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Michel Forsé, Mathieu Lizotte

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FINANCIAL VOLATILITY AND THE EVOLUTION OF WEALTH INEQUALITY IN EUROPE

TOWARD A TYPOLOGY OF WEALTH INEQUALITY SCENARIOS

MICHEL FORSÉ & MATHIEU LIZOTTE

CNRS, Paris – Centre Maurice Halbwachs / University of Ottawa
michel.forse@ens.fr / mathieu.lizotte@uottawa.ca

Abstract. The study of wealth inequality poses some unique challenges that do not present themselves when studying income inequality. The main challenge is that the value of wealth is in constant flux and the net positive or negative variations across the different segments of the wealth distribution will have an impact on both wealth inequality and the welfare of households. While the volatility in financial markets is well known, its implications on wealth inequality deserve to be analyzed in greater detail. The objective of this study is to determine the consequences of financial volatility on both wealth inequality and household welfare in selected European countries. In order to properly grasp the impact of financial volatility on the distribution of wealth, we propose a typology of wealth inequality scenarios that incorporates changes in both relative wealth inequality and the absolute welfare of households. The scenario approach offers a synthetic way of understanding how the distribution of wealth changes over a given time period.

Keywords: changing inequalities, Europe, financial volatility, wealth inequality, welfare of households.

Résumé. L'étude des inégalités de patrimoine pose un défi unique qui ne s'applique guère à celle des inégalités de revenu. Ce défi consiste à tenir compte du fait que la valeur du portefeuille financier est soumise à de constantes fluctuations et que, de ce fait, il importe de savoir comment ces variations nettes positives et négatives impactent les inégalités et le bien-être matériel des ménages. Bien que la volatilité des marchés financiers soit un fait bien établi, ses conséquences sur les inégalités de patrimoine méritent une attention particulière. L'objectif de cette étude consiste précisément à prendre la mesure des effets de cette volatilité financière à la fois sur les inégalités de patrimoine et le bien-être matériel des ménages en Europe. Pour ce faire, nous proposons une typologie de scénarios des inégalités de patrimoine qui tienne compte tout autant des dimensions relative et absolue du phénomène. Cette approche par scénarios permet de rendre compte de manière synthétique des changements qui se produisent dans la distribution du patrimoine au cours d'une période donnée.

Mots-clés: bien-être des ménages, Europe, inégalités de patrimoine, variations des inégalités, volatilité financière.

INTRODUCTION

The volatility of financial markets poses a fundamental challenge to both the economic security of households and the study of wealth inequality. The stakes have become even higher since the development of the financialization of everyday life (Langley, 2008; Krippner, 2011). As financial markets play a greater role in the economic welfare of individuals and households, the more important it is for financial markets to be properly regulated. The degree by which financial markets affect the well-being of households is mediated by the degree of de/commodification between countries (Esping-Andersen, 2013). This is defined as the various political and social rights that protect individuals from market forces—such as the many existing welfare provisions (unemployment insurance, welfare, subsidized housing, subsidized child care, etc.). Using Esping-Andersen's classification of welfare regimes, for instance, citizens are more protected from market forces in social democratic rather than liberal countries. That being said, however, the political stakes of financial volatility concern all polities, independently of their welfare provisions, as this volatility creates economic conditions that make it difficult for governments to maintain their policies. Accordingly, austerity measures render individuals much more dependent on market forces in liberal regimes, but they also endanger the welfare provisions in countries with a long welfare regime tradition.

In this article, we are concerned with the effects of financial volatility on wealth inequality in selected European countries. The study of wealth inequality poses some unique challenges that do not present themselves when studying income inequality. The value of wealth is in constant flux and the net positive or negative variations across the different segments of the wealth distribution will have an impact on both wealth inequality and the welfare of households. While both income and wealth are measured by money, they are two distinct phenomena. Income is an annual flow of money while wealth is the accumulation of commodities, physical assets, financial products, rights, insurance contracts, pensions, which are expressed and appraised in monetary terms (Spilerman, 2000). The value of income is of course subject to change by inflation. The value of commodities, however, is not only affected by the rate

of inflation, but more importantly, by the financial market (Elmelech, 2008). The value of wealth is subject to fluctuating prices in the commodity market and the financial market. All assets that compose wealth can both appreciate and depreciate—and furthermore may even vanish completely when dealing with high-risk investments. The real estate market can boom but it can also bust. The stock market can soar but it can—and does—crash from time to time. Works of arts can accrue in value, but tastes can change as artists fall out of favour (Alexander, 2003). Companies can declare bankruptcy and workers can lose billions in pension funds. What are the consequences of this volatility of prices in the study of wealth? How big of a problem is this in the study of wealth inequality and welfare? How much does the total wealth fluctuate in any given year? These are the questions that we will address in this paper.

1. THE SOURCES OF WEALTH FLUCTUATIONS AND FINANCIAL INSTABILITY: MINKSY, ARRIGHI AND MAGDOFF AND SWEEZY

While there is no consensus over the fundamental causes of financial instability, important theories have been developed to address the question. The volatility of financial markets is well known, although it is not particularly well theorized in orthodox economics (see Spotton, 1997; Keen, 2011). Outside of this paradigm, however, in the group of heterodox thinkers of economic thought, the instability of financial markets has drawn considerable attention. The work of Hyman Minsky (2008 [1986]) stands out in particular as he rather famously argued that financial markets are fundamentally unstable. While many have argued this to be an unduly pessimistic view, the track record of the financial markets seems to validate his thesis. It has certainly been harder for orthodox economics to neglect Minsky's work since the 2007 financial crisis.

The financial instability hypothesis is a theory on the function and consequences of debt in the financial system of a capitalist economy with extensive capital assets. Minsky's originality stems largely from his theorisation of debt as the exchange of current money (liquidity) for future money (profits). The first theorem is that the economy has financial regimes in which it is stable and in which it is unstable. The second theorem is that over periods of prolonged

prosperity, the economy transits from financial relations that make for a stable system to financial relations that increase instability. This led notably to a classification of three forms of financial situations that explain financial volatility: hedge, speculative and Ponzi (Minsky, 1992). The hedge financial position is defined as any firm that can meet their debt obligations by their cash flow. In other word, the first category refers to the ideal position where investors can eventually pay back their loans. A speculative position is one where a firm can meet their payment obligations by issuing new debt instruments, but can never fully repay the loans to their creditors. Finally, the Ponzi position is one where a firm does not have the financial solvability to issue new debts and therefore can no longer meet the monthly interest payments whatsoever. When hedge financing dominates, (*i.e.* when the majority of firms hold such a financial position), then the economy may well be at equilibrium and financial volatility low. In contrast, the more that firms find themselves in a speculative and Ponzi financial position, the more instability is generated. The ultimate phase leads to the *Minsky moment* where asset prices crash as the cashflow needed to meet the debt structure of the economy is compromised.

While Minsky offers a good theoretical framework, there are other notably thinkers. The work of Giovanni Arrighi (1994) definitely also stands out. His theory of systemic cycles of accumulation has two phases. The first phase is one of material expansion where profits are primarily derived from production and commerce, while the second phase is comprised of a financial expansion where profits come to be overwhelmingly derived from the financial sector itself. This second phase leads to financial instability, as profits are harder to generate in the real economy, leading firms and agents to resort to risky speculation. While his theory was created to explain the end of the Golden age of the 1950 (the "*Trente Glorieuses*" as Jean Fourastié famously named the period), his explanation has a much larger historical scope. A complementary, but wholly different account, was developed by Harry Magdoff and Paul M. Sweezy (1987). These authors also agree that the growth of the financial sector arises from the lack of investment opportunities in the sphere of production and commerce. Unlike Arrighi (1994), however Magdoff and Sweezy (1987) believe that this is not due to the general ebb

and flow of production and finance, but to growing oligopolies and monopolies. They argue that the capacity of firms to produce commodities far exceed the effective demand—this is even more so the case with the lack of profit sharing with the working class and the middle class. They view stagnation as the coming of age of capitalism, and thus financialization as a response to this stagnation. In this sense, financialization is not a cyclical process as Arrighi theorized it, but a secular event (or contradiction) of the late 20th Century.

The debate on the fundamental causes of financial instability is far from over. What is clear is that the rate of profit of industrial firms has an impact on financial returns, as financial returns can also have impacts on the non-financial economy. The causality is complex. For the purposes of this article, the interest is not to determine the exact cause—which is destined to be a long debate—but rather the consequences of this instability on wealth inequality and the welfare of households.

2. THE FLUCTUATION OF FINANCIAL WEALTH IN SELECTED OECD COUNTRIES

The total aggregate wealth of households is a wholly different yet fundamentally related concept than the gross domestic product (GDP). Whereas the latter is defined as the total value of goods and services provided in a country during one year, the former is the total wealth possessed by members of a given society accumulated through income and inheritance. In the current economic context, the GDP annual growth of developed economies rarely exceeds 2% and some countries even experience negative growth. The worst economic performance of the world economy as a whole since 1970 actually took place in 2009 when the world average growth was −2.9%[1]. Negative growth signifies that there is a contraction of business earnings in the economy. Such negative growth—even as low as 3%—is considered catastrophic, yet as we shall see, the fluctuation of wealth is far greater although it provokes much less concern. The purpose of this section is to determine by how much the total wealth of countries changes

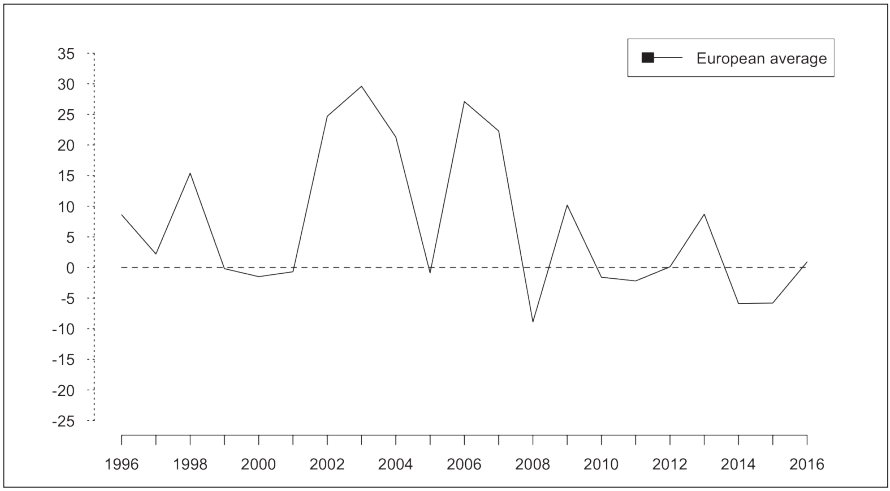
1 <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG>, accessed in July 2018.

from year to year. The more it fluctuates, the more these variations need to be taken into account in the study of wealth inequality. Unfortunately, the total aggregate net worth of households is not currently available on a yearly basis for OECD countries, however, we can use the detailed series of household financial assets that are now included in the System of National Accounts (SNA) as a proxy[2]. It should be mentioned that the commonly used distinction between financial and non-financial assets is not as clear-cut as it semantically appears. For instance, the greatest component of non-financial assets is typically real estate and a substantial part of holdings in this category is financed to some capacity by mortgages. In other words, market volatility in the financial sector will have an effect on real estate prices as it affects the financial capacity of real estate titleholders and those who aspire to become homeowners. Accordingly, while financial and non-financial assets do not vary in perfect unison, they remain substantially correlated.

Figure 1 shows the evolution of the average of European household financial assets between 1996 and 2016 in constant 2017 Euros. As we can observe, the absolute value of financial assets varies substantially on a yearly basis, but definitely with a positive bias—growth is definitely the norm. That being said, the European average fell below zero on several occasions during the documented period. The first time was in 1999 during the well-known "dot com" crash, which led to negative financial growth for three years. The average growth for these three years was −0.81%, the worst year being 2000 with an average of −1.51%. The second occasion occurred briefly in 2005 and corresponded to −0.89%. Clearly, the most dramatic negative growth experienced in the 1996 to 2016 period took place during the 2008 financial crisis where financial assets fell by 8.9%. In the aftermath of the crisis, the European average had another two periods of negative growth. From 2010 to 2011, there was a negative growth of 1.90% and a longer period from 2014 to 2016 that started with two years in a row of nearly 6% losses.

2 This series of data was published retroactively a few years ago.

Figure 1. The evolution of the total financial assets of households, European average, 1996 to 2016, in percentages.

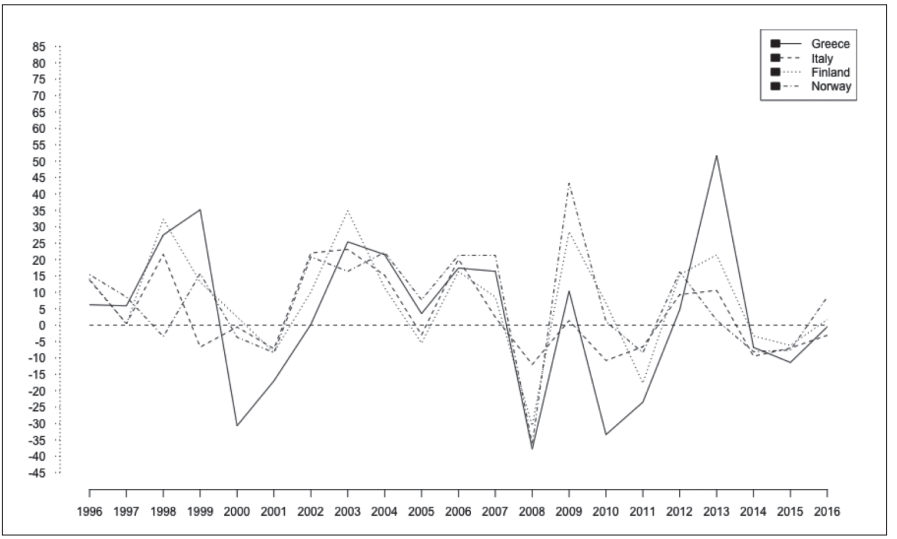


Source: OECD System of national accounts, data accessed in April 2018.

The averages, of course, do not show the most extreme cases of financial volatility. Figure 2 demonstrates the evolution of financial assets of four selected European countries (Greece, Italy, Finland and Norway) between 1995 and 2016 in order to highlight different trajectories from the European average. For instance, all of these countries had greater losses in 2008 than the European average of −8.9%. While the financial losses of Italian households were only slightly greater than the average (−10.2%), those of the other three were much greater: Finland (−15.0%), Greece (−22.1%) and Norway (−22.7%). Both figures show clearly that fluctuations of the total financial assets of households are far greater than those observed in the GDP. This fluctuation poses concern as the most commonly used indicators for wealth inequality, whether it is the Gini coefficient, or the top wealth percentiles (or its many variations), simply cannot grasp this change. That is what we refer to as the blind spot of relative inequality measures. Relative inequality measures do not vary according to the change in the aggregate total of the concept (income or wealth) but according to its distribution amongst the population in terms of percentiles. This signi-

fies, for instance, that a society with a total aggregate wealth of one Euro can have the same Gini coefficient than a society whose total wealth equals one trillion Euros—as long as they are identically distributed.

Figure 2. Percentage change of the total financial net worth of households for selected European countries, 1996 to 2016.



Source: OECD System of national accounts, data accessed in April 2018.

As Anthony B. Atkinson and Andrea Brandolini (2004) observed, the issue between relative and absolute measures of inequality has thus far been largely overlooked. Unlike the poverty literature where the difference between relative and absolute poverty has been discussed more thoroughly, the same cannot be said in the economic inequality literature. The literature on poverty tends to favour absolute measures for underdeveloped countries and relative measures for developed ones. The literature on economic inequality overwhelmingly uses relative measures (such as the Gini coefficient, the Theil index, the Atkinson index, etc.). While this problem only marginally applies to the income distribution, as the total household income does not vary greatly on a yearly basis, the fluctuation we have just observed in the total household wealth confirms that absolute measures

need to be taken into account when studying wealth inequality. While the volatility of financial markets is well known, its implications on wealth inequality have not been fully addressed. The fluctuations of wealth can have both substantial impacts on wealth inequality but also on the welfare (*i.e.* the absolute value of a household's portfolio, savings, assets, etc.). Only absolute measures of wealth inequality can grasp actual changes in welfare (the mean, the median, the absolute Gini, etc.). This blind spot can thus be addressed by developing an approach that incorporates both relative and absolute measures.

3. THE TYPOLOGY OF WEALTH INEQUALITY SCENARIOS

In order to incorporate the fluctuation of wealth in our analytical model, we have conceptualized a typology of wealth inequality scenarios that is based on two dimensions (Table 1). The first dimension, represented on the horizontal axis, corresponds to the change in wealth inequality using a relative measure, while the second, on the vertical axis, is the change using an absolute one. The important aspect of the typology is not precisely which inequality measures are used, but rather that it incorporates both a relative and an absolute indicator. For this paper, we have chosen to use the Gini coefficient for the relative measure and the total aggregate household wealth for the absolute measure, as we found them to be the most useful. Each dimension is further divided into two categories, corresponding to either an increase (+) or a decrease (–) of the respective measure (*i.e.* the Gini coefficient and the total aggregate household wealth). This creates a Cartesian space of four possibilities that we refer to as wealth inequality scenarios. We have arranged the scenarios from the worst to the best in terms of welfare and inequality. The first two scenarios correspond to a general decline in the total wealth of households over a given period. What distinguishes them is that, in the first scenario, this decline in the total wealth was also accompanied by an increase of wealth inequality while, in the second, it was accompanied by a decrease. The last two scenarios both correspond to a general increase in the total wealth of households over a time interval. Once again, the distinguishing factor is that the general rise in total wealth was accompanied by an increase of wealth inequality in scenario 3, while it was accompanied by a decrease in scenario 4.

The first scenario correspond to a situation where not only did the total wealth of households decreased, but where the households in the lower or mid section of the wealth distributions suffered a greater part of this loss. This is why we have called this scenario the "unjust" crash, or, said differently, the case where the households who have the least wealth suffered the greatest absolute financial losses. In the second scenario, the total wealth of households also decreased, however, it is those in the top tail of the distribution that suffered the greatest losses—to the point where wealth inequality decreased. This is why we have called it the "just" crash. The third scenario is noteworthy as it corresponds to John Rawls' (2009 [1971]) difference principle. The difference principle states that economic inequality is only justifiable if it is to the advantage of the worst off. In this case, wealth inequality increases, but the absolute savings of the households in the lower tail of the distribution either stagnates or increases (both courses are possible). The idea here is that wealth inequality in the relative sense can increase as long as everyone's savings does not decrease in the absolute sense. The fourth scenario corresponds to a period in time where society becomes more egalitarian. This is the situation where not only did the total wealth of households increase but it did so in such a way that the households in the middle or lower parts of the wealth distribution benefited more that those at the top.

Table 1. The typology of wealth inequality scenarios

		TOTAL AGGREGATE WEALTH (the absolute dimension; welfare/utility)	
		–	+
WEALTH INEQUALITY (the relative dimension)	+	*Scenario 1* The "unjust crash"	*Scenario 3* The Rawlsian principle
	–	*Scenario 2* The "just crash"	*Scenario 4* The egalitarian scenario

Note: We shall see below that, in Europe, Greece is an example of scenario1, Italy of scenario 2, Finland of scenario 3 and Norway of scenario 4.

It is possible of course to make a more complex version of this typology by including a third dimension for stasis in both vertical and horizontal axes, however, in this paper, we have chosen to retain the four-scenario model to emphasize the fundamental differences.

4. METHODS

Our analysis is based on the data provided by the Luxembourg Wealth Study (LWS), which is the first cross-national wealth database currently available to researchers. The LWS created a harmonized dataset through the partnership of the national statistical agencies of the participating countries. The project is based on the common framework of the well-known Luxembourg Income Study (LIS). At the moment of this study, 13 countries participated and others are planned in the future. In order to classify the countries in the LWS according to the typology of wealth inequality scenarios, it was necessary to choose both a relative and an absolute measure of inequality. We used the Gini coefficient for the relative measure and the total aggregate wealth of households for the change in welfare across the wealth distribution. To gain a greater understanding of the distributional change of wealth, the total wealth shares were also calculated for each wealth decile, as were the wealth medians. The LWS allows us to analyse the total household wealth of households and not just the financial assets.

While we are aware of the critiques and limitations of the Gini coefficient, the usefulness of its synthetic value should not be overlooked (Cowell, 2011; Piketty, 2013). It is true that it is not an adequate measure of the change of inequality in the top percentile, but it does provide a useful omnibus test for the general change of inequality in the whole distribution, which is exactly why we used it. The Gini also cannot pinpoint the location of the change of inequality in the distribution, but this limitation was easily overcome by providing the total wealth shares by deciles. The only pertinent limitation of the Gini coefficient as it concerns our research objective is that it is extremely sensitive to negative values. The more a distribution contains negative values, the more biased its estimation will be. There are essentially two approaches to this problem: 1) the removal of all negative values from the distribution; or

2) the application of a correction (*e.g.* Chen, Tsaur and Rhai, 1982; Berrebi and Silber, 1985; Raffinetti, Siletti and Vernizzi, 2015). As there are substantially more negative values in the wealth distribution than the income one, we opted for the second approach, which has the further advantage of not sacrificing data. Specifically, we applied the recently proposed solution by Emanuela Raffinetti, Elena Siletti and Achille Vernizzi (2015, see Eq. 1), which overcomes some limitations of the previous modifications to the Gini coefficient.

Eq. 1.

$$G = \frac{\Delta_y}{2\mu_y^*} = \frac{1}{2\mu_y^* N^2} \sum_{i=1}^{H} \sum_{j=1}^{H} |y_i - y_j| p_i p_j$$

Where Y is the vector of wealth (including the negative values), *H* is the total number of households, p_i and p_j are the weights associated with y_i and y_j, such that the sum of p_i equals the population of households N, and μ_y^* is the adapted normalisation term that corrects for negative values. The normalisation term μ_y^* corresponds to $\mu_y^* = (T_y^+ + T_y^-)/N$, where T_y^+ equals the sum of all positive values, and T_y^- equals the sum of the absolute negative values.

The total wealth shares were calculated by taking the sum of the total net worth of all households in a given population (Eq. 2).

Eq. 2.

$$T = \sum_{i=1}^{H} y_i p_i$$

Where Y is the vector of wealth, *H* is the set of all households in the population and p_i is the sampling weight associated with each household. The total wealth shares by deciles are calculated by applying equation 2 to each decile in a loop.

In order to determine the relative contribution that explains the fluctuations of the total household wealth, we decomposed the total net worth of households into four categories: real estate assets, non-financial assets (or commodities), financial assets and liabilities. Our explanatory model consists of a series of ratios for each wealth source change to the total household wealth change. It is important to note that the sum of these ratios do not equal unity, because liabilities are always negative integers. By examining the ratios of these changes, it is nonetheless possible to identify the sources of fluctuation and determine its *relative contribution* to the change (as opposed to a percentage). While this is somewhat unfortunate as percentages have a great heuristic value, the ratios are just as precise in determining the magnitude of each source to the total change.

Let X be a 4 by 1 matrix containing the sum of each wealth source at the first time period t_1, and let Y be the same matrix but with the sum of each wealth source at t_2. This was accomplished by applying equation 2 to each wealth source. Since we are interested in determining the contribution of each wealth source to the change of the total household wealth, it was necessary to subtract both matrices in order to retain only the differences of each source between the two time periods, hence $Z = Y - X$. Then, a similar subtraction was done for the total wealth of households T between both time periods, hence $W = T_2 - T_1$. The final step was to calculate the ratio of each row item in Z to the W scalar. This was done by multiplying Z to the reciprocal of W.

5. RESULTS

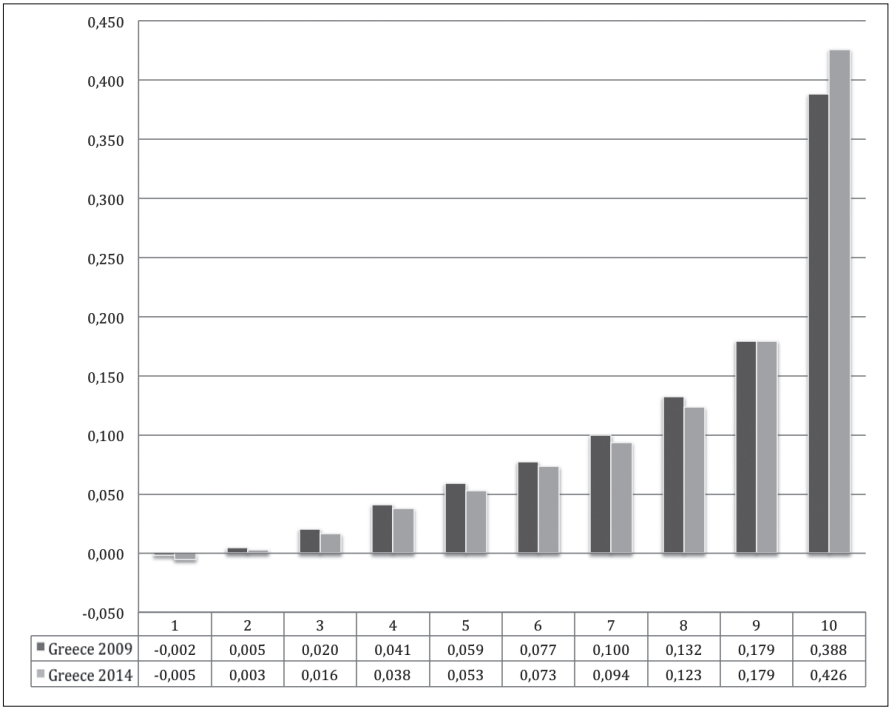
The empirical results show that Greece, Italy, Finland and Norway correspond respectively to the four scenarios of our typology. The first part of the results will describe each of the different countries and the scenario they correspond to, while the second part will attempt to explain the cause of each scenario.

5.1. SCENARIO 1—THE CASE OF GREECE

The total wealth of households in Greece decreased by 26.6% between 2009 and 2014, while the overall level of inequality increased substantially from 0.558 to 0.593. This signifies that approximately one quarter of the total wealth of households was lost during a five-year period[3]. The rise in the Gini coefficient already implies that households in the lower and middle parts of the distribution assumed a greater relative part of these financial losses. This is indeed confirmed by examining the evolution of the total wealth deciles (Figure 3). In terms of inequality, we can clearly see that it is only the top decile that profited in this period—it started with 39.8% of the total wealth in 2009 and ended with 42.6% in 2014. The total wealth share of D9 actually did not change at all while all other deciles suffered losses of the total wealth shares. Inequality studies that only concentrate on strict wealth inequality and disregard welfare would not properly grasp that a rise in relative inequality in a period of absolute net loss is even more dramatic. The gravity of the financial losses is perhaps best understood by examining the change in the wealth medians across deciles. As it can be seen, all wealth deciles suffered absolute losses during the period (Figure 4). Respectively, D1 to D9 suffered losses, in Euros, of zero, 3 300, 13 900, 20 600, 36 600, 49 300, 65 200 and 72 000. While it is true that D10 suffered the greatest median loss (€ −119 000), the lower deciles lost a greater percentage of their wealth even though the losses were not as great in the absolute sense. In short, this is the case where not only the metaphorical pie is distributed much less equally but the size of the pie decreased as well.

3 Please note that these estimations are not affected by the Greek controversy over the doctored national accounts as this data is collected differently.

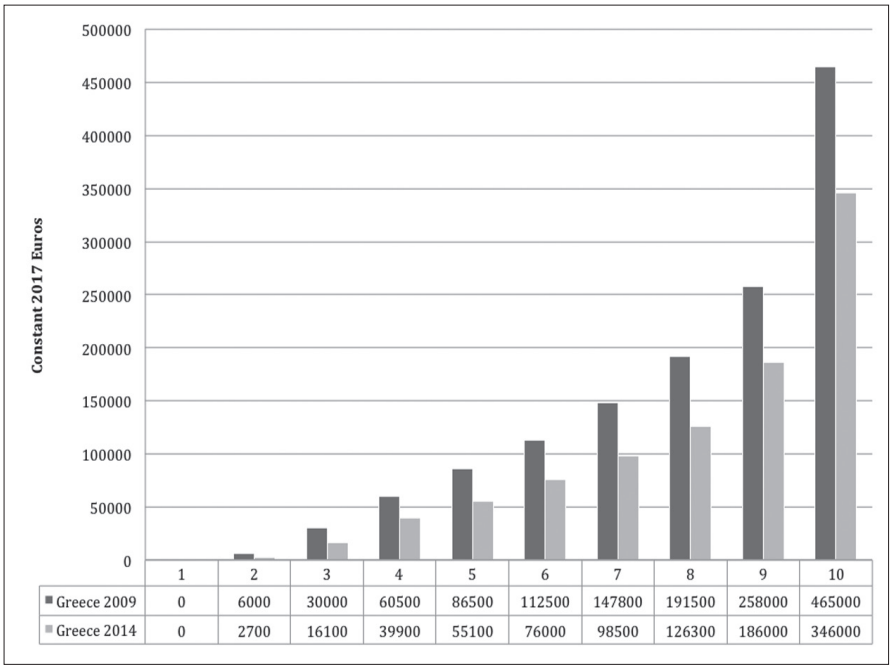
Figure 3. Total wealth shares of households in deciles, Greece, 2009-2014



	1	2	3	4	5	6	7	8	9	10
Greece 2009	-0,002	0,005	0,020	0,041	0,059	0,077	0,100	0,132	0,179	0,388
Greece 2014	-0,005	0,003	0,016	0,038	0,053	0,073	0,094	0,123	0,179	0,426

Source: Luxembourg Wealth Study, authors' calculations.

Figure 4. Wealth medians by deciles, Greece, 2009-2014



	1	2	3	4	5	6	7	8	9	10
Greece 2009	0	6000	30000	60500	86500	112500	147800	191500	258000	465000
Greece 2014	0	2700	16100	39900	55100	76000	98500	126300	186000	346000

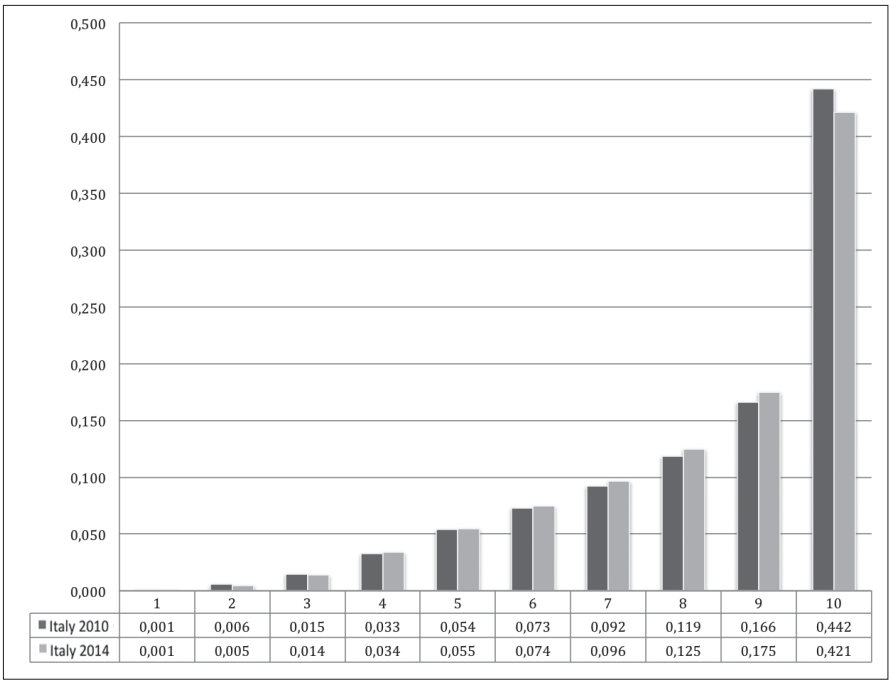
Source: Luxembourg Wealth Study, authors' calculations.

5.2. SCENARIO 2—THE CASE OF ITALY

The case of Italy between 2010 and 2014 firmly corresponds to scenario 2 as inequality decreases, but at the cost of a lower general welfare. By strictly examining the Gini coefficient, we observe a minute decrease in wealth inequality from 0.599 to 0.589. While this appears at first glance as a move towards a more egalitarian society, one must bear in mind that the total wealth of households also fell by 12% during the period. By examining the distribution of wealth across deciles (Figure 5), we observed that inequality decreased because the top decile lost 2.1 percentage points of the total household wealth. This loss translated to a relative gain for the D4 to D9 decile range. The D1 to D3 range remained basically stable. In terms of welfare, once again, just like Greece, all

wealth deciles suffered substantial financial losses. Respectively, in Euros, D1 to D10 suffered losses of: 1 500, 4 700, 10 400, 13 000, 24 800, 30 000, 34 500, 34 500, 50 500, 110 500 (Figure 6). In short, Italian society became more egalitarian during this period, but it did so at a great cost: all decile groups in society became poorer in the absolute sense. This is the case where the metaphorical pie is distributed more equally, but the size of the pie is smaller.

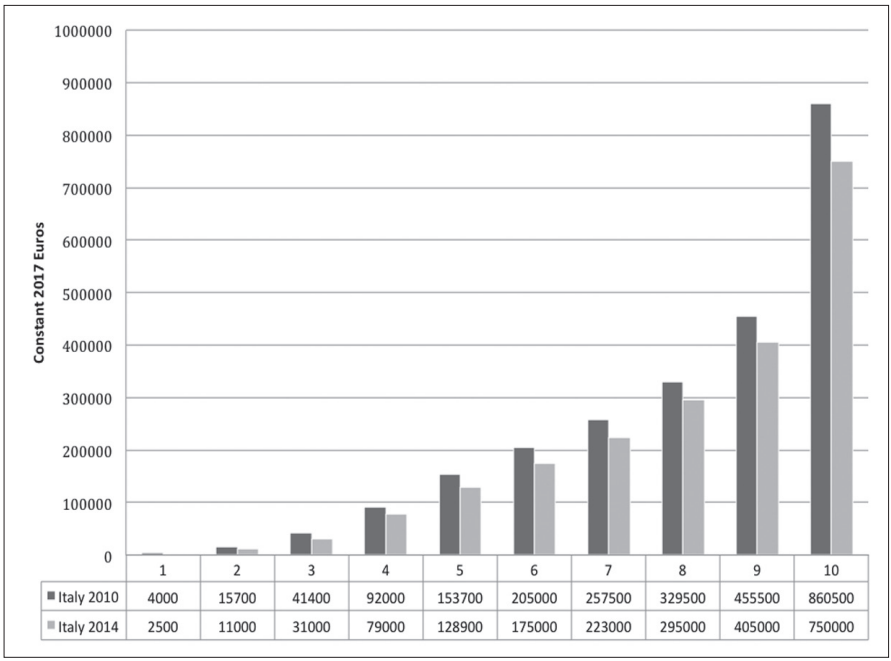
Figure 5. Total wealth shares of households in deciles, Italy, 2010-2014



	1	2	3	4	5	6	7	8	9	10
Italy 2010	0,001	0,006	0,015	0,033	0,054	0,073	0,092	0,119	0,166	0,442
Italy 2014	0,001	0,005	0,014	0,034	0,055	0,074	0,096	0,125	0,175	0,421

Source: Luxembourg Wealth Study, authors' calculations.

Figure 6. Wealth medians by deciles, Italy, 2010-2014



	1	2	3	4	5	6	7	8	9	10
Italy 2010	4000	15700	41400	92000	153700	205000	257500	329500	455500	860500
Italy 2014	2500	11000	31000	79000	128900	175000	223000	295000	405000	750000

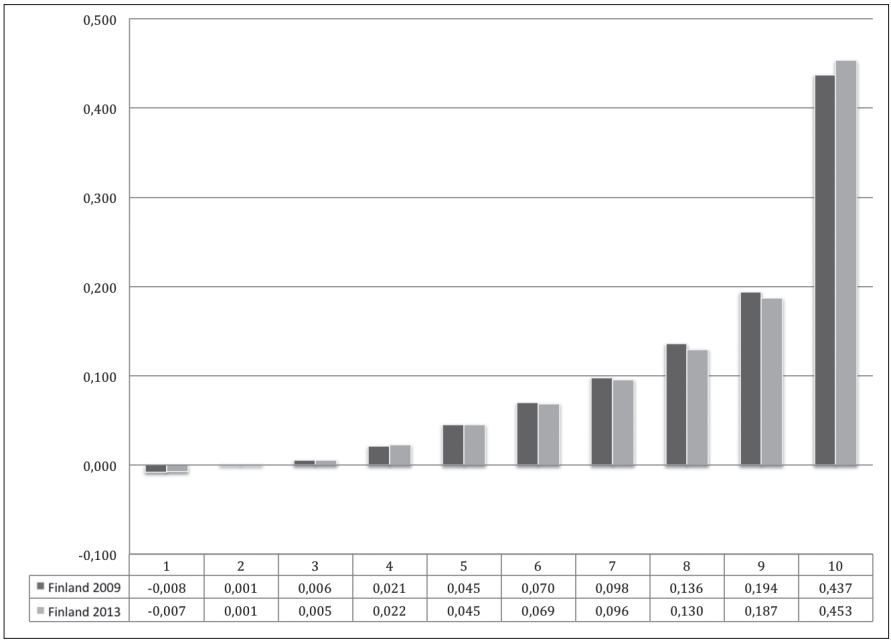
Source: Luxembourg Wealth Study, authors' calculations.

5.3. SCENARIO 3—THE CASE OF FINLAND

The case of Finland corresponds to the Rawlsian scenario where inequalities rise but not at the expense of the poor, at least in terms of absolute welfare levels. Between 2009 and 2013, wealth inequality increased slightly from 0.634 to 0.640 and the total household wealth rose by 20.0%. The source of this rising wealth inequality is in the top decile, as can be observed in figure 7. The share of D10 increased from 43.7% to 45.3%. This gain translated to a loss for D6 to D9 and D3. This illustrates how a rise in wealth inequality does not necessarily translate to greater poverty amongst the lowest deciles. D1 actually became a little less indebted and D2 remained stable. The rise of wealth inequality that occured during this period was at the relative expense of the middle classes. Here is

the change of the wealth medians for all deciles respectively, in Euros: 800, −100, 1 400, 8 600, 11 300, 15 900, 22 000, 24 300, 38 700, 94 900 (Figure 8). The welfare level increased in all deciles, except the second where the median decreased by € 100. Despite of this slight violation of the difference principle, Finland corresponds rather well to the Rawlsian scenario. This is a case where the metaphorical pie is distributed less equally, but the size of the pie is larger.

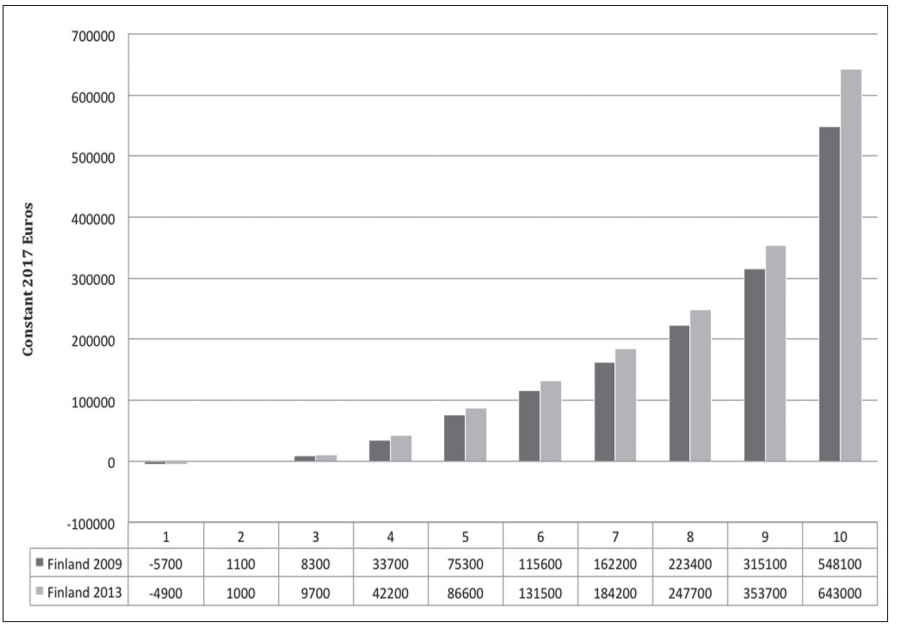
Figure 7. Total wealth shares of households in deciles, Finland, 2009-2013



	1	2	3	4	5	6	7	8	9	10
Finland 2009	-0,008	0,001	0,006	0,021	0,045	0,070	0,098	0,136	0,194	0,437
Finland 2013	-0,007	0,001	0,005	0,022	0,045	0,069	0,096	0,130	0,187	0,453

Source: Luxembourg Wealth Study, authors' calculations.

Figure 8. Wealth medians by deciles, Finland, 2009-2013



	1	2	3	4	5	6	7	8	9	10
Finland 2009	-5700	1100	8300	33700	75300	115600	162200	223400	315100	548100
Finland 2013	-4900	1000	9700	42200	86600	131500	184200	247700	353700	643000

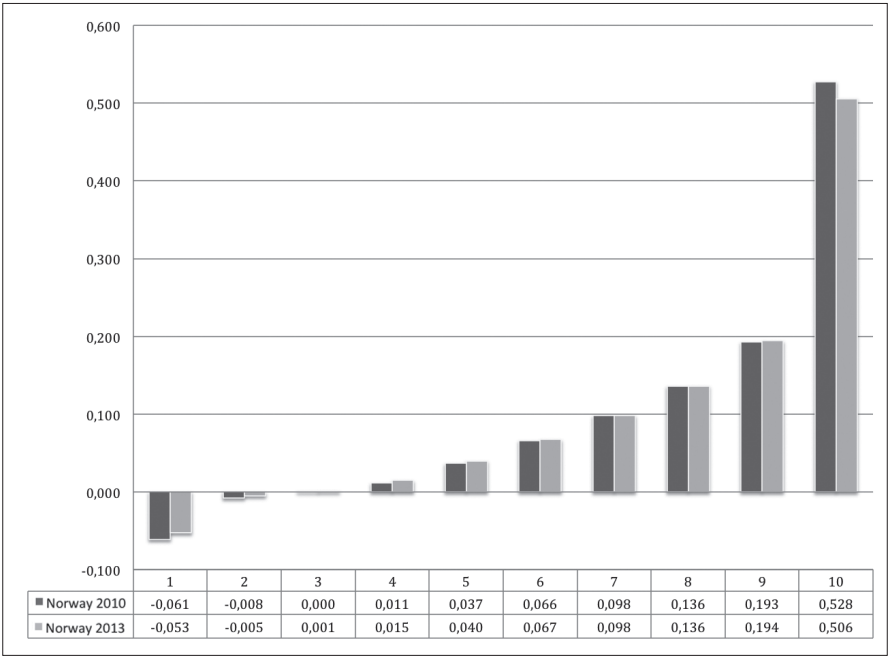
Source: Luxembourg Wealth Study, authors' calculations.

5.4. SCENARIO 4—THE CASE OF NORWAY

The case of Norway corresponds to the egalitarian scenario. This is the situation where the total wealth of households grows and wealth inequality decreases. During the 2010 to 2013 period, the total household wealth in Norway grew by 24% and the Gini coefficient decreased from 0.699 to 0.684. By examining the wealth deciles, we can identify that the decrease in inequality is due to the top decile whose wealth share decreased from 52.8% to 50.6% (Figure 9). The beneficiaries of this decrease were D1 to D6 and D9. While it should be noted that the first two deciles have a negative net wealth position, their relative net worth improved during the period. In absolute levels, we can clearly observe that all deciles experienced growth of their wealth medians (Figure 10). Respectively, wealth medians increased

by 2 500, 3 000, 1 600, 11 100, 19 800, 25 700, 34 700, 48 100, 68 700 and 122 800, in Euros. In other words, not only did the metaphorical pie grow, but it is also shared more equally.

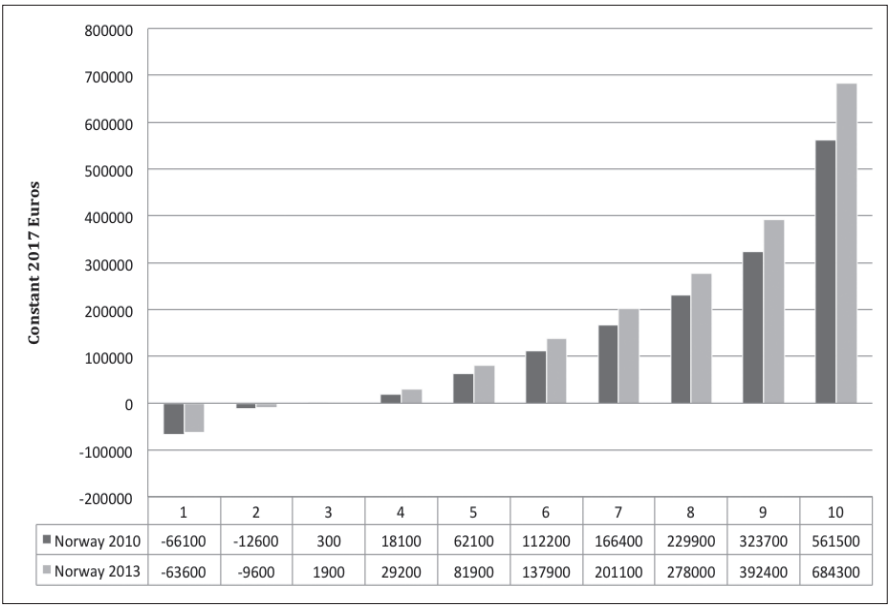
Figure 9. Total wealth shares of households in deciles, Norway, 2010-2013



	1	2	3	4	5	6	7	8	9	10
Norway 2010	-0,061	-0,008	0,000	0,011	0,037	0,066	0,098	0,136	0,193	0,528
Norway 2013	-0,053	-0,005	0,001	0,015	0,040	0,067	0,098	0,136	0,194	0,506

Source: Luxembourg Wealth Study, authors' calculations.

Figure 10. Wealth medians by deciles, Norway, 2010-2013



	1	2	3	4	5	6	7	8	9	10
Norway 2010	-66100	-12600	300	18100	62100	112200	166400	229900	323700	561500
Norway 2013	-63600	-9600	1900	29200	81900	137900	201100	278000	392400	684300

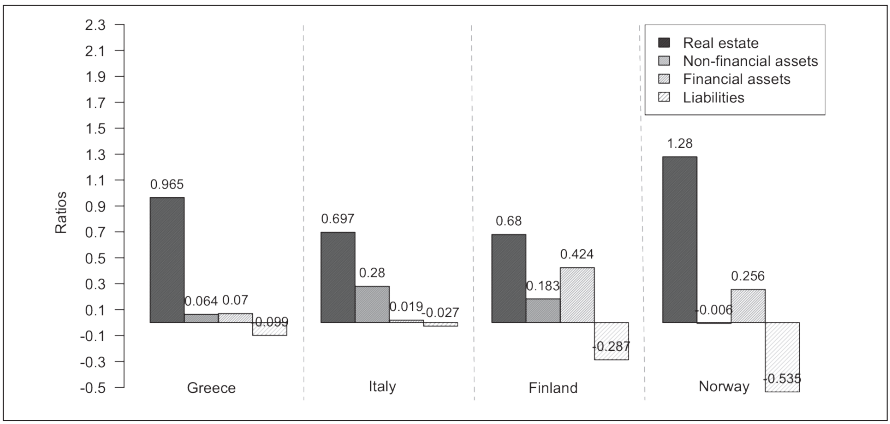
Source: Luxembourg Wealth Study, authors' calculations.

6. EXPLANATORY MODEL
The relative contribution of each wealth source on the change of the total household wealth

So far, we have treated household wealth as a whole, but to go further it will be necessary to decompose it. The goal of this section is to determine the relative contribution of each wealth source to the total household wealth fluctuations. Our explanatory model will consider four primary sources: the real estate market, the valuation of non-financial assets (the commodities market), financial assets and liabilities. The separation of the total household wealth into these four categories is theoretically useful to determine the relative contributions, but it should be noted that in reality the performance of one asset category is bound to have an effect on the others. This complex causal relationship, however, does not preclude us from determining the relative contributions, as shown in figure 11.

For the case of Greece, we observed that the overwhelming cause of the total net wealth change is the real estate market, which registered a ratio of 0.965. This is due to a crash in the housing market, as approximately 1 077 billion Euros in real estate value evaporated between 2009 and 2014. In fact, in 2018, over a decade after the financial crisis of 2007, real estate prices are still only at 42% of what they were before the crisis. It is noteworthy as well that the percentage of default mortgages reached its peak in 2015 at 51%. This implies that a significant part of the real estate loss was due to the liquidation of assets as banks repossessed the homes. It should be noted that the Greek government did eventually take some measures to protect defaulting households from the forceful sale of their home, but this clearly was not enough. The loss of value in the financial market accounts for a ratio of 0.070 and the commodities market accounts for a ratio of 0.064. The reason why inequality increased is because households in the lower deciles lost a relatively greater part of their net worth. The high unemployment rate (between 20% and 27% during the period) also means that households had to draw upon their savings to meet their living expenses.

Figure 11. The ratios of each wealth source change to the total household wealth change between period t_1 *and* t_2.



Source: Luxembourg Wealth Study, data accessed in June 2018, authors' calculations.

The explanation of the total net loss of Italy is more balanced between the four different sources as we can see. The real estate market once again registered the greatest relative contribution of the net loss with a ratio of 0.697, however, it is considerably less than the case of Greece. Between 2008 and 2016, the average real estate prices decreased by 23.8%, however most of this fall occurred after 2012. While substantial, these losses were not as high as the case of Greece. The secondary cause of the net loss was actually in the commodity market with a ratio of 0.280. It we decompose this source further into three sub-categories, the loss in business equity accounts of 0.166 of this ratio, while consumer goods and vehicles accounts for 0.14 and 0.045. Already we can see why the case of Italy corresponds to the second scenario of our typology. Because business equity is strongly concentrated in the upper deciles, its loss hit the elites more than the middle class—which contributed to the net decrease of the Gini coefficient. Although every decile lost in welfare, as we saw earlier (Figure 6), inequality decreased because the upper part of the wealth distribution assumed a greater relative part of this net loss. Italy also had a high unemployment rate during the period.

Let us now look at the two countries that experienced a net gain of their household wealth. The explanatory model allows us to identity the principal causes of this gain. For Finland, the principal cause is definitely the rise in the real estate value with a ratio of 0.680, which experienced a gain of 34.5 billion Euros. The secondary cause is the financial market that experienced gains of 21.5 billion Euros, which represents a ratio 0.424. The tertiary cause is the commodity market whose collective wealth increased by 9.3 billion Euros with a ratio of 0.183. Liabilities registered a ratio of −0.287. Relative to the other cases we have seen so far, this is a very substantial amount. As we can see, the households in Finland managed to make these gains partly by taking on approximately 14.5 billion Euros of supplementary mortgage debt. As it is well known, access to mortgages allows households to save throughout the life cycle, but for this to happen, households must remain financially solvent.

Finally, the increase of the total wealth in Norway is not as balanced as the one in Finland. The real estate market overwhelmingly explains gains in the total household net worth with a ratio of 1.280, corresponding to 902 billion Euros. The financial market registered a ratio of 0.256, which equates to a gain of 179.5 billion Euros. The commodity market had a minute negative contribution with a ratio of −0.006, corresponding to a loss of 3.9 billion Euros. Interestingly, the liabilities category registered a very substantial ratio of −0.535, which corresponds to an increase of 375.4 billion Euros of debt. It would appear that the decrease of wealth inequality is partly due to the financial capacity of households in the middle and lower deciles to take on mortgage debt, which allows them to accumulate equity through the forced savings function of debt-financed assets.

CONCLUSION

While income inequality is primarily structured by market forces, redistribution policies and demographic changes, wealth inequality is structured not only by income and consumption patterns, but also by financial volatility. The study of wealth is more complex than that of income because the former is subject to much greater fluctuation. While this fluctuation is measured on a yearly basis in this study, it is important to emphasize that this variation happens on any given market day. On a yearly basis, or, more precisely, between any interval, a diachronic analysis might not register any change, but significant change could have occurred in between. Such is the current state of financial volatility. We have shown that the total wealth of households can vary greatly on an annual basis and that this creates a significant blind spot if we only rely on relative measures. This is the reason why we emphasized that inequality researchers should use absolute measures as well to fully grasp the change in the wealth distribution. We developed a typology of wealth scenarios that correspond to the four principal possibilities when taking into account both types of measures. These scenarios are not only of theoretical significance as we found recent empirical cases of all four in Europe. At the present moment, wealth inequality, in its relative and absolute sense, is so contingent on the volatility of the real estate market, and financial and non-financial assets that it would not be altogether

absurd to claim that a significant part of distributive justice is at the mercy of financial volatility. This contingency emphasizes the political salience of regulating the financial markets in such a way that balances the risks and responsibilities between households, the market and the state is an equitable manner. In the current period of post-Fordism, households not only face job insecurity but are coming to face financial insecurity as well. Political actions need to be taken to mitigate this risk in the form of financial regulation, the establishment and enforcement of professional codes of conduct for financial advice and financial literacy campaigns. On the basis of our methodological propositions, future research could go further by making an overall assessment of wealth inequality in Europe. At the moment, the available data only allowed us to review a few countries, however, in due time, it will be possible to apply this typology to all European Union member states. Beyond Europe, of course, the typology has much potential to facilitate comparative research on wealth inequality.

The concentration of wealth is also a cause for concern as it also implies a convergence with political power and influence to such an extent that numerous authors have discussed the problem of growing and maturing oligarchy in democratic societies (Audard, 2016). This very preoccupation is what influenced Rawls, for instance, to revisit the maximin principle in his final book (Rawls, 2001). To counter the concentration of power, Rawls suggested measures that would facilitate what he called a property-owning democracy. Of course, other authors will prefer different types of measures to reduce or curtail wealth inequality, such as a personal wealth tax (Piketty, 2013) or an inheritance tax. Although it is not the place to discuss these here, several public policies have been proposed to reduce wealth inequalities (Masson, 2018). It does bear mentioning, however, that citizens typically both underestimate the level of wealth inequality in society, while at the same time find themselves more tolerant towards wealth inequality than income inequality. A qualitative study in France (Forsé *et al.*, 2018) helps us decipher this paradox. People are not necessarily more tolerant towards wealth inequality as a whole as much as they recognize that the family home is the object of considerable emotional attachment. Whether liberal or conservative, the vast majority of respondents refused

that a wealth tax should apply to the family home. On the other hand, as capital becomes more important in the wealth portfolio, political support to reduce wealth inequality increases. Attitudes and political opinions regarding wealth inequality are thus both nuanced and complex as they depend on both the type of wealth that is considered and its magnitude. In other words, wealth inequality that arises from the differential values of the principal residence is considered quite tolerable, but this tolerance wanes quickly, however, regarding financial assets. For public policy concerns, the political support of wealth inequality legislation is bound to depend on whether or not an exemption is provided for the family home, especially for households of relatively modest wealth.

The political necessity and viability of taxing wealth and inheritance in order to reduce inequalities are still being debated in many countries. These debates are far from over as wealth inequality poses fundamental political questions, most notably regarding individual merit and equality of opportunity. The effects of financial volatility that have been highlighted in this article, on the objective side of wealth inequality, show that the fairness of such taxation raises more complex normative issues than one might think *a priori* and, furthermore, that this complexity is in a certain way redoubled, on the subjective side, by the distinctions regarding the nature and quantity of wealth to which citizens adhere.

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