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# Age and Transformation of the Labor Market : the Case of Central Europe (Poland, Czech Republic, Hungary)

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Marie Plessz. Age and Transformation of the Labor Market : the Case of Central Europe (Poland, Czech Republic, Hungary). 2007. <hal-03461919>

**HAL Id: hal-03461919**

**<https://sciencespo.hal.science/hal-03461919v1>**

Preprint submitted on 1 Dec 2021

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Observatoire sociologique du changement

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Notes & Documents

n° 2007-04

Décembre 2007

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Age and Transformations of the Labor  
Market:  
The Case of Central Europe (Poland, the  
Czech Republic, Hungary)

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## **Résumé :**

Pour expliquer le désavantage des jeunes, des femmes et des travailleurs âgés sur le marché du travail, on cite généralement leur plus faible productivité, des attitudes discriminatoires ou des effets de composition et de cumul des handicaps. Cet article adopte une perspective différente, celle du cycle de vie. Ainsi les difficultés rencontrées par les jeunes, les mères ou les travailleurs en fin de carrière sont reliées à la priorité donnée aux pères âgés de 35-40 ans. En outre, nous prenons en compte deux dimensions des inégalités sur le marché du travail : les rémunérations et les chances d'avoir un emploi. Nous nous demandons donc quel groupe est le plus désavantagé, et de quelle façon, en République tchèque, en Pologne et en Hongrie, depuis les années 1980 jusqu'au tournant du 21<sup>e</sup> siècle. Les arrangements qui permettent de préserver les chances des pères de 35 ans sur le marché du travail ont varié selon la situation économique et le régime politique, et ils deviennent plus variés d'un pays à l'autre à la fin des années 1990. En Hongrie les travailleurs âgés sont de plus en plus exclus du marché du travail, les jeunes polonais sont intégrés mais au prix de rémunérations faibles, tandis qu'en République tchèque où le taux d'emploi est relativement élevé, ce sont les mères qui sont le plus en retrait.

Pour citer ce document :

Plessz, Marie (2007). « Age and Transformations of the Labor Market: the Case of Central Europe (Poland, the Czech Republic, Hungary) », Notes & Documents, 2007-04, Paris, OSC

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## **Abstract:**

Various mechanisms, including lower productivity, discrimination and composition effects, have been cited to explain the disadvantaged position on the labor market of young people, women, and persons nearing the end of their working life. This article relies on two hypotheses. First we adopt the perspective of life cycle theory, therefore this phenomenon is understood as a consequence of giving priority on the job market to middle-aged fathers. Second we consider that having a job and the level of earnings are two different dimensions of the labor market and of the way people can be advantaged or disadvantaged. In the case of the Czech Republic, Poland and Hungary in the period running from the 1980s to the early 2000s, the arrangements made vary in time and by country, as is shown by employment chances and earnings for a variety of groups, corresponding here to the life stages of youth, motherhood or fatherhood, and old age. This information brings to light which groups are disadvantaged and in what way. The configurations observed change with the countries' economic and socio-political situations, becoming more diverse by country at the end of the period. Older workers appear excluded from the labor market in Hungary; young people in Poland are integrated but paid relatively low wages; in the Czech Republic, where employment rates are relatively high, mothers are less likely to work.

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## Introduction

My aim here is to show through an examination of three Central European countries how the satisfactions a person may hope for in the different stages of his or her life cycle result from social and economic arrangements that vary from one society to another and over time. The paper focuses on job earnings; the operative hypothesis is that in Western societies, men of approximately 35 with a family are regularly the most privileged group; they have priority on the job market in both economic terms (being in their prime) and social terms (being their families' main source of support). In times of less than full employment, this priority can only be realized to the detriment of the other segments of the workforce, and the researcher's attention is naturally drawn to those who lose out in this arrangement, who may be sacrificed to preserve employment stability and quality for middle-aged fathers. These segments are women, especially mothers; young people just arriving on the job market; and the oldest workers. Immigrants, another group of potential "victims," is not particularly relevant for Central Europe in the period studied. The main question then is not only who gets sacrificed, but also what form does the sacrifice take? Does it mean lower quality jobs, more difficult access to employment, or a combination of these two handicaps?

The case of older workers shows suggests relevant this second question is. In Table 1 we can see two different arrangements. If we consider only relative wages, men over 50 in Hungary and Poland seem to be in a privileged position. But unemployment rates for persons at the end of their working life show that many are simply not on the labor market. In the Czech Republic, on the contrary, wages are lower but the employment rate is higher. There thus seems to be tight selection in Poland and Hungary; those who have kept their jobs are probably better equipped and therefore better paid. In the Czech Republic, integration seems stronger, allowing workers with lower qualifications to earn a wage alongside others. Thus if we want to see what the different age groups can hope to obtain on the labor market we have to look beyond wages: access to employment is a filter that cannot be ignored. However, if we want to analyze the intrinsic value of age, we have to go beyond all these descriptive data and take into account the different population compositions in terms of both education and activity sectors. The *Structure of Earnings Survey* is unsatisfactory on this point because it does not include small businesses or farming.

**Table 1 – Situation of men aged 50-59 compared to the male working population at large (100: men aged 20-59)**

	Employment ratio	Wage ratio
Czech Republic	93.7	100.6
Hungary	83.5	111.2
Poland	83.1	112.6

Sources : *Labour Force Surveys* 2000 for employment rates; *Structure of Earnings Survey* 2001, for wages; does not include farmers or businesses with fewer than 10 employees.

I have chosen to study labor market income only, given its key role in defining actors' socio-economic position, at least in terms of income and status. It is true that the last 30 years of rising unemployment and falling labor force participation in our societies have led to relativizing the labor market and paying increased attention to welfare institutions. Therefore a more comprehensive perspective would be to assess the total expected individual income (earnings plus benefits), given the participation or not in the labor market. But this is a far more ambitious project. The labor market remains where social and economic concerns come together. The way it functions is determined by both economic conditions—institutional, structural, and context-related—and social norms and institutions: education systems, public policies, welfare regimes, etc. Karl Polanyi, renowned for his hypothesis that markets are embedded in social institutions claimed that a society which left it up to the powers of supply and demand to regulate the exchange of work for pay could never endure. How then do social and economic norms come together on the labor market to establish the value of the labor of various categories of workers? Specifically, how is age valued on the job market? In fact, the age characteristic does not readily lend itself to analysis because the economic and social values of the distinct life stages are ambiguous.

In analyzing how Western societies have been adapting to economic difficulties since the oil crisis, sociologists have brought to light different societal models (Esping-Andersen 1990), all aimed at resolving a single problem: how is work, and therefore earnings, to be shared out when workers outnumber jobs? Allotment and distribution of this now scarce resource—work—raise problems which may be summed up by the following questions: Which groups have the hardest time gaining access to work and wages? What is their situation compared to groups in better ones? Is that situation characterized by unemployment or low-quality jobs? Some countries—the United States, for example—have managed to contain unemployment by developing low-skilled, poorly paid jobs in the service sector; others, such as France and Germany, have defended insiders' wages and job stability at the cost of much higher unemployment rates.

This article details how the value attributed to the different life stages in Central European societies has changed in the course of their transformation first from communist societies to market economies, then to a situation of economic growth (but without full employment). To apprehend this development, I compare relative employment chances and relative earnings levels in the three countries. In analyzing these two aspects of the labor market, I have chosen to study not age groups as such but age groups that correspond to stages in the life cycle.

The first section presents a review of the literature so as to specify the problem and clarify hypotheses; the second, methods and data; the third analyzes the results.

## **Life stages on the labor market**

To specify what is at issue, I first analyze the economic and social dimensions of the labor market with reference to Karl Polanyi's theses. I then present the economic conditions of the post-communist transformation, and its consequences for the labor market. Finally I explain how I conceive of age, its meaning and its possible role on the job market, before returning to the distinction between employment access and wages.

### **1. Economic and social stakes on the labor market**

Regardless of whether the economic theory of the labor market is used to model micro-economic reasoning or corresponds to a more institutionalist perspective, that theory always measures reality in terms of a purely, perfectly competitive market (Kalleberg, and Sorensen 1979) and seeks to explain any "imperfections" without surrendering its main hypothesis: market actors are rational, maximizing agents of their own "utility."

In response to the observation that wages tend to increase over the course of a career, economics proposed mainly two explanatory models. The idea operative in Lazear's model (Lazear 1990) is that if a firm wishes to keep and motivate its employees, it may be worthwhile to pay them wages that increase faster than their productivity, offsetting this in advance with below-productivity wages at the outset. It is then in the employees' interest to remain in the company so as to benefit from this "deferred payment" at the end of their careers, at a time when their productivity will be falling. According to this reasoning, the young are "underpaid" for their skills and abilities while older workers are overpaid. Institutional theories link seniority wages to the bargaining power of insiders (often unionized) who manage to keep their career prospects good regardless of their productivity level, to the detriment of young newcomers who may be better qualified yet remain in peripheral positions. The newcomers are understood not only to receive lower wages, but also lower-quality jobs in terms of stability and social protection. Here work is no longer merely an input in the firm's production function; the worker is taken into account, but always as a strategizing actor trying to get the best price for his commodity—his labor.

At the close of World War II, Karl Polanyi (1944) had vigorously attacked the existing economic theories, recalling that work was not an ordinary commodity and that a society could not endure if left it up to the forces of supply and demand to furnish its population with a means of subsistence: "Though in the nature of things, wage differentials must (and should) continue to play an essential part in the economic system, other motives than those directly involved in money incomes may outweigh by far the financial aspect of labor" (p. 251). According to Polanyi, the labor market is necessarily embedded in social institutions and norms; otherwise it would threaten the survival of the society. Micro-economic calculation norms alone therefore cannot explain how the labor market

works, because most of the supply does not depend on the level of wages, but on the necessity to earn one's life. Thus collective norms necessarily make themselves felt,<sup>1</sup> so that the market system remains compatible with the society's survival (its sustainability, we would say today) which is basically the survival of the highest possible number of its members. It is this aspect of the labor market that I wish to illustrate, showing how differences in wages and access to employment reveal priorities that the economic efficiency calculation cannot fully explain, in precisely those countries where collective actors do not have a strong presence in industrial relations. These priorities are revealed by both employers' practices and potential workers' behavior—i.e., being occupied or unoccupied—whether voluntary or not, while also depending on welfare arrangements.

## 2. The economic transformation

With the fall of the communist regimes in 1989, Central European countries fell into sharp economic recession.<sup>2</sup> Janos Kornai (2001) used the term “transformational recession” to designate those years, characterized by falling buying power and rising unemployment and inequality, which came with factory bankruptcies and restructurations, capital privatization, redirecting of foreign trade, etc. Figures 1 to 3 illustrate how the economic situation in the three countries has evolved since 1989. These societies went abruptly from a situation where having a job was a right—in Czechoslovakia it was actually a duty inscribed in the constitution—to a shortage of stable jobs, a situation that generated unemployment and massive early retirement. The communist wage system—wages determined centrally and linked to a wide assortment of bonuses and assistance from state-owned companies—collapsed. Collective bargaining could not make up for the loss as it got reduced to a minimum and had very little regulatory power (Lado 2002); workers' unions had lost their legitimacy as well as their ideological touchstones, and employers had to create their organizations from scratch (Koltay 2002). In the three countries studied, tripartite commissions have now succeeded in fixing a minimum legal wage, but decisions on wage levels and increases are usually left up to company bosses, who bargain on a case-by-case basis. Growth has returned, but employment rates remain low—66.7% in Hungary and 60.4% in Poland for the 20-59 age range in 2005—except in the Czech Republic, where the rate is 75.4%.<sup>3</sup> The countries thus moved from nearly full employment plus a welfare regime comparable to the corporatist model to a shortage of jobs in an institutional context of declining corporatism.

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<sup>1</sup> “Inevitably, society took measures to protect itself” (Polanyi 1944my italics).

<sup>2</sup> In Poland the 1980s were already years of economic recession.

<sup>3</sup> Labour Force Surveys, Eurostat, 2005.

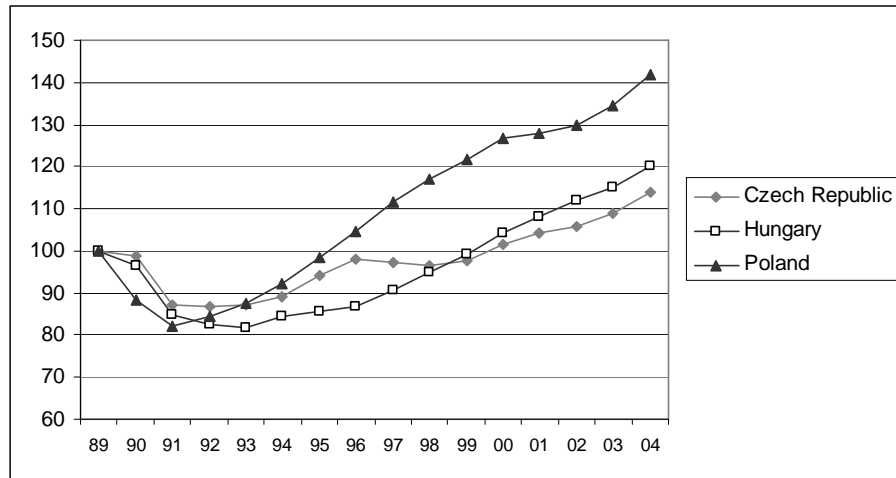


Figure 1 – Development of real GDP in Central Europe (100 in 1989) (Transmonee database)<sup>4</sup>

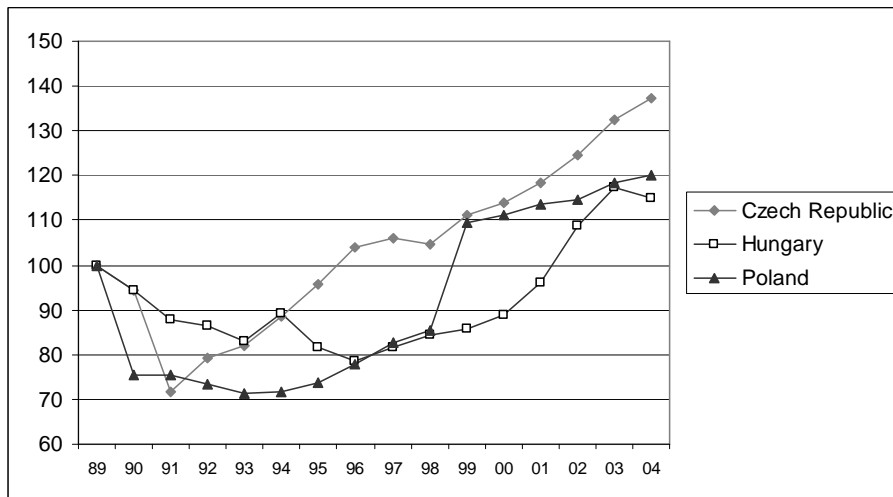
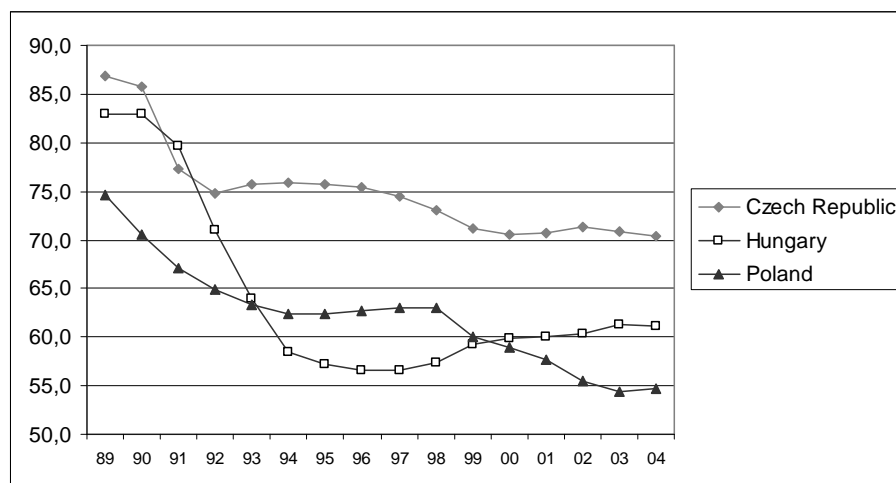


Figure 2 – Development of real average wages in Central Europe (100 in 1989)<sup>5</sup>

<sup>4</sup> Source for Figures 1 to 3 is Unicef's Transmonee database.

<sup>5</sup> In Poland in 1999 there was a break in the series: employee contributions began to be included from that date on.



**Figure 3 – Employment rates in Central Europe since 1989 (% of population aged 15-59)**

### 3. The labor market and the post-communist transformation

Can we really speak of a labor market for the central European socialist societies? Večerník answers in the affirmative and offers the following description: “In fact, one might rather consider the entire administration of the labour-force under socialism as one big internal market with many preferences, special rules, and both vertical and horizontal social structures. Within this huge primary sector there is another which is the closed internal market of the top party, the state and the economic bureaucracy [the Nomenklatura]. If we are looking for labour-market segmentation in socialist countries, we have to use another perspective. There are large groups of workers who are permanently seeking a new job. They might be considered as the secondary, peripheral sector of the labour market” (Večerník 1991). However, these workers were not necessarily paid at a lower rate than others; in general they tried to find positions with more fringe benefits (bonuses, housing, working conditions and in-kind advantages); this was what firms used to attract and keep good workers, since they were not free to set wages. In fact, until nearly 1989, high turnover was associated with a scarcity of workers, particularly skilled ones (cf Kornai 1992).

On internal markets in general, seniority often plays a major role, and men often have an advantage over women because their careers are more continuous (Kalleberg, and Sorensen 1979). In this connection the socialist regimes are no exception. Večerník (1991) shows that gender was the first determinant of wage inequalities in Czechoslovakia, and while educational level counted, age took on more weight with time; the peak of the wage curve shifted regularly to the right, reflecting the advantage of older workers. The post-1989 shutdowns, restructurations, and privatizations of major state-owned companies left internal markets severely shaken. Sociologists have observed that in general education had an increasingly central role on the labor market, in determining not only wages but also employment chances (Fazekas, and Koltay 2002 ; Heyns 2005).

Moreover, institutional conditions for unoccupied persons have changed greatly since the communist period of nearly full employment. During the first half of the 1990s, the many early retirements and a fairly generous approach to disability pensions allowed a great number of workers nearing the end of their working life to avoid unemployment ((Večerník, and Matějů 1999). The eligibility conditions for unemployed status and unemployment compensation became increasingly restrictive (Boeri 2000), which makes it difficult to make intertemporal comparisons between declared unemployed and simply unoccupied persons.<sup>6</sup> If we are to analyze the probability of getting a job, the reference population has to be defined with care. I consider all persons aged 20-59 who do not state they are a student<sup>7</sup> as potentially occupied. It may seem surprising to rank retirees, early retirees, and disability pensioners among the potentially occupied, but the choice seems to me justified by the means that were used to handle lay-offs and decrease unemployment, such as the massive use of early retirement (though this varied over time) and disability pensions (Večerník, and Matějů 1999).

On Central European labor markets, the sharpest changes seem to have been a weakening of internal markets and collective bargaining power, the increasingly important role of educational degree, and increasingly blurred boundaries between being out of the labor force, unemployed, and gainfully occupied. All these institutional changes and their consequences at the individual level create very selection effects that vary across time and across country. When it comes to earnings determinants, they are part of the story and both aspects (access to jobs, and level of earnings) need to be confronted at each time-point in each country.

#### 4. From age to the life cycle

Gary Becker's human capital theories (Becker 1964) and Mincer's empirical application of them (Mincer 1974) are an obligatory reference for analyzing the effects of age on wage. They illustrate the most widespread current understanding of age: age as a proxy for experience. Still, in a labor market characterized by unemployment and discontinuous careers, this definition is less and less relevant (Meurs, and Ponthieux 2000). Moreover, employers may perceive age in different ways. Do they see older workers as figures of experience and authority, or as employees whose skills may be obsolete? Are young people seen as inexperienced, immature, mobile, or as better trained than older workers, more reactive and flexible? The perceived economic value of workers in different life stages—what could be called imputed productivity—is ambiguous. As mentioned above, internal markets favor seniority wages. Institutional arrangements thus also affect how the different ages are valued in terms

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<sup>6</sup> In Hungary in 2004, the 20-24 age group represented 17.4% of unemployment (according to the ILO definition) but 13.3% of the national employment office's unemployed lists.

<sup>7</sup> I have also excluded prisoners, women on maternity leave (but not parental leave) and persons doing their military service when the information was available. These categories represent a very minor share of the samples.

of wages. In Central Europe the internal markets came apart along with the big state-owned companies. This probably explains in part the decreasing role of age in determining wages that has been observed by a number of researchers (cf Heyns 2005). However, other researchers have developed more refined hypotheses. Kertesi and Köllő (1999) and more recently Diewald (2006) claim that experience acquired under communist rule did indeed lose value, whereas experience acquired after 1989 has remained relevant. This penalized workers who were at the end of their careers in the 1990s; on the contrary, in the early 2000s those who were young in the 1980s are in a position to capitalize on their “post-communist” experience. Consequently, earnings profiles by age became flatter in the 1990s, then humped back up again while the peak moved left, to the detriment of workers near the end of their career (Smith 2001).

A great number of studies on wage profiles take men only into account. Women’s careers seem more complex, in my opinion because the gendered life cycle (Riley 1988) sometimes seems a complication specific to women. For employment chances the life cycle seems to me the relevant level of analysis for both women and men. Diewald (2006) shows that in the former GDR, economic layoffs in the early 1990s clearly spared men in mid-career. Post-reunification East German society was increasingly marked by the “male bread-winner” model, and male heads-of-household were given employment priority. It is therefore aging workers whose children are already adult who were being “sacrificed,” while young people had to wait for better days to get hired. Similarly Louis Chauvel (2006) has shown that youth unemployment in France was tolerable as long as male heads-of-household remained relatively protected. In my analyses having a young child has a positive effect on men’s employment chances (and a negative effect on women’s). All this suggests a largely implicit collective choice in favor of a group defined not so much by age as by stage in the life cycle: middle-aged fathers. In a context of economic difficulties, other groups are in turn disadvantaged. It could be objected that employers have only chosen to keep the most productive workers, or lay off those for whom there are institutional arrangements such as early retirement. But what the use of early retirement (or paid parental leave) shows is precisely how public policy inclines us to think that older workers (or mothers) do not need a job while male heads-of-household have no alternative to working. There is no “social wage” for middle-aged fathers.

I make the following two hypotheses. As it may be misleading to speak of age in explaining wage differentials since it suggests a quantitative variable with an objective value for number of years, I prefer to speak of life stages, in connection with the importance I attribute to the (gendered) stages of the life cycle. I furthermore hypothesize that the “male heads-of-household” population has priority on the labor market not only because these men have mouths to feed, but also because they represent a good compromise between experience and energy and because their social role and economic situation require them to work and earn a decent wage. In fact, the Central European welfare regime may

reasonably be described as highly corporatist (in part because of the German influence) with components of the liberal model added after the post-communist reforms.

This group may now be compared with three other types of workers who are particularly vulnerable on the labor market: mothers, young people and workers near the end of their working life. In a context of economic rigor and major institutional change, the initial question—effect of age on the labor market—thus becomes, what socio-demographic group has been most disadvantaged on the job market? Which has been perceived as the least productive or given the lowest priority? Are the same trends observed for all the countries in question?

## **Problems and hypotheses**

The problem can be summarized thus. Central European countries, like other developed countries, are undergoing employment scarcity and budget tightening. These difficulties are harsher for certain groups than others, and men in mid-career continue to have priority, for both economic reasons and reasons of “welfare regime sustainability,” except if generation effects restrict their access to good jobs (Chauvel 2006). The fact that certain groups are bearing the brunt of these difficult situations is due to employers’ representations and choices, but also the way public policy is oriented (passive and active policies for handling unemployment) and the representations of occupied and potentially occupied persons themselves. Moreover, the disadvantages they are subjected to may be of various kinds. The worst situation is of course a combination of limited access to employment and low wages when one does find work. For these persons we may speak of exclusion or abandon; we may even say in some case that they are being sacrificed. But other configurations are possible. The American model of available employment at the cost of low wages may be seen as one of integration, whereas the French situation, where it is difficult to get a permanent job but the wage is a proper one, may be described as intensely selective—by educational level, for example.

I have chosen three potentially “vulnerable” stages of the life cycle—motherhood, youth, and end of the working life—in order to assess

- hat type of disadvantage is each stage subjected to: low wages or low employment chances;
- whether one of these life stages is systematically associated with the strongest disadvantage;
- whether one of them has a kind of priority somewhat comparable to middle-aged fathers;
- developing trends ;
- whether the situations in the three countries are comparable and involve the same dynamic or if different societal trends may be seen.

I make the following hypotheses:

- age generates smaller and smaller wage differentials, and greater differences in access to employment. In the 1980s young people were paid less than their elders, whereas in the 2000s their main problem is finding a job, though when they do find one the wage is decent;
- education is playing an increasing role in relation to both wages and employment chances, though it was not insignificant under communism (Diewald, Goedicke, and Mayer 2006);
- the countries were more similar to each other under communism than afterwards. Communist institutions were extraordinarily similar: the same educational system, the same industrial structures, the same type of state-owned company policies. In post-communism, different transformation strategies were followed and the countries' economies did not react in identical ways, as shown by the unemployment rates in Table 2.

**Table 2 – Central European unemployment rates (as defined by the ILO) in 1993 and 2003, *Labour Force Surveys***

	1993	2003
Czech Republic	4.3	7.8
Hungary	11.9	5.9
Poland	14.9	19.3

## Design and data

What exactly is meant here by “disadvantaged”? Table 1 clearly shows that we cannot be satisfied with analyzing earnings level. There are different kinds of disadvantages, and low employment chances may combine with low income. I have not used the Heckman procedure (Heckman 1979), because it has come under increasing criticism for both its theoretical justifications (Diewald, Goedicke, and Mayer 2006) and its lack of statistical robustness (Blau, and Kahn 1996). Moreover, it is not immediately relevant to our purposes, which are to analyze selection equations in themselves and compare them to wage equations.

I have therefore done logistic regressions that predict full-time employment for potential workers as defined above, and variance analysis that predicts employment income for full-time gainfully occupied persons. The results of these two regressions have been mapped to show how priorities and exclusion are organized on the labor market and to compare the countries over time. The difficulty was to choose equivalent variables, that make sense and are common to all the surveys (i.e., same recoding system). The detailed results of the regressions are shown in the appendix.

## 1. Employment chances

The chances of having a job are measured by logistic regression. The population is all persons from 20 to 60 except students. The dependent variable is having a paid full-time job; i.e., over 30 hours a week, including for the self-employed, though self-employment of course does not fit the strict sense of having a job but is rather an earning alternative to employee status.

The explaining variables that indicate the life cycle position are age (five-year age groups), sex, and having a child under six. We have also included educational level (primary, apprenticeship, vocational high school, general high school, higher education degree). Interactions between sex and parent status, sex and educational level, sex and age have all been taken into account. The reference educational level is apprenticeship, because this is the most common level in all three countries due to the combined German and Soviet influence on Central European educational systems (number of years in school was not always available).

## 2. Wages

I did variance analysis to predict wages. The covered population is persons with a full-time job in the sense of the logistic regressions above. The dependent variable is the logarithm of earnings. Perquisites, bonuses, etc. were omitted because this information was not available for all countries, even though this affects the results for the communist period because perquisites at that time were a major component of household income and state-owned company policy. It is not possible on the basis of current studies to determine whether in-kind income during that period weakened or strengthened wage inequalities. My impression is that it benefited the Nomenklatura (which had access to reserved goods) and accentuated differences across industries.

Explaining variables are

- individual characteristics: age, sex, educational level. Having a child was not taken into account because it has little theoretical relevance (at least for the problem at hand, since I am not particularly interested in gender discrimination) or statistical significance. However, I did take into account interaction between sex and age. Therefore age and sex are the only variables standing for life-cycle position.
- job characteristics: type of job (self-employed, private sector employee, public sector employee);<sup>8</sup> industry (farming, industry, non-market services,<sup>9</sup> market services); supervisory position or not

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<sup>8</sup> The distinction was not available in this form in the Czech data in 1984 and 2002

<sup>9</sup> Non-market services: education and research, culture, health, social services, administration. All others are considered market services.

(does respondent have subordinates?). The last Czech survey gives no data on this last variable so it was replaced with membership (or not) in ISCO groups 1 (legislators, senior officials and managers) and 2 (professionals).

### 3. Comparison

I then mapped the results of the two regressions. The vertical axis is wages, the horizontal one employment. Only those points corresponding to the designated groups are shown. The situation of persons with a higher education degree (university or technical) illustrates the “bonus” thereby obtained.

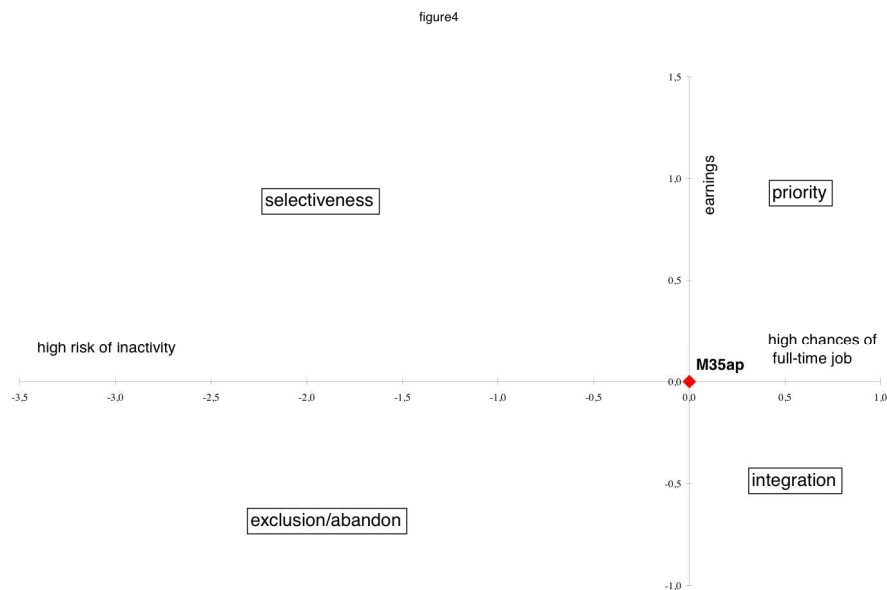
**Table 3 – Analysis of life stages (Key for Figures 4 to 13)**

Group	Gender	Age	Child (for employment only)	Educational level
M20uni	Man	20-24 years	No	Higher education
M20ap	Man	20-24 years	No	Apprenticeship
F30uni	Woman	30-34 years	Yes	Higher education
F30ap	Woman	30-34 years	Yes	Apprenticeship
M35uni	Man	35-39 years	Yes	Higher education
M35ap	Man	35-39 years	Yes	Apprenticeship
M55uni	Man	55-59 years	No	Higher education
M55ap	Man	55-59 years	No	Apprenticeship

Coordinates:

- abscissa: employment. The beta coefficient corresponds to characteristics studied. Middle-aged fathers who have done an apprenticeship are the reference; coefficient = 0.
- ordinate: earnings; difference between the prediction for the given characteristics and the prediction for middle-aged males who have done an apprenticeship.<sup>10</sup>

<sup>10</sup> The scale on the ordinate axis is multiplicative because the predictions are derived from earnings logarithms. A 1-point difference signifies a wage approximately 2.7 times higher (the e value). On the abscissa, a 1-point difference signifies a 2.7 odds-ratio.



Page 1

The graph scale is of course relative, because employment rates have varied greatly over time and by country. The aim then is to compare point configurations to each other rather than to compare coordinates for a given group from country to country and survey to survey.

#### 4. Data

Since dynamism is central here, I have chosen three dates. The first surveys were done in the 1980s, the end of the communist period. The second in 1993, at the heart of the “transformational recession” (Kornai, Chavance, and Vahabi 2001): how do labor markets just freed from the socialist strait jacket handle an economic crisis involving a fall in GDP of over 20%, a near-20% loss in jobs, and a fall in real income of 15 to 30%? Lastly, surveys from the turning point in the early 2000s, when the economies of the three countries began to grow again. Though employment rates were still very low, unemployment was no longer increasing and the countries were getting ready to join the European Union. What were labor market conditions like at that recent date?

I could not use *Structure of Earnings Survey* data from surveyed companies because it does not include farmers (17.5% of gainfully occupied Poles were farmers in 2000) or companies with fewer than 10 employees (20% of gainfully occupied Poles work in small companies). I have therefore used surveys bearing on smaller samples but covering the entire population.

The 1993 *Social Stratification in Eastern Europe* survey permits comparison because it used the same questionnaire and homogeneous samples and coding for all three countries.

For Poland in 1988 and 2003 I used the first and last wave of the POLPAN panel survey. Younger cohorts were regularly added to the panel to allow for independent analysis of each wave. The questionnaires are highly standardized, and attrition was remarkably low. However, due to budget cuts, only 2000 of the 6000 individuals questioned in 1988 could be questioned in 1993; this explains sample size difference.

For Hungary the 1986 TARKI *Basic Survey* provided all the necessary variables (in English). I used the 1998 *Tarki Household Monitor* for the late 1990s.

For the Czech Republic, the 1984 *Czechoslovak Social Structure and Mobility Survey* was perfectly adapted to my purposes. Unfortunately the Czechs have no survey of comparable quality after 1993. In the 1999 *Ten Years of Social Transformations* survey, wages are coded into 10 unsatisfactory categories. I therefore used the 2002 *Microcensus*<sup>11</sup> despite the fact that this survey, focused on income, offers only rudimentary information on the variables of interest to sociologists. There is no distinction between types of secondary education (the reference here is “secondary without degree,” which corresponds to category 3C of the ISCED classification); no question on supervisory nature of position or distinction between public and private companies. Lastly, the Czech Bureau of Statistics systematically imputes non-responses and answers that it considers unrealistic without explaining how it proceeded.

Tables 4 and 5 present variable distributions for potentially occupied persons (i.e., included in logistic regressions predicting chances of having a full-time job) in 1993.

**Table 4 – Education level by sex (among potentially occupied persons in 1993)**

Country	Sex	Primary	Apprenticeship	Secondary vocational	Secondary academic	Higher education degree
Czech Republic	Men	12.0	<b>50.6</b>	19.9	5.8	<b>11.7</b>
	Women	31.0	<b>32.8</b>	21.1	8.3	<b>6.8</b>
	Total	21.5	<b>41.7</b>	20.5	7.1	<b>9.2</b>
Hungary	Men	25.3	<b>43.6</b>	14.3	6.7	<b>10.1</b>
	Women	39.7	<b>23.0</b>	13.3	14.2	<b>9.8</b>
	Total	32.2	<b>33.7</b>	13.8	10.3	<b>10.0</b>
Poland	Men	23.3	<b>41.1</b>	17.8	8.9	<b>8.8</b>
	Women	24.7	<b>24.7</b>	21.6	20.9	<b>8.2</b>
	Total	24.0	<b>33.0</b>	19.7	14.8	<b>8.5</b>

<sup>11</sup> I consulted these Microcensuses under the supervision of Jiří Večerník during a research stay in 2005.

**Table 5 – Share (%) of persons with a child under six in the household (among potentially occupied persons in 1993)<sup>12</sup>**

Age	Czech Republic	Hungary	Poland
20-24	16.0	13.4	36.1
25-29	43.1	39.7	52.1
30-34	35.9	35.2	45.0
35-39	13.5	21.1	24.5
40-44	5.8	8.5	12.9
45-49	3.5	5.8	9.3
50-54	5.1	6.4	12.1
55-59	1.9	5.9	8.8

## Changes in life stage value

Are there more common points between the Hungarian labor market in 1986, 1993 and 1998 or between the Czech, Hungarian and Polish labor market in 1993? Is it the country or the period effect that come first in shaping the labor market institutions? In presenting the results in chronological order, I keep in line with my dynamic approach: the focus is on the specificities of each period, which are expected to prevail over the peculiarities of each country. However the smaller or greater variation between countries might as well be a characteristic of the transformation's stages.

### 1. Under communism

In analyzing the maps based on surveys from the communist period, it is important to have in mind the specificity of pre-1989 employment norms: retirement at 55 for women and 60 for men, ready access to disability pensions, early retirement for certain occupations (miners, fire-fighters). In the Czech Republic unemployment was officially non-existent during this period, whereas in Poland and Hungary it began to be acknowledged in the late 1980s.

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<sup>12</sup> Clearly persons most likely to have a young child are somewhat younger than the age groups chosen here, but I wanted to capture the situation of persons likely to have fully arrived on the job market. According to Louis Chauvel (2006) the age of 30 in France is a significant cut-off point beyond which situations may be considered stable—which of course does not mean that difficulties disappear.

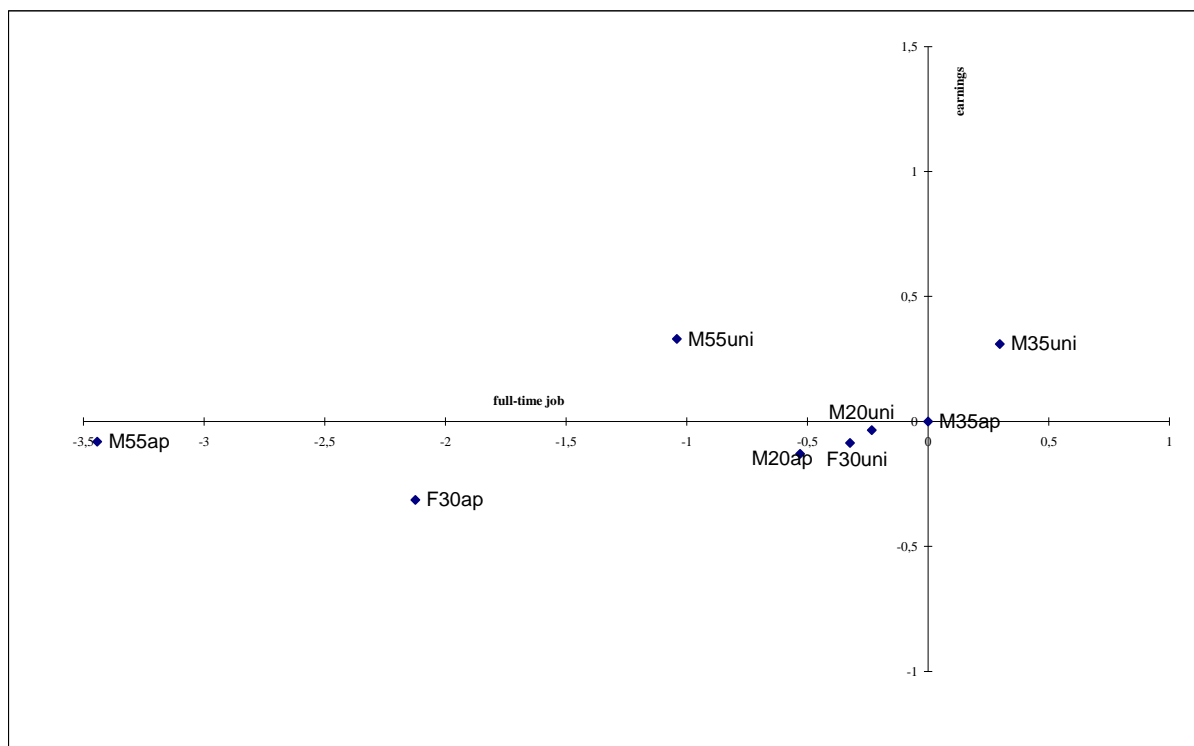


Figure 4– Hungary in 1986

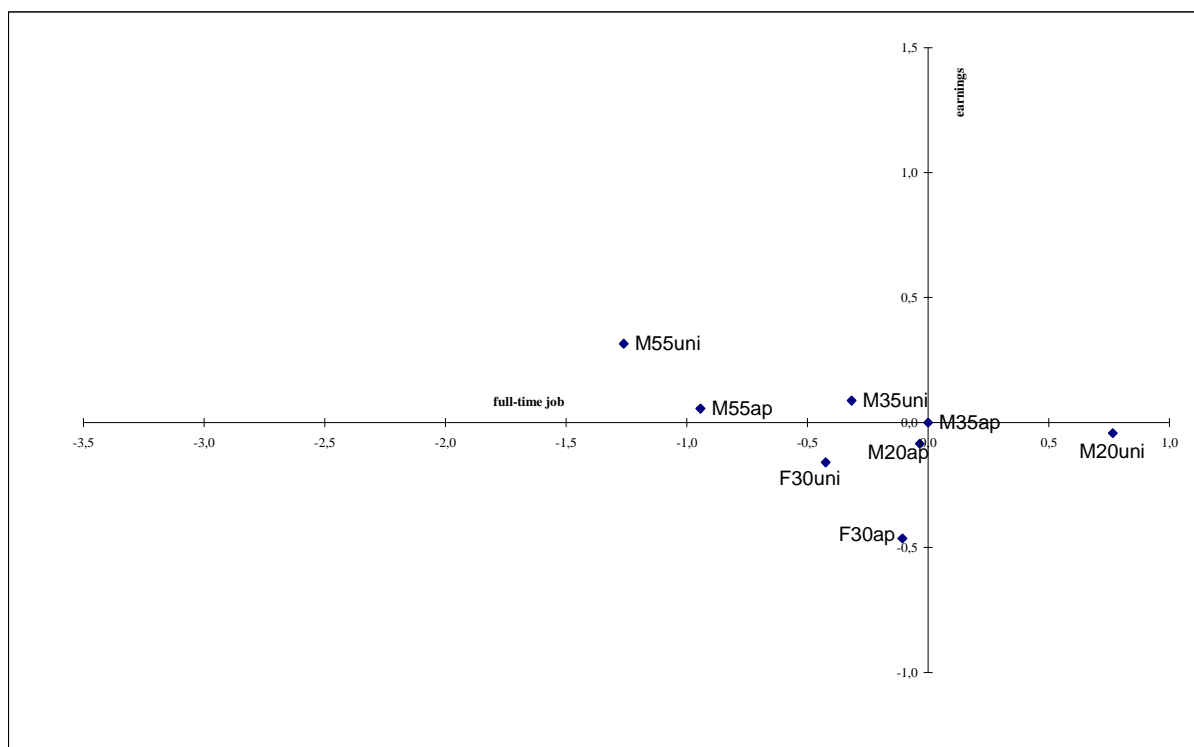
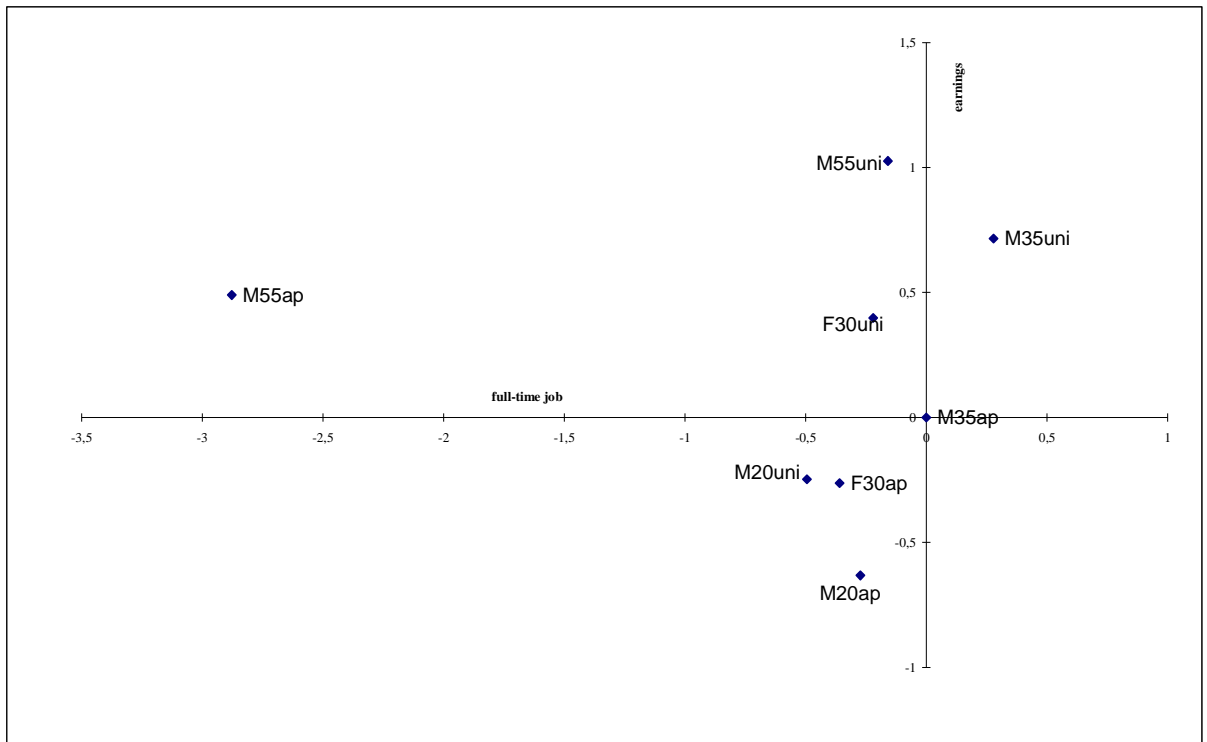


Figure 5 – Poland in 1988<sup>13</sup>

<sup>13</sup> H20uni represents men aged 25 to 30 because no male university graduate in the 1988 sample had a full-time job.



**Figure 6 – Czech Republic in 1984**

Common points across countries stand out under communism: mothers with little education and older men were much less likely to be working than the other groups, while working men over 55 greatly benefited from higher education. This echoes Večerník’s remark on the difference between men and women and the age-wage link (Večerník 1991).

More highly educated mothers were often working (except in Poland). But the education-based earnings differential increased with age, suggesting that education was required for climbing supervisory and wage ladders—or that the older cohorts were monopolizing the good jobs.

## 2. During the “transformational recession”

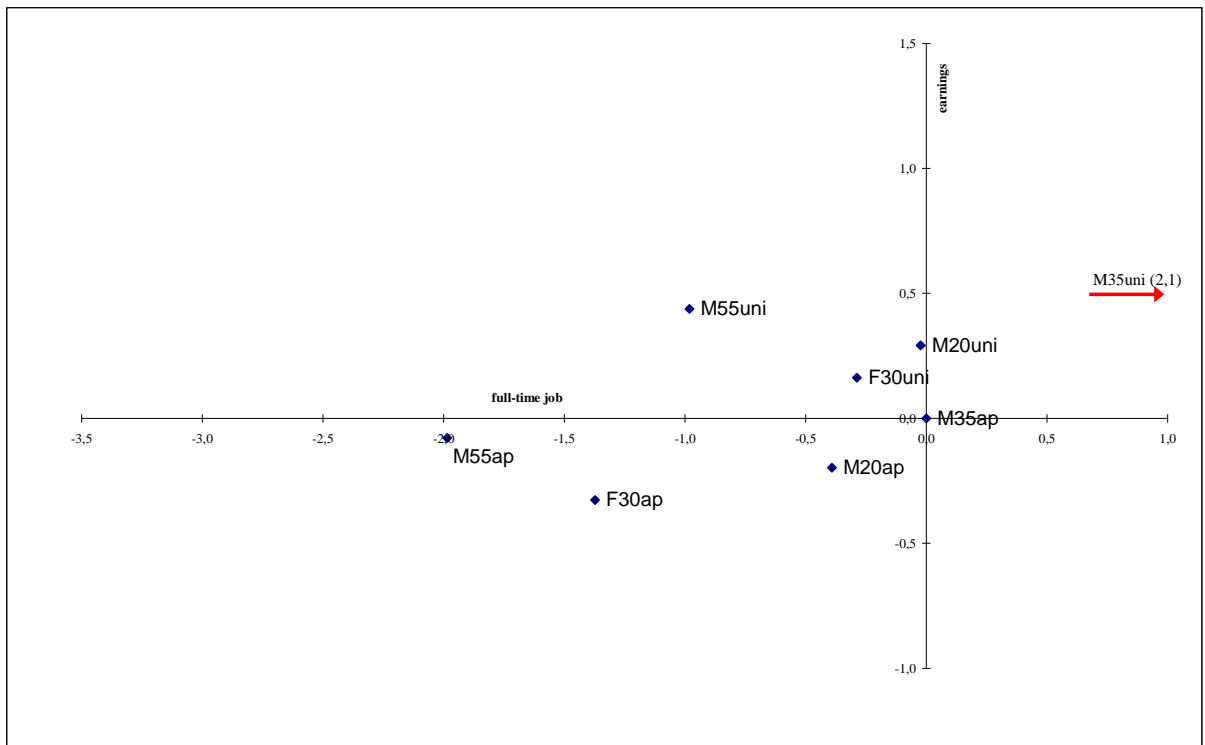


Figure 7 – Hungary in 1993

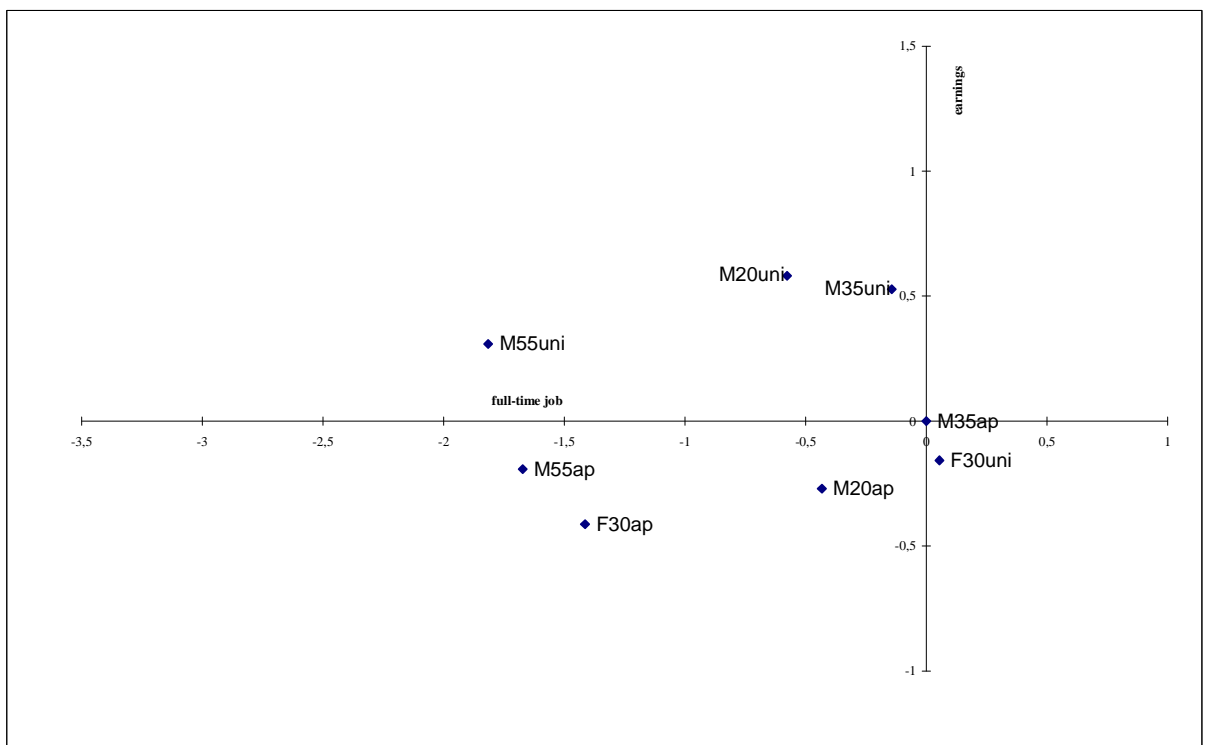
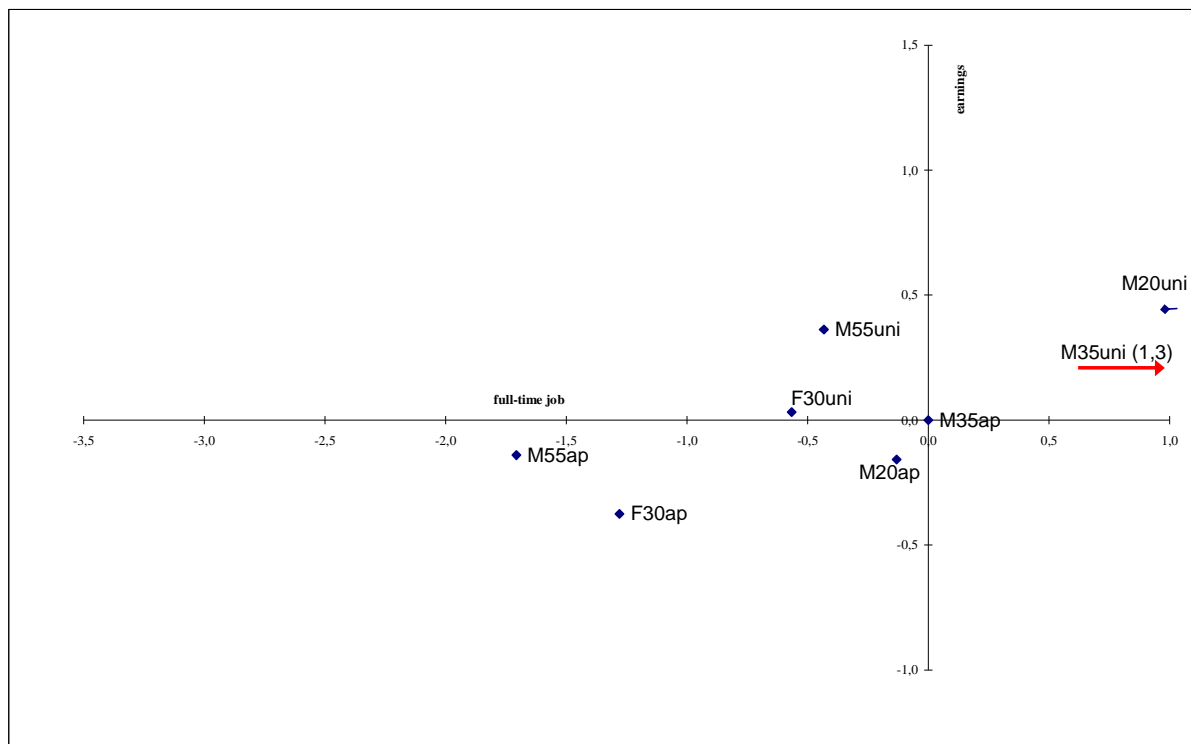


Figure 8 – Poland in 1993



**Figure 9 – Czech Republic in 1993**

The maps show strong similarities. First, education has become the key variable on the labor market, determining not only wage level but also access to employment altogether (except in Poland). Second, “mothers” were strongly penalized on the job market: at the same educational level they were the poorest paid in all three countries, and only men over 55 were less likely than mothers to have a job. The Czech and Hungarian point clusters clearly form a diagonal, suggesting combined inequalities. Poland here is a surprising exception: education affected only mothers’ access to employment. In that period of economic crisis and institutional overhaul, age became extremely secondary on the labor market. Still, workers over 55 were much less likely to be working than the younger generation. This may be understood as the effect of early retirement, used massively to limit rises in unemployment while businesses worked to restore their productivity and adapted to the fall in Soviet orders by drastically reducing their personnel (Večerník, and Matějů 1999 ; Diewald, Goedicke, and Mayer 2006). Education became central on the labor market during this period of intense economic crisis, in which the oldest careers came to a sudden end.

### 3. After the storm

At the turn of the millennium and the return of growth, labor market configurations began to diversify by country—this is surely the main new phenomenon. After describing the changes in each country, we return to the situation of young graduates since 1993.

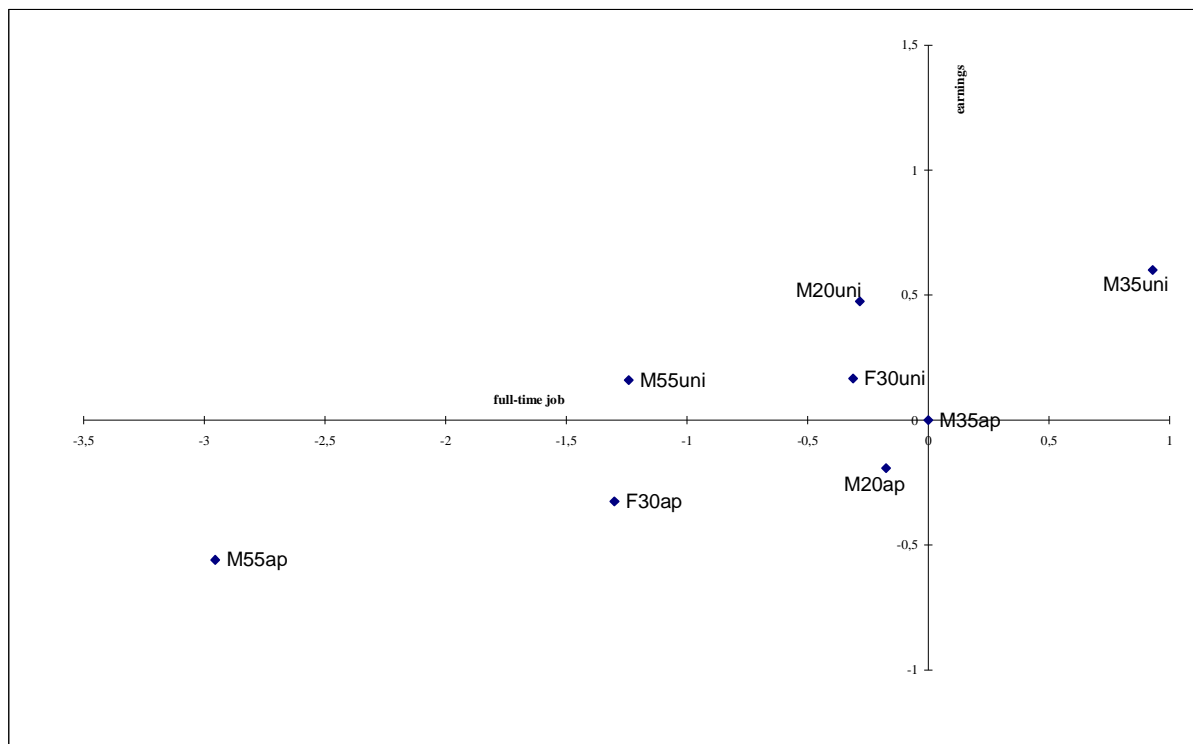


Figure 10 – Hungary in 1998

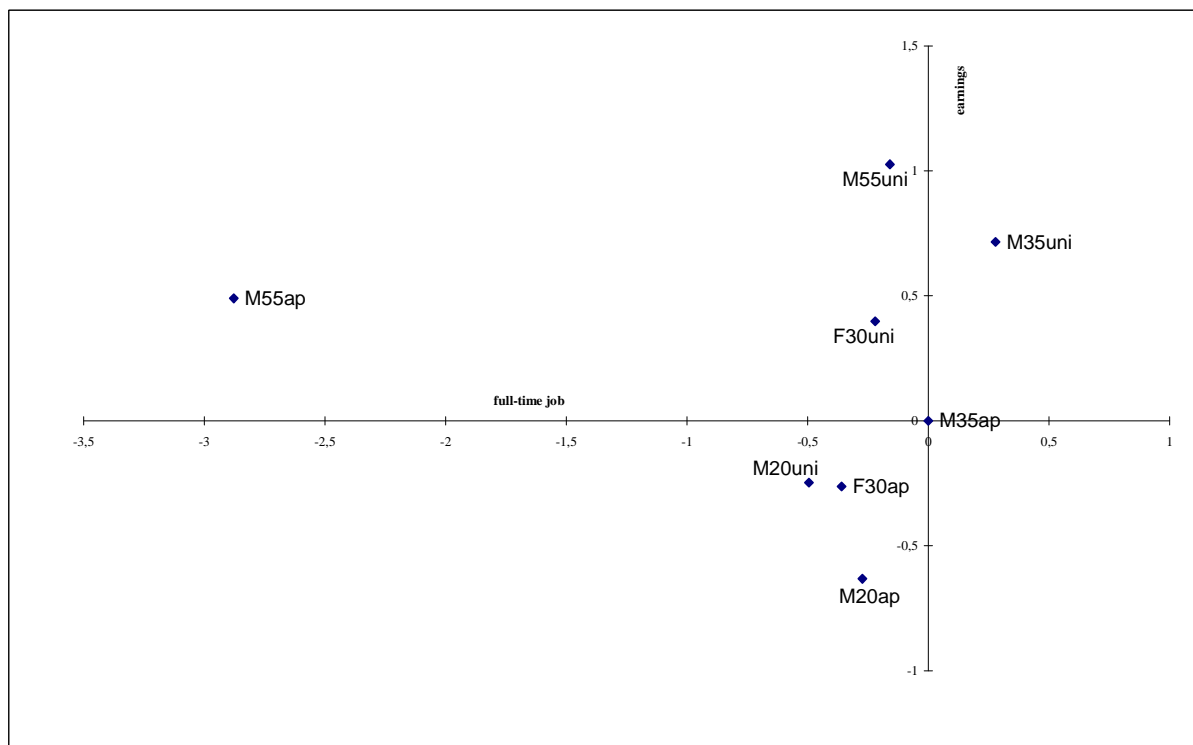
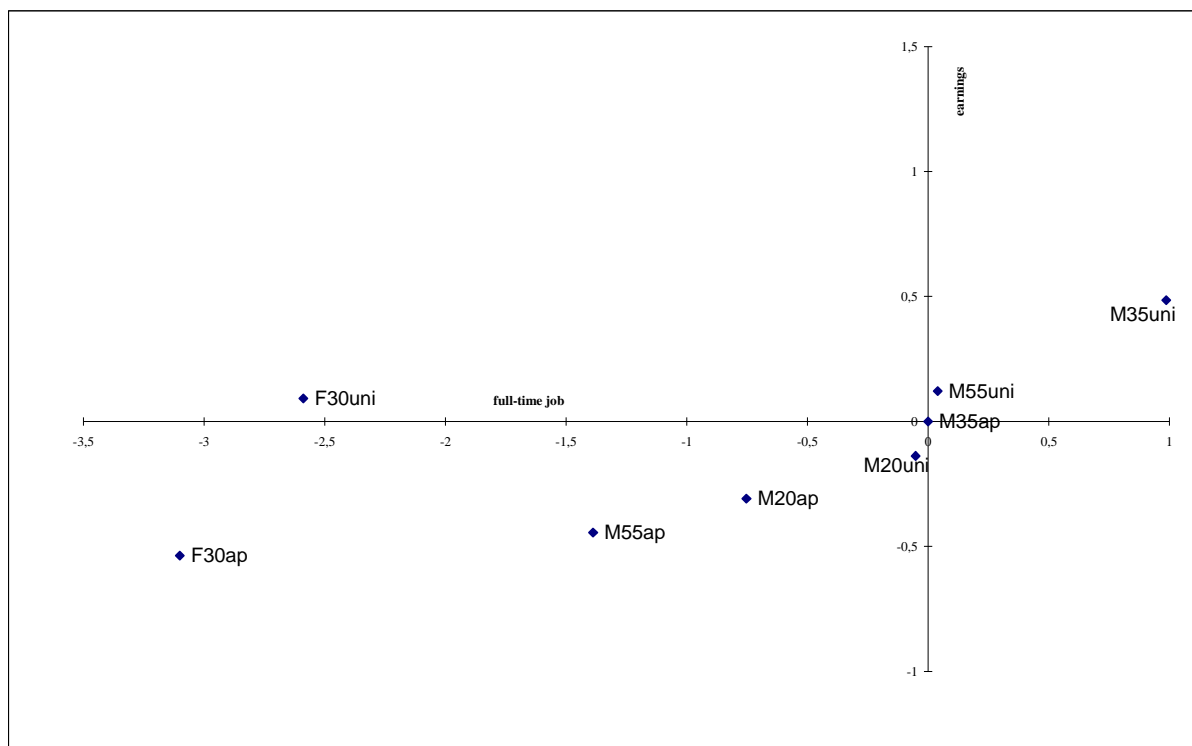


Figure 11 – Poland in 2003



**Figure 12 – Czech Republic in 2002**

In Hungary, older workers are less likely to have jobs and they are paid lower wages than any other man with the same educational level. They seem to have been pushed out of the labor market, as if employers no longer valued their skills and experience. Nonetheless, retirement age went up and early retirement has almost disappeared. Only having a high-level degree—rare for men born around 1940 and educated under communism—gives older men reasonable employment chances, and their wages remain relatively low. Young people are competing directly with middle-aged fathers in terms of both access to employment and wages. When the economy started to grow in 1996 and employment rates began rising in 1998, young people moved to the forefront, and their educational degrees affected wages but not employment chances. Post-communist Hungary seems to have taken up the early communist slogan, “Make room for the young.” Young people’s success is concomitant with the exclusion or abandoning of older workers; they seem to have the same priority as middle-aged fathers when it comes to getting a good job.

In Poland, older workers find themselves up against a highly selective labor market. Those who have a job are very well paid, but employment depends nearly entirely on educational level. If we were analyzing only wages, we might think that gainfully occupied persons nearing the end of their career have managed to hold onto their well-paid positions of authority, even at low skill levels. In reality, a wide fringe of these potentially occupied persons are very simply excluded from the job market.

By contrast, young people seem as fully integrated as possible into the job market—at the cost of very low earnings. For them as for persons in mid-career, educational level increases wages but does not significantly affect employment chances.

The Polish labor market thus seems a combination of American-style compromises (access to employment but low pay) for young people and continental ones for older workers (highly selective market but good pay). This makes sense if we remember that Poland has the highest proportion of atypical jobs (according to Eurostat figures, 15.4% of Polish jobs in 2003 were fixed-term contracts, as opposed to 7.3% in Hungary and 8.1% in the Czech Republic), jobs relevant first and foremost for labor market newcomers—young people. In contrast, older workers who have been able to keep their jobs have also preserved some of the institutional characteristics operative when they arrived on the job market.

For the Czech Republic, the first thing to note is that getting a job is not as serious a matter as in Poland: the Czech unemployment rate is much lower (see table 2). The points are clustered quite closely around “father apprentices”; mothers are less likely to find a job, and likely to be paid lower wages than men at the same educational level, even though the men considered here are five years older. Having a degree slightly improves employment chances, but above all it improves wages, and this “bonus” itself improves with age. In the end, the specificity of the Czech Republic in the early 2000s is clearly the female life-cycle effect. This is perhaps explained by the generous Czech welfare system, not so much in terms of benefit level as duration of payouts: whereas in 1989 Hungarians and Poles had to face the political transition and the transformation crisis with record public debt and austerity measures, Czechoslovakian budgeting had been extremely conservative since 1969; there had been little or no borrowing from Western countries, and the country was therefore able to fund social measures for absorbing the shock of transformation. Moreover, mothers’ limited access to employment is highly relative. The average employment chances are higher than in the neighboring countries, and we can therefore see mothers’ relative absence from the labor market as reflecting a choice made possible by the relative ease with which their spouses find jobs.

Lastly, young male university graduates are experiencing a mixed situation compared to “father” graduates. In comparison with older workers and women, they hardly seem to be losing out. But while growth has returned in the three countries, and given that the situation of young people on the labor market is extremely sensitive to economic ups and downs, it is harder than reasonably expected for young male university graduates to get a job. For wages, young university graduates have a real advantage in Hungary, whereas in the other countries they are clearly considered newcomers who have to prove themselves. Their situation thus seems less drastic than that of their elders close to retirement, but it is still not very reassuring. All in all, young graduates may well have found a more advantageous compromise in 1993 — they were well paid everywhere, and in the Czech

Republic readily found employment. What's more, workers at the end of their careers have greater access to social assistance than young people, who can only collect unemployment compensation if they have paid into the system. The history of transformation effects is therefore not over. We have to see whether the careers of these year-2000 young people are not blocked by the previous cohort, graduates of 1989, who may be in a position to grab up the opportunities generated by transformation.

## Conclusion

If we retrace recent developments in Central Europe, we see that the situation of the three countries under communism corresponds to Večerník's results (1991) and his understanding of socialist labor markets. The life cycle was the main determinant of employment chances (which were high), while education most strongly affected women's employment chances and wages, and end-of-career wages.

During the transformational recession, though the countries were following distinct paths—shock therapy in Poland, delayed reforms in the Czech Republic due to a social-democratic compromise, the continuation of changes initiated before 1989 in Hungary—what comes to the fore is the similarity of the three, as if the severity of the crisis affected all labor markets in the same way. Paradoxically, it was in this context that education had the greatest influence on individuals' chances on the job market, but this can also be understood to confirm the falling value of experience acquired under communism.

At the turn of the twenty-first century we see national specificities taking shape, as if the recovered economic dynamism made society-specific orientations visible once again. The relative position of older workers suggests that the experience acquired by the younger generations since 1989 is indeed more highly valued. The Polish situation seems a particular case of high selectiveness for the over-55 at precisely the moment the three countries raised retirement age.

The second aspect to be stressed is precisely this situational diversity, not only among countries but also across population groups. It is not merely a question of national models—integration through low wages for one country, exclusion and high wages in the others—but also different types of compromises, from integration (young Poles) to priority (young Hungarians) by way of harsh selectiveness (older Poles) and even outright, more or less voluntary abandon (older Hungarians). At the macro level, these compromises represent possible outcomes of the confrontation between the imperatives of economic efficiency and social cohesion. At a smaller scale, they result from choices and bargaining by a variety of individual and collective actors (employers, public policymakers, potential workers). Older workers are clearly the hardest hit, especially in terms of employment—this corroborates the observation by Diewald et al. (2006) at the end of their analysis of the former GDR—while young people are becoming increasingly better integrated through employment, though their

earnings vary by country. In this perspective, the Czech Republic seems a case apart because older workers have not withdrawn from the labor market as much as mothers.

Clearly what is now needed is a comparative examination of Central European welfare institutions of the sort that has already been done so effectively for “Western” ones, including a grid for interpreting national differences. The results presented here suggest that Central Europe is somewhere between the conservative model (particularly relevant for the Czech Republic, where the difference in men’s and women’s situations somewhat recalls the German model) and the liberal model (especially in Hungary, where education plays a crucial role). This is not at all surprising. The communist welfare institutions may be described as ultraconservative (secure income and the crucial tie between employment and benefits were two powerful ways to buy social peace and discipline), whereas the liberal model was the first—and long the only—reference for the Western advisors who came to guide Central European government reform processes. It is also essential to analyze the income of persons “outside” employment, particularly their earnings. Diewald (2006) has shown that in the former GDR, persons who took early retirement experienced this halt to their activity as a kind of relegation and loss of control over their lives, even as their income level remained high and their consumption level was higher than ever before (and perhaps than it ever will be again).

It is worthwhile noting once again the paradox that the situation closest to a “knowledge-based meritocracy” corresponded to one of acute economic crisis. When this kind of logic reigns supreme on the labor market—to the exclusion of age and life-cycle—whole population groups can be excluded from employment or paid very low wages *throughout* their lives since life-long learning remains rare. How can people start a family under these conditions? Leaving it up to the “knowledge-based meritocracy,” which takes into account only individual characteristics as valued at the micro-economic level, to determine access to employment and wage levels imperils the society’s future and its cohesion. This calls into question the strategy of Western European countries, which for the last 30 years have been struggling unsuccessfully to pull themselves out of economic stagnation and yet are working to promote meritocracy as a norm, in keeping with the Lisbon strategy.

Lastly, we have seen that the social and economic value attributed to a given age group can vary over time. This is clear for older workers: Hungarians in this life-cycle stage lost their privileges (high earnings) without becoming any better integrated in the labor market; Poles face much tighter selectiveness than before. Only the Czechs seem to have compensated for the relative drop in wages by a higher employment rate. This brings us back to the problem mentioned in the introduction, i.e., the generational dimension of the developments presented, in terms of explanations and consequences but also generational solidarity by way of direct transfers within families (Attias-Donfut 2000). When persons at the end of their working life experience a loss of social status, does this reflect anything more than alternation between more and less fortunate birth cohorts? Are the difficulties of young

Poles compensated for by the aid they receive from their families? Were these family assistance networks as effective during the period of economic recession, when the least educated were hardest hit, so their kin group was more likely to be as destitute as they? Clearly the interest of studying Central Europe goes beyond getting to know our new European Union neighbors better. The dynamics at work in Central European countries during the last twenty years have much to teach social scientists, and thereby much to teach us about the Western societies with which we are so familiar.

Trans. Amy Jacobs

## BIBLIOGRAPHY

- Attias-Donfut, Claudine. 2000. "Rapports de générations : transferts familiaux et dynamique macro-sociale". *Revue française de sociologie* 41:643-684.
- Becker, Gary Stanley. 1964. *Human capital; a theoretical and empirical analysis, with special reference to education*. New York: Columbia University Press.
- Blau, Francine D. and Lawrence M. Kahn. 1996. "Wage Structure and Gender Earnings Differentials: An International Comparison". *Economica* 63:S29-S62.
- Boeri, Tito. 2000. *Structural change, welfare systems, and labour reallocation : lessons from the transition of formerly planned economies*. Oxford ; New York: Oxford University Press.
- Chauvel, Louis. 2006. "Social Generations, Life Chances and Welfare Regime Sustainability ", p. 150-175 in Pepper D. Culpepper, Peter A. Hall, and Bruno Palier. *Changing France, The Politics that Markets Make*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.
- Diewald, Martin, Anne Goedicke, and Karl Ulrich Mayer. 2006. *After the fall of the wall : life courses in the transformation of East Germany*. Stanford, Calif.: Stanford University Press.
- Esping-Andersen, Gøsta. 1990. *The three worlds of welfare capitalism*. Cambridge, UK: Polity Press.
- Fazekas, K. and J. Koltay. 2002. *The Hungarian Labour Market, Review and Analyses*. Budapest: Institute of Economics.
- Heckman, James J. 1979. "Sample Selection Bias as a Specification Error". *Econometrica* 47:153-161.
- Heyns, Barbara. 2005. "Emerging Inequalities In Central and Eastern Europe". *Annual Review of Sociology* 31:163-197.
- Kalleberg, Arne L. and Aage B. Sorensen. 1979. "The Sociology of Labor Markets". *Annual Review of Sociology* 5:351-379.
- Kertesi, Gábor and János Köllő. 1999. "Economic Transformation and the Return to Human Capital The Case of Hungary, 1986-1996 ". *Budapest Working Paper*.
- Koltay, J. 2002. "Wage Setting: Institutions and Practices". *The Hungarian Labour Market: Review and Analysis*. Budapest: Institute of Economics.
- Kornai, János. 1992. *The socialist system : the political economy of communism*. Princeton, N.J.: Princeton University Press.

- Kornai, János, Bernard Chavance, and Mehrdad Vahabi. 2001. *La transformation économique post-socialiste : dilemmes et décisions*. Paris: Maison des sciences de l'homme.
- Lado, M. 2002. "Industrial Relations in the Candidate Countries": European Industrial Relations Observatory.
- Lazear, Edward P. 1990. "Job Security Provisions and Employment". *The Quarterly Journal of Economics* 105:699-726.
- Meurs, Dominique and Sophie Ponthieux. 2000. "Une mesure de la discrimination dans l'écart de salaire entre hommes et femmes". *Economie et statistique* 7/8:135-158.
- Mincer, Jacob. 1974. *Schooling, experience, and earnings*. New York,: National Bureau of Economic Research; distributed by Columbia University Press.
- Polanyi, Karl. 1944. *The great transformation : the political and economic origins of our time*. New York Farrar & Rinehart.
- Riley, Matilda White. 1988. *Social change and the life course*. Newbury Park, Calif.: Sage Publications.
- Smith, Kenneth. 2001. "Age/Earnings Profiles in Transition Economies: the Estonian Case". *Post-Communist Economies* 13:485-503.
- Večerník, Jiří. 1991. "Earnings Distribution in Czechoslovakia: Intertemporal Changes and International Comparison". *European Sociological Review* 7:237-252.
- Večerník, Jiří and Petr Matějů. 1999. *Ten years of rebuilding capitalism : Czech society after 1989*. Praha: Academia.

## APPENDIX

Note : \* denotes that  $p < 0.05$ .

## Selection equations predicting full-time gainful occupation

		Hungary			
		1986	1993	1998	
age	20-24	1,632	0,644	* 0,744	
	25-29	1,827	0,741	0,796	
	30-34	1,205	0,787	0,606	*
	35-39	1	1	1	
	40-44	0,717	1,032	0,808	
	45-49	0,470	0,865	0,534	*
	50-54	0,223	* 0,596	* 0,512	*
	55-59	0,089	* 0,209	* 0,233	*
	education	primary	0,460	* 0,469	* 0,391
	vocational	1	1	1	
	sec. Technical	1,331	1,264	1,193	
	sec. General	0,627	0,833	1,291	
	higher ed.	0,719	2,728	* 1,653	*
female		0,219	* 0,776	0,452	*
has a child		3,950	* 1,167	1,003	
female * has a child		0,126	* 0,414	* 0,438	*
intercept		41,498	* 3,586	* 2,905	*
R2 (Nagelkerke)		42,3%	20,9%	23,6%	
N		4025	3222	2244	
frequency of full-time occupation		85,6%	66,0%	35,8%	

**Poland**

		1988	1993	2003	
age	20-24	2,995	0,826	1,044	
	25-29	8,384	* 0,912	1,954	
	30-34	1,988	1,098	1,162	
	35-39	<i>1</i>	<i>1</i>	<i>1</i>	
	40-44	1,865	1,392	1,621	
	45-49	1,126	0,653	1,582	
	50-54	0,707	0,589	* 1,180	
education	55-59	0,887	0,289	* 0,439	*
	primary	0,590	0,709	0,623	*
	<i>vocational</i>	<i>1</i>	<i>1</i>	<i>1</i>	
	sec. Technical	0,612	1,317	1,227	
	sec. General		0,739	1,359	
	higher ed.	0,734	1,085	2,273	*
female		2,379	0,380	* 1,188	
has a child		2,871	* 1,324	2,214	*
female * has a child		0,189	* 0,466	* 0,338	*
intercept		20,107	* 3,106	* 1,170	
R2 (Nagelkerke)		11,8%	13,0%	18,7%	
N		3209	2756	1186	
frequency of full-time occupation		96,5%	65,7%	56,7%	

**Czech republic**

		1984	1993	2002	
age	20-24	0,571	1,461	0,518	*
	25-29	1,292	1,105	0,773	
	30-34	0,779	1,204	1,037	
	35-39	<i>1</i>	<i>1</i>	<i>1</i>	
	40-44	0,524	1,537	0,842	
	45-49	0,596	1,204	1,055	
	50-54	0,211	* 0,779	0,526	*
education	55-59	0,100	* 0,343	0,346	*
	primary	0,404	* 0,701	primary 0,224	*
	<i>vocational</i>	<i>1</i>	<i>1</i>	sec no exam <i>1</i>	
	sec. Technical	1,430	1,525	* sec exam 2,009	*
	sec. General	0,441	* 1,756		
	higher ed.	1,459	1,461	higher ed. 2,957	*
female		0,268	* 0,655	0,430	*
has a child		2,060	* 1,568	1,142	
female * has a child		0,203	* 0,436	* 0,130	*
intercept		69,424	* 7,435	* 7,119	*
R2 (Nagelkerke)		30,9%	26,8%	30,4%	
N		12926	3950	10080	
frequency of full-time occupation		91%	81,70%	73,50%	

## Earnings equations predicting the log of declared earnings

		Hungary			
		1986	1993	1998	
age	20-24	-0,231	* -0,136	* -0,099	
	25-29	-0,124	* -0,114	* 0,009	
	30-34	-0,054	* -0,035	0,030	
	35-39	<i>reference</i>	<i>reference</i>	<i>reference</i>	
	40-44	-0,005	0,012	0,002	
	45-49	0,044	0,087	* 0,028	
	50-54	0,095	* 0,110	* 0,033	
	55-59	0,010	0,081	0,043	
gender	<i>male</i>				
	female	-0,263	* -0,219	* -0,168	*
Education	primary	-0,033	-0,117	* 0,114	
	<i>vocational</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>	
	sec. Technical	0,132	* 0,156	* 0,285	*
	sec. General	0,099	* 0,204	* 0,171	
	higher ed.	0,296	* 0,487	* 0,612	*
ownership	private		0,067	* 0,014	
	<i>public</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>	
	sel-employed	0,093	* 0,172	* 0,001	
supervision	yes	0,152	* 0,164	* 0,364	*
	<i>no</i>				
industry	agriculture	-0,149	* -0,114	* -0,027	
	<i>manufacturing</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>	
	"public services"	-0,063	* -0,079	* -0,075	
	other services	-0,070	* -0,001	-0,001	
intercept		11,721	* 11,705	* 11,646	*
adjusted R2		38,80%	39,40%	14,70%	
N		3379	2125	1198	

		Poland				
		1988	1993	2003		
age	20-24	-0,074	-0,135	* -0,410	*	
	25-29	-0,072	-0,187	* 0,100		
	30-34	-0,066	-0,097	* 0,043		
	35-39	<i>reference</i>	<i>reference</i>	<i>reference</i>		
	40-44	-0,131	* 0,009	0,131		
	45-49	0,095	-0,008	0,074		
	50-54	0,179	0,007	0,059		
	55-59	0,083	-0,040	0,230		
gender	<i>male</i>					
	female	-0,308	* -0,290	* -0,222	*	
Education	primary	-0,052	* -0,061	0,009		
	<i>vocational</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>		
	sec. Technical	0,100	* 0,231	* 0,252	*	
	sec. General	0,115	* 0,228	* 0,504	*	
	higher ed.	0,271	* 0,530	* 0,593	*	
ownership	private	0,171	* -0,053	0,076		
	<i>public</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>		
	sel-employed	0,560	* 0,128	* 0,276	*	
supervision	yes	0,120	* 0,230	* 0,049		
	<i>no</i>					
industry	agriculture	-0,611	* -0,168	* -0,693	*	
	<i>manufacturing</i>	<i>reference</i>	<i>reference</i>	<i>reference</i>		
	"public services"	-0,297	* -0,136	* -0,030		
	other services	-0,095	* -0,034	0,022		
intercept		6,344	* 5,369	* 8,260	*	
adjusted R2		36,50%	33,70%	33,10%		
N		3126	1781	642		

## Czech republic

		1984	1993		2002	
age	20-24	-0,229	*	0,008		-0,396 *
	25-29	-0,110	*	-0,022		-0,231 *
	30-34	-0,031	*	0,041		-0,057
	35-39	<i>reference</i>		<i>reference</i>		<i>reference</i>
	40-44	0,028	*	0,080	*	-0,027
	45-49	0,049	*	0,058	*	0,015
	50-54	0,054	*	0,047		-0,003
	55-59	0,006		0,106	*	-0,051
gender	<i>male</i>					
	female	-0,316	*	-0,254	*	-0,322 *
Education	primary	-0,013		0,017	primary	-0,189 *
	<i>vocational</i>	<i>reference</i>		<i>reference</i>	sec no exam	<i>reference</i>
	sec. Technical	0,120	*	0,166	* sec exam	0,222 *
	sec. General	0,121	*	0,202	*	
	higher ed.	0,300	*	0,424	* higher ed.	0,494 *
ownership	private			-0,036	employed	<i>reference</i>
	<i>public</i>	<i>not relevant</i>		<i>reference</i>		
	sel-employed			0,278	* self-employed	-0,283 *
supervision	yes	0,147	*	0,178	*	0,202
	<i>no</i>					
industry	agriculture	-0,068	*	-0,090	*	-0,217 *
	<i>manufacturing</i>	<i>reference</i>		<i>reference</i>		<i>reference</i>
	"public services"	-0,077	*	-0,023		-0,104 *
	other services	-0,059	*	-0,013		0,102 *
intercept		8,246	*	5,693	*	9,550 *
<i>adjusted R2</i>		42,7%		33,9%		30,9%
<i>N</i>		11515		2789		8202