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What Happened to the Middle Class in the New Market Economies? The Case of Croatia and Poland

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Abstract

Transition countries are believed to have undergone significant social and economic structural changes. Indeed, the early transition resulted in the modification of ownership structure and recognized processes of labor reallocation as well as in rapid educational booms in many Central and Eastern European countries. In this paper we shed some light on the changes regarding the size and composition of the middle class in two transition countries, Croatia and Poland, in the period 1995-2008. In general, the size of the middle class – as defined by individuals with wages around the median – decreased in Poland roughly between 2000 and 2001, while in Croatia it returned to its initial, mid-1990s levels despite a temporary drop in the size. Our analysis of consecutive Labor Force Surveys suggests that the composition of the middle class underwent no serious structural changes over the past decade. The most important finding is that highly skilled workers have moved

above the position of middle class in Croatia, while in Poland they have mostly extended the middle class.

1 Introduction

The transition towards fully market-based economies observed in Central and Eastern European countries (CEECs) is still a relatively new phenomenon. In the early 1990s many economists and sociologists formulated beliefs about the direction of the changes. Among others, it was expected that the changes emerging from these processes would result in the formation of a significant economic, social, and political middle class (Jackson and Berkowitz, 2005). The formation of the middle class was supposed to reinforce the speed of the transition, as empirical evidence suggests that countries with a larger middle class usually tend to grow faster (Easterly, 2001). Also, this growth is believed to be less volatile and susceptible to temporary shocks, since economic stability is believed to rely on expanding private demand by the "consumption potential of the rapidly expanding middle classes" (Deutsche Bank, 2008: 3).

On the other hand, it is often pointed out that socialist systems in CEECs actually eliminated economic inequalities. In fact, after the process of transition had started, income inequalities increased dramatically (Rona-Tas, 1996; Stanovnik and Verbič, 2005; Simai, 2006). Some of the detrimental effects of the negative output shocks ushered in by the beginning of the transition process were partially mitigated by the relatively generous welfare schemes, while the actual levels and structure of unemployment benefits differed across countries, thus, marking the subsequent evolution of the wages and activity patterns in these countries relatively differentiated (Boeri and Terrell, 2002; Bruno, 2006). Nestić (2002), on the other

hand, shows that there was only a slight increase in inequality in Croatia during the period 1988-1998, which contradicts with the general perception that there was a strong increase in economic inequality during the transition period. He explains this by referring to the expansion of social transfers and the fact that there was no major rise in wage concentration during the analyzed period.

However, the discussion on the inequalities and welfare systems has frequently emphasized that, in fact, the middle class may be vanishing in industrialized countries (e.g., Rona-Tas, 1996; Birdsall, Grahm and Pettinato, 2000). Birdsall (2007) also analyzes developing countries and argues that economic volatility has detrimental effects on the formation of an incipient middle class. She seeks the reasons for such patterns in high fiscal deficits and inadequate monetary policy, combined with unsustainable public borrowing along with inflation.

The increasing availability of data allows for the empirical verification of the above claims in the context of transition that have occurred in European countries. It becomes feasible to trace the patterns of middle class formation. Hence, this paper sheds some more light on whether the notion of the middle class has, indeed, changed in the process of transition. We aim to analyze the changes by examining the main characteristics of the middle class during and post-transition. We use Labor Force Surveys data for two countries: Croatia and Poland. Although they underwent different transition paths, these two countries share some economic characteristics that distinguish them from other countries of the region. Namely, with roughly comparable wealth (similar figures for GDP per capita), both are troubled with low activity rates and relatively high unemployment, even by European standards. The main issues that this paper deals with are: who became middle class during the transition and how the transition process affected the course of middle class formation. Using micro-level data we observe the characteristics of workers with wages around the median as opposed to the general working population. We identify both over/underrepresentation and subsequent changes in these indicators with reference to educational attainment, type of employer, profession, and industry of occupation.

The paper is structured as follows. In the next section we briefly review the relevant literature, which permits us to put this paper into a broader framework of studies on the middle class. This includes the main issues of labor market transformation in the transition period, the definition of the middle class, as well as the methodology applied. We subsequently describe the data used, as well as the context of Croatia and Poland. The results, together with the discussion, are presented in Section 4, while some concluding remarks are given in Section 5.

2 Conceptual Background

The nexus of the relationship between inequality and growth remains undetermined, with the directions of causality and shape of the functional forms differing across countries, periods of analyses, and studies. Nonetheless, it is usually observed that after the economy starts to grow inequalities increase, while it is also, so to say, "positively" expected that with the development of the economy, inequalities should decrease or at least become more moderate (Bourguignon, 2004). While the dampening or the decrease of inequalities are usually far from automatic and, in the case of many countries, a result of implementing purposeful policies, an increase in the inequalities is an automatic mechanism which operates through labor reallocation. Since the adjustment of skills always bears more frictions than the adjustment of capital, any altering of the labor use is bound to result in changes in compensation schemes and, thus, (potentially) inequalities (Milanovic, 1994). This was also expected to happen in the transition economies of Central and Eastern Europe.

2.1 Labor Market Changes during the Transition Period

The labor market has been characterized as the most sensitive and challenging of the three main markets (goods, capital, and labor market) within the transformation process because it was most directly associated with political and institutional

changes (Simai, 2006). Economic theory predicted that the changes arising from the collapses of the centrally planned systems and the emergence of an economy driven by market forces would lead to job destruction and job creation on a massive scale (Haltiwanger, Lehmann and Terrell, 2003). At one point, individuals who were previously relatively well established in employment found themselves struggling for a position in labor markets governed by new, competitive rules (Rona-Tas, 1996; Simai, 2006). However, it was expected that after this initial fall in the employment rate, the emergence of new (*de novo* private) firms would cause an increase in employment as well as in labor productivity. Yet, this process was largely hindered by the often remarkably low mobility of workers across different occupations, industries, and (most of all) locations (Boeri, 2000).

It is often emphasized that transition success relies heavily on the way the process of labor reallocation is tackled (Boeri and Terrell, 2002). Privatization and the restructuring of old state-planned firms caused massive discharges, changing the structure of employed, unemployed, and inactive persons in the economy. Boeri (2002) evaluates how frictions in the labor market affect the costs and the time horizon of reallocating workers from the state to the private sector. It has been pointed out that, in fact, the loss of secure jobs in government and state-owned enterprises has not been compensated by increases in the amount of private sector jobs (Birdsall, Grahm and Pettinato, 2000).

On the other hand, labor market flows are highly determined by wage movements (Boeri and Terrell, 2002). Wages decreased in the early transition period, following the supply and demand market rules (Basu, Estrin and Svejnar, 2004), and many of the wage benefits from the previous system disappeared (Rona-Tas, 1996). This reduction was more pronounced in the bottom part of wage distribution (Rutkowski, 1996; Boeri and Terrell, 2002). Gang, Stuart and Yun (2006) argue that the changes in the wage structure due to the transition explain most of the wage growth and inequality in East Germany. In addition, changes in the wage structure during transition in East Germany exhibit significant similarities to those that occurred in other transition countries. Stanovnik and Verbič (2005)

argue that wage inequality is the most relevant indicator of income inequality during transition.[1] Therefore, wages seem to be a reliable and relevant basis for conceptualizing the middle class in order to show the interaction between its formation and the economic transition.

Moreover, concentrating on wage earners should show if the changes in the size and the composition of the middle class cohort is associated with wealth creation and productivity gains in private activities in the labor market as opposed to being driven by some other sources, such as extracting rents or exploiting natural resources. Such changes should be politically and economically self-sustaining and transformative (Birdsall, 2007), hence, essential for future economic growth.[2]

2.2 Defining the Middle Class

Middle class is one of those colloquial expressions of everyday language that is used frequently, but remains ambiguous when one moves to academic discussions. Historically, this social group represented those who were neither the class of common working people nor the ruling class. Nowadays, it is represented by a broad group of people in a society who fall within a particular range of incomes and share a common standard of living or even social and cultural values (Horrigan and Haugen, 1988; Cashell, 2007). For instance, Banerjee and Duflo (2007) conclude that in developing countries a person belonging to a middle class group holds a steady well-paying job; and, as a result, has fewer, healthier, and better educated children. However, there is neither consensus about the definition of the middle class nor is there an official administrative or scientific definition (Cashell, 2007).

1　Using individual level data for Slovenia, they show that wages account for more than 90 percent of the gross income of wage earners.

2　There are those, of course, whose income is not primarily composed of wages but based on prior or current economic rents associated with a monopoly or other privileges and, thus, less associated with productive and primarily labor activity than for the non-rich (Birdsall, 2007). In the context of transition countries, this process has been believed to produce a new class in these societies - the so-called "privatization elite." Yet, no information about the background or the exact value of their wealth can be found for Central and Eastern Europe.

In early studies the definition of the middle class was based on the distribution of household income. For instance, Thurow (1984) defined the middle class as those households with an income between 75 and 125 percent of the median household income in the USA in 1967. Lawrence (1984), on the other hand, concentrated on the weekly earnings of the wage and salary workers who worked full time. He defined the middle class as being those workers making between roughly two-thirds and four-thirds of the median weekly earnings in the USA in 1983. These two ways of defining the middle class represent the so-called "definition in relative terms," i.e., in terms of the middle income range in a particular country. There is also the "definition in absolute terms" that entails a fixed range of income for all countries. This approach is used in the work by Milanovic and Yitzhaki (2002) in which they used the mean income of Brazil as the "floor" and Italy as the "ceiling" of the world's middle class cohort. They found that, measured in this way, only 11 percent of the people in the world were the "middle class", while 78 percent of the world, in the year 1993, was considered to be poor.

Birdsall (2007) combines both approaches – the "absolute" and "relative" definition of the middle class – and specifies the middle class as those people who earn a wage equal to or above the equivalent of US$ 10 a day in 2005 and equal to or below the 90th percentile of the income distribution in their own country. Absolute minimum here presents a benchmark for the middle class on the global level, while the relative maximum serves to exclude people within a given country whose income comes from sources not directly connected to productive and primarily labor activity. This definition then serves to show that an increase in the size and economic power of the middle class leads to sustainable and transformative economic growth (so-called *inclusive growth*) based on wealth creation and productivity gains in private activities, as opposed to the one based on prior or current economic rents.

Birdsall's (2007) results actually lend support to the approach adopted in this paper. Namely, we use the so-called "relative" approach, defining the middle class as comprised of individuals with earnings up to 10 percent above and 10 percent below the median income. This choice was motivated by the need to

establish a link between the changing labor market situation during transition and the changes in the structure of the middle class. However, in all approaches the middle class actually consists of wage earners – not property owners or pensioners. Consequently, the relative definition allows us to observe the changes in its size, which serves the purpose of additional benchmarking of the obtained results.

2.3 Methodology

The methodology in this paper is based on the optimal speed of transition (OST) models that describe the reallocation of labor from the inefficient, old state sector to the emerging private sector (Boeri, 2000; Castanheira and Roland, 2000). The original model was extended in order to analyze the effects of labor market institutions on job reallocation from the state to the private sector (Boeri and Terrell, 2002; Haltiwanger, Lehmann and Terrell, 2003; Bruno, 2006). In this framework,

$$LF_t = E_t(w_t, \lambda) + U_t(\lambda) = E_t^s(w_t^s, \lambda_t^s) + E_t^p(w_t^p, \lambda_t^p) + U_t(\lambda_t^u) = 1 \ , \tag{1}$$

where LF is the labor force, E represents the employed as a function of wage w, other characteristics of workers (level of education, occupation[3]) and jobs (industry, type of employer) is λ, U represents the unemployed, index t stands for time, p for private employer, and s for public employer.

In our case, the observed average wage in the economy, w_t, is envisaged by the weighted average of the public and the private compensation schemes, where the

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3   This analysis could also comprise age groups. In fact, the relative earnings of the elderly have worsened due to their skills becoming obsolete. As a result, this group in both countries is largely, although decreasingly, underrepresented in the middle class. Yet, the share of the individuals over the retirement age in the working population in Croatia is negligible, while in Poland persons older than 65 years increasingly participate in the labor market. Naturally, generous early retirement and other benefit schemes combined with the negative attitudes of some employers (Vehovec, 2008) may have played an important role in obtaining these results. On the other hand, the share of the youngest workers (under 25 years of age) in both the middle class and in the general working population was subject to a major structural shift, i.e., the educational boom as of the mid-1990s in both countries. Consequently, this group rarely achieved earnings close to the median (they are underrepresented); and despite their fairly stable importance in the working population, their share in the middle class has fluctuated considerably in Poland and decreased steadily in Croatia. However, none of the theoretical frameworks for the OST models list age as an independently relevant dimension for the labor reallocation process. Thus, we drop this characteristic from the analysis. For the same reasons, gender issues are not covered.

decreasing share of labor force employed in the public sector should be reflected by a decreasing contribution of changes in this segment of the labor market to the general trends. We observed the changes of the weights, α_t, as well as the structure of λ_t for both the public and private sectors by focusing on a group around the median income; so we actually analyzed

$$MC_t = \alpha_{MC}^s E_t^s(w_t^s, \lambda_t^s) + \alpha_{MC}^p E_t^p(w_t^p, \lambda_t^p) \quad , \tag{2}$$

$$WP_t = MC_t(w_t, \lambda_t) + NMC_t(w_t, \lambda_t) =$$
$$= (\alpha_{MC}^s E_t^s(w_t^s, \lambda_t^s) + (\alpha_{MC}^p E_t^p(w_t^p, \lambda_t^p)) + NMC_t(w_t, \lambda_t) \quad , \tag{3}$$

where *WP* is the working population, *MC* is the middle class wage earners, and *NMC* represents the currently working population that are either above or below the middle class thresholds of the self-reported median wage. In this paper we inquire into if and how economic transformation has affected the structural composition of the middle class, i.e., the variation in both λ's and α's levels and benchmarked to the processes experienced by the working population as a whole. The most interesting questions concern four main areas.

First, the transition to fully market-based economies involved massive restructuring and the reallocation of labor. The occupation and industry structure of the middle class might have been affected more strongly by these processes due to a potentially higher adaptability potential of this group. Second, the transition also involved privatization. Whereas within the previous economic system wages in the public sector were centrally set and the private sector was marginal, the shift of ownership was likely to affect the role of the public sector as an employer of the middle class. Third, the rapid onset of the new economic system frequently involved an equally rapid updating of skills and abilities by the employees. Those who were unable to adapt were often replaced by young workers, potentially without the necessary skills yet, but with a willingness to learn and make use of the newly emerging opportunities. Finally, both Croatia and Poland experienced educational booms with nearly 40 percent of youth engaged in tertiary education in Poland (the second

highest score in the world, the ranking is led by South Korea). Such exceptional changes may, however, be unique to selected parts of the society and, thus, exhibit more or less strength among the middle class.

3 Data Analysis

This paper uses data on Croatia and Poland in order to compare changes in the structure and main characteristics of the wage earners in two post-transition economies. The data used for this research are based on Labor Force Surveys for Croatia and Poland from 1995 to 2008.

3.1 Data Description

We used 52 quarterly Labor Force Surveys for Poland from the period 1995-2007 and 12 annual Labor Force Surveys for Croatia from the period 1996-2008. A limitation of the research is the unavailability of the data before the mid-1990s, which implies that the data are inaccessible precisely for the period when the transition processes were accelerating.[4]

We adopted a relative and wage-based definition of the middle class in order to observe the potential changes in the structure of this group during the process of transition. In practice, this empirical strategy is the only technically feasible one under the chosen research question. However, it should also be noted that we are not forcing this definition as a universal one. Such approaches, as discussed earlier, have been used in previous literature. Our study differs in one main perspective. Namely, other analyses mainly based the middle class definition on professions or

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4   Due to the different constructions of the Labor Force Surveys (quarterly surveys in Poland and annual and semi-annual in Croatia) the data have different frequencies. In addition, wages/salaries for self-employed workers are not available from the Labor Force Survey for Poland. Namely, the Labor Force Survey contains indications of the labor market status for self-employed workers along with demographical and social variables, but earned income is coded consistently in a meaningless way. Consequently, only wage earners are considered for Poland. However, self-employed workers are included in the analysis for Croatia, but have a negligible impact on the overall results.

occupations. Our approach permits us to actually inquire into the occupational structure and professional characteristics of this particular group.

Consequently, within the term middle class, following Thurow (1984), Lawrence (1984), and Birdsall (2007), we recognize individuals whose self-reported wage income falls within the 10 percent boundaries around the median. The median wage is computed separately for each Labor Force Survey dataset, and we take into account all wage earners, including those who reported wages below the minimum wage or part-time employment. This might have introduced some noise in our data, since some individuals might receive a relatively high income in terms of full-time equivalent but only work part-time, thus, falling inadequately under the middle of the distribution. Alternatively, some actual mid-range workers might only work part-time, thus, falling out of this category. A way to address this problem would be to compare individuals based on their hourly wages. However, data for the number of hours worked are frequently missing or unrealistic for both Poland and Croatia, which would necessitate dropping a large part of the sample from each dataset. Thus, we applied a second-best approach, and the total reported wage income is considered.

Finally, we base our analysis on the self-reported labor market status as well as wages. We are unable to control for wage underreporting or non-wage sources of income that contribute to the improvement of the financial status of the analyzed individuals. However, since our analysis concerns distribution and not particular values, as long as the underreporting is not unevenly concentrated in selected segments of the distribution, the results should remain unsusceptible. Since samples range between 30,000 and 50,000 individuals, there is no risk of problems associated with small samples and the robustness of the results seems to be unquestionable. More confidence in the reliability of the estimates stems from the fact that we observe the distributions of wages also across time.

3.2 Comparing Croatia and Poland

These two countries share a similar heritage from the previous economic system, which consisted of private ownership and entrepreneurship already prior to the transition. Today, they have similar economic indicators, although they differ markedly in terms of size and population (Table 1).

Transition is typically associated with a rapid drop in labor demand due to the unsustainably inefficient use of labor (Svejnar, 2002). Both Croatia and Poland experienced this phase, with many individuals becoming inactive either in response to incentives for early retirement (Matković, 2008) or as a result of prolonged unemployment spells. Despite the severity of the initial economic adjustment, the evidence concerning the changes in observed wages inequality has been mixed.

Table 1: *Basic Indicators Comparing the Two Countries in 2008*

Indicator/Country	Croatia	Poland
Area (sq. km)	56,594	312,685
Population (average, 2007)	4,438,820	38,120,560
GDP per capita (% of EU-27)	43	38
GDP per capita (in €)	10,800	9,500
Activity rate (15-64, %)	63.2	63.8
Employment rate (15-64, %)	57.8	59.2
Unemployment rate (15-64, %)	8.6	7.2
Public sector employment (% in total employment, 2007)	31.3	26.3
General government expenditure as % of GDP	39.3	43.3
% of industry* in total gross value added	28.5	32
% of services** in total gross value added	48.1	45.4

Note: * NACE classification: C to F. ** NACE classification: G to K.
Source: Eurostat (2009); ILO (2009); Ministarstvo financija (2009).

During the period 1998-2002, income inequality in Croatia increased, with wages and salaries becoming increasingly important for determining welfare and more unequally distributed sources of income (Nestić, 2005). Similar processes

characterize the evolution of the situation in Poland. In fact, the increase in wage inequalities commenced in Poland already in the mid-1990s, while the worsening of the labor market situation and an increase in unemployment contributed to the reinforcement of this trend (Garbicz, 2008). Newell and Socha (2006) investigate the rapid increase of hourly wage inequality after 1998 in Poland and conclude that much of the increase can be attributed to rising returns on education for highly qualified workers and falling relative wages for those with only primary education, as well as to the differences in wage-setting patterns between the public and private sectors.

Indeed, in addition to a stark increase in the nominal wages, changes in wage inequality in both countries are also observed. The distance between the 3rd and the 1st quartile (the so-called interquartile range, IQR) gradually increased in the 1995-2008 period. However, since these are nominal data, the IQR should be benchmarked to some positional measure (e.g., the mean or the median). When the IQR and the IQR/median ratio are analyzed together (Figure 1), conclusions about inequality trends can be derived. In the case of Croatia, both indicators grow, with the IQR/median ratio from 0.56 to 1.00 of the median. This is evidence of a dynamic wage inequality increase during the observed period. For Poland, despite a gradual IQR increase, the IQR/median indicator did not exceed the fairly stable boundaries of roughly 0.45 and 0.55 of the median. Thus, inequalities did not grow over the analyzed period, with the exception of one stark increase for 2007.

Also, the choice of 10 percent boundaries might be perceived as arbitrary. In the process, wider boundaries of 15 percent and 20 percent around the median were also tested, and the results were essentially unaffected by this choice in terms of structure. On the other hand, the widening of the middle class group naturally implies that there are less differences between the middle class and the general working population. Thus, the observed under- or overrepresentation of some groups within the middle class was less pronounced despite the same trends and the directions of relations.
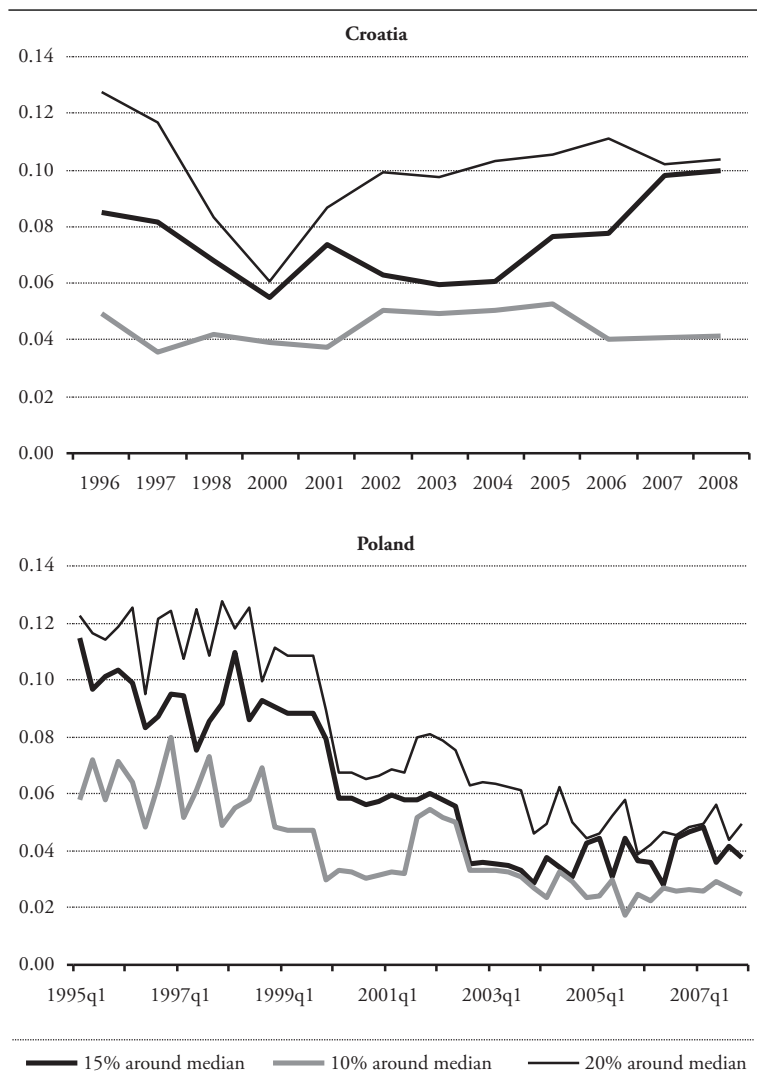
Figure 1: *Interquartile Range of Wage Inequalities in Croatia and Poland*
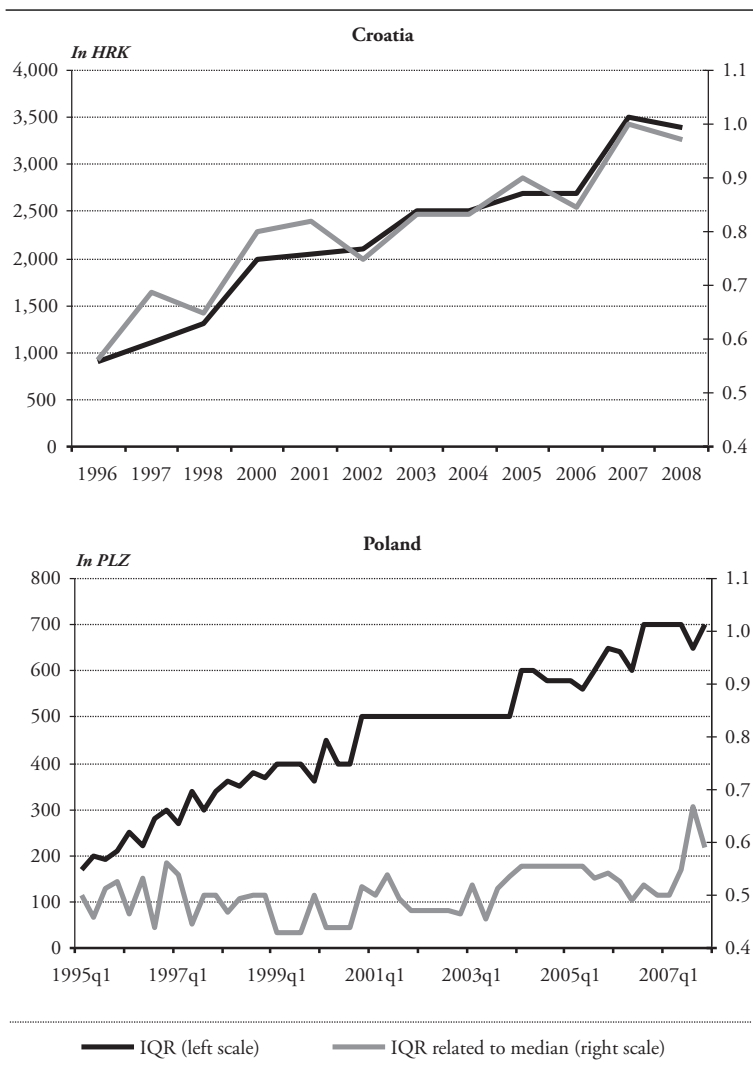
Croatia

In HRK

Poland

In PLZ

IQR (left scale)   IQR related to median (right scale)

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

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Figure 2: *Size of the Middle Class – Croatia and Poland*

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

Figure 2 shows the development of the size of the middle class in Croatia and Poland along the 10, 15, and 20 percent boundaries around the median in the available sample. Although we observe some differences in the size of the middle class depending on the breadth of the definition, our main conclusions as well as the dynamics are the same irrespective of the selected boundaries. Namely, irrespective of the choice of boundaries, the dynamics of the size of the middle class as well as the timing of the changes are the same. Moreover, also independent of the definition, wage distribution seems to be extremely skewed away from the median, since in each case the "size" of the middle class is much smaller than the potential 20, 30, or 40 percent (as could be the size of the middle class, had the wage distribution been even across values).

Perhaps surprisingly, although the "size" of population of the middle classes in Croatia and Poland in the mid-1990s were similar, ranging from 5 to 15 percent of the working population (from the most narrow to the widest definition, respectively), the directions of evolutions were contrasting. The size of the middle class decreased in Poland roughly between 2000 and 2001, while in the same period in Croatia it rebounded to its initial, mid-1990s levels despite a temporary drop in the size (with an exception in the case of the narrowest definition). As of 2000, boundaries have seemed to gain more relevance for Croatia. While the boundaries of 10 percent remained fairly stable around 4 percent of the working population, if a wider definition is adopted, a dramatic drop in 2000 and a subsequent increase can be observed. A possible source of such dynamics comes from (i) a sample break in 1999, due to the missing data on wages in Labor Force Survey for this year, and (ii) the accompanying large fiscal, social, and political changes at the end of the 1990s and the beginning of 2000s.[5]

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5 After a brief recession in 1998 and 1999, Croatia underwent major changes in economic policy. In 2000 wage policy significantly changed, first in the public sector and then beyond (Nestić, 2009). The former authorities at the end of the 1990s increased wages in the public sector, which the new coalition government effectively froze in 2000. This was a signal for change in wage policy, not only in the public sector but also in the private sector. However, after 2000, employment started to grow. GDP also grew, so a relatively favorable environment existed for the growth of wages as well. In addition, there was a change in tax policy at the beginning of the new decade, in which personal allowances were increased already in 2000, with a couple of more increases in the subsequent years and with additional tax deductions and exemptions that influenced the rise in wages.

Consequently, for presentational purposes, we have selected 10 percent boundaries. In each period for which the datasets are available (quarterly in the case of Poland and annual in the case of Croatia), the structure of this subgroup is analyzed with reference to the overall working labor force. Our analysis addresses industry or occupation, profession, and educational attainment, also taking into account the public/private ownership of the employer.

4 Results and Discussion

Throughout this section we analyze whether transition is associated with the changes in structure of the working population, with special emphasis on the over- or underrepresentation of particular subpopulations within the middle class defined as 10 percent around the median wage. We have computed the shares attributable to educational groups, occupations and industries, (λ's in the specification) as well as the public/private employer throughout (α's in the specification) the whole analyzed period. These shares are then analyzed in trends and benchmarked to the trends observable generally within the working population. We approach the following four contexts: ownership, industry/occupation, and education in the next paragraphs.

4.1 Ownership

Naturally, with the progress of transition, state ownership became gradually constrained, thus, making the public sector less prominent as an employer. This effect gradually fades in time. These trends are visible for both the middle class workers and the general working population. However, in the two countries the effect of these changes on the middle class differs. There is still a considerable overrepresentation of the public sector, but it decreases in Croatia, whereas the indicator increases for Poland. Interestingly, the values towards the end of the time span seem similar, but the process dynamics do not seem to have reached their longer term targets.

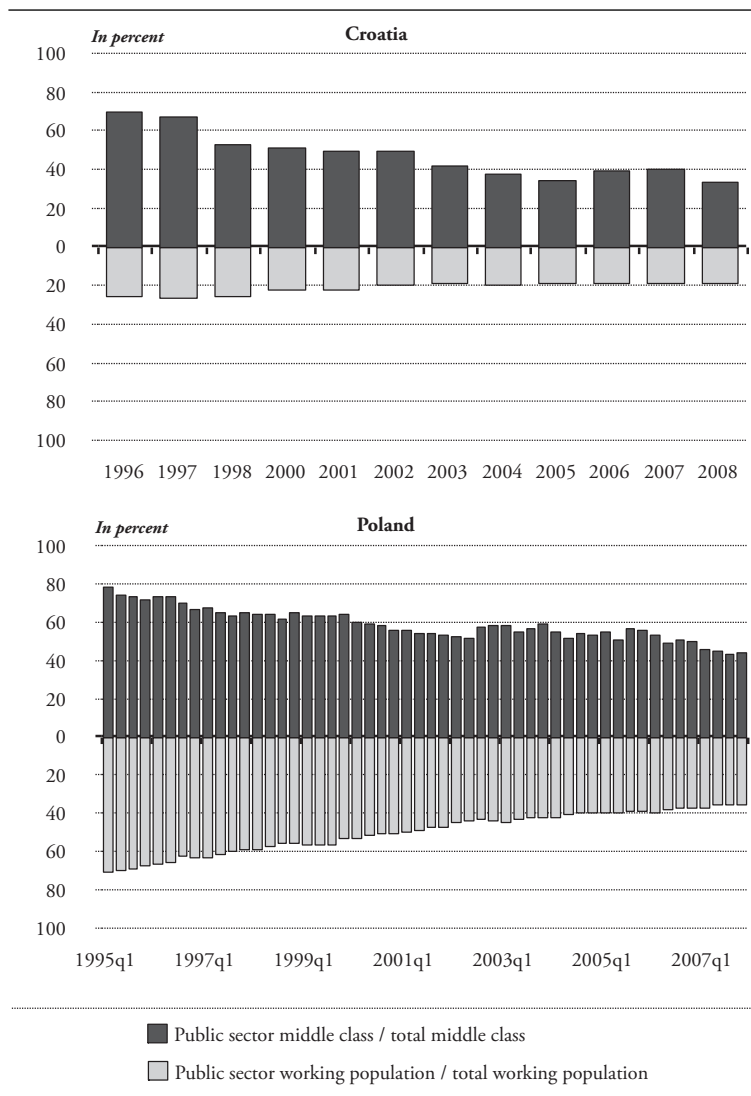**Figure 3a:** *Public Sector Employment: Under/Overrepresentation[6] – Croatia and Poland*
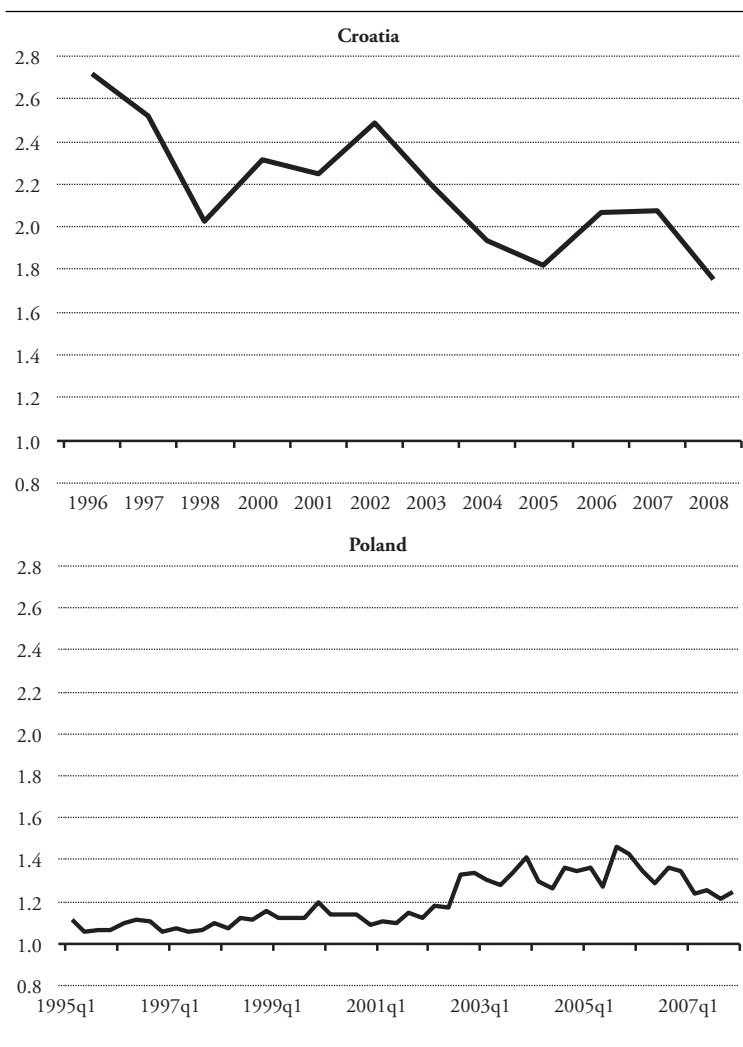
Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

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6   Whenever we refer to under/overrepresentation, we discuss the value of the ratio between a particular subpopulation in the middle class and in the general working population. If this ratio exceeds unity, the group is considered overrepresented in the middle class, since the share of this group in the middle class is larger than in the general working population.

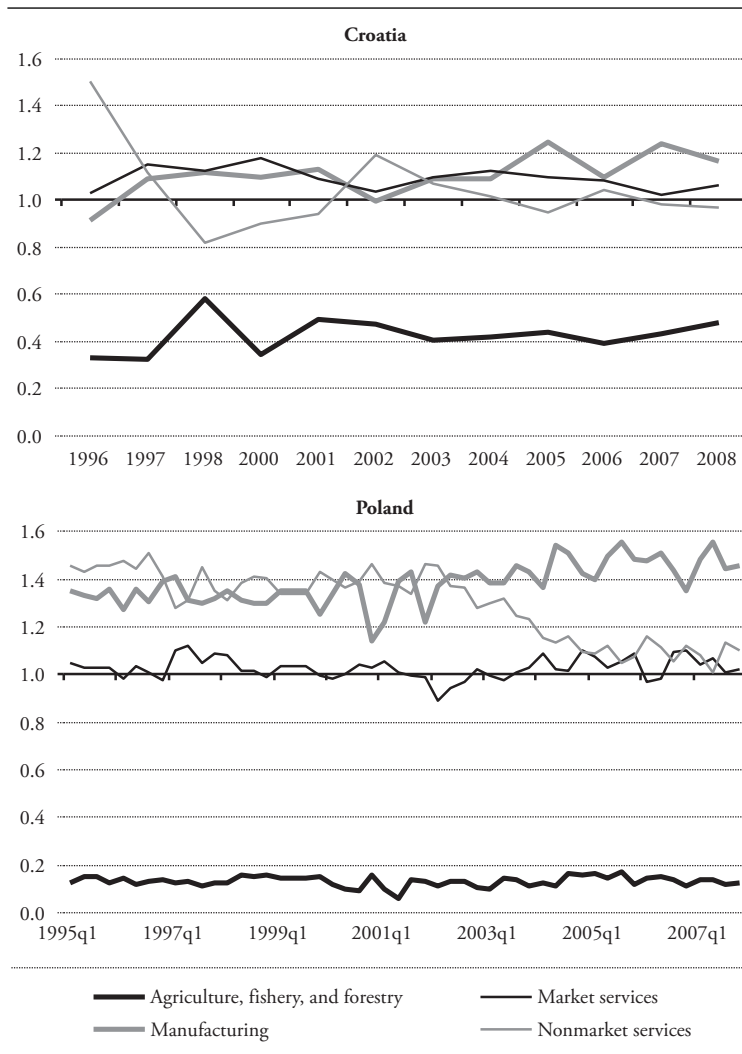**Figure 3b:** *Public Sector Employment: Shares – Croatia and Poland*

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

4.2 Industry and Occupation

There are some industries which are traditionally associated with the state sector in both Croatia and Poland. These include shipyards, mining, or steel industries. Since these are typically sunset industries, their role has decreased both in terms of contribution to GDP and as an employer. However, there have been more profound changes than a rise or a fall of a certain industry. Namely, both Croatia and Poland have experienced a large shift towards the service sector and still struggle with the relatively large role of agriculture and overemployment (so-called hidden unemployment) in this sector. These processes played a changing role in the process of transition. Agriculture played the role of a cushion in the first years of transition when many individuals who were no longer employed by the industry switched to agriculture. However, once the initial reallocation shock was over, agriculture ceased to be attractive, since the wages in the agricultural sector could not keep up the pace with the increasing wages in both manufacturing production and the service sectors.

This is, indeed, what we observe in the data. With the growing role of the service sector and the diminishing role of agriculture, the pace of changes within the middle range of wages did not change. There has been no prolonged period of over- or underrepresentation for the market services, and the persistent underrepresentation of the middle class in the agricultural sector is not surprising either. On the other hand, we see that in both Poland and Croatia some reallocations within industries have involved changes of composition for manufacturing. While the middle class has typically been overrepresented in this industry, there has been considerable variation indicating that these shifts frequently involved changing an employer and/or actual job performed to maintain employment.
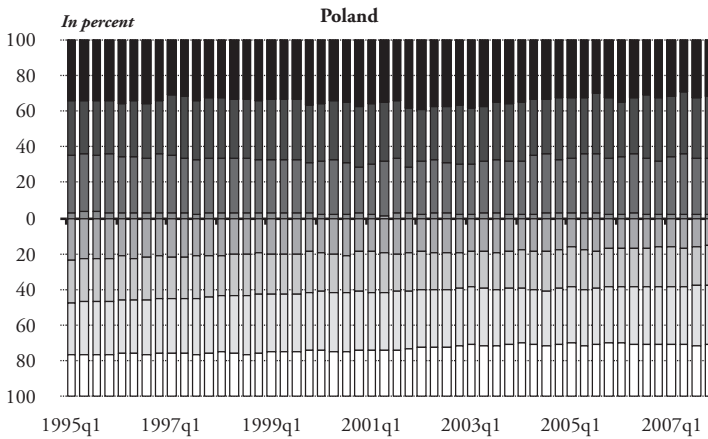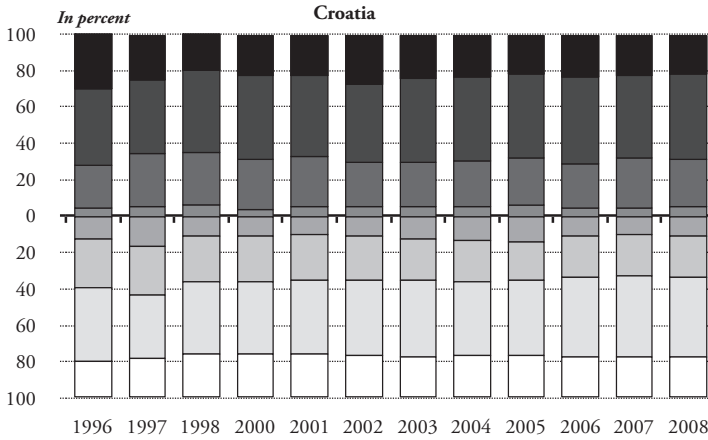
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Figure 4a: *Industry[7]: Under/Overrepresentation – Croatia and Poland*

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

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7   The NACE sections have been grouped into agriculture, fishery, and forestry (sections A and B), manufacturing (sections D and E), market services (sections F to K), and nonmarket services (sections L to Q). Mining (section C) has been left out of the analysis due to its small share in employment; and specific social and political positions were left outside the analysis so that the shares do not add up to unity. Note that the under/overrepresentation analysis is not susceptible to this exclusion.

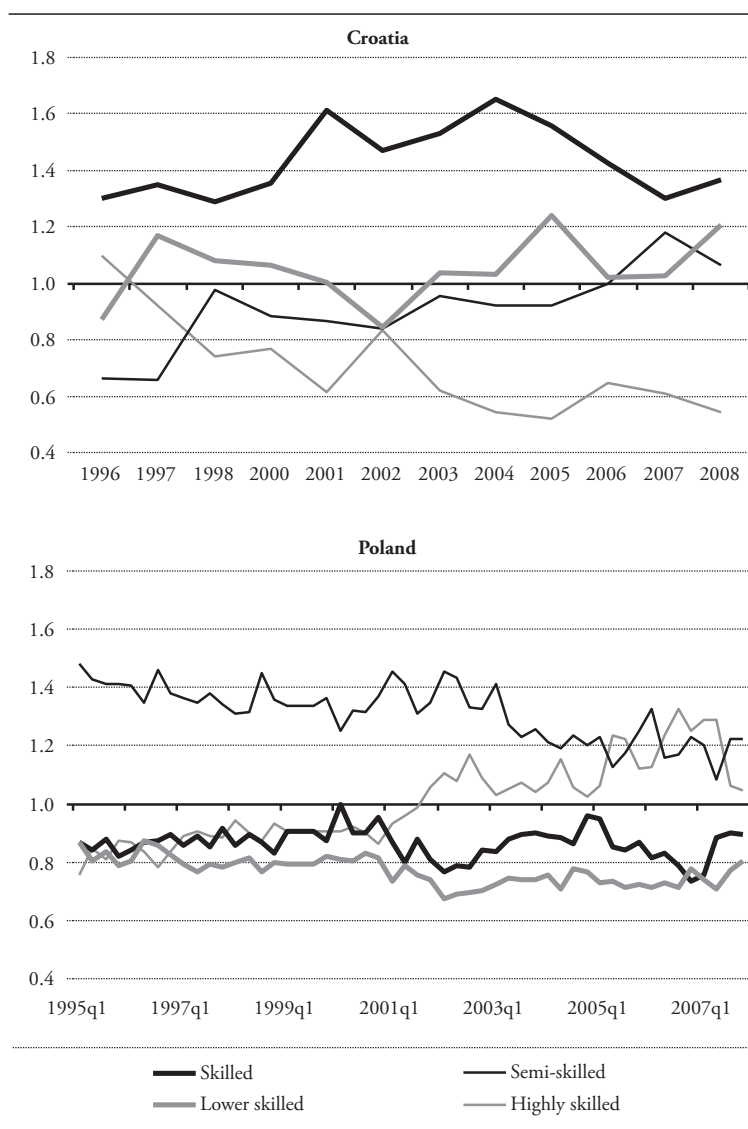**Figure 4b:** *Industry: Shares – Croatia and Poland*

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

This is confirmed in the analysis of the occupations. We see clearly that the middle class is the skilled class, but the share of skilled workers has increased in the working population, thus, reducing overrepresentation. The story of highly skilled workers is opposite in the sense that, in fact, they were initially underrepresented within the middle class. However, their share in the economy has persistently grown, and their representation within the middle class has increased as well. This finding is naturally attributable to the fact that highly skilled individuals more frequently earn considerably more than the median income, which lowers their share in the middle class in the initial phase. However, with the popularization of tertiary education, more and more individuals could not achieve earnings exceeding the median despite the fact they were highly skilled. This indicates that, in fact, the educational boom observed in both countries was related to the high and intensifying demand for skills from the employers.

The differentiated economic structure of Poland and Croatia is reflected in the relative position of the semi-skilled workers. In Poland – where there was a large industrial sector – these workers were effectively overrepresented in the middle class, although the time trend seemed to be decreasing. In Croatia, where the service sector was more pronounced, semi-skilled workers were underrepresented in the middle class, and this situation changed only with the progress of economic transition.

Figure 5a: *Occupation: Under/Overrepresentation – Croatia and Poland*

Croatia

Poland

Skilled   Semi-skilled
Lower skilled   Highly skilled

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

Figure 5b: *Occupation: Shares – Croatia and Poland*
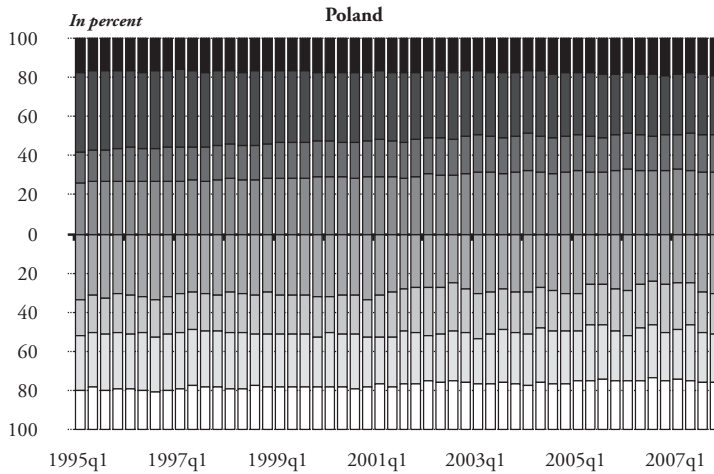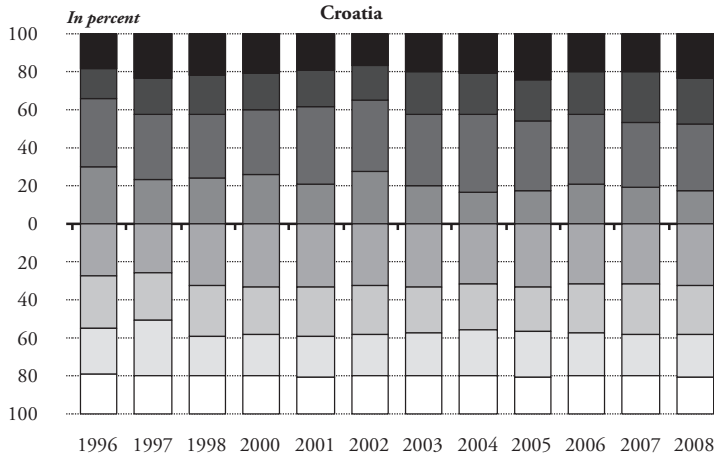
Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.
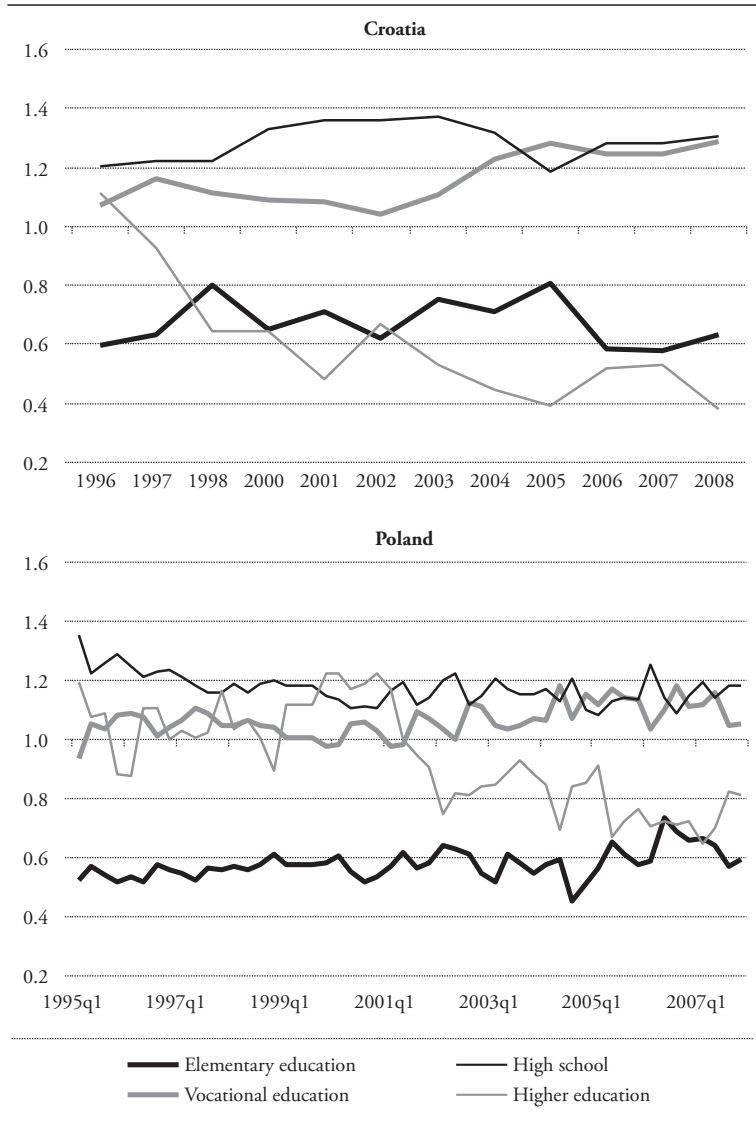
4.3 Education

Both Croatia and Poland show underrepresentation in elementary and higher education, whereas vocational and high-school education are overrepresented in the middle class group. While highly skilled individuals usually exceed the median income and for this reason are underrepresented in the middle class, the lowest skilled workers are absent in the middle class for the opposite reason. On the other hand, the share of those with elementary education or less in both the working population as well as in the middle class decreased in both Croatia and Poland.

Two largest groups, those with a vocational education or a high school education, interchanged their shares during the observed period in Croatia. Namely, the group with vocational secondary education increased its share in both the working population as well as in the middle class, where two potential sources can be distinguished. First, the decreasing share of the persons with elementary education actually transformed into a higher share of those with some kind of vocational secondary school education. Alternatively, most of those with a high school education continued with their education.[8] Poland, on the other hand, showed visible increases in the share of persons with a tertiary education both in the whole working population as well as in the middle class. The decreasing shares of those with only elementary education should be attributed to the ageing of individuals with this educational attainment and a structural change in the educational patterns for younger cohorts, rather than as evidence of an actual education improvement among the lowest skilled workers. Interestingly, the shares of persons with some kind of secondary education (vocational or high school) and the representation of this group within the middle class remained quite constant.

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8   In the period between 1990 and 2007, the number of persons in tertiary education in Croatia increased by 95 percent (Matković, 2009). In Poland, tertiary education enrollment increased from 7 percent of the population in the early 1990s to nearly 30 percent in 2005.
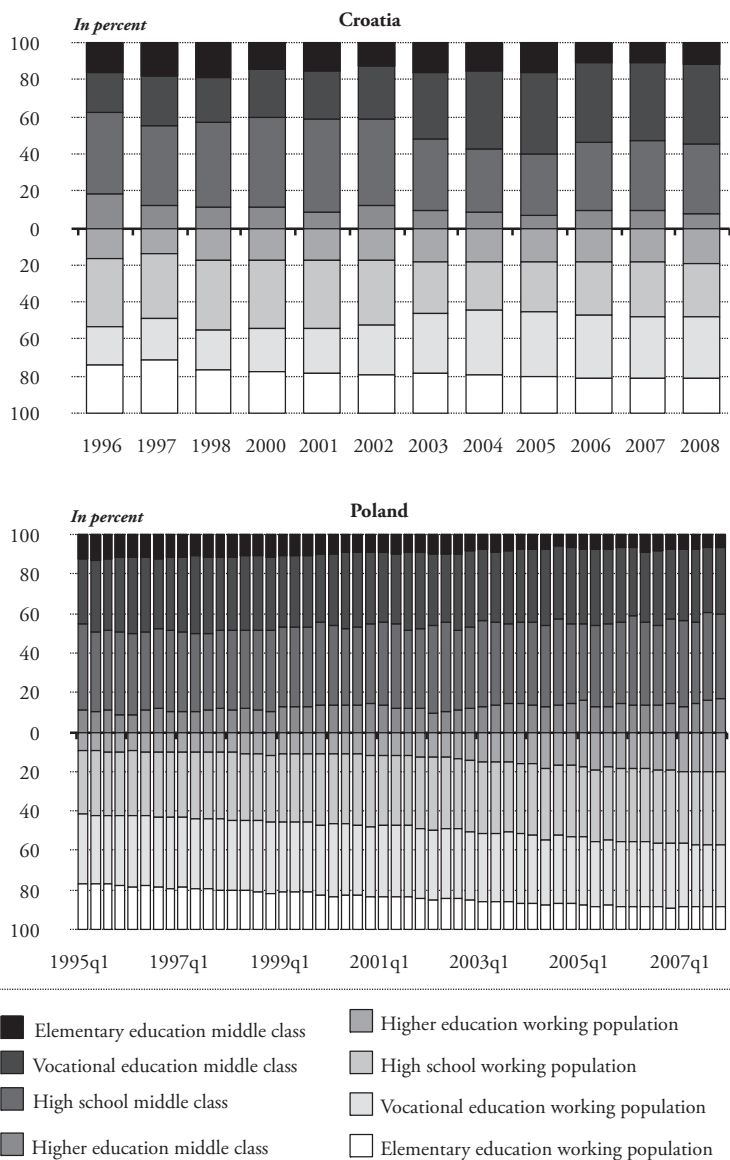
Figure 6a: *Educational Attainment: Under/Overrepresentation – Croatia and Poland*

Croatia

Poland

| Elementary education | High school |
| Vocational education | Higher education |

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

Figure 6b: *Educational Attainment: Shares – Croatia and Poland*

In percent **Croatia**

In percent **Poland**

■ Elementary education middle class	▨ Higher education working population
■ Vocational education middle class	▨ High school working population
▨ High school middle class	▫ Vocational education working population
▨ Higher education middle class	□ Elementary education working population

Note: 1999 data for Croatia is not available.
Source: Authors' calculations based on Labor Force Surveys from the period 1995-2008.

Changes in wage ranges for various levels of education or professional qualifications can reveal some important trends in the changes of supply and demand in the labor market. In Croatia, the processes of wage differentiation according to educational attainment were slightly more intense between 1996 and 2001 than between 2001 and 2006 (Nestić, 2009). In the first period, the "premium" for university education in relation to being unskilled and having a high school education at the level of the whole economy increased, while in the second period ratios between the average wages of employees with the observed degrees did not significantly change. In Poland, it seems that labor market fluctuations were more relevant for determining the observed changes within groups (Saczuk and Tyrowicz, 2010), while the structural change affected both the middle class and the general working population in a parallel manner.

4.4 Summary of the Findings

The above analysis focused on few main determinants of the earning potential, both individual (educational attainment, profession) and in relation to the employer (industry, type of employer). We found that a gradual decrease of state engagement in the economy is not necessarily accompanied by the reduction of public employers in the middle segment of the wage distribution. Namely, in Poland, where the share of the public sector was much lower and decreased faster, the share of employers working in the public sector actually increased within the middle class when compared to the general working population. The opposite is true for Croatia, where a gradual "retreat" of the state involved lowering the overrepresentation of the public sector employees within the middle class. These alternative patterns seem to be associated with the nature of industrial, occupational, and educational transformations experienced in Croatia and Poland.

Both countries experienced a huge increase in tertiary enrollment, but in Poland the returns to higher education have been extremely susceptible to the current labor market situation, as discussed earlier. Similarly, there was a stark increase in

the share of the service sector in Poland – where it was generally much lower – with an accompanying decreasing trend in the overrepresentation of this sector in the middle class. In Croatia, where the service sector was more pronounced, no stark changes were observed. Again, in parallel, highly skilled workers have shifted from under- to overrepresentation in the middle class in Poland, while the opposite is true in Croatia.

5 Conclusions

It is usually believed that socialist countries in Central and Eastern Europe were characterized by relatively low wage inequalities. On positive grounds, some researchers specified that the middle class in these societies was comprised mainly of the so-called *intelligentsia* along with bureaucrats and professionals. The rise of a new entrepreneurial middle class, due to the *marketization* of the economy, was believed to be the driving force of social changes that the transition countries underwent. We addressed this question empirically, using nearly fifteen years of evidence from the individual level data, and tried to establish who was and who became the middle class.

In order to be able to address this problem, we chose the wage based definition of the middle class and relied on consecutive Labor Force Surveys from two transforming economies and societies, Croatia and Poland, which share similar development levels in terms of GDP per capita – although many of the structural characteristics, including the role of the services and state sector in the economy, differ. We brought descriptive evidence about the changes of the middle class with respect to occupation, industry, and education as well as to the type of employer for the wage earners in both countries. Our comparative analysis provides new insights into different transformation processes of the middle class together with potential similarities between the two countries.

The most important findings may be summarized as follows. The analysis of consecutive Labor Force Surveys suggests that the composition of the middle class

– as defined by individuals with wages around the median – underwent no serious structural changes over the past decade in both Croatia and Poland. It seems that these two European transition economies were not deprived of the middle class, while the onset of the market-based system only allowed the empirical recognition of this effect. However, there are some differences between the two countries. A largely industrial country – Poland – experiences transition differently from an economy already based on services, i.e., Croatia. Consequently, the educational booms, privatization, and labor reallocation frequently indicate opposite changes in these two countries. Namely, in Croatia the so-called "winning" groups (highly skilled workers) moved above the median income, thus, reducing their representation in the middle class. In Poland, earned incomes in these groups seemed to increase as well, but relatively. This implies a movement from below the median towards gradually higher earnings. In addition, the size of the middle class decreased in Poland as of period roughly between 2000 and 2001, while in Croatia it returned to its initial, mid-1990s levels despite a temporary drop in the size.

It has been frequently argued that the key causes of economic inequality and poverty appear in the field of tax policy, workforce policy, education policy, and employment policy, which are all part of the labor market. This institutional surrounding was highly susceptive to political and social changes in the transition period and still is, which makes a trend analysis troublesome and vulnerable to the cases of isolated and sometimes sudden changes. We took a different angle on this problem and analyzed the compositional effects in the middle of the earned income distribution. This kind of research is new in the area of analyzing the consequences of labor market flows in transition countries and may potentially open some further questions in this area.

Literature

Banerjee, Abhijit and Esther Duflo, 2007, "What is middle class about the middle classes around the world?", CEPR Discussion Paper, No. 6613, London: Centre for Economic Policy Research, http://www.cepr.org/pubs/new-dps/dplist. asp?dpno=6613.asp (accessed September 2, 2009).

Basu, Swati, Saul Estrin and Jan Svejnar, 2004, "Wage Determination under Communism and in Transition: Evidence from Europe", IZA Discussion Paper, No. 1276, Bonn: Institute for the Study of Labor, ftp://repec.iza.org/RePEc/ Discussionpaper/dp1276.pdf (accessed August 29, 2009).

Birdsall, Nancy, 2007, "Reflections on the Macro Foundations of the Middle Class in the Developing World", Center for Global Development Working Paper, No. 130, Washington, DC: Center for Global Development, http://www.cgdev.org/ content/publications/detail/14696 (accessed September 2, 2009).

Birdsall, Nancy, Carol Graham and Stefano Pettinato, 2000, "Stuck in the Tunnel: Is Globalization Muddling the Middle Class?", Brookings Institution Working Paper, No. 14, Washington, DC: Brookings Institution, http://www.brookings. edu/es/dynamics/papers/middleclass/midclass.pdf (accessed October 9, 2009).

Boeri, Tito, 2000, "Optimal Speed of Transition 10 Years After", CEPR Discussion Paper, No. 2384, London: Centre for Economic Policy Research, http://www.cepr. org/pubs/new-dps/dplist.asp?dpno=2384 (accessed September 3, 2009).

Boeri, Tito and Katherine Terrell, 2002, "Institutional determinants of labour reallocation in transition", *Journal of Economic Perspectives*, 16(1), pp. 51-76.

Bourguignon, Francois, 2004, "The Poverty-growth-inequality triangle", New Delhi Working Paper, No. 125, New Delhi: Indian Council for Research on International Economic Relations, http://www.icrier.org/pdf/wp125.pdf (accessed January 25, 2010).

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Bruno, Randolph Luca, 2006, "Optimal speed of transition with a shrinking labour force and under uncertainty", *Economics of Transition*, 14(1), pp. 69-100.

Cashell, Brian W., 2007, "Who Are the 'Middle Class'?", CRS Report for the Congress, No. 22627, Washington, DC: Congressional Research Service, http://assets.opencrs.com/rpts/RS22627_20070320.pdf (accessed August 30, 2009).

Castanheira, Micael and Gerard Roland, 2000, "The Optimal Speed of Transition: A General Equilibrium Analysis", *International Economic Review*, 41(1), pp. 219-239.

Deutsche Bank, 2008, *World Outlook*, December, Frankfurt am Main: Deutsche Bank, http://www.scribd.com/doc/8735046/World-Economic-Outlook-December-08 (accessed November 30, 2009).

Easterly, William, 2001, "The Middle Class Consensus and Economic Development", *Journal of Economic Growth*, 6(4), pp. 317-335.

Eurostat, *Statistics by theme*, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes (accessed November 10, 2009).

Gang, Ira N., Robert C. Stuart and Myeong-Su Yun, 2006, "Wage Growth and Inequality Change During Rapid Economic Transition", Departmental Working Paper, No. 200631, New Brunswick, NJ: Rutgers University, Department of Economics, ftp://snde.rutgers.edu/Rutgers/wp/2006-31.pdf (accessed August 30, 2009).

Garbicz, Marek, 2008, "Rosnące nierówności dochodowe w Polsce po 1990 roku – próba opisu mechanizmów" in Wojciech Pacho and Marek Garbicz, eds., *Wzrost gospodarczy a bezrobocie i nierówności w podziale dochodu*, pp. 87-122, Warszawa: Szkoła Główna Handlowa.

Haltiwanger, John, Hartmut Lehmann and Katherine Terrell, 2003, "Job Creation and Job Destruction in Transition Countries: Introduction to a Symposium", *Economics of Transition*, 11(2), pp. 205-219.

Horrigan, Michael W. and Steven E. Haugen, 1988, "The declining middle-class thesis: a sensitivity analysis", *Monthly Labor Review*, 11(15), pp. 3-13.

ILO, 2010, *LABORSTA - database of labour statistics*, http://laborsta.ilo.org/ (accessed January 25, 2010).

Jackson, John E. and Daniel Berkowitz, 2005, "The Evolution of an Economic and Political Middle Class in Transition Countries", paper presented at the 2005 annual meeting of the American Political Science Association, Washington, DC, http://polisci.lsa.umich.edu/documents/jjackson/apsa05db.pdf (accessed August 30, 2009).

Lawrence, Robert Z., 1984, "Sectoral Shifts and the Size of the Middle Class", *The Brookings Review*, Fall, pp. 3-11.

Matković, Teo, 2008, "Politika zapošljavanja i nezaposlenost" in Vlado Puljiz, ed., *Socijalna politika Hrvatske*, pp. 163-218, Zagreb: Pravni fakultet Sveučilišta u Zagrebu.

Matković, Teo, 2009, "Pregled statističkih pokazatelja participacije, prolaznosti i režima plaćanja studija u Republici Hrvatskoj 1991.-2007.", *Revija za socijalnu politiku*, 16(2), pp. 239-250.

Ministarstvo financija, 2009, *Godišnje izvješće Ministarstva financija za 2008. godinu*, Zagreb: Ministarstvo financija Republike Hrvatske.

Milanovic, Branko, 1994, "Determinants of Cross-Country Income Inequality: An Augmented Kuznets Hypothesis", Policy Research Working Paper, No. 1246, Washington, DC: The World Bank, http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/1994/01/01/000009265_3961005200139/Rendered/PDF/multi0page.pdf (accessed November 30, 2009).

Milanovic, Branko and Shilomo Yitzhaki, 2002, "Decomposing world income distribution: Does the world have a middle class?", *Review of Income and Wealth*, 48(2), pp. 155-178.

Nestić, Danijel, 2002, "Ekonomske nejednakosti u Hrvatskoj 1973.-1998.", *Financijska teorija i praksa*, 26(3), pp. 595-613.

Nestić, Danijel, 2005, "Income Distribution in Croatia: What Do the Household Budget Survey Data Tell Us?", *Financial Theory and Practice*, 29(1), pp. 39-53.

Nestić, Danijel, 2009, "Plaće u Hrvatskoj: trendovi, problemi i očekivanja" in Vojmir Franičević and Vlado Puljiz, eds., *Rad u Hrvatskoj: pred izazovima budućnosti*, pp. 165-195, Zagreb: Centar za demokraciju i pravo Miko Tripalo i Pravni fakultet Sveučilišta u Zagrebu.

Newell, Andrew and Mieczyslaw W. Socha, 2007, "The Polish wage inequality explosion", *Economics of Transition*, 15(4), pp. 733-758.

Rona-Tas, Akos, 1996, "Post-Communist Transition and the Absent Middle Class in East-Central Europe", GAIA Research Series, pp. 29-44, Berkeley, CA: Global, Area, and International Archive, University of California, Berkeley, http://escholarship.org/uc/item/2z84j1dd (accessed August 30, 2009).

Rutkowski, Jan, 1996, "Changes in the Wage Structure during Economic Transition in Central and Eastern Europe", Social Challenges of Transition Series World Bank Technical Paper, No. 340, Washington, DC: The World Bank.

Saczuk, Katarzyna and Joanna Tyrowicz, 2010, "Wage Inequalities in Poland – Is It Really Growing?", National Bank of Poland, unpublished paper, March.

Simai, Mihaly, 2006, "Poverty and Inequality in Eastern Europe and the CIS Transition Economies", UNDESA Working Paper, No. 17, New York, NY: The Department of Economic and Social Affairs, UN, http://www.un.org/esa/desa/papers/2006/wp17_2006.pdf (accessed August 29, 2009).

Stanovnik, Tine and Miroslav Verbič, 2005, "Wage and Income Inequality in Slovenia, 1993-2002", *Post-Communist Economies*, 17(3), pp. 381-397.

Svejnar, Jan, 2002, "Transition Economies: Performance and Challenges", *Journal of Economic Perspectives*, 16(1), pp. 3–28.

Thurow, Lester C., 1984, "The Disappearance of the Middle Class", *The New York Times*, February 5, p. F3.

Vehovec, Maja, ed., 2008, *New Perspectives on a Longer Working Life in Croatia and Slovenia*, Zagreb: The Institute of Economics, Zagreb and Friedrich Ebert Stiftung.