3280*** (-3.1008)	-1.0875*** (-4.9470)
TFIj(e)	-0.2345*** (-3.9338)	-0.1826*** (-4.1479)	-0.1826*** (-4.1479)	-0.2520 (-0.5968)	-0.5546** (-2.1306)	-0.5827*** (-3.2823)
TFIj(f)	0.1215* (1.7017)	0.3710*** (7.0288)	0.3710*** (7.0288)	-0.0645 (-0.1364)	0.4875 (1.6423)	0.4875 (1.6423)
TFIj(g)	0.8533*** (11.4095)	0.3170*** (4.4658)	0.3170*** (4.4658)	0.4258 (0.7879)	1.5380*** (4.7968)	1.4887*** (5.2973)
TFIj(h)	0.3250*** (4.4658)	0.3170*** (5.2856)	0.3170*** (5.2856)	0.0860 (0.1916)	-0.9212** (-2.2787)	-0.9736*** (-3.7575)
TFIj(i)	-0.0545 (-1.4219)	-0.5803*** (-12.9227)	-0.5803*** (-12.9227)	-0.1820 (-0.6856)	-0.0532 (-0.2607)	-0.0532 (-0.2607)
TFIj(j)	-1.2492*** (-19.4844)	-0.9988*** (-9.9888)	-0.9988*** (-9.9888)	0.5147 (0.7601)	-1.3021** (-2.3701)	-1.1185*** (-3.3067)
TFIj(k)	0.7585*** (11.2256)	0.3323*** (6.9256)	0.3323*** (6.9256)	-0.1519 (-0.3567)	1.1543*** (3.6999)	1.0557*** (4.4937)
TFIj(l)	0.1060 (1.3019)	1.6185*** (18.6543)	1.6185*** (18.6543)	-0.0599 (-0.0998)	0.0537 (0.1138)	0.0537 (0.1138)
Constant	-8.5980*** (-22.6966)	-8.6008*** (-19.1937)	-8.6046*** (-19.4844)	-11.8727*** (-5.9965)	2.1829 (1.1912)	3.0925* (1.6951)
N	1.5e+04	1.1e+04	1.2e+04	307.0000	462.0000	357.0000
R2 Adj.	0.7271	0.7441	0.7408	0.5481	0.7016	0.7807

Based on the accurate database, Cross-section in 2005. OLS and standard robust errors, Fixed effects (not reported)

Significant refers to regressions based on significant variables only

Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table D.19: Reg4 one by one, all sectors

	reg4alln	reg4 a	reg4 b	reg4 c	reg4 d	reg4 e	reg4 f	reg4 g	reg4 h	reg4 i	reg4 j	reg4 l	reg4 all
log_dist	0.1764*** (49.3900)	0.1934*** (51.8408)	0.1746*** (45.4459)	0.1764*** (49.9892)	0.1764*** (49.3913)	0.1756*** (48.9389)	0.1802*** (49.7075)	0.1847*** (50.3714)	0.1837*** (51.0177)	0.1855*** (47.8647)	0.1756*** (48.8492)	0.1793*** (49.2693)	0.1810*** (50.5176)
comlang_off	-0.1068*** (-7.2171)	-0.0782*** (-5.3486)	-0.0902*** (-5.9064)	-0.0810*** (-5.4866)	-0.1067*** (-7.1970)	-0.1084*** (-7.3299)	-0.1186*** (-7.9157)	-0.0976*** (-6.5931)	-0.0637*** (-4.1829)	-0.1458*** (-7.2536)	-0.1043*** (-7.0367)	-0.1044*** (-7.0838)	-0.0616*** (-4.1397)
contig	-0.1030*** (-8.8943)	-0.0958*** (-8.1928)	-0.1148*** (-9.4402)	-0.0958*** (-8.1997)	-0.1039*** (-8.8934)	-0.1024*** (-8.8556)	-0.0877*** (-7.3650)	-0.1035*** (-8.9310)	-0.1012*** (-8.6990)	-0.0785*** (-6.2394)	-0.1031*** (-8.9069)	-0.0989*** (-8.3332)	-0.1034*** (-8.8634)
colony	-0.0948*** (-6.2212)	-0.0613*** (-3.9578)	-0.1014*** (-6.2951)	-0.0632*** (-4.2063)	-0.0948*** (-6.2179)	-0.0965*** (-6.3290)	-0.0885*** (-5.7606)	-0.0958*** (-6.2345)	-0.1022*** (-6.6779)	-0.0967*** (-5.6870)	-0.0974*** (-6.3689)	-0.0908*** (-5.9383)	-0.0953*** (-6.2511)
TFHj(a)		-0.3277*** (-19.1673)											
TFHj(b)			-0.0245*** (-2.8479)										
TFHj(c)			-0.2526*** (-21.9441)										
TFHj(d)				-0.0015 (-0.1796)									
TFHj(e)					0.0207* (1.9588)								
TFHj(f)						0.0841*** (5.9758)							
TFHj(g)							-0.1579*** (-13.1992)						
TFHj(h)								-0.3703*** (-16.0461)					
TFHj(i)									-0.1217*** (-15.0685)				
TFHj(j)										-0.0323*** (-3.9285)			
TFHj(l)											-0.0396*** (-3.9321)		
TFHj													-0.3453*** (-16.6396)
Constant	-0.2676*** (-5.6777)	-0.1316*** (-2.8376)	-0.3878*** (-5.0494)	-0.0960 (-1.3779)	-0.2650*** (-5.4173)	-0.2891*** (-5.9675)	-0.5235*** (-7.2577)	-0.2109*** (-4.4503)	-0.1441*** (-3.0512)	-0.3277*** (-6.5013)	-0.2401*** (-5.0286)	-0.4065*** (-5.7219)	-0.0036 (-0.0755)
N	1.6e+04	1.6e+04	1.5e+04	1.6e+04	1.6e+04	1.6e+04	1.6e+04	1.6e+04	1.6e+04	1.4e+04	1.6e+04	1.6e+04	1.6e+04
R2 Adj.	0.6326	0.6415	0.6316	0.6430	0.6326	0.6327	0.6332	0.6362	0.6394	0.6380	0.6329	0.6329	0.6380

OLS and standard robust errors, Fixed effects are not displayed. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1
Based on the accurate database, Cross-section in 2005.

Table D.20: Reg4 one by one, manufacturing

	reg4alln	reg4 a	reg4 b	reg4 c	reg4 d	reg4 e	reg4 f	reg4 g	reg4 h	reg4 i	reg4 j	reg4 l	reg4 all
log_dist	0.1303*** (18.5459)	0.1440*** (21.2304)	0.1281*** (17.5233)	0.1260*** (20.3786)	0.1311*** (18.4433)	0.1296*** (18.2252)	0.1346*** (19.0039)	0.1354*** (18.4167)	0.1334*** (18.4665)	0.1343*** (18.3249)	0.1303*** (18.3132)	0.1314*** (18.4157)	0.1333*** (18.7959)
comlang_off	-0.0677** (-2.0606)	-0.0466 (-1.5665)	-0.0558* (-1.6889)	-0.0526* (-1.8999)	-0.0699** (-2.1584)	-0.0695** (-2.1109)	-0.0839** (-2.5863)	-0.0580* (-1.7542)	-0.0565* (-1.6760)	-0.0466 (-1.1034)	-0.0662** (-2.0226)	-0.0650** (-1.9752)	-0.0443 (-1.3721)
contig	-0.0518** (-2.2161)	-0.0455* (-1.9137)	-0.0644*** (-2.7333)	-0.0520** (-2.4098)	-0.0496** (-2.1766)	-0.0514** (-2.2090)	-0.0328 (-1.3570)	-0.0520** (-2.2217)	-0.0500** (-2.1206)	-0.0314 (-1.2630)	-0.0500** (-2.1950)	-0.0499** (-2.1109)	-0.0506** (-2.1666)
colony	-0.0582** (-2.1431)	-0.0335 (-1.1981)	-0.0706** (-2.4211)	-0.0365* (-1.7842)	-0.0571** (-2.0272)	-0.0597** (-2.2119)	-0.0517* (-1.8252)	-0.0604** (-2.0933)	-0.0601** (-2.1541)	-0.0760** (-2.5399)	-0.0593** (-2.1909)	-0.0573** (-2.1083)	-0.0573** (-2.1916)
TFHj(a)													
TFHj(b)			0.0041 (0.2730)										
TFHj(c)													
TFHj(d)					0.0373*** (2.5981)								
TFHj(e)						0.0161 (0.9127)							
TFHj(f)							0.1139*** (4.3919)						
TFHj(g)								-0.0910*** (-4.4279)					
TFHj(h)									-0.0842** (-2.2049)				
TFHj(i)										-0.0675*** (-5.0038)			
TFHj(j)											-0.0253* (-1.7759)		
TFHj(l)												-0.0172 (-1.0279)	
TFHj													-0.1603*** (-4.9464)
Constant	-0.8135*** (-14.0841)	-0.5595*** (-10.7916)	-0.7157*** (-11.3497)	-0.6109*** (-11.0681)	-0.6902*** (-11.5179)	-0.6350*** (-11.1672)	-0.8463*** (-10.9876)	-0.6369*** (-9.5060)	-0.8015*** (-13.2263)	-0.7027*** (-9.6013)	-0.6688*** (-9.2885)	-0.4988*** (-6.3331)	-0.6689*** (-10.6749)
N	462.0000	462.0000	420.0000	462.0000	462.0000	462.0000	462.0000	462.0000	462.0000	420.0000	462.0000	462.0000	462.0000
R2 Adj.	0.6989	0.7359	0.6983	0.7326	0.7017	0.6987	0.7090	0.7090	0.7018	0.7129	0.7002	0.6987	0.7098

OLS and standard robust errors, Fixed effects are not displayed. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1
Based on the accurate database, Cross-section in 2005.

Table D.21: Reg4 TFIs together

	reg4 - all sectors		reg4 - agriculture		reg4 - manufacturing		significant
	naive	all var.	naive	all var.	naive	all var.	
log_dist	0.1764*** (49.3900)	0.2222*** (36.2309)	0.1602*** (14.0690)	0.1919*** (9.1189)	0.1303*** (18.5459)	0.1546*** (19.9514)	0.1585*** (20.9633)
comlang_off	-0.1068*** (-7.2171)	-0.1639*** (-6.9164)	-0.1486*** (-3.0464)	-0.1189*** (-2.4894)	-0.0677** (-2.0606)	-0.0804** (-2.4639)	-0.0776** (-2.5482)
contig	-0.1030*** (-8.8943)	-0.0792*** (-3.6427)	-0.0885*** (-2.7351)	-0.0658** (-1.1880)	-0.0414 (-1.2604)	-0.0213 (-0.6655)	-0.0107 (-0.3528)
colony	-0.0948*** (-6.2212)	-0.0616** (-2.4066)	-0.0758*** (-2.9823)	-0.0481 (-1.104**)	-0.0490 (-1.3970)	-0.0816** (-2.1653)	-0.0856** (-2.2851)
TFHj(a)	-0.5395*** (-15.0188)	-0.4192*** (-12.6617)	-0.4192*** (-12.6617)	-0.4955*** (-14.5662)	-0.2281*** (-3.9683)	-0.3851*** (-8.3447)	-0.3797*** (-8.4176)
TFHj(b)	0.1671*** (9.4530)	0.1242*** (8.7872)	0.1242*** (8.7872)	0.0563 (1.0483)	0.1293*** (6.0804)	0.1404*** (7.5529)	0.1404*** (7.5529)
TFHj(c)	-0.3151*** (-13.3794)	-0.3037*** (-14.8236)	-0.3037*** (-14.8236)	-0.0770 (-1.0508)	-0.1661*** (-4.9860)	-0.1661*** (-4.9860)	-0.1674*** (-5.4265)
TFHj(d)	0.1998*** (10.5952)	0.1498*** (9.5909)	0.1498*** (9.5909)	0.0856 (1.2626)	0.1482*** (5.5934)	0.1482*** (5.5934)	0.1579*** (7.5229)
TFHj(e)	0.1938*** (7.4589)	0.2432*** (14.1228)	0.2432*** (14.1228)	0.1836** (2.2534)	0.2030*** (6.2077)	0.1621*** (4.9557)	0.1832*** (6.5596)
TFHj(f)	-0.0828** (-2.3002)	-0.1103*** (-3.1845)	-0.1103*** (-3.1845)	0.4855*** (4.4331)	0.1321*** (2.6502)	-0.0353 (-0.7777)	-0.0353 (-0.7777)
TFHj(g)	-0.3672*** (-11.2362)	-0.2331*** (-8.1885)	-0.2331*** (-8.1885)	-0.2465* (-1.8938)	-0.2465* (-1.8938)	-0.2486*** (-6.1430)	-0.2568*** (-6.0616)
TFHj(h)	-0.1122** (-2.1404)	-0.1598*** (-3.6111)	-0.1598*** (-3.6111)	-0.1992 (-1.4071)	-0.1992 (-1.4071)	0.1735*** (3.3542)	0.1481*** (3.0581)
TFHj(i)	-0.0041 (-0.2457)	0.0715 (1.3879)	0.0715 (1.3879)	0.0715 (1.3879)	0.0715 (1.3879)	-0.0514*** (-2.8041)	-0.0390** (-2.1842)
TFHj(j)	0.2283*** (7.8897)	0.2283*** (7.8897)	0.1961** (2.1100)	0.1961** (2.1100)	-0.0735** (-2.2765)	0.0939*** (2.7908)	0.1068*** (3.2780)
TFHj(k)	-0.1883*** (-10.6618)	0.1109*** (4.4354)	0.1109*** (4.4354)	-0.0982* (-1.9599)	-0.0982* (-1.9599)	-0.1305*** (-7.0621)	-0.1333*** (-7.0807)
TFHj(l)	0.0447 (1.5762)	-0.1389*** (-8.6865)	-0.1389*** (-8.6865)	0.0888 (1.0784)	0.0888 (1.0784)	0.0446 (1.2713)	0.0446 (1.2713)
Constant	-0.2676*** (-5.6777)	-0.1364* (-1.8704)	-0.1586** (-2.2618)	0.0311 (0.2371)	-0.2307** (-2.0683)	-0.8135*** (-14.0841)	-0.6503*** (-8.1092)
N	1.6e+04	8.8e+03	9.5e+03	418.0000	418.0000	462.0000	272.0000
R2 Adj.	0.6326	0.6740	0.6683	0.4937	0.5385	0.6989	0.8605

Based on the accurate database, Cross-section in 2005. OLS and standard robust errors, Fixed effects (not reported)
 Significant refers to regressions based on significant variables only
 Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

D.5.4.2 Panel regressions, an overview of TFI coefficients

The following summary tables draw the coefficients of the TFIs with a panel dataset (2000-2008). Other variables bear the expected signs and are in the line with the literature. This configuration increase the number of observations and limit several issues of cross-section analysis. In addition, this choice is adapted to the trade flows and trade costs database of Miroudot et al. (2010). The TFIs stability hypothesis across years is strong and results should be used with caution. An updated version of the TFIs and the database will provide better results. Another possibility could be to rely to databases using alternative measures of trade costs such as Duval and Utoktham (2011). However this latter database only provides aggregate trade flows.

Some unexpected signs could be linked to the year coverage of the panel particularly if the related TFIs have known a recent improvement. In addition it is possible that such TFIs have lag effects. Wrong signs may also indicate misconceptions in the construction of the related indicators.

Table D.22: Coefficients of every TFIs depending on the specification, for all sectors

	TFI(a)	TFI(b)	TFI(c)	TFI(d)	TFI(e)	TFI(f)	TFI(g)	TFI(h)	TFI(i)	TFI(j)	TFI(l)
reg1	0.3932*** (23.7348)	0.1692*** (19.3103)	0.3223*** (28.4601)	-0.0693*** (-7.8800)	0.0148 (1.3589)	-0.0540*** (-4.3828)	0.2043*** (19.7902)	0.4428*** (31.2288)	0.2215*** (32.9217)	0.0990*** (12.8780)	0.0933*** (8.2242)
reg1p	0.6330*** (14.7841)	0.2120*** (11.4169)	0.6393*** (24.3193)	0.0271 (1.5350)	-0.0627*** (-2.9155)	-0.0147 (-0.5769)	0.0270 (1.4144)	0.3292*** (11.2046)	0.1766*** (12.5253)	0.1513*** (9.8908)	0.2416*** (10.0798)
reg1bis	0.5046*** (29.6720)	0.3004*** (37.3894)	0.4460*** (37.1534)	-0.0778*** (-9.8440)	-0.0220** (-2.1548)	0.0209 (1.3389)	0.3395*** (28.7592)	1.1124*** (53.1679)	0.3885*** (49.8474)	0.2442*** (29.9512)	0.0797*** (8.8377)
reg1bis p	0.7417*** (16.9652)	0.1877*** (11.4043)	0.7480*** (32.1585)	-0.1062*** (-6.7772)	0.0053 (0.2857)	-0.4457*** (-12.0073)	0.1728*** (8.0141)	0.7329*** (16.3799)	0.3054*** (20.3573)	0.1725*** (8.9126)	0.3124*** (18.1273)
reg2	-1.8100*** (-4.3500)	-2.6414 (-3.6149***)	-0.8274 (-0.0001)	1.9290*** (3.5953)	0.4813 (0.5525)	-3.1801*** (-11.9254)	1.3252*** (4.3500)	0.1447 (0.2748)	0.6182 (0.0005)	-1.6163*** (-12.2008)	1.3738 (-1.6690)
	(-3.1852)	-0.5656	(-0.0001)	(0.8905)	0.7483	(-0.6687***)	2.3209	(-0.7971)	8.1482	(-1.1670)	(-1.6690)
reg3	0.4212*** (25.4131)	0.1594*** (18.1369)	0.3133*** (27.6293)	-0.0740*** (-8.4136)	0.0257** (2.3495)	-0.0622*** (-5.0692)	0.2186*** (21.1534)	0.4510*** (31.7742)	0.2257*** (33.5834)	0.0934*** (12.1733)	0.1082*** (9.5405)
reg3p	0.6332*** (14.8136)	0.2091*** (11.2928)	0.6398*** (24.2685)	0.0323* (1.8314)	-0.0762*** (-3.5220)	-0.0193 (-0.7573)	0.0158 (0.8250)	0.3110*** (10.6705)	0.1717*** (12.2269)	0.1441*** (9.2629)	0.2358*** (9.9270)
reg4	-0.3844*** (-55.3687)	-0.0237*** (-7.3350)	-0.2668*** (-56.0841)	-0.0159*** (-4.7683)	0.0147*** (3.3619)	0.1001*** (16.8303)	-0.1696*** (-32.8698)	-0.5181*** (-55.4864)	-0.1480*** (-45.8553)	-0.0334*** (-10.0799)	-0.0498*** (-12.8502)
reg4p	-0.6526*** (-39.9706)	-0.0222*** (-2.6454)	-0.4346*** (-38.8731)	-0.0545*** (-6.6288)	-0.0079 (-0.6896)	0.1631*** (11.6072)	-0.2871*** (-22.9273)	-0.8940*** (-40.9852)	-0.2631*** (-34.6777)	-0.0310*** (-3.8960)	-0.1062*** (-10.8101)
reg5	0.6225* (1.8432)	-0.4283*** (-5.0742)	-0.3986*** (-2.9822)	-0.5639 (-0.0003)	0.3215 (0.7903)	-0.3028*** (-3.8492)	-0.5646** (-2.1707)	-1.0742*** (-5.6759)	0.0915* (1.9390)	0.3208 (0.002)	0.0699 (0.6958)
	0.0780 (0.1303)	-0.2263*** (-3.0133)	0.0129 (0.0000)	0.2531 (0.0001)	0.3215 (0.9100)	-0.3265*** (-8.6853)	-0.2673 (-1.0060)	-0.7689*** (-4.2492)	-0.1789 (-0.0010)	0.2015 (1.1623)	0.0699 (0.6946)

The sample period is [2000-2008] and Fixed Effects are included but not reported. OLS and Robust Standard errors and P for Poisson. (a) for Information availability, (b) for Involvement of trade community, (c) for Advance ruling, (d) for Appeal procedures, (e) for Fees and charges, (f) for Formalities and documents, (g) for formalities and automation, (h) for Formalities and procedures, (i) for Border agency Cooperation - internal, (j) for Border agency cooperation - External, (l) for Governance and Impartiality. Significance levels are *** = 1 percent, ** = 5 percent, * = 10 percent.

Table D.23: Coefficients of every TFIs depending on the specification, for Manufacturing sector

	TFI(a)	TFI(b)	TFI(c)	TFI(d)	TFI(e)	TFI(f)	TFI(g)	TFI(h)	TFI(i)	TFI(j)	TFI(l)
reg1	0.6019*** (6.4168)	0.2444*** (5.4962)	0.7159*** (12.5580)	-0.0184 (-0.3993)	-0.1471*** (-2.7119)	-0.5733*** (-8.7897)	0.3643*** (6.4104)	0.6318*** (8.8311)	0.4137*** (11.7909)	0.0456 (1.1481)	0.2419*** (4.0520)
reg1p	0.6836*** (5.6240)	0.2948*** (5.5847)	0.8368*** (13.2073)	-0.0201 (-0.3757)	-0.1414** (-2.2542)	-0.1629** (-1.9984)	-0.0277 (-0.4277)	0.2017** (2.4965)	0.2276*** (5.3702)	0.2214*** (5.1399)	0.3010*** (3.9703)
reg1bis	0.9990*** (10.3227)	0.3107*** (7.2230)	0.8428*** (13.6535)	-0.1683*** (-3.9102)	-0.0731 (-1.4443)	-1.1424*** (-14.6105)	0.7205*** (11.5599)	2.1020*** (20.5916)	0.6978*** (17.2954)	0.1824*** (4.2620)	0.3438*** (6.9348)
reg1bisp	0.8674*** (7.1753)	0.2331*** (4.8677)	1.0428*** (19.9621)	-0.2275*** (-4.6947)	-0.0259 (-0.4806)	-1.0660*** (-9.3882)	0.0717 (1.0220)	0.5458*** (4.4962)	0.4106*** (8.9201)	0.2430*** (4.5090)	0.4179*** (7.5464)
reg2	6.9224*** (2.3e+03)	1.3672*** (179.7938)	5.8924*** (392.8553)	-0.0304*** (-3.3765)	-1.8276 (-1.9515)	0.2242 (-2.6309)	3.4118*** (3.3e+06)	-2.8297*** (-2.2e+06)	-1.7569 (-0.6990***)	2.7695*** (9.1e+06)	3.1530*** (262.7672)
reg3	0.6053*** (6.2699)	0.2428*** (5.4265)	0.7221*** (12.5604)	-0.0121 (-0.2598)	-0.1555*** (-2.8243)	-0.5829*** (-8.8928)	0.3702*** (6.5413)	0.6532*** (9.0960)	0.4179*** (11.7793)	0.0431 (1.0729)	0.2393*** (3.9225)
reg3p	0.6782*** (5.6339)	0.3003*** (5.6701)	0.8566*** (13.2958)	-0.0188 (-0.3536)	-0.1456** (-2.3254)	-0.1840** (-2.2777)	-0.0365 (-0.5694)	0.1952** (2.4202)	0.2304*** (5.3825)	0.2109*** (4.7954)	0.3040*** (3.9929)
reg4	-0.1931*** (-15.1411)	-0.0513*** (-9.7464)	-0.1293*** (-14.8891)	0.0270*** (4.5442)	-0.0078 (-1.0962)	0.1416*** (12.9530)	-0.1049*** (-10.8205)	-0.3270*** (-25.9090)	-0.1027*** (-19.3493)	-0.0330*** (-5.7244)	-0.0628*** (-9.2260)
reg4p	-0.1914*** (-14.6165)	-0.0515*** (-9.4438)	-0.1204*** (-13.7709)	0.0238*** (3.9602)	-0.0055 (-0.7275)	0.1289*** (11.8041)	-0.1156*** (-11.4410)	-0.3505*** (-27.9328)	-0.1042*** (-19.8526)	-0.0283*** (-4.8978)	-0.0617*** (-8.5981)
reg5	-0.6392*** (-5.0e+02)	-0.3345*** (-96.2961)	-0.5272*** (-83.1649)	-0.1700*** (-44.6995)	0.0881*** (4.4e+05)	-0.0450*** (-7.5e+04)	-0.3751 (3.7e+05)	4.3290*** (0.1932***)	-2.5484*** (0.1923)	-0.8835*** (-2.0399***)	5.8933*** (-8.3e+05)
	(145.9466)	(358.7676)
	(-2.4023)	(-96.2961)	.	(-1.2e+06)	.	(-9.9e+04)	.	(3.2e+05)	.	(49.7456)	.

The sample period is [2000-2008] and Fixed Effects are included but not reported. OLS and Robust Standard errors and P for Poisson. (a) for Information availability, (b) for Involvement of trade community, (c) for Advance ruling, (d) for Appeal procedures, (e) for Fees and charges, (f) for Formalities and documents, (g) for formalities and automation, (h) for Formalities and procedures, (i) for Border agency Cooperation - internal, (j) for Border agency cooperation - External, (l) for Governance and Impartiality. Significance levels are *** = 1 percent, ** = 5 percent, * = 10 percent.

Table D.24: Coefficients of every TFIs depending on the specification, for agricultural sector

	TFI(a)	TFI(b)	TFI(c)	TFI(d)	TFI(e)	TFI(f)	TFI(g)	TFI(h)	TFI(i)	TFI(j)	TFI(l)
reg1	-0.5761*** (-5.2849)	-0.2120*** (-3.8280)	-0.2839*** (-4.1609)	-0.0724 (-1.3471)	-0.1738*** (-2.6879)	-0.1821** (-2.3076)	0.2607*** (4.1286)	0.1886** (2.4638)	-0.0187 (-0.4388)	0.0697 (1.5056)	-0.3781*** (-5.4153)
reg1p	-0.0499 (-0.4581)	-0.2404*** (-4.0962)	-0.4041*** (-3.9000)	-0.3261*** (-5.6244)	0.4001*** (4.2900)	-0.4091*** (-3.3604)	0.5270*** (6.8483)	0.3704*** (3.9763)	0.1104*** (2.9326)	-0.0325 (-0.3136)	-0.1126** (-2.0161)
reg1bis	-0.4130** (-3.7294)	0.1854*** (3.8475)	0.1525** (1.9850)	-0.1533*** (-3.3692)	-0.4290*** (-7.1731)	-0.0844 (-0.8840)	0.6719*** (9.7008)	1.0958*** (8.6624)	0.0595 (1.1889)	0.3705*** (7.6085)	-0.4405*** (-8.3413)
reg1bisp	0.8209*** (5.8525)	0.1104** (2.2124)	-0.0259 (-0.2776)	-0.1999*** (-3.6751)	0.0403 (0.4457)	-0.0108 (-0.0896)	1.8026*** (10.2859)	0.8282*** (11.9533)	0.0961* (1.7274)	0.4225*** (4.5935)	-0.1032* (-1.8323)
reg3	-0.5000*** (-4.8286)	-0.2981*** (-5.6467)	-0.3578*** (-5.5750)	-0.0871* (-1.6962)	-0.1476** (-2.3533)	-0.1566** (-2.1088)	0.3210 (5.4731)	0.1982*** (2.6491)	-0.0115 (-0.2808)	0.0371 (0.8437)	-0.3744*** (-5.5848)
reg3p	-0.1282 (-1.0961)	-0.2624*** (-4.2942)	-0.4421*** (-4.0533)	-0.3123*** (-5.4692)	0.3573*** (3.5901)	-0.4028*** (-3.0418)	0.4975*** (6.5010)	0.2682*** (2.7189)	0.0747** (1.9626)	-0.0540 (-0.5092)	-0.1701*** (-3.0814)
reg4	-0.1480*** (-7.1287)	-0.0040 (-0.4370)	-0.1587*** (-10.7795)	0.0162* (1.7068)	0.1253*** (9.9052)	0.1386*** (8.7092)	-0.0938*** (-6.0833)	-0.2008*** (-6.6255)	-0.0106 (-1.1728)	-0.0152 (-1.4916)	0.0899*** (9.3777)
reg4p	-0.1720*** (-6.0346)	-0.0111 (-0.8501)	-0.1683*** (-7.7614)	0.0142 (1.0603)	0.1419*** (7.1187)	0.1344*** (6.8723)	-0.1043*** (-4.3597)	-0.2642*** (-5.1151)	-0.0225** (-2.0100)	0.0040 (0.2544)	0.0976*** (7.0146)
reg5	.	-0.1011 (-25.8491)	-0.0855*** (-1.9534)	-0.0048* (428.7535)	1.9850*** (1.9895***)	-0.2603*** (-2.603***)	0.0646*** (24.8965)	0.1541*** (49.8825)	-0.0805*** (-2.5e+06)	0.8048*** (414.0992)	0.3664*** (76.0514)
	(20.3655)	(-6.8779)	(-62.1270)	(540.0631)	(-1.1e+07)	(24.8965)	(49.8825)	(-6.8e+05)	(235.4826)	(79.2813)	.

The sample period is [2000-2008] and Fixed Effects are included but not reported. OLS and Robust Standard errors and P for Poisson. (a) for Information availability, (b) for Involvement of trade community, (c) for Advance ruling, (d) for Appeal procedures, (e) for Fees and charges, (f) for Formalities and documents, (g) for formalities and automation, (h) for Formalities and procedures, (i) for Border agency Cooperation - internal, (j) for Border agency cooperation - External, (l) for Governance and Impartiality. Significance levels are *** = 1 percent, ** = 5 percent, * = 10 percent.

D.5.5 Regressions with all the TFIs together

The following table D.25 draws the TFIs coefficients for the main specifications used in the study. It relies on the regressions with all indicators together. As explained previously, such specifications encompass several issues (multicollinearity and other technical issues). These results must be taken with caution.

Table D.25: Coefficients of the TFIs taken together, depending on the specification

	TFI(a)	TFI(b)	TFI(c)	TFI(d)	TFI(e)	TFI(f)	TFI(g)	TFI(h)	TFI(i)	TFI(j)	TFI(l)
All sectors											
reg3all	1.8820*** (44.0730)	-0.9918*** (-34.9641)	1.1847*** (40.7795)	-1.3654*** (-42.2051)	-0.2838*** (-12.0070)	0.4054*** (14.0321)	1.1808*** (37.3375)	0.4675*** (13.5932)	-0.2283*** (-14.4650)	-1.7073*** (-45.8665)	0.3183*** (9.5749)
reg4all	-0.6028*** (-38.7148)	0.1352*** (19.2500)	-0.3111*** (-33.7031)	0.1593*** (21.0574)	0.1211*** (11.5848)	-0.0751*** (-5.1624)	-0.3966*** (-27.1099)	-0.0700*** (-3.1528)	-0.0067 (-0.9983)	0.2496*** (21.7283)	0.0988*** (8.2845)
Manuf.											
reg3all	2.6884*** (14.1748)	-1.7760*** (-13.9734)	1.8895*** (14.9141)	-2.2730*** (-14.6628)	-0.5040*** (-4.6609)	0.5973*** (4.3704)	2.3702*** (17.6922)	0.2384 (1.4250)	-0.4258*** (-5.2360)	-2.9629*** (-16.7720)	0.8861*** (5.1224)
reg4all	-0.2378*** (-11.2924)	0.1104*** (12.5762)	-0.1329*** (-9.2241)	0.1161*** (10.0975)	0.0628*** (5.0712)	0.1720*** (8.6350)	-0.2420*** (-13.3364)	-0.1881*** (-6.5912)	-0.0329*** (-3.5909)	0.1783*** (12.0745)	-0.0055 (-0.3824)
Agri.											
reg3all	-0.4012 (-1.3870)	-0.2159 (-1.2405)	-0.0608 (-0.3836)	0.1101 (0.5696)	-0.0664 (-0.4402)	-0.2555 (-1.5185)	0.3296* (1.6780)	0.0961 (0.4846)	-0.0157 (-0.1685)	0.4217* (1.8930)	-0.2455
reg4all	-0.6588*** (-12.8517)	0.0626*** (3.2873)	-0.0472* (-1.8749)	0.0880*** (3.7867)	0.2045*** (6.7118)	0.4287*** (10.6573)	-0.3730*** (-7.4396)	-0.0442 (-0.6863)	0.0246 (1.3203)	0.2588*** (7.0874)	0.1425***

The sample period is [2000-2008] and Fixed Effects are included but not reported. OLS and Robust Standard errors and P for Poisson. (a) for Information availability, (b) for Involvement of trade community, (c) for Advance ruling, (d) for Appeal procedures, (e) for Fees and charges, (f) for Formalities and documents, (g) for formalities and automation, (h) for Formalities and procedures, (i) for Border agency Cooperation - internal, (j) for Border agency cooperation - External, (l) for Governance and Impartiality. Significance levels are *** = 1 percent, ** = 5 percent, * = 10 percent.

D.6 Contribution of factors to variations in trade costs

The contribution of each explanatory variable (var_m) in percentage to the total variance of trade costs (σ_{ijt}^k) is calculated as:

$$c_m = \frac{\beta_m^k cov(var_m, \sigma_{ijt}^k)}{var(\sigma_{ijt}^k)} \tag{D.9}$$

Where β_m^k is the partial regression coefficient of the main regression. Table D.26 provides the regressions for the manufacturing sector (based on the fourth specification) and the related contribution to the variance. It relies on both datasets, accurate and ambiguous. In addition, I only report results after data cleaning, *i.e.* I dropped the non-significant variables, the “correlated” variables or the variables which do not bear the expected signs. As stressed by Duval and Utoktham (2011), a negative sign is interpreted as no impact. Finally, I do not report fixed effects.

Table D.26: Regressions with all variables together for the manufacturing sector

	accurate	contribution	ambiguous	contribution
log(dist)	0.1632*** (45.9170)	0.45857885	0.1667*** (48.5404)	0.46849957
comlang	-0.0741*** (-5.7666)	0.00926369	-0.0611*** (-5.0442)	0.00763744
contig	-0.0200* (-1.7445)	0.00621039	-0.0082 (-0.7479)	0.00255126
colony	-0.0774*** (-5.6528)	0.00481904	-0.0557*** (-4.3280)	0.00346689
TFI(a)	-0.2391*** (-11.6184)	0.00389371	-0.2547*** (-11.1720)	
TFI(b)	0.1086*** (14.8033)		0.1859*** (21.4708)	
TFI(c)	-0.1315*** (-9.5070)	0.05472053	-0.1997*** (-15.2613)	0.07941961
TFI(d)	0.1142*** (12.2708)	0.01480419	0.0882*** (11.5568)	0.03318248
TFI(e)	0.0604*** (5.2635)	0.00062939		
TFI(f)	0.1731*** (8.6792)	0.00734458	0.3311*** (15.8101)	0.01344121
TFI(g)	-0.2421*** (-13.3936)	0.01898645	-0.2808*** (-19.4627)	0.01818878
TFI(h)	-0.1848*** (-7.1121)	0.00945522	-0.4024*** (-12.5540)	0.02519555
TFI(i)	-0.0345*** (-4.4164)	0.00586951	0.0600*** (7.6679)	
TFI(j)	0.1773*** (12.2484)		0.2226*** (15.3577)	
TFI(l)			-0.0849*** (-7.7243)	0.01462661
N	2.1e+03		2.1e+03	
r2(a)	0.8230		0.8535	

Dummies are not displayed

Appendix E

The Extended Trade Facilitation Index

E.1 Global Express Association (GEA)

E.1.1 The GEA Surveys (2005-2009)

E.1.1.1 Questions covered since 2008

A. Transparency

1. Are Customs and other import regulations and decisions interpreting them published in an official journal?
- 2a. Are proposed new regulations and changes to existing regulations published for public comment prior to being implemented?
- 2b. After the authorities have decided on new or changed regulations is there advance notice of the effective date (or a delayed effective date) to allow traders to make necessary changes and arrangements?
3. Does Customs issue advance (pre-entry) rulings, binding on all Customs ports, on classification and valuation questions?
4. Does Customs or another agency make available and keep current, on a publicly accessible Internet website:
 - 4a A full and precise description of its Customs procedures?
 - 4b Procedures for appeal of Customs' decisions?
 - 4c The forms and documents required for importation or exportation?
5. URL for Customs website

B. Customs Efficiency

1. Does Customs accept and process electronically the data required for release of shipments in advance of their actual arrival so that they can be released either prior to or immediately after arrival?
 - 2a. If the answer to question 1 is "yes" or "sometimes", are the shipments released in time for:
 - 2aa Letters and documents
 - 2ab Non-dutiable items
 - 2ac Dutiable items
 - 2b. If the answer to question 1 is "no" or "sometimes", what is the average or typical time elapsed between post-arrival data submission and shipment release:
 - 2ba Letters and documents
 - 2bb Non-dutiable items
 - 2bc Dutiable items
3. Is physical release of goods separate from the fiscal control (will Customs release goods prior to completion of all formalities and final settlement of accounts?)

4. If the answer to question 3 is “yes” or “sometimes” can formalities for final clearance be completed through electronic data interchange?
5. Is full-time (24/7) automated processing for the Customs ports at which you operate available?
- 6a. Are the working hours of Customs personnel adapted to commercial needs?
- 6b. Are there fees for Customs services during normal working hours?
7. For shipments arriving by air, does Customs inspect and release goods at the operator’s facility or require their transfer to another facility?
8. What is the primary basis for physical examinations of shipments?
 - 8a Automated risk assessment
 - 8b Random examinations
 - 8c Inspector discretion inspector discretion for dutiable
 - 8d All or virtually all goods are inspected
- 9a. Are there multiple inspections (inspections by agencies other than Customs)?
- 9b. If the answer above is “yes”, are other agency inspections causing delays in delivery?
- 10a. Does the Customs administration apply a de minimis regime that allows goods the value of which does not exceed a certain amount to be exempted from duties and taxes?
- 10b. If the answer above is “yes” what is that amount?
- 10c. If the answer to 10(a) is “yes”, are those goods subject to simplified procedures e.g. consolidated release/clearance?
- 11a. Does the Customs administration apply a de minimis regime that allows dutiable goods the value of which does not exceed a certain amount to be exempted from formal declaration procedures (e.g. as in the US for goods valued between \$200 and \$2000)?
- 11b. If the answer above is “yes” what is that amount?
12. Does Customs or any other agency require in connection with importation of goods that the importer provide any of the following items:
 - 12a A consular invoice or a consular visa for a commercial invoice or other trade document (as evidence that particular goods are of a particular origin, or have arrived in a particular importing country, or have been applied to a particular end use)?
 - 12b A certificate from a pre-shipment inspection agency?
 - 12c A certificate of origin from a chamber of commerce or similar agency?
13. Does Customs or any other agency require clearance of import shipments by a third-party Customs broker?

C. Post-Release Processes

- 1a. Is there a limit on the time within which Customs is allowed to demand additional duties or re-delivery of goods?
- 1b. If the answer above is “yes”, what is the time limit?
- 2a. May decisions of local Customs officials be appealed to a higher level or to an independent tribunal?
- 2b. If the answer to the question above is “yes” is there a time limit for deciding such appeals?
- 2c. If the answer to question 2b is “yes” what is the time limit?
3. Does Customs regularly use reference prices or other arbitrary uplifts to invoice values?
4. Are there other Customs rules or procedures that in your experience restrict the operation of express delivery services in your country?
5. Are there processing fees for:
 - 5a Express clearance
 - 5b On-site Customs facilities
 - 5c EDI links
 - 5d Value added network operators
 - 5e Other

E.1.1.2 Correspondence between old and new Customs capabilities reports

The first surveys have been launched in 2005 and since regularly reviewed. The majority of reports are updated, but some previous versions are still used for a small set of countries. The following table E.1 provides the distribution of the current reports by last updated year, according to the GEA Customs capabilities reports downloaded the 15th January 2011. The last updates reported are from the end of 2009.

Table E.1: Distribution of reports (%) by updated years and countries classifications

	Full Sample	non OECD	OECD	Africa	Americas	Asia	Europe	Oceania	EC15	EC27	High Income	Low Income	Lower middle Income	Upper middle Income
2005	12	11	13	11	17	8	8	40	7	7	19	5	10	17
2006	6	6	10	11	7	5	5	0	7	4	19	10	0	3
2007	2	3	0	0	0	5	0	20	0	0	0	10	3	0
2008	1	0	6	0	0	0	3	20	7	4	8	0	0	0
2009	78	81	71	78	77	82	85	20	80	85	54	75	87	80

Source: Author's calculation, based on the Global Express Association Customs Capabilities Reports.

The oldest versions of the GEA Customs capabilities reports (2005-2007) do not encompass the same questions than the current framework. However, it is still possible to use these reports. Table E.2 provides several correspondences across the three dimensions covered by the current reports: Transparency (pillar1), Customs Efficiency (pillar2) and Post-Release Processes (pillar3).

Table E.2: Correspondence Table

Pillar1		Pillar2		Pillar3	
old	new	old	new	old	new
A1	A1	B1a	B1	B9c	C5e
A2	A2a	B1b	B4	C1	C1a
C3	A3	B2	B5	C2a	C2a
		B3	B7	C2b	C2b/c
		B4	B8	C4	C3
		B5a	B9a		
		B5b	B9b		
		B6	B3		
		B8	B11a		
		B9a	B6a		
		B9b	B6b		
		B10	B1		
		B11a	B2ba		
		B11b	B2bb		
		B11c	B2bc		

Source: Own compilation

E.1.2 Statistics about the GEA surveys and database

Table E.3: Rate of Availability (%), by categories

Questions*	Full Sample	non-OECD	OECD	Africa	Americas	Asia	Europe	Oceania	EC15	EC27	High income	Low income	Lower middle income	Upper middle income
transparency1	100	100	100	100	100	100	100	100	100	100	100	100	100	100
transparency2a	100	100	100	100	100	100	100	100	100	100	100	100	100	100
transparency2b	72,46	71,3	77,42	51,85	73,33	78,95	87,18	20	86,67	88,89	77,08	45	80,65	77,14
transparency3	92,75	90,74	100	88,89	90	94,74	97,44	80	100	100	97,92	95	87,1	91,43
transparency4a	79,71	80,56	77,42	77,78	76,67	81,58	87,18	40	86,67	88,89	79,17	75	87,1	80
transparency4b	79,71	80,56	77,42	77,78	76,67	81,58	87,18	40	86,67	88,89	79,17	75	87,1	80
transparency4c	78,99	79,63	77,42	77,78	76,67	81,58	84,62	40	86,67	88,89	79,17	75	87,1	77,14
web	100	100	100	100	100	100	100	100	100	100	100	100	100	100
efficiency1	100	100	100	100	100	100	100	100	100	100	100	100	100	100
efficiency2aa	78,99	79,63	77,42	77,78	76,67	78,95	87,18	40	86,67	88,89	79,17	70	87,1	80
efficiency2ab	78,99	79,63	77,42	77,78	76,67	78,95	87,18	40	86,67	88,89	79,17	70	87,1	80
efficiency2ac	78,99	79,63	77,42	77,78	76,67	78,95	87,18	40	86,67	88,89	79,17	70	87,1	80
efficiency2ba	52,17	55,56	41,94	74,07	43,33	52,63	43,59	60	26,67	29,63	37,5	85	45,16	65,71
efficiency2bb	47,1	50,93	35,48	66,67	36,67	47,37	41,03	60	20	25,93	35,42	70	41,94	60
efficiency2bc	52,17	56,48	38,71	70,37	40	60,53	43,59	40	20	33,33	39,58	80	48,39	65,71
efficiency3	100	100	100	100	100	100	100	100	100	100	100	100	100	100
efficiency4	94,93	93,52	100	88,89	93,33	94,74	100	100	100	100	95,83	85	93,55	100
efficiency5	100	100	100	100	100	100	100	100	100	100	100	100	100	100
efficiency6a	95,65	95,37	96,77	92,59	93,33	100	94,87	100	93,33	96,3	97,92	95	100	88,57
efficiency6b	94,2	93,52	96,77	92,59	86,67	100	94,87	100	93,33	96,3	97,92	95	96,77	85,71
efficiency7	95,65	94,44	100	100	96,67	89,47	97,44	100	100	96,3	93,75	100	96,77	94,29
efficiency8a	99,28	99,07	100	100	100	97,37	100	100	100	100	97,92	100	100	100
efficiency8b	99,28	99,07	100	100	100	97,37	100	100	100	100	97,92	100	100	100
efficiency8c	99,28	99,07	100	100	100	97,37	100	100	100	100	97,92	100	100	100
efficiency8d	99,28	99,07	100	100	100	97,37	100	100	100	100	97,92	100	100	100
efficiency9a	99,28	99,07	100	100	96,67	100	100	100	100	100	100	100	100	100
efficiency9b	99,28	99,07	100	100	96,67	100	100	100	100	100	100	100	100	100
efficiency9c	99,28	99,07	100	100	96,67	100	100	100	100	100	100	100	100	100
efficiency9d	99,28	99,07	100	100	96,67	100	100	100	100	100	100	100	100	100
efficiency9e	99,28	99,07	100	100	96,67	100	100	100	100	100	100	100	100	100
efficiency10a	76,09	75,93	77,42	70,37	66,67	81,58	87,18	40	86,67	88,89	79,17	70	77,42	77,14
efficiency10b	43,48	36,11	70,97	18,52	26,67	44,74	76,92	20	80	85,19	62,5	20	41,94	31,43
efficiency10c	74,07	74,07	77,42	70,37	63,33	78,95	87,18	40	86,67	88,89	79,17	65	74,19	77,14
efficiency11a	97,1	96,3	100	96,3	93,33	97,37	100	100	100	100	100	100	93,55	100
efficiency11b	39,13	37,04	48,39	14,81	40	57,89	35,9	60	33,33	33,33	41,67	15	41,94	48,57
efficiency12a	61,59	57,41	77,42	33,33	43,33	76,32	84,62	40	86,67	88,89	70,83	40	64,52	60
efficiency12b	62,32	58,33	77,42	37,04	43,33	76,32	84,62	40	86,67	88,89	70,83	45	64,52	60
efficiency12c	62,32	58,33	77,42	33,33	43,33	78,95	84,62	40	86,67	88,89	72,92	40	64,52	60
efficiency13	65,22	62,04	77,42	44,44	50	76,32	84,62	40	86,67	88,89	77,08	45	64,52	62,86
postrelease1a	96,38	95,37	100	88,89	96,67	100	97,44	100	100	100	100	95	93,55	94,29
postrelease1b	47,1	36,11	87,1	25,93	46,67	42,11	66,67	60	80	74,07	64,58	30	45,16	37,14
postrelease2a	94,93	93,52	100	74,07	100	100	100	100	100	100	100	75	96,77	97,14
postrelease2b	89,86	87,04	100	62,96	93,33	94,74	100	100	100	100	97,92	70	87,1	91,43
postrelease2c	38,41	33,33	58,06	11,11	30	36,84	66,67	40	53,33	70,37	54,17	15	32,26	34,29
postrelease3	99,28	99,07	100	100	100	97,37	100	100	100	100	96,3	97,92	100	100
postrelease4	77,54	77,78	77,42	74,07	80	78,95	82,05	40	86,67	88,89	79,17	75	80,65	77,14
postrelease5a	60,87	56,48	77,42	37,04	43,33	76,32	79,49	40	86,67	88,89	70,83	40	64,52	57,14
postrelease5b	60,14	55,56	77,42	37,04	43,33	73,68	79,49	40	86,67	88,89	70,83	40	61,29	57,14
postrelease5c	59,42	54,63	77,42	37,04	43,33	71,05	79,49	40	86,67	88,89	68,75	40	61,29	57,14
postrelease5d	59,42	54,63	77,42	37,04	43,33	71,05	79,49	40	86,67	88,89	68,75	40	61,29	57,14
postrelease5e	60,87	56,48	77,42	37,04	43,33	71,05	84,62	40	86,67	88,89	72,92	40	61,29	60
Number of Obs.	138	108	31	27	30	38	39	5	15	27	48	20	31	35

* Source: Author's calculation, based on the GEA Customs Reports. The availability rate is the number of replies above the total number of countries.
 * The questions follow the framework of the questionnaire of 2009, extracted the 15th January 2011.

Table E.5: Country and ISO3 classification, by Region

AFRICA			AMERICA			ASIA			EUROPE			OCEANIA		
AGO	Angola		ARG	Argentina		ARE	United Arab Emirates		ALB	Albania		AUS	Australia	
BDI	Burundi		ATG	Antigua and Barbuda		ARM	Armenia		AND	Andorra		COK	Cook Islands	
BEN	Benin		BHS	Bahamas		AZE	Azerbaijan		AUT	Austria		FJI	Fiji	
BFA	Burkina Faso		BLZ	Belize		BGD	Bangladesh		BEL	Belgium		KIR	Kiribati	
CIV	Côte d'Ivoire		BMU	Bermuda		BHR	Bahrain		BGR	Bulgaria		NZL	New Zealand	
CMR	Cameroon		BOL	Bolivia		BRN	Brunei		BIH	Bosnia and Herzegovina				
COD	Congo (Kinshasa)		BRB	Barbados		BTN	Bhutan		BLR	Belarus				
COG	Congo (Brazzaville)		BRB	Barbados		CHN	China		CHE	Switzerland				
COM	Comoros		CAN	Canada		CYP	Cyprus		CZE	Czech Republic				
DJI	Djibouti		CHL	Chile		GEO	Georgia		DEU	Germany				
DZA	Algeria		CRI	Costa Rica		HKG	Hong Kong		DNK	Denmark				
EGY	Egypt		CUB	Cuba		IDN	Indonesia		ESP	Spain				
ERI	Eritrea		DMA	Dominica		IND	India		EST	Estonia				
ETH	Ethiopia		ECU	Ecuador		IRN	Iran		FIN	Finland				
GAB	Gabon		GTM	Guatemala		ISR	Israel		FRA	France				
GHA	Ghana		HND	Honduras		JOR	Jordan		GBR	United Kingdom				
GMB	Gambia		JAM	Jamaica		JPN	Japan		GRC	Greece				
KEN	Kenya		LCA	St. Lucia		KAZ	Kazakhstan		HRV	Croatia				
LBR	Liberia		MEX	Mexico		KGZ	Kyrgyzstan		HUN	Hungary				
MAR	Morocco		NIC	Nicaragua		KHM	Cambodia		IRL	Ireland				
MDG	Madagascar		PAN	Panama		KOR	Korea (Republic of)		ISL	Iceland				
NGA	Nigeria		PER	Peru		KWT	Kuwait		ITA	Italy				
RWA	Rwanda		PRY	Paraguay		LBN	Lebanon		LTU	Lithuania				
SLE	Sierra Leone		SLV	El Salvador		LKA	Sri Lanka		LUX	Luxembourg				
TGO	Togo		SUR	Suriname		MMR	Burma		LVA	Latvia				
UGA	Uganda		TTO	Trinidad and Tobago		MYS	Malaysia		MKD	Macedonia				
ZAF	South Africa		URY	Uruguay		NPL	Nepal		MLT	Malta				
			USA	United States of America		OMN	Oman		MNE	Montenegro				
			VCT	St. Vincent and Grenadines		PAK	Pakistan		NLD	Netherlands				
			VEN	Venezuela		PHL	Philippines		NOR	Norway				
						QAT	Qatar		POL	Poland				
						SAU	Saudi Arabia		PRT	Portugal				
						SGP	Singapore		ROU	Romania				
						SYR	Syria		RUS	Russia				
						THA	Thailand		SRB	Serbia				
						TUR	Turkey		SVK	Slovakia				
						TWN	Taiwan		SVN	Slovenia				
						VNM	Vietnam		SWE	Sweden				
									UKR	Ukraine				

Source: United Nations Classification and Ethnologue.com if missing classification, updated the 26th January 2011.

E.2 The Extended Customs Services Index (ECSI)

The ECSI is composed by three pillars based on 36 questions from the Global Express Association (GEA) surveys. The pillars cover the following dimensions: Transparency (pillar1), Customs Efficiency (pillar2) and Post-Release Processes (pillar3). The aggregate ECSI is the simple average of this three pillars, standardized or not. I also compute a ECSI using a Principal Component Analysis on the three pillars.

E.2.1 The CSI and the ECSI, a non standardized approach

Table E.6: The CSI, the ECSI and its three pillars (Scores)

Source: Own calculation, based on the GEA surveys downloaded the 15th January 2011

country	year*	CSI	ECSI	Pillar1	Pillar2	Pillar3	country	year*	CSI	ECSI	Pillar1	Pillar2	Pillar3
Albania	2009	7,00	6,50	6,50	11,00	2,00	Jamaica	2009	6,00	5,67	4,00	10,00	3,00
Algeria	2009	6,00	4,67	5,00	7,00	2,00	Japan	2009	11,50	9,17	8,00	14,50	5,00
Andorra	2009	9,00	8,33	7,00	13,00	5,00	Jordan	2009	10,00	7,80	7,50	10,50	5,40
Angola	2009	7,00	5,33	5,00	7,00	4,00	Kazakhstan	2009	4,50	3,67	5,50	2,50	3,00
Antigua and Barbuda	2005	6,00	3,67	1,00	8,00	2,00	Kenya	2009	3,50	2,33	1,50	1,50	4,00
Argentina	2009	6,00	6,43	7,50	7,00	4,80	Kiribati	2007	5,00	3,33	0,00	8,00	2,00
Armenia	2009	10,50	8,10	7,50	12,00	4,80	Korea (Republic of)	2006	11,00	7,67	4,00	15,00	4,00
Australia	2008	8,50	7,77	7,50	11,00	4,80	Kuwait	2009	4,00	3,87	5,00	4,00	2,60
Austria	2009	13,00	9,33	8,00	15,00	5,00	Kyrgyzstan	2007	8,00	6,00	3,00	9,00	6,00
Azerbaijan	2009	9,00	7,33	8,00	10,00	4,00	Latvia	2009	9,50	7,67	7,50	9,50	6,00
Bahamas	2009	9,00	7,33	5,00	11,00	6,00	Lebanon	2009	9,00	6,43	6,50	9,00	3,80
Bahrain	2009	9,00	6,67	5,00	12,00	3,00	Liberia	2009	6,00	2,87	2,00	5,00	1,60
Bangladesh	2009	5,00	3,63	3,00	4,50	3,40	Lithuania	2009	8,00	5,83	4,50	7,00	6,00
Barbados	2009	7,00	7,33	8,00	10,00	4,00	Luxembourg	2009	8,00	6,27	8,00	8,00	2,80
Belarus	2009	6,50	4,83	3,00	7,50	4,00	Macedonia	2006	6,00	3,67	1,00	6,00	4,00
Belgium	2009	9,50	8,00	7,50	11,50	5,00	Madagascar	2006	5,00	3,33	1,00	5,00	4,00
Belize	2009	6,00	6,00	7,00	7,00	4,00	Malaysia	2009	8,50	5,27	3,50	7,50	4,80
Benin	2009	4,00	4,00	3,00	5,00	4,00	Malta	2009	10,50	8,03	8,00	12,50	3,60
Bermuda	2009	7,50	6,00	3,50	9,50	5,00	Mexico	2009	9,50	7,33	8,00	9,00	5,00
Bhutan	2009	10,00	7,83	6,50	11,00	6,00	Montenegro	2009	8,00	6,17	4,50	9,00	5,00
Bolivia	2009	8,50	7,00	6,00	10,00	5,00	Morocco	2009	9,50	7,43	8,00	9,50	4,80
Bosnia and Herzegovina	2005	6,00	4,93	4,00	6,00	4,80	Nepal	2009	3,00	4,00	6,00	1,00	5,00
Brazil	2009	6,00	5,17	6,50	5,00	4,00	Netherlands	2009	11,50	9,17	7,50	15,00	5,00
Brunei	2009	7,00	4,93	4,00	7,00	3,80	New Zealand	2005	11,00	8,00	4,00	14,00	6,00
Bulgaria	2009	8,00	5,77	5,50	9,00	2,80	Nicaragua	2009	5,00	5,67	6,00	8,00	3,00
Burkina Faso	2005	6,00	4,00	2,00	7,00	3,00	Nigeria	2009	5,50	5,77	8,00	4,50	4,80
Burma	2007	8,00	5,00	2,00	10,00	3,00	Norway	2009	10,00	8,10	6,50	12,00	5,80
Burundi	2009	3,00	2,47	3,00	2,00	2,40	Oman	2009	6,00	4,67	3,00	7,00	4,00
Cambodia	2009	5,00	3,67	1,00	8,00	2,00	Pakistan	2009	9,00	7,00	7,00	9,00	5,00
Cameroon	2009	7,00	7,00	7,00	10,00	4,00	Panama	2009	6,00	4,77	4,50	7,00	2,80
Canada	2009	10,50	8,23	8,00	13,50	3,20	Paraguay	2009	8,00	7,17	5,50	10,00	6,00
Chile	2009	7,50	7,83	8,00	10,50	5,00	Peru	2009	6,50	5,83	4,50	8,00	5,00
China	2009	8,00	6,77	7,50	9,00	3,80	Philippines	2009	9,00	6,00	3,00	12,00	3,00
Comoros	2009	6,00	3,67	1,00	7,00	3,00	Poland	2009	7,00	6,03	8,00	6,50	3,60
Congo (Brazzaville)	2005	6,00	3,67	1,00	7,00	3,00	Portugal	2009	7,50	4,63	3,00	7,50	3,40
Congo (Kinshasha)	2006	6,00	3,67	1,00	7,00	3,00	Qatar	2009	8,00	5,50	5,50	7,00	4,00
Cook Islands	2005	7,00	5,67	3,00	10,00	4,00	Romania	2009	9,50	7,50	7,00	10,50	5,00
Costa Rica	2005	9,00	5,67	2,00	11,00	4,00	Russia	2009	8,00	5,80	3,50	9,50	4,40
Côte d'Ivoire	2009	6,00	5,67	6,00	8,00	3,00	Rwanda	2009	9,00	5,87	6,00	9,00	2,60
Croatia	2009	9,50	5,10	2,50	10,50	2,30	Saudi Arabia	2006	6,00	4,00	1,00	7,00	4,00
Cuba	2009	5,00	4,67	5,00	6,00	3,00	Serbia	2009	9,00	5,93	4,50	9,50	3,80
Cyprus	2009	7,50	6,10	7,00	7,50	3,80	Sierra Leone	2006	6,00	3,33	0,00	7,00	3,00
Czech Republic	2005	10,00	7,50	3,50	13,00	6,00	Singapore	2009	10,00	7,63	5,50	14,00	3,40
Denmark	2009	14,00	9,50	7,50	16,00	5,00	Slovakia	2009	11,00	7,77	6,50	12,00	4,80
Djibouti	2009	5,00	4,00	1,00	9,00	2,00	Slovenia	2009	12,00	8,67	8,00	12,00	6,00
Dominica	2009	5,00	4,00	1,00	8,00	3,00	South Africa	2005	8,00	6,00	4,00	10,00	4,00
Ecuador	2009	7,00	6,20	6,00	7,00	5,60	Spain	2009	9,00	8,00	6,50	12,50	5,00
Egypt	2009	6,00	4,53	6,00	4,00	3,60	Sri Lanka	2005	6,00	4,50	3,50	6,00	4,00
El Salvador	2005	6,00	4,33	2,00	7,00	4,00	St. Lucia	2005	6,00	5,33	4,00	7,00	5,00
Eritrea	2009	6,00	3,67	0,00	8,00	3,00	St.Vincent and Grenadines	2005	5,00	3,00	0,00	6,00	3,00
Estonia	2009	11,00	8,67	8,00	13,00	5,00	Suriname	2009	6,00	4,17	1,50	8,00	3,00
Ethiopia	2009	11,00	7,93	6,50	12,50	4,80	Sweden	2009	12,50	9,10	8,00	15,50	3,80
Fiji	2009	8,00	6,17	4,50	9,00	5,00	Switzerland	2009	12,00	8,83	7,50	15,00	4,00
Finland	2006	10,50	7,50	4,00	14,50	4,00	Syria	2009	2,00	1,93	1,50	1,00	3,30
France	2009	12,00	9,17	7,50	14,00	6,00	Taiwan	2009	12,00	8,40	8,00	13,00	4,20
Gabon	2009	6,00	4,00	2,00	7,00	3,00	Thailand	2009	9,50	7,37	6,00	12,50	3,60
Gambia	2009	6,00	4,00	2,00	7,00	3,00	Togo	2009	3,50	3,97	7,00	3,50	1,40
Georgia	2009	9,00	7,43	6,50	12,00	3,80	Trinidad and Tobago	2006	8,00	5,83	3,50	10,00	4,00
Germany	2009	9,50	7,50	8,00	11,50	3,00	Turkey	2009	7,00	4,90	4,50	6,00	4,20
Ghana	2009	6,00	3,83	2,00	7,00	2,50	Uganda	2009	8,00	5,00	6,00	5,00	4,00
Greece	2008	6,50	4,27	2,50	5,50	4,80	Ukraine	2009	5,50	4,77	7,00	3,50	3,80
Guatemala	2009	7,50	7,60	6,50	10,50	5,80	United Arab Emirates	2005	9,00	6,83	3,50	11,00	6,00
Honduras	2009	6,00	5,00	1,00	8,00	6,00	United Kingdom	2005	9,00	7,00	4,00	13,00	4,00
Hong Kong	2005	11,00	6,83	3,50	13,00	4,00	United States of America	2006	8,00	7,00	4,00	12,00	5,00
Hungary	2009	13,00	8,70	7,50	14,00	4,60	Uruguay	2009	5,50	4,83	3,00	7,50	4,00
Iceland	2009	10,00	7,53	7,00	11,00	4,60	Venezuela	2009	6,50	6,00	6,50	7,50	4,00
India	2009	8,00	6,77	7,50	8,00	4,80	Vietnam	2009	3,00	3,43	4,50	3,00	2,80
Indonesia	2009	9,00	5,97	4,50	8,00	5,40	Min	2,00	1,93	0,00	1,00	1,40	
Iran	2009	7,00	4,67	3,00	6,00	5,00	Max	14,00	9,50	8,00	16,00	6,00	
Ireland	2009	12,00	9,33	8,00	15,00	5,00	Mean	7,78	5,98	4,86	9,01	4,07	
Israel	2009	11,00	7,37	4,50	13,00	4,60	Sd	2,38	1,78	2,38	3,28	1,10	
Italy	2009	9,00	6,93	6,00	10,00	4,80							

* Last update as reported by the GEA Customs Capabilities Reports

E.2.2 The ECSI, a standardized approach and a PCA

Table E.7: The ECSI and its three pillars (Scores)

Source: Own calculation, based on the GEA surveys downloaded the 15th January 2011

country	year*	PCA	ECSI	Pillar1	Pillar2	Pillar3	country	year*	PCA	ECSI	Pillar1	Pillar2	Pillar3
Albania	2009	0,94	0,54	0,81	0,67	0,13	Jamaica	2009	0,84	0,48	0,50	0,60	0,35
Algeria	2009	0,67	0,39	0,63	0,40	0,13	Japan	2009	1,55	0,89	1,00	0,90	0,78
Andorra	2009	1,42	0,82	0,88	0,80	0,78	Jordan	2009	1,41	0,81	0,94	0,63	0,87
Angola	2009	0,92	0,53	0,63	0,40	0,57	Kazakhstan	2009	0,66	0,38	0,69	0,10	0,35
Antigua and Barbuda	2005	0,42	0,24	0,13	0,47	0,13	Kenya	2009	0,45	0,26	0,19	0,03	0,57
Argentina	2009	1,20	0,69	0,94	0,40	0,74	Kiribati	2007	0,34	0,20	0,00	0,47	0,13
Armenia	2009	1,39	0,80	0,94	0,73	0,74	Korea (Republic of)	2006	1,15	0,67	0,50	0,93	0,57
Australia	2008	1,35	0,78	0,94	0,67	0,74	Kuwait	2009	0,63	0,36	0,63	0,20	0,26
Austria	2009	1,57	0,91	1,00	0,93	0,78	Kyrgyzstan	2007	1,09	0,64	0,38	0,53	1,00
Azerbaijan	2009	1,26	0,72	1,00	0,60	0,57	Latvia	2009	1,44	0,83	0,94	0,57	1,00
Bahamas	2009	1,32	0,76	0,63	0,67	1,00	Lebanon	2009	1,08	0,62	0,81	0,53	0,52
Bahrain	2009	0,99	0,57	0,63	0,73	0,35	Liberia	2009	0,33	0,19	0,25	0,27	0,04
Bangladesh	2009	0,60	0,35	0,38	0,23	0,43	Lithuania	2009	1,13	0,65	0,56	0,40	1,00
Barbados	2009	1,26	0,72	1,00	0,60	0,57	Luxembourg	2009	1,03	0,59	1,00	0,47	0,30
Belarus	2009	0,79	0,46	0,38	0,43	0,57	Macedonia	2006	0,58	0,34	0,13	0,33	0,57
Belgium	2009	1,40	0,81	0,94	0,70	0,78	Madagascar	2006	0,55	0,32	0,13	0,27	0,57
Belize	2009	1,07	0,61	0,88	0,40	0,57	Malaysia	2009	0,92	0,54	0,44	0,43	0,74
Benin	2009	0,69	0,40	0,38	0,27	0,57	Malta	2009	1,30	0,75	1,00	0,77	0,48
Bermuda	2009	1,03	0,60	0,44	0,57	0,78	Mexico	2009	1,34	0,77	1,00	0,53	0,78
Bhutan	2009	1,43	0,83	0,81	0,67	1,00	Montenegro	2009	1,08	0,63	0,56	0,53	0,78
Bolivia	2009	1,23	0,71	0,75	0,60	0,78	Morocco	2009	1,33	0,77	1,00	0,57	0,74
Bosnia and Herzegovina	2005	0,90	0,52	0,50	0,33	0,74	Nepal	2009	0,88	0,51	0,75	0,00	0,78
Brazil	2009	0,95	0,55	0,81	0,27	0,57	Netherlands	2009	1,53	0,88	0,94	0,93	0,78
Brunei	2009	0,82	0,47	0,50	0,40	0,52	New Zealand	2005	1,36	0,79	0,50	0,87	1,00
Bulgaria	2009	0,89	0,51	0,69	0,53	0,30	Nicaragua	2009	0,91	0,52	0,75	0,47	0,35
Burkina Faso	2005	0,57	0,33	0,25	0,40	0,35	Nigeria	2009	1,14	0,66	1,00	0,23	0,74
Burma	2007	0,69	0,40	0,25	0,60	0,35	Norway	2009	1,44	0,83	0,81	0,73	0,96
Burundi	2009	0,38	0,22	0,38	0,07	0,22	Oman	2009	0,77	0,45	0,38	0,40	0,57
Cambodia	2009	0,42	0,24	0,13	0,47	0,13	Pakistan	2009	1,27	0,73	0,88	0,53	0,78
Cameroon	2009	1,18	0,68	0,88	0,60	0,57	Panama	2009	0,73	0,42	0,56	0,40	0,30
Canada	2009	1,29	0,74	1,00	0,83	0,39	Paraguay	2009	1,32	0,76	0,69	0,60	1,00
Chile	2009	1,40	0,81	1,00	0,63	0,78	Peru	2009	1,04	0,60	0,56	0,47	0,78
China	2009	1,16	0,66	0,94	0,53	0,52	Philippines	2009	0,84	0,49	0,38	0,73	0,35
Comoros	2009	0,50	0,29	0,13	0,40	0,35	Poland	2009	1,07	0,61	1,00	0,37	0,48
Congo (Brazzaville)	2005	0,50	0,29	0,13	0,40	0,35	Portugal	2009	0,72	0,41	0,38	0,43	0,43
Congo (Kinshasha)	2006	0,50	0,29	0,13	0,40	0,35	Qatar	2009	0,96	0,55	0,69	0,40	0,57
Cook Islands	2005	0,89	0,51	0,38	0,60	0,57	Romania	2009	1,32	0,76	0,88	0,63	0,78
Costa Rica	2005	0,85	0,49	0,25	0,67	0,57	Russia	2009	0,95	0,55	0,44	0,57	0,65
Côte d'Ivoire	2009	0,91	0,52	0,75	0,47	0,35	Rwanda	2009	0,90	0,51	0,75	0,53	0,26
Croatia	2009	0,66	0,38	0,31	0,63	0,20	Saudi Arabia	2006	0,62	0,36	0,13	0,40	0,57
Cuba	2009	0,76	0,44	0,63	0,33	0,35	Serbia	2009	0,95	0,55	0,56	0,57	0,52
Cyprus	2009	1,06	0,61	0,88	0,43	0,52	Sierra Leone	2006	0,43	0,25	0,00	0,40	0,35
Czech Republic	2005	1,28	0,75	0,44	0,80	1,00	Singapore	2009	1,15	0,66	0,69	0,87	0,43
Denmark	2009	1,57	0,91	0,94	1,00	0,78	Slovakia	2009	1,32	0,76	0,81	0,73	0,74
Djibouti	2009	0,46	0,26	0,13	0,53	0,13	Slovenia	2009	1,58	0,91	1,00	0,73	1,00
Dominica	2009	0,54	0,31	0,13	0,47	0,35	South Africa	2005	0,96	0,56	0,50	0,60	0,57
Ecuador	2009	1,19	0,69	0,75	0,40	0,91	Spain	2009	1,36	0,79	0,81	0,77	0,78
Egypt	2009	0,83	0,48	0,75	0,20	0,48	Sri Lanka	2005	0,77	0,45	0,44	0,33	0,57
El Salvador	2005	0,70	0,41	0,25	0,40	0,57	St. Lucia	2005	0,97	0,56	0,50	0,40	0,78
Eritrea	2009	0,47	0,27	0,00	0,47	0,35	St. Vincent & Grenadines	2005	0,39	0,23	0,00	0,33	0,35
Estonia	2009	1,49	0,86	1,00	0,80	0,78	Suriname	2009	0,58	0,33	0,19	0,47	0,35
Ethiopia	2009	1,34	0,77	0,81	0,77	0,74	Sweden	2009	1,44	0,83	1,00	0,97	0,52
Fiji	2009	1,08	0,63	0,56	0,53	0,78	Switzerland	2009	1,41	0,81	0,94	0,93	0,57
Finland	2006	1,13	0,66	0,50	0,90	0,57	Syria	2009	0,34	0,20	0,19	0,00	0,41
France	2009	1,62	0,93	0,94	0,87	1,00	Taiwan	2009	1,40	0,80	1,00	0,80	0,61
Gabon	2009	0,57	0,33	0,25	0,40	0,35	Thailand	2009	1,16	0,66	0,75	0,77	0,48
Gambia	2009	0,57	0,33	0,25	0,40	0,35	Togo	2009	0,61	0,35	0,88	0,17	0,00
Georgia	2009	1,20	0,69	0,81	0,73	0,52	Trinidad & Tobago	2006	0,92	0,53	0,44	0,60	0,57
Germany	2009	1,19	0,68	1,00	0,70	0,35	Turkey	2009	0,87	0,50	0,56	0,33	0,61
Ghana	2009	0,51	0,30	0,25	0,40	0,24	Uganda	2009	0,91	0,53	0,75	0,27	0,57
Greece	2008	0,77	0,45	0,31	0,30	0,74	Ukraine	2009	0,91	0,52	0,88	0,17	0,52
Guatemala	2009	1,38	0,80	0,81	0,63	0,96	United Arab Emirates	2005	1,21	0,70	0,44	0,67	1,00
Honduras	2009	0,91	0,53	0,13	0,47	1,00	United Kingdom	2005	1,08	0,62	0,50	0,80	0,57
Hong Kong	2005	1,04	0,60	0,44	0,80	0,57	United States of America	2006	1,16	0,67	0,50	0,73	0,78
Hungary	2009	1,45	0,83	0,94	0,87	0,70	Uruguay	2009	0,79	0,46	0,38	0,43	0,57
Iceland	2009	1,29	0,75	0,88	0,67	0,70	Venezuela	2009	1,05	0,60	0,81	0,43	0,57
India	2009	1,24	0,71	0,94	0,47	0,74	Vietnam	2009	0,58	0,33	0,56	0,13	0,30
Indonesia	2009	1,09	0,63	0,56	0,47	0,87	Min		0,33	0,19	0,00	0,00	0,00
Iran	2009	0,85	0,50	0,38	0,33	0,78	Max		1,62	0,93	1,00	1,00	1,00
Ireland	2009	1,57	0,91	1,00	0,93	0,78	Mean		0,99	0,57	0,61	0,53	0,58
Israel	2009	1,19	0,69	0,56	0,80	0,70	Sd		0,34	0,19	0,30	0,22	0,24
Italy	2009	1,21	0,70	0,75	0,60	0,74							

* Last update as reported by the GEA Customs Capabilities Reports

ECSI is the simple average of the three standardized pillars, according to the Min-Max method. The Principal Component Analysis provides a single indicator, the ECSI, noted as PCA in the

previous table. It is the weighted average of the three pillars according to their component loadings.

E.2.3 Ranks of the CSI and the different versions of the ECSI

Table E.8: The CSI and the different ECSI (Ranks)

Source: Own calculation, based on the GEA surveys downloaded the 15th January 2011

country	year*	CSI (1)	ECSI (2)	ECSI (3)	ECSI (4)	country	year*	CSI (1)	ECSI (2)	ECSI (3)	ECSI (4)
Albania	2009	77	56	79	78	Jamaica	2009	91	80	96	96
Algeria	2009	91	101	110	110	Japan	2009	10	4	6	6
Andorra	2009	37	13	14	14	Jordan	2009	23	24	15	16
Angola	2009	77	86	82	81	Kazakhstan	2009	131	122	112	112
Antigua and Barbuda	2005	91	122	133	133	Kenya	2009	134	138	131	131
Argentina	2009	91	57	43	43	Kiribati	2007	122	132	138	137
Armenia	2009	19	15	19	20	Korea (Republic of)	2006	12	27	50	52
Australia	2008	53	25	24	24	Kuwait	2009	132	120	114	113
Austria	2009	2	2	4	4	Kyrgyzstan	2007	56	65	57	57
Azerbaijan	2009	37	40	37	37	Latvia	2009	29	27	9	10
Bahamas	2009	37	40	28	30	Lebanon	2009	37	57	61	59
Bahrain	2009	37	55	71	71	Liberia	2009	91	136	139	139
Bangladesh	2009	122	130	115	116	Lithuania	2009	56	74	56	56
Barbados	2009	77	40	37	37	Luxembourg	2009	56	59	70	69
Belarus	2009	87	97	99	99	Macedonia	2006	91	122	117	117
Belgium	2009	29	18	17	17	Madagascar	2006	122	132	123	123
Belize	2009	91	65	64	64	Malaysia	2009	53	88	78	79
Benin	2009	132	111	108	108	Malta	2009	19	17	32	32
Bermuda	2009	72	65	69	70	Mexico	2009	29	40	26	26
Bhutan	2009	23	22	13	13	Montenegro	2009	56	61	59	60
Bolivia	2009	53	45	40	40	Morocco	2009	29	36	27	27
Bosnia and Herzegovina	2005	91	94	84	87	Nepal	2009	136	111	90	91
Brazil	2009	91	89	77	77	Netherlands	2009	10	4	7	7
Brunei	2009	77	94	98	98	New Zealand	2005	12	18	22	23
Bulgaria	2009	56	79	91	90	Nicaragua	2009	122	80	85	83
Burkina Faso	2005	91	111	120	120	Nigeria	2009	119	78	54	54
Burma	2007	56	91	109	109	Norway	2009	23	15	10	12
Burundi	2009	136	137	136	136	Oman	2009	91	101	102	102
Cambodia	2009	122	122	133	133	Pakistan	2009	37	45	36	36
Cameroon	2009	77	45	48	48	Panama	2009	91	99	105	105
Canada	2009	19	14	35	34	Paraguay	2009	56	44	30	31
Chile	2009	72	22	18	18	Peru	2009	87	74	66	67
China	2009	56	54	52	51	Philippines	2009	37	65	95	95
Comoros	2009	91	122	126	126	Poland	2009	77	64	63	63
Congo (Brazzaville)	2005	91	122	126	126	Portugal	2009	72	105	106	106
Congo (Kinshasha)	2006	91	122	126	126	Qatar	2009	56	85	75	74
Cook Islands	2005	77	80	89	89	Romania	2009	29	32	29	28
Costa Rica	2005	37	80	94	94	Russia	2009	56	77	74	76
Côte d'Ivoire	2009	91	80	85	83	Rwanda	2009	37	73	88	88
Croatia	2009	29	90	111	111	Saudi Arabia	2006	91	111	113	114
Cuba	2009	122	101	104	104	Serbia	2009	37	72	76	75
Cyprus	2009	72	63	65	65	Sierra Leone	2006	91	132	132	132
Czech Republic	2005	23	32	33	35	Singapore	2009	23	29	53	53
Denmark	2009	1	1	3	3	Slovakia	2009	12	25	31	29
Djibouti	2009	122	111	130	130	Slovenia	2009	5	10	2	2
Dominica	2009	122	111	124	124	South Africa	2005	56	65	73	73
Ecuador	2009	77	60	45	46	Spain	2009	37	18	23	22
Egypt	2009	91	106	97	97	Sri Lanka	2005	91	107	103	103
El Salvador	2005	91	108	107	107	St. Lucia	2005	91	86	72	72
Eritrea	2009	91	122	129	129	St.Vincent & Grenadines	2005	122	135	135	135
Estonia	2009	12	10	8	8	Suriname	2009	91	110	118	119
Ethiopia	2009	12	21	25	25	Sweden	2009	4	7	12	11
Fiji	2009	56	61	59	60	Switzerland	2009	5	8	16	15
Finland	2006	19	32	55	55	Syria	2009	139	139	137	138
France	2009	5	4	1	1	Taiwan	2009	5	12	20	19
Gabon	2009	91	111	120	120	Thailand	2009	29	38	51	50
Gambia	2009	91	111	120	120	Togo	2009	134	119	116	115
Georgia	2009	37	36	44	44	Trinidad & Tobago	2006	56	74	80	80
Germany	2009	29	32	47	45	Turkey	2009	77	96	92	92
Ghana	2009	91	121	125	125	Uganda	2009	56	91	83	82
Greece	2008	87	109	101	101	Ukraine	2009	119	99	87	86
Guatemala	2009	72	30	21	21	United Arab Emirates	2005	37	51	41	41
Honduras	2009	91	91	81	85	United Kingdom	2005	37	45	62	62
Hong Kong	2005	12	51	68	68	United States of America	2006	56	45	49	49
Hungary	2009	2	9	11	9	Uruguay	2009	119	97	99	99
Iceland	2009	23	31	34	33	Venezuela	2009	87	65	67	66
India	2009	56	53	39	39	Vietnam	2009	136	131	119	118
Indonesia	2009	37	71	58	58	* Last update as reported by the Customs Capabilities Reports					
Iran	2009	77	101	93	93	(1) Customs Services Index (own calculation)					
Ireland	2009	5	2	4	4	(2) Extended Customs Services Index (Simple average, not standardized)					
Israel	2009	12	38	46	47	(3) Extended Customs Services Index (Simple average, standardized)					
Italy	2009	37	50	42	42	(4) Extended Customs Services Index (Principal Component Analysis)					

Appendix F

The European Customs Union

F.1 The European Court of Justice, Customs related cases

Table F.1: Classification of cases by Customs areas, based on a wording analysis

Source: Own calculation, based on the compilation of the Court of Justice of the European Communities Judgments

	1995-1998	1999-2002	2003-2006	2007-2010	Total
Binding Tariff Information (BTI)	1	0	2	2	5
Tariff Classification (1)	21	33	35	56	145
Common Customs Tariff	13	15	20	27	75
Customs Value (2)	0	3	6	4	13
Classification	35	51	63	89	238
Import duties	8	10	25	13	56
Export duties	0	0	6	0	6
Other references to duties (3)	20	13	26	29	88
Charges	4	3	7	1	15
Levies	2	5	0	5	12
Duties	28	23	57	42	150
Charges and Levies	6	8	7	6	27
Taxes	9	12	10	6	37
Harmonization	0	1	0	0	1
Customs Union	0	0	5	4	9
Customs Code	3	9	21	41	74
Interpretation	0	0	3	11	14
Regulation	3	10	29	56	98
Procedures	3	7	22	8	40
Release (of goods)	0	3	2	2	7
Post-clearance	6	5	6	6	23
Customs process	9	15	30	16	70
Transit	2	9	15	13	39
Compliance	0	0	7	2	9
Repayment	2	2	6	3	13
Time issues (delays)	2	5	10	2	19
Origin	4	2	5	16	27
Dumping	1	0	2	13	16
Other issues	9	9	30	36	84
Number of cases	55	55	91	86	287

Note: each case can share various topics

(1) Including tariff headings, classification in the combined nomenclature

(2) Including transaction value

(3) Customs duties, port duty, etc.

F.2 The TIR and ATA procedures within the European Community

The TIR procedure entered into force in the European Community on 20 June 1983. It is a Customs transit system that applies to the transport of goods without intermediates reloading, between a Customs office of departure and a Customs office of destination. A condition of the TIR procedure is that the movement of the goods must include transport by road (UNECE, 2010). Although each Member State is a Contracting Party to the TIR Convention, the European Community is considered to be a single territory for the purposes of the TIR procedure (Art. 453 CCIP). This means TIR can only be used in the European Community where the movement either starts or ends in a third country, or where the goods move between two or more Member States via the territory of a third country (Art. 91 and 163) (EC, 2010j). Goods transported under TIR Carnet shall be deemed to be non Community goods, unless their Community status is established (Art. 453 CCIP). The amount of the guarantee per TIR Carnet is 60,000 € (Art. 457 CCIP).

In order to ensure the same level of Customs control than the NTCS (in place since 2005) to facilitate electronic Customs clearance, the Commission pointed that it was necessary to use data-processing techniques also for transport operations under the TIR system. It was the purpose of the Regulation (EC) No 1192/2008, introducing electronic TIR data at the 1st January 2009. This new IT tool allows to better supervise the TIR procedures but also accelerates the termination and discharge of these procedures.

The ATA carnet is used for temporary importation, transit and temporary admission of goods designed for specific purposes, duty free and tax free. The legal bases for this procedure are the ATA Convention and the Convention on Temporary Admission (also known as the Istanbul Convention, this Convention was originally intended to replace the ATA Convention). The ATA Convention concluded in 1961 remains in force and currently has 61 Contracting Parties. Since 2005, an amendment includes reference to the Istanbul Convention for the ATA procedure.

F.3 European Union international agreements

According to the Treaties Office Database of the European Union⁵⁴², the EC has signed 230 agreements at the multilateral level and 751 at the bilateral level from 1945 to 2010. According to the European Commission, 64 agreements are related to Customs matters.

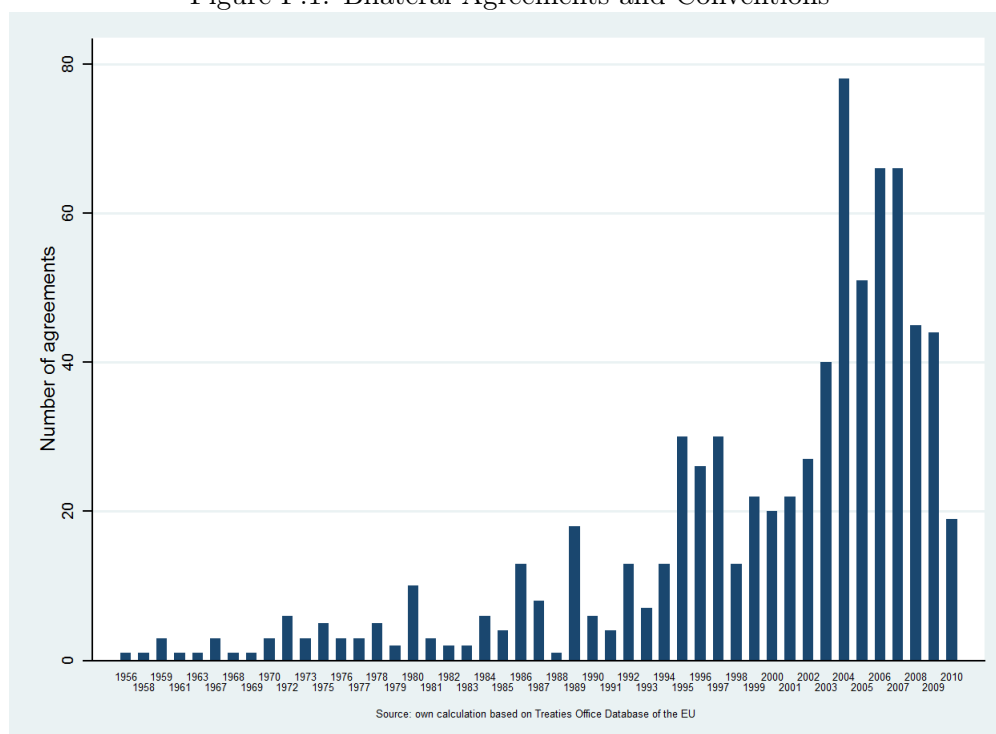
⁵⁴²Downloaded the 15 March 2010. Multilateral agreements are available in <http://ec.europa.eu/world/agreements/searchByType.do?id=2> and bilateral agreements in <http://ec.europa.eu/world/agreements/searchByType.do?id=1>.

Table F.2: The European Union, basic statistics

country	Landlocked	Areas (km2)	Coastlines (km)	EC Member	Language 1	Language 2
AUT	Austria	1	83871	0	1995	German
BEL	Belgium	0	30528	66,5	1958	Dutch
BGR	Bulgaria	0	110879	354	2007	Bulgarian
CYP	Cyprus	0	9251	648	2004	Greek
CZE	Czech Republic	1	78867	0	2004	Czech
DEU	Germany	0	357022	2389	1958	German
DNK	Denmark	0	43094	7314	1973	Danish
ESP	Spain	0	505370	4964	1986	Spanish
EST	Estonia	0	45228	3794	2004	Estonian
FIN	Finland	0	338145	1250	1995	Swedish
FRA	France	0	643427	3427	1958	French
GBR	United Kingdom	0	243610	12429	1973	English
GRC	Greece	0	131957	13676	1981	Greek
HUN	Hungary	1	93028	0	2004	Hungarian
IRL	Ireland	0	70273	1448	1973	English
ITA	Italy	0	301340	7600	1958	Italian
LTU	Lithuania	0	65300	90	2004	Lithuanian
LUX	Luxembourg	1	2586	0	1958	French
LVA	Latvia	0	64589	498	2004	Latvian
MLT	Malta	0	316	196,8	2004	English
NLD	Netherlands	0	41543	451	1958	Dutch
POL	Poland	0	312685	440	2004	Polish
PRT	Portugal	0	92090	1793	1986	Portuguese
ROU	Romania	0	238391	225	2007	Romanian
SVK	Slovakia	1	49035	0	2004	Slovak
SVN	Slovenia	0	20273	46,6	2004	Slovenian
SWE	Sweden	0	450295	3218	1995	Swedish

Source: Own compilation, from the CEPII and the CIA factbook

Figure F.1: Bilateral Agreements and Conventions



Source: own calculation based on Treaties Office Database of the EU

Table F.3: EC's Preferential Trade Agreements notified under Article XXIV of the GATT

Partners	Nature of Agreement	Date of entry into force
EC12	Treaty of Rome	01/01/1958
Overseas countries and Territories (OCT)	Association Agreement	01/01/1971
Switzerland	FTAs	01/01/1973
Iceland	FTAs	01/04/1973
Norway	FTAs	01/07/1973
Syria	Co-operation Agreement	01/07/1977
Andorra	Customs Union	01/07/1991
San Marino	Customs Union	01/12/1992
EC15	Treaty of Rome	01/01/1995
Turkey	Customs Union	31/12/1995
Faroe Islands	FTAs	01/01/1997
Palestinian Authority	Association Agreement	01/07/1997
Tunisia	Association Agreement	01/03/1998
South Africa	Trade, Development and Co-operation Agreement	01/01/2000
Morocco	Association Agreement	01/03/2000
Israel	Association Agreement	01/06/2000
Mexico	Economic Partnership, Political Coordination and Cooperation Agreement	01/07/2000
Jordan	Association Agreement	01/05/2002
Chile	Association Agreement	01/02/2003
Lebanon	Interim Agreement	01/03/2003
EC25	Treaty of Rome	01/05/2004
Former Yugoslav Rep. of Macedonia	Stabilisation and Association Agreement (SAA)	01/05/2004
Egypt	Association Agreement	01/06/2004
Croatia	Stabilisation and Association Agreement	01/02/2005
Algeria	Association Agreement	01/09/2005
EC27	Treaty of Rome	01/01/2007
Bosnia and Herzegovina	Interim Agreement on trade and trade related matters	01/07/2008
Albania	Stabilisation and Association Agreement	01/04/2009
Serbia	Interim Agreement on trade and trade related matters	01/02/2010
Montenegro	Stabilisation and Association Agreement	01/05/2010
CARIFORUM (1)	Economic Partnership Agreement	Pending
Ivory Coast	Interim Economic Partnership Agreement	Pending
Cameroon	Interim Economic Partnership Agreement	Pending
EAC (2)	Interim Economic Partnership Agreement	
ESA (3)	Interim Economic Partnership Agreement	29/08/2009
Pacific (4)	Interim Economic Partnership Agreement	30/07/2009
SADC (5)	Interim Economic Partnership Agreement	01/06/2009
West Africa (Ghana)	Interim Economic Partnership Agreement	

Source: DG Trade, Updated 10 September 2010

Note: The countries who have joined the European Union were previously part of FTAs.

Several agreements have been updated, particularly for Mediterranean countries.

- (1) Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Saint Christopher and Nevis, Suriname, Trinidad and Tobago
- (2) Burundi, Kenya, Rwanda, Tanzania, Uganda
- (3) Comoros, Madagascar, Mauritius, Seychelles, Zambia, Zimbabwe
- (4) Papua New Guinea, Fiji
- (5) Botswana, Lesotho, Namibia, Mozambique, Swaziland

Figure F.2: Multilateral Agreements and Conventions

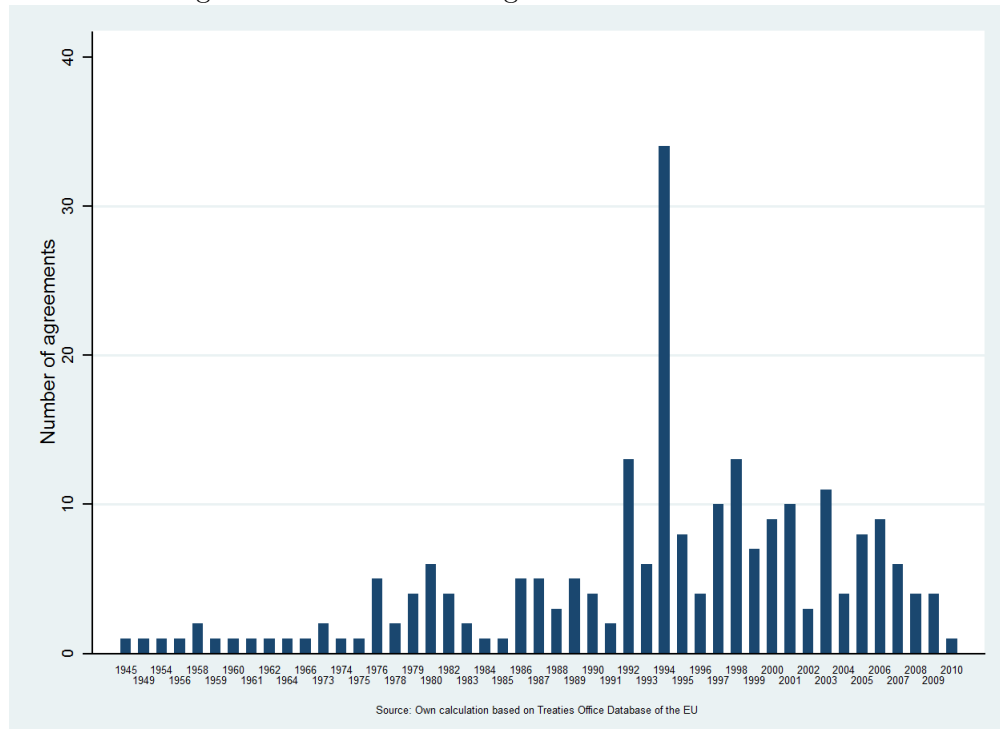


Figure F.3: Agreements related to Customs matters

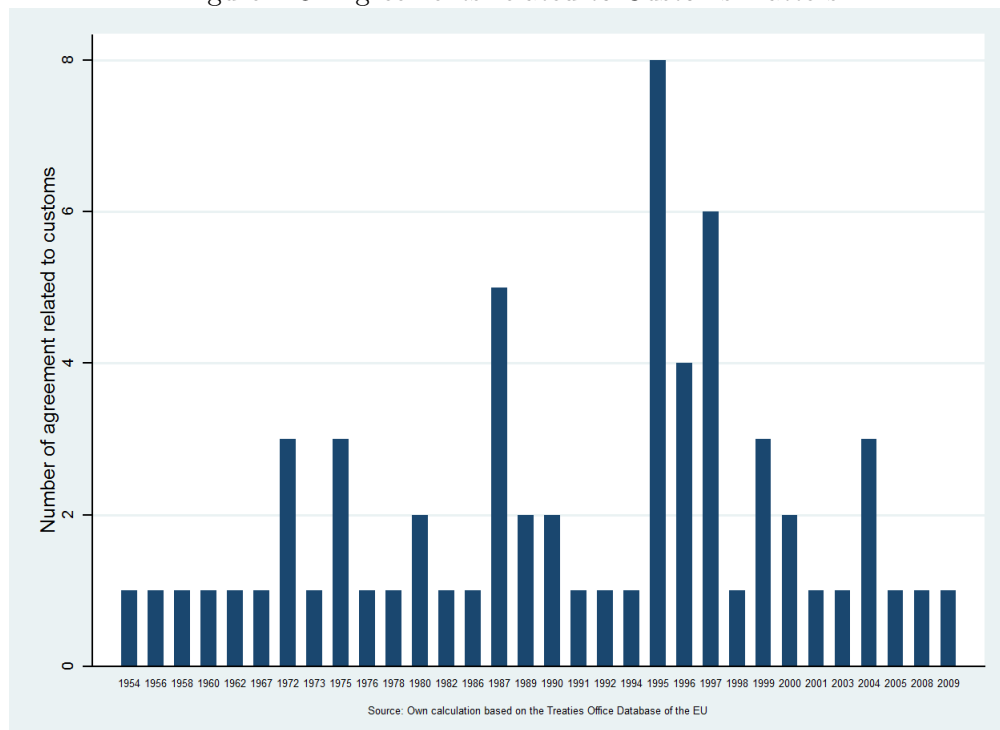


Table F.4: EU Key Agreements and conventions in the Customs area

Name	Date	Scope	Notes
International convention on the simplification and harmonization of Customs procedures	26/06/1974	Conventions	Council Decision (75/199/EEC)
Customs Convention on the International Transport of Goods under Cover of TIR Carnets	20/06/1983	Conventions	Regulation (EEC) No 2112/78
International Convention on the harmonization of frontier controls of goods	12/06/1987	Conventions	Council Regulation (EEC) No 1262/84
Convention concerning the simplification of formalities in trade in goods	01/01/1988	Conventions	Council Decision of 28 April 1987
Convention on a common transit procedure	01/01/1988	Conventions	Council Decision of 15 June 1987
International Convention on the Harmonised Commodity Description and Coding System	01/01/1988	Conventions	Council Decision of 7 April 1987
Agreements of the World Trade Organization (WTO)	01/01/1995	Conventions	Council Decision of 22 December 1994
Convention on the use of information technology for Customs purposes (CIS)	13/03/1997	Agreements on Customs Cooperation	Council Act of 26 July 1995
Korea	01/05/1997	Agreements on Customs Cooperation	Council Decision of 26 April 1997
Convention relating to temporary admission (Istanbul Convention)	18/07/1997	Conventions	Council Decision of 15 March 1993
USA	01/08/1997	Agreements on Customs Cooperation	Council Decision of 21 May 1997
Canada	01/01/1998	Agreements on Customs Cooperation	Council Decision of 27 November 1997
Convention on Customs Treatment of Pool Containers used in International Transport	17/01/1998	Conventions	Council Decision of 7 April 1995
Convention on mutual assistance and cooperation between Customs administrations (Naples II)	01/02/1998	Agreements on Customs Cooperation	Council Act of 18 December 1997
Canada	01/11/1998	Mutual Recognition Agreements	Council Decision of 20 July 1998
USA	01/12/1998	Mutual Recognition Agreements	Council Decision of 22 June 1998
Australia	01/01/1999	Mutual Recognition Agreements	Council Decision of 18 June 1998
New Zealand	01/01/1999	Mutual Recognition Agreements	Council Decision of 18 June 1998
Hong-Kong, China	01/06/1999	Agreements on Customs Cooperation	Council Decision of 11 May 1999
Israel	01/05/2000	Mutual Recognition Agreements	Council Decision of 19 July 1999
Japan	28/11/2001	Mutual Recognition Agreements	Council Decision of 27 September 2001
Switzerland	01/06/2002	Mutual Recognition Agreements	Council Decision of 4 April 2002
Revised Kyoto Convention	30/04/2003	Conventions	Council Decision (2003/231/EC)
USA (Container Security Initiative)	22/04/2004	Agreements on Customs Cooperation	Council Decision of 30 March 2004
India	01/11/2004	Agreements on Customs Cooperation	Council Decision of 30 March 2004
China	01/04/2005	Agreements on Customs Cooperation	Council Decision of 16 November 2004
Switzerland (Rev.)	01/02/2007	Mutual Recognition Agreements	Council Decision of 19 December 2006
Japan	01/02/2008	Agreements on Customs Cooperation	Council Decision of 28 January 2008

Own compilation, based on different European sources (at the 15 March 2011)

F.4 Intra and Extra EU trade

According to Eurostat (2010), external trade statistics are usually recorded on the basis of Customs declarations submitted by the trader when clearing Customs. Imports are defined as “*goods which enter the statistical territory of the European Union from a third country and are placed under the Customs procedure for free circulation (as a general rule goods intended for consumption), inward processing or processing under Customs control immediately or after bonded warehousing*”. The statistical value is based on the Customs value, i.e. most of the time the transaction value of the goods. It is the FOB value for exports and the CIF value for imports⁵⁴³. Statistics on intra trade cover the arrivals and dispatches of goods recorded by each Member State. Arrivals are “*goods in free circulation within the European Union which enter the statistical territory of a given Member State*”, and dispatches are “*goods in free circulation within the European Union which leave the statistical territory of a given Member State to enter another Member State*”. It is important to note that the trading partner in the case of arrivals is always the country of consignment of the goods, even when the goods originate in third countries and have been placed in free circulation in the country of consignment. Thus, importations of a Member State A from a third country, entering in the EU from another Member States B (and released for free circulation) is not counted as an importation but as an intra trade flow. This phenomenon is known as the Rotterdam effect. As pointed out by Eurostat (2008), in this case “*a foreign trade transaction on imports is reported for EU statistics first as the imports from a non-EU country to the EU Member State where the goods crossed the EU border and were released to free circulation. This statistical record is part of Extrastat. The following movement of the goods from this EU Member State to the EU Member State which is the final real importing country is then recorded as a dispatch (export) and arrival (import) between these two EU Member States within Intrastat*”. This could over-estimate the exports and imports of the EU Member States which are exposed to this effect. The following tables provide a global picture for each Member States, of the share of imports from extra-EU states, the share of EU dispatches and arrivals.

Some countries, such as Belgium and the Netherlands, seem to outperform their “natural” potential. It is probably the reflect of the place of these countries in the logistic chain.

⁵⁴³It comprises only those subsidiary costs (freight and insurance) which relate, for exports, to the journey within the territory of the Member State from which the goods are exported and, for imports, to the journey outside the territory of the Member State into which the goods are imported.

Table F.5: Share in the EU imports (%), Partner: Extra EU-27

		2002	2003	2004	2005	2006	2007	2008	2009
AT	<i>Austria</i>	1,7	1,7	1,6	1,7	1,6	1,7	1,8	1,9
BE	<i>Belgium</i>	6,1	5,9	6,1	6,1	5,9	6,2	6,1	6,1
BG	<i>Bulgaria</i>	0,4	0,4	0,5	0,4	0,4	0,6	0,7	0,6
CY	<i>Cyprus</i>	0,2	0,2	0,1	0,1	0,1	0,1	0,1	0,1
CZ	<i>Czech Republic</i>	1,3	1,4	1,1	1	1,1	1,2	1,4	1,4
DE	<i>Germany</i>	19	19,4	19,2	18,8	19,4	19	18,7	19,6
DK	<i>Denmark</i>	1,4	1,4	1,6	1,5	1,4	1,4	1,3	1,5
EE	<i>Estonia</i>	0,2	0,2	0,2	0,2	0,2	0,2	0,1	0,1
EL	<i>Greece</i>	1,6	1,8	1,6	1,5	1,6	1,6	1,7	1,3
ES	<i>Spain</i>	5,7	6	6,5	7,1	7,4	7,3	7,4	6,6
FI	<i>Finland</i>	1,2	1,3	1,3	1,3	1,5	1,5	1,5	1,3
FR	<i>France</i>	11,7	11,2	11,2	11,2	9,8	9,8	9,9	10,3
HU	<i>Hungary</i>	1,5	1,6	1,5	1,4	1,4	1,5	1,5	1,5
IE	<i>Ireland</i>	2	1,9	1,7	1,6	1,4	1,3	1,1	1,3
IT	<i>Italy</i>	10,4	10,3	10,5	10,6	11,1	11	11,1	10,6
LT	<i>Lithuania</i>	0,4	0,4	0,4	0,4	0,4	0,4	0,6	0,4
LU	<i>Luxembourg</i>	0,2	0,3	0,4	0,4	0,5	0,4	0,3	0,4
LV	<i>Latvia</i>	0,1	0,1	0,1	0,1	0,2	0,2	0,2	0,1
MT	<i>Malta</i>	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
NL	<i>Netherlands</i>	11,1	11,3	11,7	12,5	12,3	12,5	13,1	13,5
PL	<i>Poland</i>	1,9	2	1,7	1,7	2	2,3	2,6	2,5
PT	<i>Portugal</i>	0,9	0,9	1	1	1	1	1	0,9
RO	<i>Romania</i>	0,6	0,7	0,9	1	1,1	1	1,1	0,9
SE	<i>Sweden</i>	2,2	2,2	2,2	2,3	2,3	2,3	2,3	2,3
SI	<i>Slovenia</i>	0,3	0,3	0,2	0,3	0,3	0,4	0,5	0,5
SK	<i>Slovak Republic</i>	0,5	0,5	0,5	0,5	0,7	0,8	0,9	0,8
UK	<i>United Kingdom</i>	17,6	16,3	16,2	15,3	15	14,3	12,8	13,6

Source: EUROSTAT (2010) *External and intra-EU trade, Statistical Yearbook*

Table F.6: Dispatches, share (%)

		2002	2003	2004	2005	2006	2007	2008	2009
AT	<i>Austria</i>	3,3	3,4	3,4	3,3	3,1	3,3	3,3	3,2
BE	<i>Belgium</i>	9,1	9,1	9,2	9,3	8,9	9	9,1	9,2
BG	<i>Bulgaria</i>	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3
CY	<i>Cyprus</i>	0	0	0	0	0	0	0	0
CZ	<i>Czech Republic</i>	1,8	2	2,3	2,4	2,6	2,9	3,1	3,1
DE	<i>Germany</i>	21,8	22,5	22,8	22,6	22,5	23,5	22,9	23,2
DK	<i>Denmark</i>	2,2	2,2	2,1	2,2	2,1	2	2	2,1
EE	<i>Estonia</i>	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
EL	<i>Greece</i>	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
ES	<i>Spain</i>	5,2	5,4	5,3	5,1	4,9	4,9	4,9	4,9
FI	<i>Finland</i>	1,5	1,5	1,4	1,4	1,4	1,4	1,4	1,1
FR	<i>France</i>	12	12,1	11,6	10,7	10,4	10,1	9,8	9,8
HU	<i>Hungary</i>	1,6	1,7	1,8	1,8	1,9	2,1	2,1	2,1
IE	<i>Ireland</i>	3,2	2,7	2,6	2,5	2,2	2,1	2	2,3
IT	<i>Italy</i>	8,6	8,6	8,5	8,3	8,1	8,4	8	7,6
LT	<i>Lithuania</i>	0,2	0,2	0,2	0,3	0,3	0,3	0,4	0,3
LU	<i>Luxembourg</i>	0,5	0,5	0,6	0,6	0,7	0,5	0,6	0,6
LV	<i>Latvia</i>	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2
MT	<i>Malta</i>	0,1	0,1	0	0	0	0	0	0
NL	<i>Netherlands</i>	10,9	11	11,1	11,8	11,7	11,8	12,6	12,6
PL	<i>Poland</i>	1,9	2	2,3	2,6	2,8	3	3,3	3,6
PT	<i>Portugal</i>	1,2	1,2	1,1	1,1	1,1	1,1	1	1,1
RO	<i>Romania</i>	0,6	0,6	0,7	0,7	0,7	0,8	0,9	1
SE	<i>Sweden</i>	2,7	2,8	2,8	2,8	2,8	2,8	2,8	2,5
SI	<i>Slovenia</i>	0,4	0,4	0,4	0,5	0,5	0,6	0,6	0,6
SK	<i>Slovak Republic</i>	0,7	0,9	0,9	1	1,2	1,4	1,5	1,6
UK	<i>United Kingdom</i>	9,6	8,4	7,9	8	9	7	6,6	6,4

Source: EUROSTAT (2010) External and intra-EU trade, Statistical Yearbook

Table F.7: Arrivals, share (%)

		2002	2003	2004	2005	2006	2007	2008	2009
AT	<i>Austria</i>	3,7	3,9	4	3,8	3,6	3,6	3,7	3,8
BE	<i>Belgium</i>	8,5	8,4	8,4	8,6	8,3	8,2	8,4	8,4
BG	<i>Bulgaria</i>	0,3	0,3	0,3	0,4	0,4	0,5	0,5	0,5
CY	<i>Cyprus</i>	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,2
CZ	<i>Czech Republic</i>	1,7	1,8	2,3	2,3	2,5	2,7	2,8	2,8
DE	<i>Germany</i>	18,9	19,4	19	18,8	19	19,2	19,4	20,6
DK	<i>Denmark</i>	2,2	2	1,9	2	2	2	2	1,9
EE	<i>Estonia</i>	0,2	0,2	0,2	0,3	0,3	0,3	0,3	0,3
EL	<i>Greece</i>	1	1,3	1,3	1,2	1,2	1,2	1,3	1,3
ES	<i>Spain</i>	6,7	7	7,1	7	6,7	6,9	6,4	6
FI	<i>Finland</i>	1,4	1,4	1,4	1,5	1,5	1,5	1,5	1,3
FR	<i>France</i>	13,3	13,6	13,2	12,8	12,4	12,3	12,6	13,1
HU	<i>Hungary</i>	1,4	1,5	1,7	1,7	1,8	1,9	1,9	1,8
IE	<i>Ireland</i>	2,1	1,6	1,6	1,7	1,7	1,7	1,5	1,4
IT	<i>Italy</i>	9,1	9,1	8,9	8,6	8,4	8,3	7,9	8
LT	<i>Lithuania</i>	0,3	0,3	0,3	0,3	0,4	0,5	0,5	0,4
LU	<i>Luxembourg</i>	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
LV	<i>Latvia</i>	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,2
MT	<i>Malta</i>	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
NL	<i>Netherlands</i>	7,1	7	6,9	6,8	6,8	7	7,2	7,3
PL	<i>Poland</i>	2,3	2,3	2,7	2,9	3,1	3,4	3,9	3,7
PT	<i>Portugal</i>	1,9	1,8	1,7	1,8	1,7	1,7	1,7	1,8
RO	<i>Romania</i>	0,7	0,8	0,9	1	1,1	1,4	1,5	1,3
SE	<i>Sweden</i>	2,8	2,9	2,9	3	2,9	3,1	3	2,8
SI	<i>Slovenia</i>	0,5	0,5	0,6	0,6	0,6	0,7	0,7	0,6
SK	<i>Slovak Republic</i>	0,7	0,8	0,9	1	1,1	1,3	1,4	1,4
UK	<i>United Kingdom</i>	12,2	11	10,6	10,9	11,4	9,6	8,7	8,6

Source: EUROSTAT (2010) External and intra-EU trade, Statistical Yearbook

F.5 Binding Tariff Information (BTI)

Table F.8: Binding Tariff Information in force, by issuance date

	2005	2006	2007	2008	2009	2010	2011*	Total	rank
Austria	375	445	580	717	517	874	189	3697	8
Belgium	207	326	404	378	249	483	96	2143	11
Bulgaria	0	0	36	68	131	107	16	358	21
Cyprus	2	5	23	96	59	47	12	244	23
Czech Rep.	342	509	733	782	847	757	126	4096	7
Denmark	69	121	124	173	269	429	72	1257	16
Estonia	8	7	3	8	7	28	1	62	26
Finland	132	202	208	381	204	203	226	1556	13
France	2986	4068	5800	4984	6124	5513	1163	30638	3
Germany	7863	12253	18776	18737	18851	21935	5536	103951	1
Greece	1	3	6	6	23	28	5	72	25
Hungary	77	89	179	207	210	392	68	1222	17
Ireland	490	839	890	660	1099	1157	361	5496	6
Italy	89	157	282	169	339	594	117	1747	12
Latvia	50	54	127	30	64	133	44	502	20
Lithuania	86	15	142	68	30	15	0	356	22
Luxembourg	0	2	24	8	5	0	0	39	27
Malta	1	5	2	14	10	42	5	79	24
Netherlands	1122	2293	2729	2283	2319	3418	690	14854	4
Poland	553	646	931	1242	1265	1268	265	6170	5
Portugal	154	101	115	42	170	128	18	728	18
Romania	0	0	14	37	179	301	30	561	19
Slovakia	72	155	297	258	182	315	108	1387	15
Slovenia	91	165	286	295	231	284	56	1408	14
Spain	217	355	399	267	411	425	176	2250	10
Sweden	114	230	612	302	346	498	192	2294	9
United Kingdom	3539	4880	6214	4800	5276	4774	1269	30752	2
<i>European Union</i>	<i>18640</i>	<i>27925</i>	<i>39936</i>	<i>37012</i>	<i>39417</i>	<i>44148</i>	<i>10841</i>	<i>217919</i>	

Source: Own calculation, based on the EBTI database (updated the 21 March 2011)

Note: The EBTI provides only BTI still in force at the moment of the consultation.
(i.e. All BTI older than 6 years are dropped as well as the BTI revoked)

Table F.9: Binding Tariff Information issued annually (2005-2009)

	2005	2006	2007	2008	2009
Austria	742	708	817	888	802
Belgium	415	484	518	441	282
Bulgaria	0	0	66	87	162
Cyprus	4	9	35	119	76
Czech Rep.	622	750	868	884	942
Denmark	170	144	163	216	306
Estonia	9	9	3	6	7
Finland	249	306	288	431	244
France	6208	5781	6923	5554	6881
Germany	17511	19894	24408	21609	21292
Greece	3	6	6	7	23
Hungary	185	139	211	267	292
Ireland	1244	1626	1267	872	1272
Italy	132	237	348	189	448
Latvia	258	92	156	42	88
Lithuania	204	32	169	73	30
Luxembourg	0	9	26	8	0
Malta	11	1	3	15	8
Netherland	2782	4360	3661	2817	2921
Poland	1130	841	1058	1400	1485
Portugal	197	128	126	49	185
Romania	0	0	18	46	185
Slovakia	298	265	401	314	243
Slovenia	239	269	379	330	272
Spain	461	514	468	318	496
Sweden	274	362	783	357	487
United Kingdom	8255	9140	8245	6161	6737
<i>Total European Union</i>	<i>41603</i>	<i>46106</i>	<i>51414</i>	<i>43500</i>	<i>46166</i>
<i>Annual Rate of growth</i>		<i>10,8</i>	<i>11,5</i>	<i>-15,4</i>	<i>6,1</i>

Source: EC, Internal data (the 12 January 2010)

Table F.10: Rate (%) of BTI revoked before the 6 years limit*

* Difference between BTI issued and BTI still in place at the 21 March 2011

cou	2005	2006	2007	2008	2009	Average
Austria	49	37	29	19	36	34
Belgium	50	33	22	14	12	26
Bulgaria			45	22	19	29
Cyprus	50	44	34	19	22	34
Czech Rep.	45	32	16	12	10	23
Denmark	59	16	24	20	12	26
Estonia	11	22	0	0	0	7
Finland	47	34	28	12	16	27
France	52	30	16	10	11	24
Germany	55	38	23	13	11	28
Greece	67	50	0	14	0	26
Hungary	58	36	15	22	28	32
Ireland	61	48	30	24	14	35
Italy	33	34	19	11	24	24
Latvia	81	41	19	29	27	39
Lithuania	58	53	16	7	0	27
Luxembourg		78	8	0		28
Malta	91	0	33	7	0	26
Netherland	60	47	25	19	21	34
Poland	51	23	12	11	15	22
Portugal	22	21	9	14	8	15
Romania			22	20	3	15
Slovakia	76	42	26	18	25	37
Slovenia	62	39	25	11	15	30
Spain	53	31	15	16	17	26
Sweden	58	36	22	15	29	32
United Kingdom	57	47	25	22	22	34
Average	54	37	21	15	15	28

Source: Own calculation based on the EBTI database and EC internal data.

Figure F.4: BTI issued and revoked between 2005 and 2009

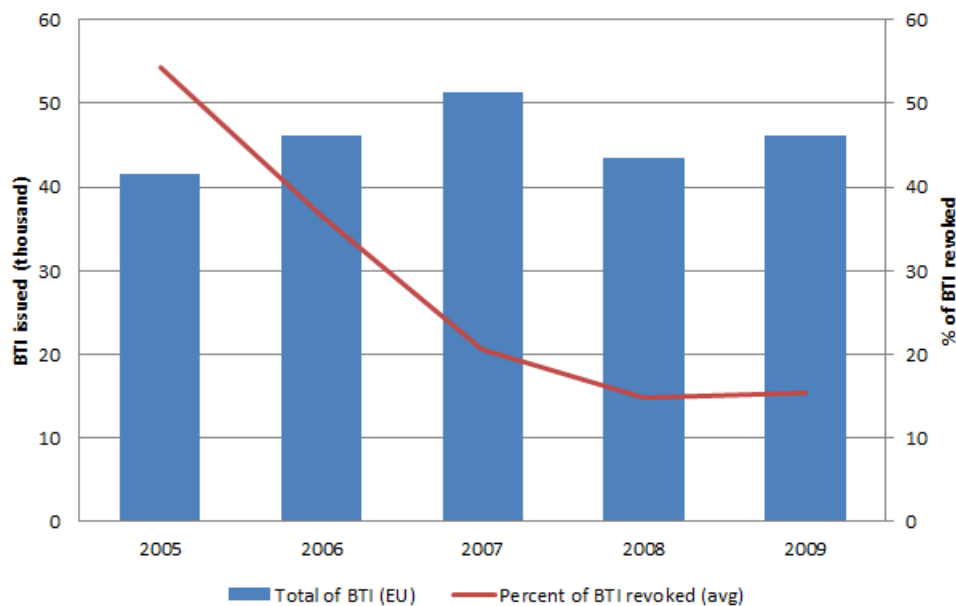
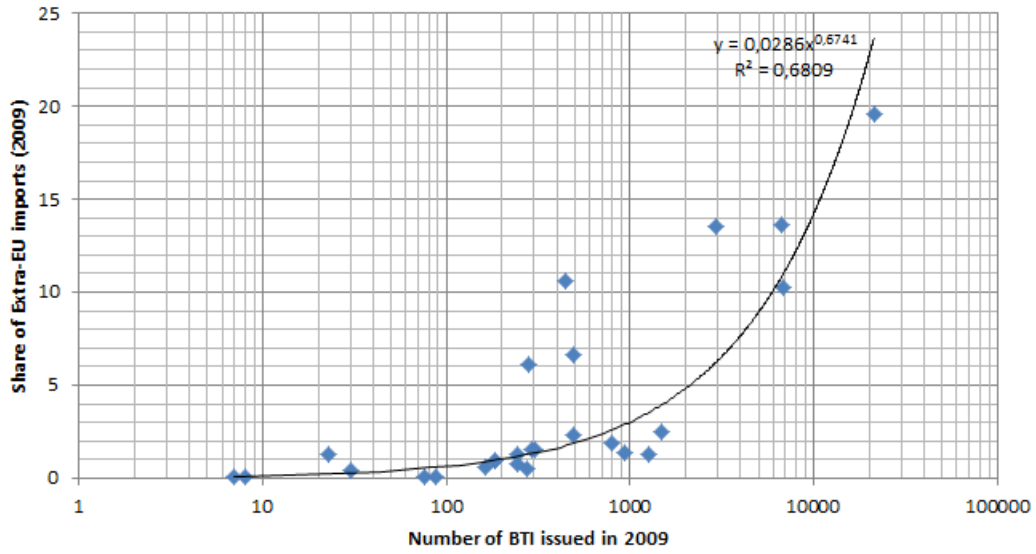


Figure F.5: BTI issued and import flows



F.6 The Authorized Economic Operators (AEO)

Figure F.6: Overview of the observations of the Court of Auditors (CoA, 2008)

	COM	DK	DE	EL	HU	SI	UK
Management of BTI by the Commission							
The Customs Code Committee procedure can lead to statutory deadlines not being met	x						
Financial responsibility after issuing an incorrect tariff classification in a BTI is not systematically followed-up	x						
The user interface of the public EBTI database is not entirely translated into the languages of those Member States that have acceded since 2004	x						
No systematic use of the EBTI-3 database	x						
Thesaurus in EBTI-3 database has not been updated	x						
Weaknesses in the legislation (non-obligation to declare BTI; periods of grace; time limits)	x						
General management of BTI by the Member States							
Technical difficulties in the interface between the national database and the EBTI-3 database							x
Issue of BTI							
Consultation of the EBTI-3 database not done or not documented		x	x	x			
Economic operators not notified about the receipt of complete application		x		x		x	
Slow transmission of BTI applications or issued BTI to the EBTI-3 database			x		x	x	
Refusal to issue BTI							
Applications not entered in the EBTI-3 database					x		
Annulment/Invalidation of BTI							
Delays when updating the EBTI-3 database			x		x		
The EBTI-3 database not updated							x
BTI was revoked instead of being annulled							x
Slow notification about inconsistent BTI to the Commission					x		
Extension of validity of BTI (period of grace)							
Period of grace not updated in the EBTI-3 database							x
Use of BTI							
Use of BTI not cross-checked with import declarations or no evidence available thereof		x		x			

Table F.11: Number of AEO certificates issued by EU Member States

	AEOS	AEOC	AEOF	2008	AEOS	AEOC	AEOF	2009	AEOS	AEOC	AEOF	2010	AEOS	AEOC	AEOF	2011*	Total
Austria	0	7	33	40	0	11	43	54	2	14	35	51	0	4	6	10	155
Belgium	0	0	6	6	5	1	35	41	8	5	66	79	1	1	9	11	137
Bulgaria	0	0	1	1	0	0	2	2	0	1	9	10	0	0	1	1	14
Cyprus	0	0	0	0	0	0	1	1	0	1	5	6	0	0	0	0	7
Czech Republic	0	5	11	16	0	6	24	30	0	8	17	25	0	1	7	8	79
Denmark	0	0	7	7	1	0	13	14	0	0	18	18	0	0	4	4	43
Estonia	0	0	2	2	1	0	4	5	0	0	2	2	0	0	1	1	10
Finland	0	1	7	8	0	0	12	12	0	0	12	12	0	0	5	5	37
France	0	6	10	16	12	24	117	153	29	35	123	187	6	10	32	48	404
Germany	4	15	121	140	3	41	314	358	11	521	401	933	1	311	91	403	1834
Greece	0	0	0	0	0	1	1	2	1	0	5	6	1	1	3	5	13
Hungary	0	0	6	6	3	2	14	19	4	14	14	32	0	4	6	10	67
Ireland	0	0	4	4	0	1	21	22	0	2	20	22	0	0	4	4	52
Italy	0	11	14	25	3	53	84	140	0	63	106	169	1	7	15	23	357
Latvia	0	0	1	1	0	0	3	3	0	0	5	5	0	0	1	1	10
Lithuania	0	0	0	0	0	1	5	6	0	2	7	9	0	0	1	1	16
Luxembourg	0	0	2	2	1	0	4	5	1	0	4	5	0	0	1	1	13
Malta	0	0	2	2	0	2	4	6	0	0	7	7	0	0	0	0	15
Netherlands	2	2	53	57	6	14	155	175	20	15	161	196	6	0	27	33	461
Poland	0	0	3	3	1	22	37	60	5	135	87	227	0	38	7	45	335
Portugal	0	0	0	0	0	7	4	11	0	23	1	24	2	5	3	10	45
Romania	0	0	0	0	1	0	7	8	1	2	13	16	0	0	2	2	26
Slovakia	0	0	1	1	0	2	11	13	0	6	6	12	0	2	0	2	28
Slovenia	0	0	3	3	1	2	14	17	2	4	13	19	1	0	2	3	42
Spain	0	0	3	3	0	8	20	28	6	31	81	118	5	13	18	36	185
Sweden	2	39	42	83	2	33	45	80	2	31	52	85	1	0	9	10	258
United Kingdom	2	2	33	37	2	9	78	89	2	13	66	81	0	4	20	24	231
Total	10	88	365	463	42	240	1072	1354	94	926	1336	2356	25	401	275	701	4874

Own calculation, based on the AEO database extracted the 22 March 2011.

Certificates: AEOF - Customs simplifications/Security and safety; AEOC - Customs simplifications; and AEOS - Security and safety.

* AEO certificates issued from the 1st January to the 22 March 2011.

Figure F.7: Total number of AEO, by Member States (2008-2011)



Figure F.8: AEO certificates issued by Member States (2008-2011)

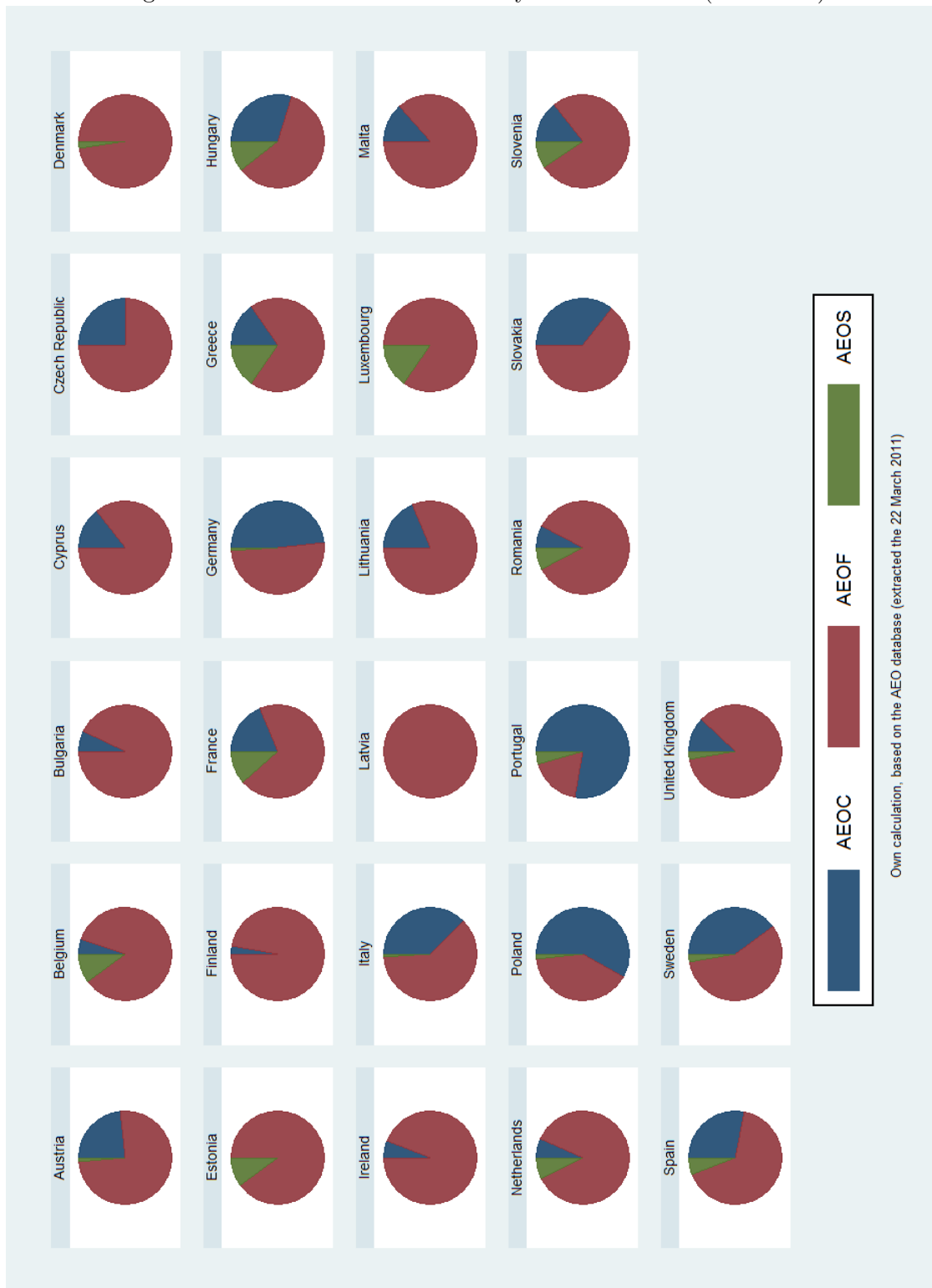


Figure F.9: Share of certificates issued by Member States in all European AEO

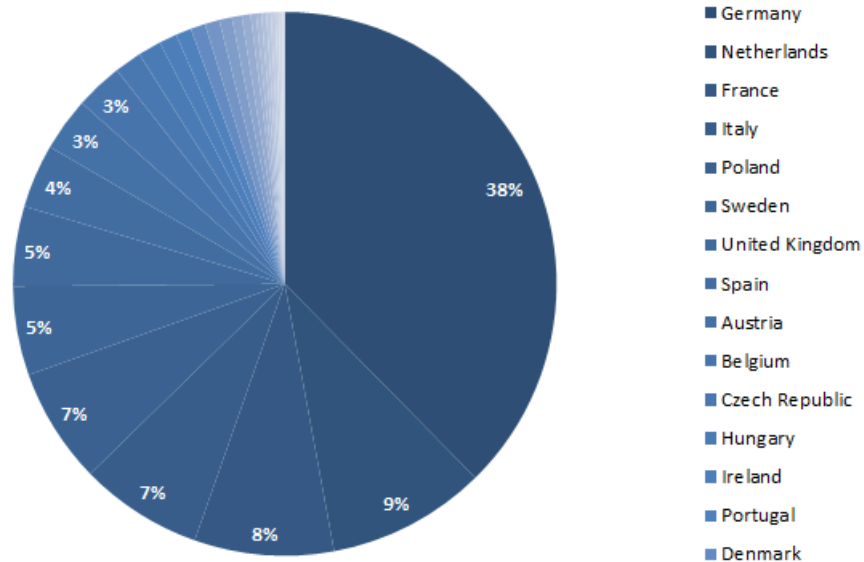


Figure F.10: Number of European AEO issued, by type of certificate (2008-2011)

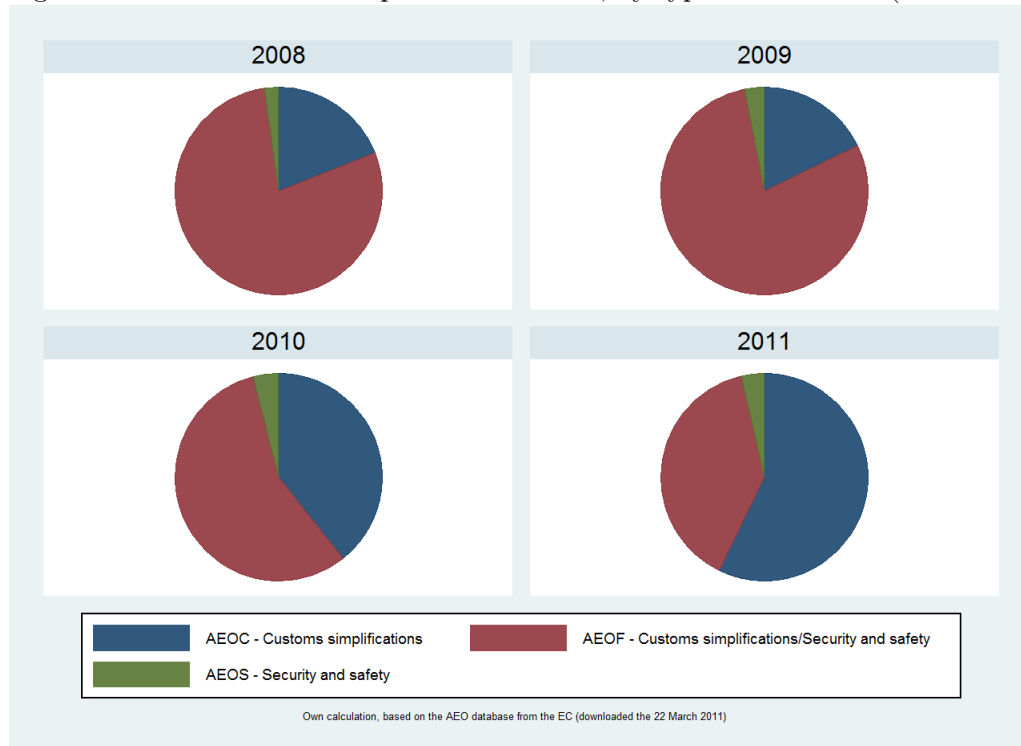
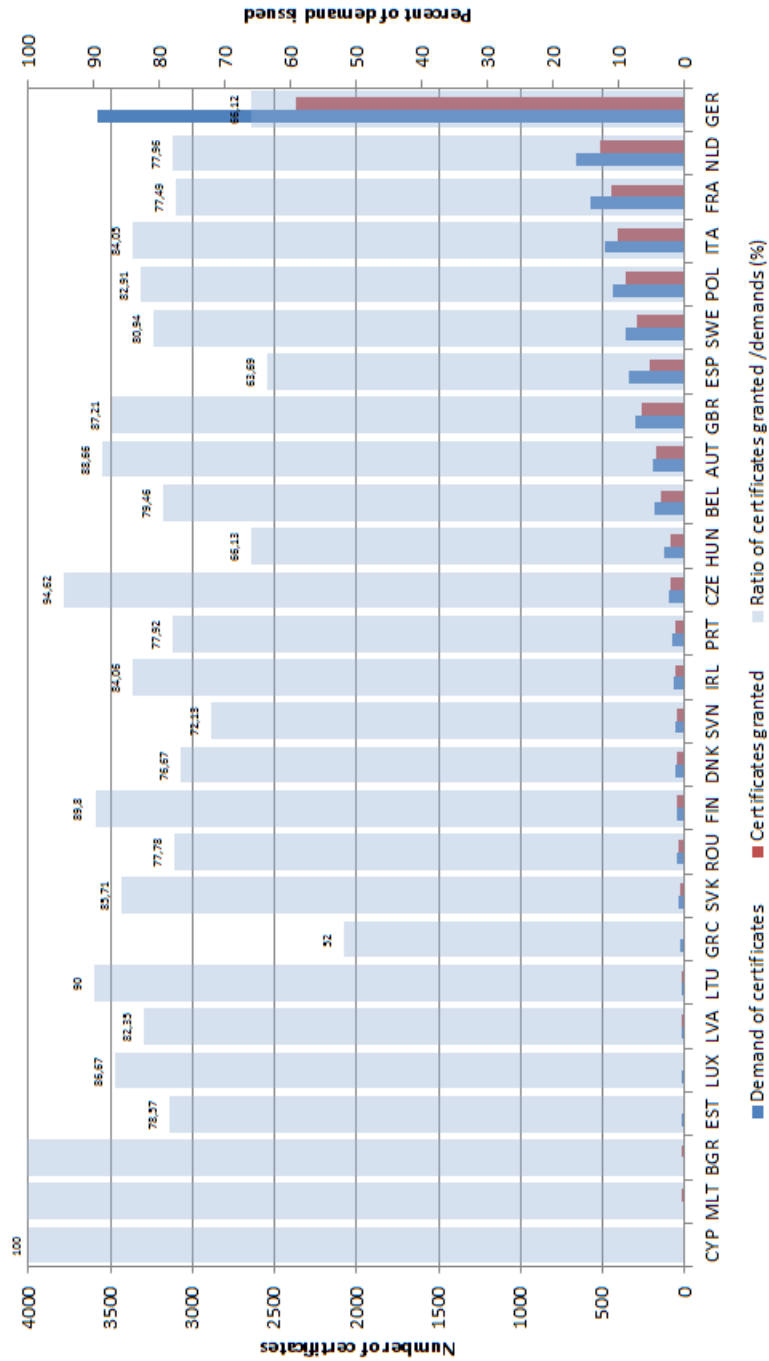


Figure F.11: The AEO certificates demands and granted, across the Member States
 Source: Own compilation, based on data provided by the French Customs (extracted the 15th April 2011)



F.7 An indicative chronology

Figure F.12: European Customs Projects (1983-1999)

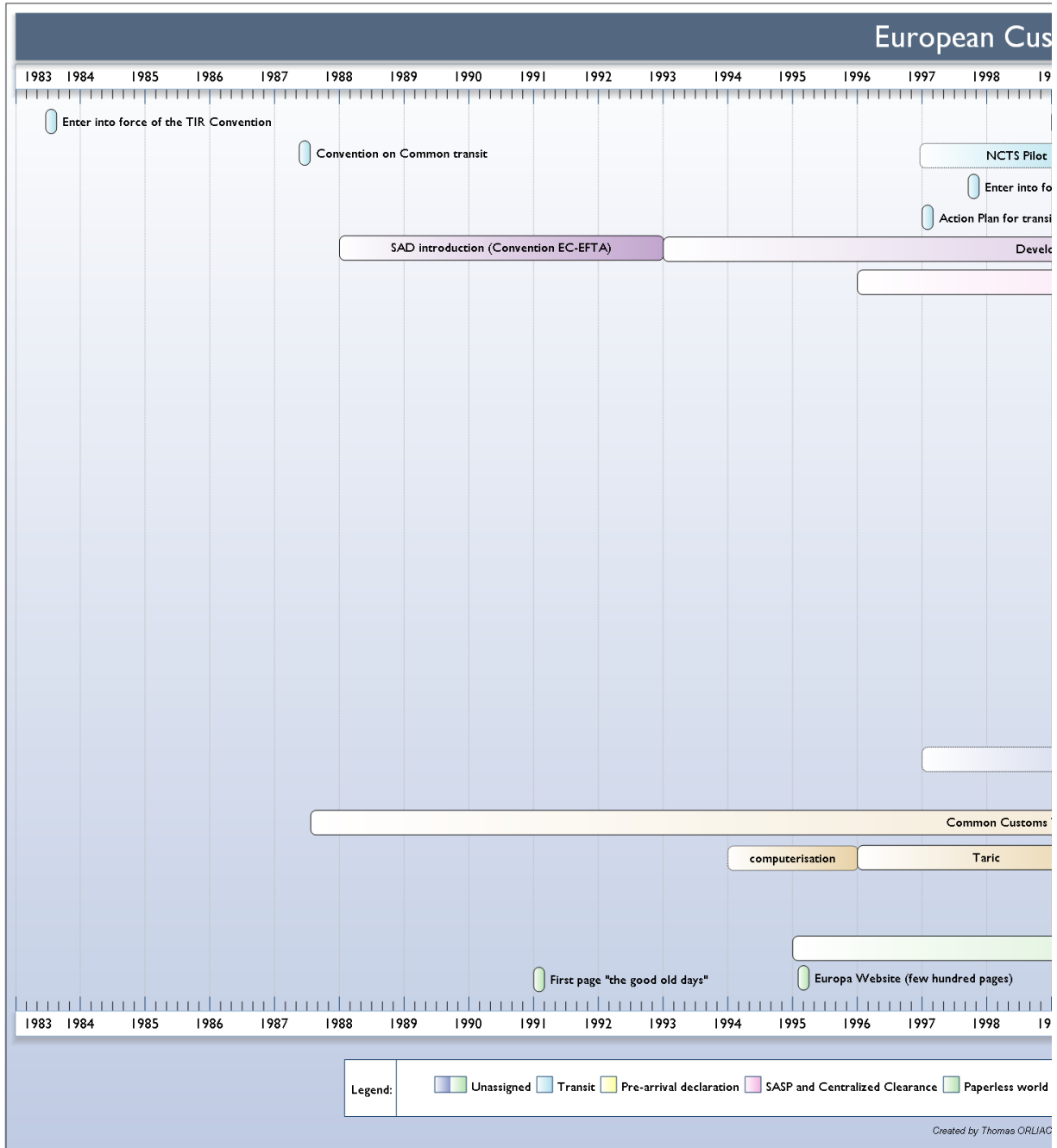
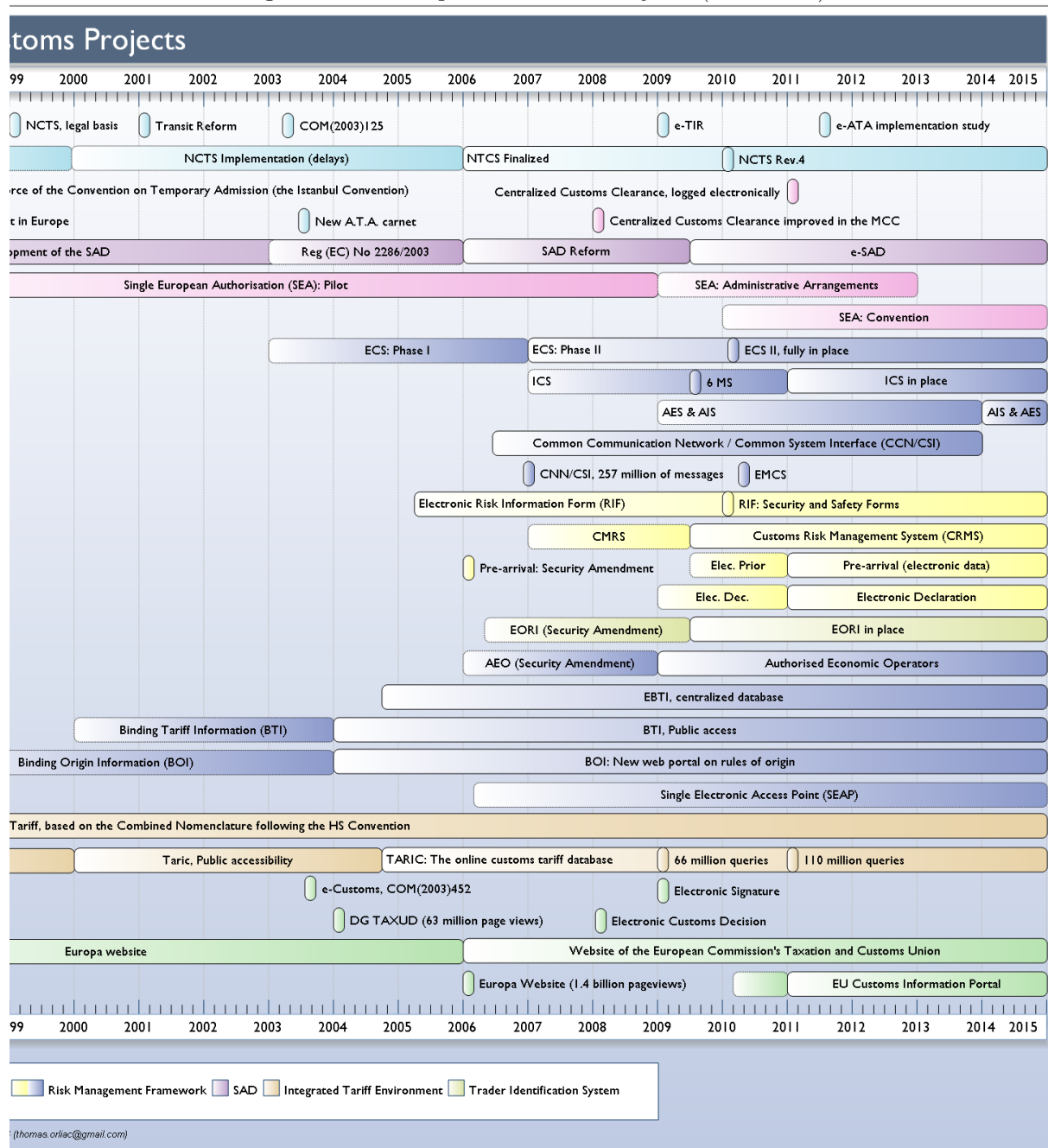


Figure F.13: European Customs Projects (1999-2014)



F.8 The annual European reports

Table F.12: Customs Staff

Source: Own compilation, based on the EC annual reports on the protection of the Communities financial interests.

Nb of officers		Nb of officers	
1994		2002	89566
1995		2003	
1996	72952	2004	
1997	81344	2005	
1998	84116	2006	
1999	93859	2007	
2000		2008	
2001	91358	2009	

Table F.13: Cases of different tariff classification

	2009	2008	2007
Cases solved		71	50
Cases remains		134	130

Source: Own compilation based on Annual Activity reports

Figure F.14: Number of detention cases by Customs, related to IPR

Source: Own calculation, from EU summary Customs statistics on counterfeits (2000-2009)

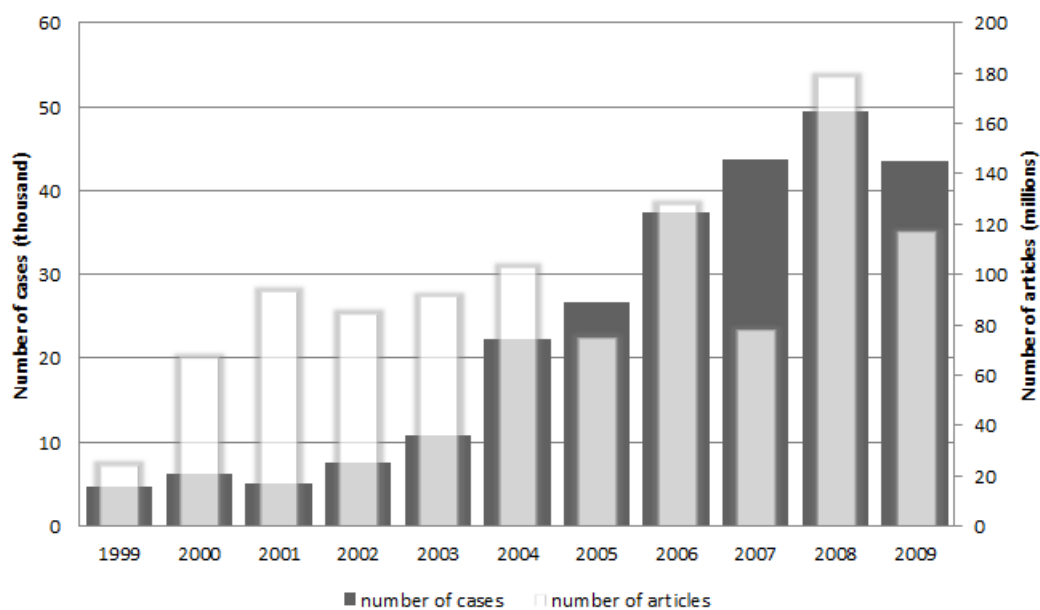
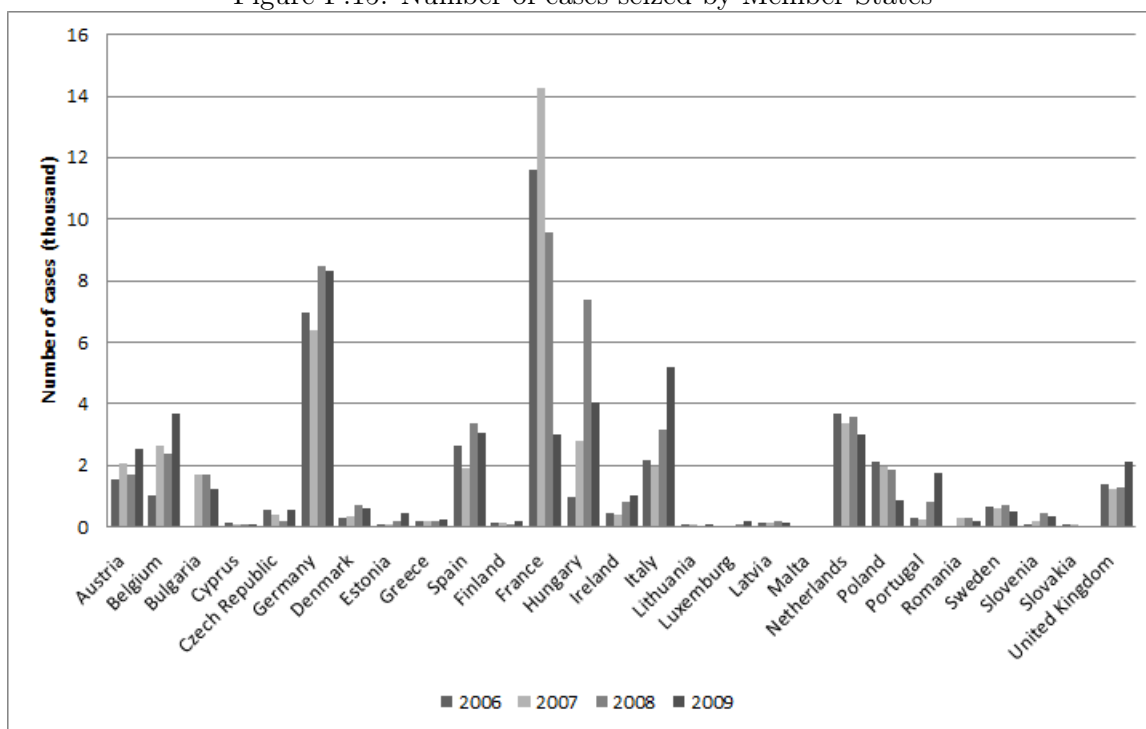


Figure F.15: Number of cases seized by Member States



China continued to be the main source from where goods suspected of infringing an IPR came in 2009 with 64,4 % of the total amount of detained goods that were not released.

Table F.14: Seizures by Customs of goods infringing IPR, coming from China (%)

Source: Own compilation, from EU summary Customs statistics on counterfeits (2000-2009)

	Cases	Articles
2000	8	
2001	18	
2002	15	
2003	18	60
2004	30	54
2005	38	64
2006	33	75
2007		58
2008		55
2009		64

F.9 The Market Access Database

Since 1995 the Trade Barriers Regulation (TBR) has given European businesses a tool for tackling trade barriers in export markets. Businesses can use the TBR to ask the European Commission to investigate restrictions on their sales abroad, discriminatory treatment in foreign markets, difficulty obtaining patents or licenses or any other form of unfair barrier to their export of goods or services.

In 1996 the European Union launched the market access strategy, and created a database compiling information on existing “obstacles” outside the EU. Market Access Database [Analysis] The European Union’s Market Access- Trade Barriers Database provides a static picture of alleged NTMs EU members faced at the time of download. The online database does not track NTMs faced by EU members over a period of time. The data can be downloaded using three parameters: country, sector, and measure. As it only includes NTMs reported by EU exporters outside of the EU, there are no data on NTMs faced by exporters in any EU country.

The following figures come from the Market Access Database of the European Union, downloaded the 12 February 2011. Trade barriers are divided into eight broad categories: tariff and duties, trade defense instruments, non-tariff barriers, investment related barriers, IPR, other export related barriers and services specific measures. The database presents also horizontal and sector specific trade barriers. The list of sectors is not exhaustive and will be aggregated in the following figures.

Table F.15: Trade Barrier Measures (Market Access Database)

02	Tariffs and duties	05	Investment related barriers
0201	Tariff Levels	0501	Trade Related Investment Measures
0202	Tariff Quotas	0502	Direct Foreign Investment Limitations
0203	Internal Taxation	0505	Other investment barriers
0204	Other Tariffs and Duties	06	IPR
0301	Anti-Dumping Measure	0601	Legislation on Copyright and Related Rights
0302	Countervailing Measure	0602	Trademarks Legislation
0303	Safeguard Measures	0603	Legislation on Appellations of Origin and Geographic Indications
0304	Other Trade Defense Instruments	0604	Industrial Design Legislation
04	Non Tariff barrier	0605	Legislation on Patents (Including Plant Varieties)
0401	Registration, Documentation, Customs Procedures	0607	Enforcement problems on IPR
0402	Quantitative Restrictions and Related Measures	0608	Other IPR Related Problems
0403	Competition Issues	07	Other (export related)
0404	Standards, Sanitary and Other Technical Requirements	0701	Export Prohibition and Other Quantitative Restrictions
0405	Government Procurement	0702	Export Taxes
0406	Subsidies	0703	Discriminating Export Licensing
0407	GATS Specific Measures	08	Services specific measues
0408	Other Non-Tariff Measures	0801	Market access (quantitative) restrictions
0409	Sanitary and Phytosanitary measures	0802	Discriminatory treatment
		0803	Non quantitative, non discriminatory measures (domestic regulation)
		0804	Other trade in services issues

Source: *The Market Access Database (the 12 February 2011)*

The following figures focus on Non-Tariff Barriers (NTB), by aggregate sectors. Customs account for classification 0401 (Registration, Documentation, Customs Procedures), Technical Barrier

Table F.16: Sectors codification (Market Access Database)

01	Horizontal	16	Agriculture and Fisheries
02	Aircraft	17	Other Industries
03	Automotive	18	Construction Industry
04	Ceramics and Glass	19	Services - Business, incl. professional services
05	Chemicals	20	Services - Communication incl. postal services
06	Pharmaceuticals	21	Services - Construction
07	Cosmetics	22	Services - Distribution
08	Electronics	23	Services - Financial
09	Mining	24	Services - Tourism and Travel
10	Iron, Steel and Non-Ferrous Metals	25	Services - Transport
11	Machinery	27	Services - Energy
12	Wood, Paper and Pulp	28	Services - Other
13	Shipbuilding	30	Services - Education
14	Telecommunications Equipment	31	Services - Environment
15	Textiles and Leather	32	Services - Health and Social

Source: The Market Access Database (the 12 February 2011)

Figure F.16: Market Access Database, Number of cases, by Measures

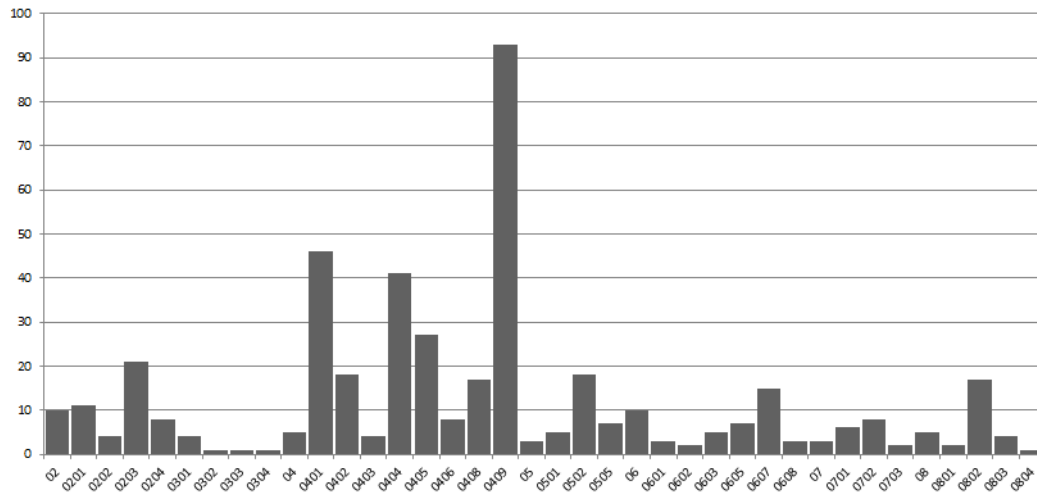


Figure F.17: Market Access Database, Number of cases, by sectors (All Measures)

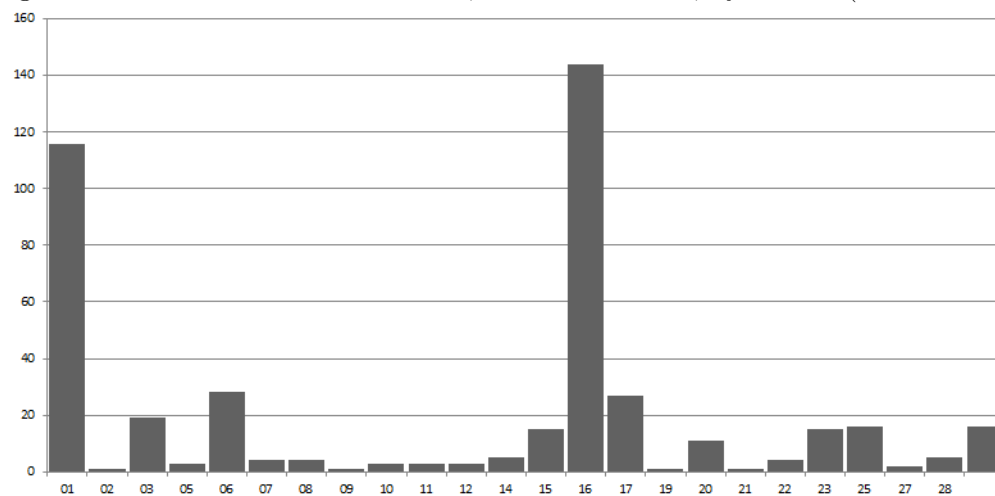


Figure F.18: Percent of cases related to Tariff and Non-tariff barriers*, by aggregate sectors

* Classification 02, 03 and 04 of the Market Access Database

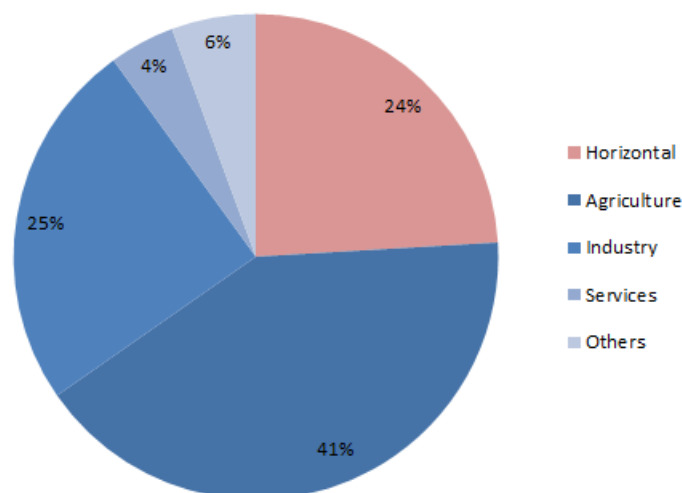


Table F.17: Market Access Database, Non-Tariff Barriers (NTB) by aggregate sectors

Source: Own calculation based on the Market Access Database (extracted the 12 February 2011)

	Customs	TBT	SPS	Other	Total
Horizontal	18	7	0	28	53
Agriculture	3	9	93	15	120
Industry	21	21	0	21	63
Services	2	2	0	8	12
Others	2	2	0	7	11
Total	46	41	93	79	

to Trade (TBT) for classification 0404 (Standards, Sanitary and Other Technical Requirements), Sanitary and Phytosanitary measures (SPS) for classification 0409 and all other NTBs (04xx) are grouped together.

We note that Customs issues are more reported than TBT issues. Results also show that the most intensive sector of NTBs is Agriculture and that the majority of issues are related to Sanitary and Phytosanitary measures (SPS). Finally services are almost not concerned by such barriers. More than the half of all trade barriers is related to Non-Tariff Barriers (57%). The study of the trade barriers by country indicates that observations from the Market Access Database should be relativized as the database mainly reported trade barriers from the bigger trade partners of the European Union. Thus the United States, China or Taiwan are one the most intensive users of trade barriers according the database, whereas traditionally poor countries in the field of trade facilitation seem to be free of any kind of barriers.

Table F.18: Number of cases related to non-tariff barriers, by country

Source: Own calculation based on the Market Access Database (extracted the 12 February 2011)

		Customs	TBT	SPS	Other	NTBs	All*	Ratio (%)
DZA	Algeria	1	0	0	1	2	4	50
ARG	Argentina	1	2	2	1	6	11	55
AUS	Australia	1	0	4	6	11	16	69
BGD	Bangladesh	1	0	0	0	1	1	100
BRB	Barbados	0	0	0	0	0	1	0
BRA	Brazil	1	1	2	2	6	18	33
CMR	Cameroon	0	0	1	0	1	1	100
CAN	Canada	2	2	1	6	11	16	69
CHL	Chile	1	1	1	0	3	5	60
CHN	China	6	9	4	1	20	35	57
COL	Colombia	0	0	2	0	2	4	50
DOM	Dominican Republic	0	0	0	0	0	2	0
ECU	Ecuador	0	0	2	0	2	3	67
EGY	Egypt	2	1	3	2	8	9	89
GHA	Ghana	0	0	0	1	1	1	100
HKG	Hong Kong	0	1	1	1	3	3	100
ISL	Iceland	0	0	0	1	1	1	100
IND	India	1	4	3	2	10	24	42
IDN	Indonesia	3	0	3	1	7	12	58
ISR	Israel	0	2	4	1	7	10	70
JPN	Japan	0	4	5	1	10	12	83
JOR	Jordan	0	0	2	0	2	2	100
KAZ	Kazakhstan	1	0	0	1	2	5	40
LBN	Lebanon	0	0	1	0	1	1	100
MYS	Malaysia	0	1	3	1	5	8	63
MEX	Mexico	3	2	8	1	14	20	70
MDA	Moldova	0	1	0	0	1	1	100
MAR	Morocco	0	0	0	0	0	2	0
NZL	New Zealand	0	0	3	1	4	5	80
NGA	Nigeria	3	0	0	2	5	7	71
NOR	Norway	0	0	0	0	0	4	0
PAK	Pakistan	1	0	0	0	1	5	20
PAN	Panama	0	0	1	0	1	1	100
PRY	Paraguay	1	0	0	2	3	4	75
PER	Peru	0	0	3	0	3	4	75
PHL	Philippines	0	0	1	1	2	8	25
RUS	Russian Federation	3	1	3	3	10	24	42
SAU	Saudi Arabia	0	0	1	0	1	1	100
SGP	Singapore	0	0	1	0	1	1	100
ZAF	South Africa	0	0	1	1	2	3	67
KOR	South Korea	1	0	5	0	6	6	100
CHE	Switzerland	0	0	1	0	1	3	33
SYR	Syria	1	0	0	0	1	1	100
TWN	Taiwan	1	3	5	2	11	19	58
THA	Thailand	1	0	0	2	3	11	27
TTO	Trinidad and Tobago	0	0	1	0	1	1	100
TUN	Tunisia	0	0	0	2	2	2	100
TUR	Turkey	2	0	1	1	4	10	40
UKR	Ukraine	1	0	1	1	3	6	50
USA	United States of America	7	6	8	23	44	74	59
URY	Uruguay	0	0	3	0	3	4	75
VEN	Venezuela	0	0	2	2	4	6	67
VNM	Vietnam	0	0	0	1	1	8	13
Total		46	41	93	74	254	446	57

*Source: Own calculation, data come from Market Access Database (EU)*** All measures, including tariffs and non-tariff barriers, Investment or IPR issues.*

These results must be interpreted as the perception of trade barriers for the EU Member States. It could be nice to match such observations with traditional Trade Facilitation indicators (especially on Customs).

The Market Access Database provides the complaints related to trade barriers in third country markets (i.e. non-EU Member State) notified to the European Commission by EU companies or their associations, and Member States. By the 14th February 2011, only 14 complaints were logged, including four who targeted registration, documentation and Customs procedures (i.e. the first category) and two for Standards and Other Technical Requirements.

Appendix G

Customs websites

Table G.1: Customs Website and related languages

cou	Web	english	spanish	french	language*
AGO	No				
ALB	No				
AND	Yes	No	Yes	No	Yes
ARE	Yes	Yes	No	No	Yes
ARG	Yes	Yes	Yes	No	Yes
ARM	Yes	Yes	No	No	Yes
ATG	Yes	Yes	No	No	Yes
AUS	Yes	Yes	No	No	Yes
AUT	Yes	Yes	No	No	Yes
AZE	Yes	Yes	No	No	Yes
BDI	No				
BEL	Yes	No	No	Yes	Yes
BEN	No				
BFA	Yes	No	No	Yes	Yes
BGD	Yes	Yes	No	No	Yes
BGR	Yes	Yes	No	No	Yes
BHR	Yes	Yes	No	No	Yes
BHS	Yes	Yes	No	No	Yes
BIH	Yes	Yes	No	No	Yes
BLR	Yes	Yes	No	No	Yes
BLZ	Yes	Yes	No	No	Yes
BMU	Yes	Yes	No	No	Yes
BOL	Yes	No	Yes	No	Yes
BRA	Yes	Yes	Yes	No	Yes
BRB	Yes	Yes	No	No	Yes
BRN	Yes	Yes	No	No	Yes
BTN	Yes	Yes	No	No	Yes
CAN	Yes	Yes	No	Yes	Yes
CHE	Yes	Yes	No	Yes	Yes
CHL	Yes	Yes	Yes	No	Yes
CHN	Yes	Yes	No	No	Yes
CIV	Yes	No	No	Yes	Yes
CMR	Yes	Yes	No	Yes	Yes
COD	No				
COG	Yes	No	No	Yes	Yes
COK	No				
COM	No				
CRI	Yes	No	Yes	No	Yes
CUB	Yes	Yes	Yes	No	Yes
CYP	Yes	Yes	No	No	Yes
CZE	Yes	Yes	No	No	Yes
DEU	Yes	Yes	No	Yes	Yes
DJI	Yes	Yes	No	Yes	Yes
DMA	Yes	Yes	No	No	Yes
DNK	Yes	Yes	No	No	Yes
DZA	Yes	No	No	Yes	Yes
ECU	Yes	No	Yes	No	Yes
EGY	Yes	Yes	No	No	Yes
ERI	No				
ESP	Yes	No	Yes	No	Yes
EST	Yes	Yes	No	No	Yes
ETH	Yes	Yes	No	No	Yes
FIN	Yes	Yes	No	No	Yes
FJI	Yes	Yes	No	No	Yes
FRA	Yes	Yes	No	Yes	Yes
GAB	Yes	No	No	Yes	Yes
GBR	Yes	Yes	No	No	Yes
GEO	Yes	Yes	No	No	Yes
GHA	Yes	Yes	No	No	Yes
GMB	Yes	Yes	No	No	Yes
GRC	Yes	No	No	No	No
GTM	Yes	No	Yes	No	Yes
HKG	Yes	Yes	No	No	Yes
HND	Yes	No	Yes	No	Yes
HRV	Yes	Yes	No	No	Yes
HUN	Yes	Yes	No	Yes	Yes
IDN	Yes	Yes	No	No	Yes
IND	Yes	Yes	No	No	Yes
IRL	Yes	Yes	Yes	Yes	Yes
IRN	Yes	Yes	No	No	Yes
ISL	Yes	Yes	No	No	Yes
ISR	Yes	Yes	No	No	Yes
ITA	Yes	Yes	No	Yes	Yes
JAM	Yes	Yes	No	No	Yes
JOR	Yes	Yes	No	No	Yes
JPN	Yes	Yes	No	No	Yes
KAZ	Yes	Yes	No	No	Yes
KEN	Yes	Yes	No	No	Yes
KGZ	No				
KHM	Yes	Yes	No	No	Yes
KIR	No				
KOR	Yes	Yes	No	No	Yes
KWT	Yes	Yes	No	No	Yes
LBN	Yes	Yes	No	Yes	Yes
LBR	No				
LCA	Yes	Yes	No	No	Yes
LKA	Yes	Yes	No	No	Yes
LTU	Yes	Yes	No	No	Yes
LUX	Yes	No	No	Yes	Yes
LVA	Yes	Yes	No	No	Yes
MAR	Yes	No	No	Yes	Yes
MDG	Yes	No	No	Yes	Yes
MEX	Yes	Yes	Yes	No	Yes
MKD	Yes	Yes	No	No	Yes
MLT	Yes	Yes	No	No	Yes
MMR	No				
MNE	Yes	No	No	No	No
MYS	Yes	Yes	No	No	Yes
NGA	Yes	Yes	No	No	Yes
NIC	Yes	No	Yes	No	Yes
NLD	Yes	Yes	No	No	Yes
NOR	Yes	Yes	No	No	Yes
NPL	Yes	Yes	No	No	Yes
NZL	Yes	Yes	No	No	Yes
OMN	Yes	Yes	No	No	Yes
PAK	Yes	Yes	No	No	Yes
PAN	Yes	Yes	No	No	Yes
PER	Yes	No	Yes	No	Yes
PHL	Yes	Yes	No	No	Yes
POL	Yes	Yes	No	No	Yes
PRT	Yes	No	No	No	No
PRY	Yes	No	Yes	No	Yes
QAT	Yes	Yes	No	No	Yes
ROU	Yes	No	No	No	No
RUS	Yes	Yes	No	No	Yes
RWA	Yes	Yes	No	No	Yes
SAU	Yes	Yes	No	No	Yes
SGP	Yes	Yes	No	No	Yes
SLE	No				
SLV	Yes	No	No	No	No
SRB	Yes	Yes	No	No	Yes
SUR	Yes	No	No	No	No
SVK	Yes	Yes	No	No	Yes
SVN	Yes	Yes	No	No	Yes
SWE	Yes	Yes	No	No	Yes
SYR	Yes	Yes	No	No	Yes
TGO	Yes	Yes	No	Yes	Yes
THA	Yes	Yes	No	No	Yes
TTO	Yes	Yes	No	No	Yes
TUR	Yes	Yes	No	No	Yes
TWN	Yes	Yes	No	No	Yes
UGA	No				
UKR	Yes	Yes	No	No	Yes
URY	Yes	No	Yes	No	Yes
USA	Yes	Yes	Yes	No	Yes
VCT	No				
VEN	Yes	No	Yes	No	Yes
VNM	Yes	Yes	No	No	Yes
ZAF	Yes	Yes	No	No	Yes

* At least one of the WTO official languages.