University of Zagreb
FACULTY OF ECONOMICS AND BUSINESS
Zagreb - Croatia

Trg J. F. Kennedya 6
10000 Zagreb, Croatia
Tel +385(0)1 238 3333
http://www.efzg.hr/wps
wps@efzg.hr

WORKING PAPER SERIES

Paper No. 07-08

Boris Vujčić
Vedran Šošić

Does It Pay to Invest in Education in Croatia?

Does It Pay to Invest in Education in Croatia?

Boris Vujčić
bvujcic@efzg.hr; boris.vujcic@hnb.hr

Faculty of Economics and Business
University of Zagreb
Trg J. F. Kennedya 6
10 000 Zagreb, Croatia

Croatian National Bank
Trg hrvatskih velikana 3
10 000 Zagreb, Croatia

Vedran Šošić
vedran.sosic@mvpei.hr
Mission of the Republic of Croatia to the EU
Avenue des Arts 50
Brussels, Belgium

This research was supported by a grant from the CERGE-EI Foundation under a program of the Global Development Network. Additional funds for grantees in the Balkan countries have been provided by the Austrian Government through WIIW, Vienna. All opinions expressed are those of the author(s) and have not been endorsed by the CNB, Croatian Mission to the EU, CERGE-EI, WIIW, or the GDN.

Abstract

Countries of Central and Eastern Europe experienced a rapid increase of return to education with the advent of the transition. This is well-documented for most of the countries but, until now, there were no empirical studies of the dynamics of wage premiums in post-transition Croatia. This paper, therefore, intends to fill in that gap. We look at the dynamics of wage premiums in Croatia and estimate how much the return to education has changed between 1996 and 2004 on the basis of labor force survey data. We compare these results with similar ones for selected transition countries and then we look at some possible explanations of our findings. Contrary to most transition countries, premiums for education in Croatia began to grow only at the end of the 1990's. In a way, wage adjustment in Croatia has been delayed. However, by 2004, it reached the level of premiums found in other transition countries and advanced market economies, thus creating market incentives for investment in education. We also look at additional features of the wage structure, such as non-linearities in the return to education associated with attainment of credentials and return to experience.

0. Introduction

Creation of an environment conducive to investment in human capital is increasingly emerging as one of the vital elements of labor markets policies in developed countries and of broader strategies to stimulate growth. Investments in human capital facilitate economic restructuring and growth and have the potential to alleviate the problems of poverty, unemployment and social exclusion. The need for increased investment in human capital is particularly important in transition economies, in which, prior to transition, the exceptionally low wage premiums for investment in education led to stagnation and even a decline in the level of human capital. Ample evidence exists on the change of the wage structures in Central and Eastern European countries during the transition process but, until now, there were no empirical studies of wage premiums for education in Croatia. This paper, therefore, intends to fill in that gap.

The first section of this paper provides an overview of the labor market transformation in transition countries that encouraged investment in human capital. Given the lack of human capital, which is obvious despite the oft-cited educated labor force as one of the comparative advantages of transition countries, convergence in return to investment in education and in the level of human capital was needed as one of the foundations of the labor market transition. According to the results of diverse empirical research, such a tendency is indeed apparent in all Central and Eastern European transition countries, with the exception of the former East Germany, in which fast-paced transformation reduced the return to education acquired in the previous regime. Second section looks at dynamics of wage premiums in Croatia and compares Croatia to other transition countries of the Central and East Europe. It also offers some possible explanations for the observed wage premium dynamics. Third section contains a more thorough investigation into the dynamics of the wage structure in Croatia over the past decade. We estimate the rate of return to investment in human capital, as well as the return to experience. These estimates provide a basis for a more comprehensive assessment of the incentives for investment in human capital. A final section concludes.

1. Return to Investment in Human Capital in Transition Countries

The structure of wages which existed in the economies of the former Eastern bloc differed considerably from the wage structures in Western countries. Communist countries had an exceptionally egalitarian wage structure, which reduced the wage premiums of educated workers. Such a rigid wage structure resulted in weaker incentives for investment in education[1]. The result was an insufficient investment in higher education compared to the parallel excessive investment in secondary-level vocational training[2]. Therefore, one crucial aspect of the labor market transition is creation of the market environment which provides the stimulus to the population for investment in education and, therefore, helps to bridge the education gap which exists in relation to advanced market economies. Without the proper financial stimulus for investment in education, as the human capital theory predicts, it is difficult to expect that this education gap can be bridged.

Clark (2000) cites a series of studies that found the low rate of return to investment in education in Central and Eastern European countries on the eve of transition compared to the market economies. In the Czech Republic the private rate of return for an additional year of education in 1988 was 4% for men and 5.7% for women, while the rates of return in Estonia and Slovenia were also low. Rutkowski (1996) found similar results for Poland as well, in which the return for an additional year of education in 1987 was 5%. The supply of educated workers reacted to the established system of incentives in an economically meaningful way – the educational accomplishments of the population often stagnated or even declined. Flanagan (1998) elaborates that at the end of the 1980s, only 11% of the Czech labor force had at least some college or university education, which was typical for most communist economies. Even in those advanced

[1] Some authors believe that due to substantial subsidies for higher education in communist countries, motivation for education nonetheless existed (e.g. Katz, 1998; Orazem and Vodopivec, 1997). Even so, it should not be forgotten that in most capitalist countries government also subsidized the largest portion of investment in education.

[2] As elaborated below, likely there were other, ideological, reasons why secondary-level vocational training was promoted at the expense of higher education.

transition countries, such as Slovenia, where educational attainment somewhat improved during the communist regime, it remained relatively low as by 1995 only 12% of the population in Slovenia had some form of higher education (Human Development Report - Slovenia, 1998). At the same time in the OECD countries this share was on average above 20 percent. Most of the former communist economies were at the lower end of the range observed in the OECD countries. Moreover, skills acquired under communism were excessively specialized and non-transferable from specific, outdated technologies, making much of the human capital obsolete with the advent of the transition (Campos and Jolliffe, 2004). One can, therefore, conclude that low wage premiums during communist rule caused deficiencies in higher education investment and redundancies in vocational education.

Distorted wage structures in Central and Eastern Europe had several sources. First and foremost, equality of wages was one of the major objectives of political elites. Therefore, it is not surprising that wages in the countries of Central and Eastern Europe were among the most egalitarian in Europe (Flanagan, 1998). This fact alone explains the lower rate of return to investment in education. Furthermore, as the same author notes, the ideological preferences of social planners led them to put special emphasis on the industrial sector, especially heavy industry, which in turn led to the predominance of vocational training. Services were deemed "non-productive" and so accordingly intellectual work was considered less worthy than physical labor. This stance caused an additional bias in wages to the benefit of manual laborers. Consequently, planners preferred secondary schooling, especially vocational training, over higher education. Vocational training increased the share of proletarians in the labor force, which were considered to be the stronghold of the communist party. On the other hand, intellectuals were often viewed as potential threat to the system, so the limitation of the number of workers with broader knowledge, according to this view, facilitated political control.

At the beginning of the 1990s, transition resulted in the abolishment or, at least, a considerable reduction of political control over the wage structure. Orazem and Vodopivec (1997) have categorized fundamental forces that shaped the change of the wage structure during the transition into three groups. The first one was a correction of labor market distortions present during the previous regime, i.e. correction of policies aimed to secure egalitarian distribution of wages. The second group consists of changes in final demand for goods and services, which indirectly reduced the demand for manufacturing workers. The final group of demand factors pertains to the disequilibria which emerged during the transition process. Since education and entrepreneurship associated with it were not in high demand in the communist system, once the economic system and incentives changed, their supply was lower than demand for a prolonged period of time due to the inelasticity of the labor supply over the short and medium term. All these forces, both those correcting the existing imbalances and those creating new disequilibria, pushed the wage structure in the same direction, towards growing wage premiums for education. On the other hand, the obsolescence of skills acquired under the communism might have depressed the return to education. Therefore, the dynamics of return to education during the transition was not straightforward (Campos and Jolliffe, 2004).

Once the transition commenced, wages and the return to investment in education, quickly responded to market signals and premiums grew as the first group of effects outweighed declining value of obsolete skills. The growth of wage premiums for educated workers brought wages closer to individual productivity and therefore contributed to the more efficient allocation of resources. Rutkowski (1996) finds that in Poland, very soon after the start of transition, return to an additional year of education reached 7.5%, compared to approximately 5% prior to the transition. Clark (2000) cites Vecernik, according to whom the same rate in the Czech Republic reached 5.3% for men and 6.7% for women in 1992, while in 1988 it was 4% for men and 5.7% for women. Increase in return was particularly dramatic in Hungary, albeit over a longer period, where rate of return increased from 6.4% in 1986 to 11.3% in 1998 (Campos and Jolliffe, 2004). The return to education, therefore, increased very quickly in Eastern Europe, caught-up with, and sometimes even surpassed, the rates of return to education in advanced market economies.

The only exception to this rule in the empirical literature is, apparently, East Germany, in which the return to investment in education fell after the unification. Svejnar (1998) points to the studies by Krueger and Pischke (1995) and Bire et al (1994), who found a fall in return to education in East Germany. This might

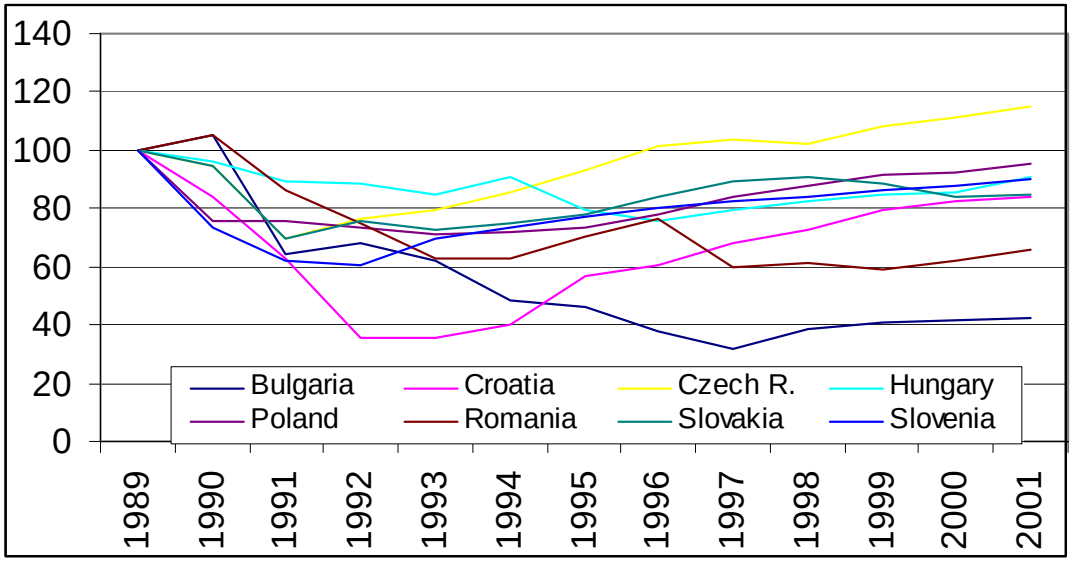
have been the result of the rapid transition to the market economy, during which the education acquired under the communist regime became even more discounted compared to the education acquired in the West Germany than was the case prior to the transition. Low skilled workers from East Germany were more competitive in the unified German market than high skilled ones.

The actual mechanisms that fostered the convergence of wage structures are, however, not entirely clear. Contrary to the goods market, where world prices were immediately available and used as benchmarks, the labor market had no clear yardstick for adaptation of the wage structure. Flanagan (1995) offers several possible sources of wage structure adjustments. One important is the influence of the foreign investors who could copy the wage policies from their own countries. Early transition data indeed confirmed that wage structures in companies under majority foreign ownership differed from the rest of the economy. Also, it seems that private sector growth facilitated growth of return to education. On the other hand, there were many factors preserving the existing wage structure and hindering the adjustment process, such as inherited structures of collective bargaining or wage policies in the public sector. Nonetheless, the wage outcomes indicate that the wage structure in transition countries, regardless of these inhibiting factors, quickly converged towards the structures that exist in advanced market economies.

2. Wage Dynamics and Wage Policies in Croatia

During the transition, average real wages in Croatia fluctuated widely. Contraction of average real wages in Croatia during first years of the transition was the largest amongst all countries in Central and Eastern Europe. Mostly due to the war-related events, by 1993 average real wage in Croatia fell to only one third of its level in 1989 (Figure 1). Subsequent high wage growth, starting in 1994, was also distinctively Croatian feature. In 1995, as the war ended, average real wage grew at a rate of approximately 40%. After a period of exceptional wage growth, by the end of the 1990s average real wage converged towards the initial pre-transition level, which is more similar to other transition countries from Central and Eastern Europe. However, despite introduction of market forces and exceptional wage fluctuations, the structure of relative wages in Croatia was remarkably stable until the end of the 1990s. Since premiums for education started to grow only at the end of the 1990s, delayed adjustment of wage structure distinguished Croatia from other Central and East European transition countries. While almost all Central and Eastern European countries (except for East Germany) experienced an increase in wage dispersion already in early 1990s, particularly in the upper portion of the distribution (Rutkovski, 1996), in Croatia there was no similar dynamics.

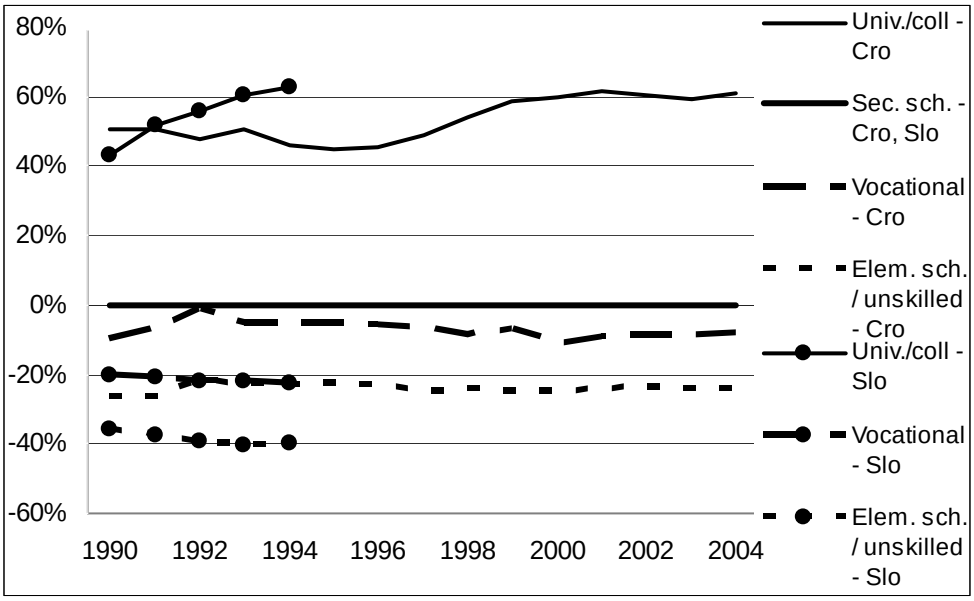
Figure 1 Average real wages in transition countries



Source: WIIW

It is particularly revealing to compare the evolution of wage structures according to professional qualifications in Croatia and Slovenia (Figure 2). This comparison is of a particular interest on several grounds. First, Croatia and Slovenia have similar inherited institutional structures. Second, types and duration of schooling (although not necessarily their quality) in both countries are very similar. That addresses the usual concern that differences in education systems could lead to wrong conclusions. Further on, the pace of privatization in Slovenia was relatively slow, compared to other transition countries, so the possible effects of foreign-owned companies, in particular on wage-setting patterns, were somewhat less important. This feature also resembles Croatia until the end of 1990s. However, there is also an important difference between the transition in Slovenia and Croatia. Slovenia is often referred to as country with a gradualist approach to transition, while Croatia implemented reforms relatively expediently after they were initially delayed by the war.

Figure 2 Evolution of wage structures based on qualifications in Croatia and Slovenia (secondary school=100)



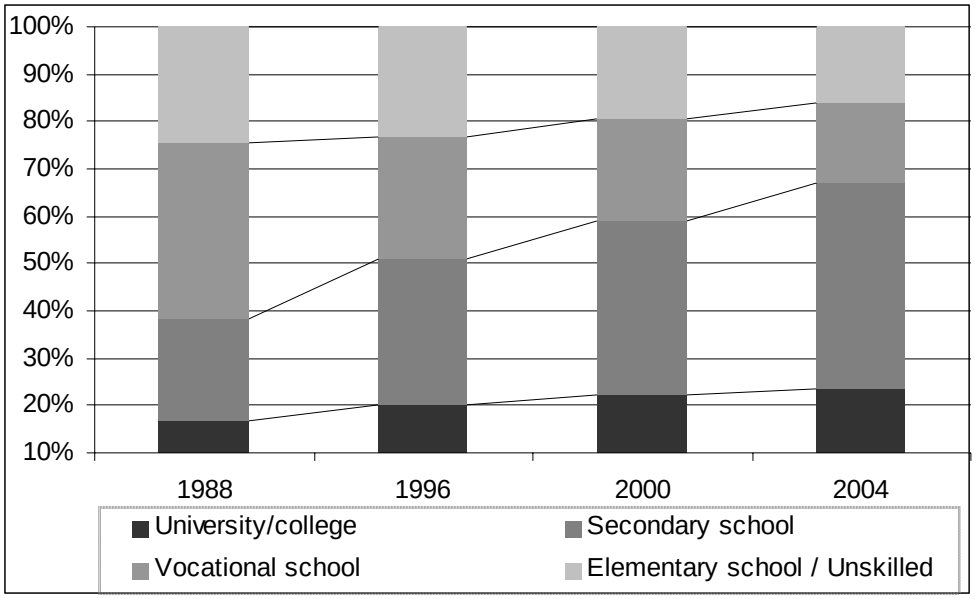
Source: Republic of Croatia Statistical Yearbook, various years; Orazem and Vodopivec (1997)
Note: During the 1989-1995 period, there were no published data on the employment structure based on qualifications in legal persons, so interpolations were used for these years.

In Croatia, wage premiums for highly educated workers stagnated and even declined until 1996, and then started to slowly grow after 1997. In Slovenia wage structure changed rapidly and this adjustment corresponded in terms of direction and intensity to changes that occurred in other transition countries. While in Croatia wage premiums for education during most of the transition period were relatively stable and started to grow only at the end of the 1990s, in Slovenia premiums grew substantially already in early 1990s. It seems that the dispersion of wages in Slovenia was already somewhat higher at the beginning of transition, i.e. closer to assumed market equilibrium. Somewhat lower initial difference in wage premium levels between secondary school and university and college qualifications can be explained by the differences in composition in the last category – while in Slovenia the number of employed with the university degree was almost the same as the number of employed with the college degree, in Croatia there were 50 per cent more of those employed with the university degree than with the with college degree. If this is taken into the account, wage premiums for both employees with the university and the college degree over employees with the secondary school, were similar.

While the employment decline in Croatia was fairly slow and much less intensive than the real wage decrease, structure of employment according to education changed rapidly. Therefore, labor market adjustment did not occur as much through changes in relative prices, i.e. relative wages of different categories of workers, as through an adjustment in quantities, i.e. employment shares. As relative demand for less-educated workers declined substantially, the share of employees with only elementary school and

vocational education was almost halved between 1988 and 2001. On the other hand, share of university and college-educated workers, as well as those with a general secondary education, rapidly increased.

Figure 3 Evolution of the employment structure by qualifications



Source: Republic of Croatia statistical yearbook, various years

Stagnation (even a slight decline) of wage premium for education in Croatia until the end of 1990's runs contrary to factual evidence reported in other Central and East European countries. This difference can be asserted in several ways. First, it is possible that employers, due to limited organizational ability, a shortage of capital or some other reason, were not able to exploit all of the human capital they had at their disposal and paid lower wage premiums to better educated workers. However, without more detailed information it cannot be concluded whether the qualifications of employees matched their job requirements, or whether "over-qualification" reduced the rate of return to education. Even if some employees could formally appear as "over-qualified" for their position, their actual skills could well match their jobs due to poor quality of education or depreciation of human capital associated with the transition. Croatian employers might not want to pay premiums for education acquired in the previous system or even for education acquired during the transition. However, since the structure of employment changed in such a way that employment of unskilled workers rapidly declined while the employment level of skilled workers hardly changed, it seems that employers have a marked preference for skilled workers. Also, eventually, wage premiums increased, albeit at a later stage than in other Central and Eastern European countries. That suggests that some factors were impeding the growth of wage premiums for education.

Wage policies in public administration and state-owned companies combined with delayed privatization and accompanied by the stability of wage structures in collective agreements and widespread collective bargaining are the most likely candidates to explain the stagnation in wage premiums for education in the first half of the 1990s. It is likely that factors inhibiting wage adjustments have initially been stronger in Croatia (in part due to the war in the first half of the nineties) than in other transition countries in which wage premiums increased more rapidly. War has delayed transition reforms in all markets (see Vujčić and Lang, 2001), so one can plausibly assume that it had delaying effects on wage adjustments as well.

Coefficients used to set the, so called, "base wages" are useful indicators that could shed some light on the public wage policy. Table 1 shows the coefficients from general collective agreements in Slovenia and the coefficients set for payments of minimum compulsory contributions in Croatia, since general collective agreements in Croatia do not stipulate base wage ratios. Although coefficients for minimum compulsory contributions in Croatia are not binding, they are effectively used as guidelines for employers when setting the minimum wages for groups of workers with the same degree of education. What can we infer from the

Table 1? First, range of Slovenian coefficients is somewhat wider. Second, Croatian coefficients first grow faster (for low-skilled workers) and than (for high-skilled workers) slower than Slovenian coefficients making the Croatian coefficients distribution flatter. Therefore, wage premiums for workers with medium levels of education (such as secondary school) over unskilled workers are somewhat higher in Croatia, but wage premiums for highly skilled workers (such as those with a university degree) over those with medium levels of education are considerably lower in Croatia.

Table 1 Coefficients from general collective agreements (Slovenia) and minimum compulsory contribution bases (Croatia)

	coefficients Slovenia (1997)	coefficients Croatia (2000)
Unskilled	1.00	1.00
Semi-skilled and elementary school qualifications	1.10	1.20
Skilled	1.23	1.40
Secondary school qualifications	1.37	1.60
Highly-skilled	1.55	1.85
College education	1.85	2.10
University education	2.10	2.20
University education – master	2.50	2.60
University education – Ph.D.	3.00	2.80
Secondary school/(semi-skilled and elem. sch.) premium	1.25	1.33
University education/Secondary school premium	1.53	1.38

Source: Haltiwanger and Vodopivec, 2003; *Narodne novine*, no. 77/2000. (Decision on bases, rates, and methods for computation and payment of funds to exercise the rights from compulsory health insurance)

Shown indicators of government wage policy are of an indicative nature only, while estimating the impact of wage policies on evolution of wage premiums would require a more detailed inspection of wage premiums, preferably at the level of individual economic activities, and correlating those with such factors as the structure of ownership, level of unionization and the prevalence of wage bargaining. This paper does not aim to do that, but rather seeks to explore in detail change in the wage premiums during the late transition. The next section contains a more detailed analysis of changes in the wage structure based on the earnings function.

3. Return to Human Capital in Croatia

This section contains a more thorough investigation into the dynamics of the wage structure in Croatia over the past decade. First, we estimate the rate of return to investment in human capital from the first Labor Force Survey in Croatia, and then we repeat the exercise to find out what has changed in the post-war period.

We use the Labor Force Survey (LFS) as a database. Although in many ways imperfect, LFS is the most extensive data source on the characteristics of the Croatian labor market participants. The list of advantages related to the use of the LFS database would include a fair quantity of demographic data on labor market participants and their households, detailed information on their current jobs as well as some job history. LFS questionnaire grew until it contained almost a hundred questions related to characteristics of the labor market participants in 2004, in addition to some background sampling information. There is no other source of data in Croatia, survey or administrative, with such a detailed information on labor market participants. Further on, it is performed on a regular basis, making it possible to monitor changes in the labor market on a consistent basis. Finally, in countries where there is a sizeable informal activity, such as in Croatia, LFS is typically a more comprehensive source of data than the administrative ones.

However, there are also some shortcomings of using the LFS for purpose of this study. Since the first LFS was conducted in Croatia in November 1996, it is not possible to investigate earlier periods (that is, early transition) based on this source of data. Regular semi-annual surveys commenced since the beginning of 1998. Also, the structure of the database has changed as it evolved over time, so that some of the variables may not be available for earlier periods or may not be directly comparable between earlier and later surveys. As shown in the previous chapter, aggregated administrative data on wage premiums exhibit very little dynamics until the mid-1990s. Therefore, although this indicator does not control for personal characteristics of employees, it can be reasonably assumed, without running into a great risk of making an error, that wage premiums to education indeed did not grow in the early period of transition in Croatia. Further on, participants in the LFS are rotated regularly, making it impossible to monitor transitions an individual makes between different jobs and labor market states through time. Finally, non-response and refusal to participate in the LFS are not irrelevant[3] and these may bias the results to some extent.

The rate of return to investment in human capital in Croatia is computed on the basis of surveys conducted in November 1996 and in 2004[4]. In November 1996, 7,451 households participated in the survey, encompassing 19,547 persons, while the survey conducted in the first half of 2002 included 8,095 households with a total of 22,592 persons who agreed to participate. The sampling for the survey is a dual-stage stratified random sampling, and the stratification was broken down by county. The primary sampling units are segments that consist of one or more census districts formed for the needs of the Population Census, and it was from these segments that the final secondary units, inhabited homes, were chosen (National Statistics Bureau, 2003).

The regression variables were chosen according to the basic Mincerian earnings function specification (see, for example, De la Fuente and Ciccone, 2002 or Heckman, Lochner and Todd, 2001) which describes the wage structure. All those variables were constructed on the basis of responses to the survey questions. These variables include hourly wage (in logarithm), derived from the usual monthly salary and the number of usually worked hours, and years of schooling, directly transposed from the answers to the relevant questions in the LFS. Moreover, the LFS contains data on the highest educational degree attained, so that the years of schooling were supplemented with binary variables for the achievement of selected degrees. These variables should capture possible non-linearity in the return to education associated with the "sheepskin" effects, or return to degrees rather than education. The credentialist view, according to which the completed level of education generates most of the additional return to education rather than simply an additional year of education, was tested in this way (for detailed elaboration of the credentialist view see Ferrer and Riddell, 2002)[5]. Further on, both the experience and tenure variables were introduced into the regression in order to check whether it is the total experience or the tenure with the single employer that makes more difference to the earnings. Because of the usual problems with the definition and properties of the experience and tenure data in the empirical literature, those two variables, as drawn from the LFS database, were checked for consistency against each other and also against the potential experience derived from the age and acquired schooling. No substantial inconsistencies were found. Finally, a set of dummy variables was introduced in order to control for wage differences arising from job attributes (such as region[6],economic activity and ownership status of the enterprise) as well as from remaining personal characteristics (marital status).

[3] The overall non-response rate for the 1st half of 2004 was 15.0% and the refusal rate was 7.9%. The overall non-response rate increased somewhat to 15.8% in in the 2nd half-year of 2004, while the refusal rate declined to 5.1%. Non-response rate in first survey conducted in 1996 was 6.3%, which is considerably lower than non-response rates in recent surveys (but might also be attributable to methodological differences), while refusal rate was not published at that time.

[4] Databases of two semi-annual surveys performed in 2004 were merged. This also doubled the sample size.

[5] The available options for the highest attained educational level include (i) no school; (ii) 1-3 years of elementary school; (iii) 4-7 years of elementary school; (iv) elementary school; (v) school for craft and industrial occupations, school for skilled manual workers; (vi) technical, economic, health and other secondary schools; (vii) grammar school; (viii) non-university college; (ix) university or academy; (x) masters of arts or sciences and (xi) doctorate. Some of those options were grouped according to the following principle: 1) elementary school (group iv), 2) secondary school (groups v, vi and vii), 3) non-university college (group viii) and 4) university and more. The options in 1996 LFS were defined in a bit different manner, but allow for the same type of aggregation.

[6] Regions were formed according to the last available Eurostat's NUTS-2 level statistical breakdown available at http://ec.europa.eu/comm/eurostat/ramon/nuts/codelist_en.cfm?list=cec. According to this breakdown, at the moment there are four

All of the persons from the LFS database who met international criteria for employment[7] were included in the initial sample. Out of those, persons who did not respond to one or more of the questions needed for the construction of the variables as well as those who did not declare any income (such as unpaid family workers) were excluded from the sample. In the end, the sample for 1996 contained 5,189 observations (out of 7,793 initial observations), while the sample for 2004 contained 10,097 persons (out of 11,221 initial observations). While most of the exclusions from the 2004 dataset were based on the omission of unpaid family workers, in the first survey numerous exclusions were also due to the poor data availability, which should be taken into the account when interpreting the results.

The regression estimates are presented in the appendix. The results (Table 1 in the appendix) confirm our earlier assertion that between 1996 and 2004, in the second stage of transition in Croatia, the return to investment in education did in fact substantially increase. While in 1996 the rate of return to additional year of education stood at approximately 5% for both men and women, in 2004 it grew close to 1.5 percentage points (or about a quarter of the previous rate of return) for men and almost as much as 3 percentage points (or more than half of the previous rate of return) for women. This means that, in 2004, the rate of return to investment in education in Croatia was a little higher than the average in Europe[8], while the increasing tendency pattern of the return to education was similar to the dynamics observed in other transition countries (see Table 2 below). It is interesting to note that, already in the early 1990's, return to education in Slovenia was somewhat higher than it was in Croatia in 1996. This is compatible with previously presented administrative evidence on more dispersed wages in the mid-1990s, despite the fact that Slovenia was more developed country with higher level of human capital and usually considered to be an example of slow reformer.

Table 2: Selected evidence on increasing returns to an additional year of education in transition countries

Authors (source)	Country	Pre-transition				During the transition			
		Year	M	F	All	Year	M	F	All
Chase (1998)	Czech R.	1984	2.4	4.2		1993	5.2	5.8	
	Slovakia	1984	2.8	4.4		1993	4.9	5.4	
Clark (2000) (according to Vecernik)	Czech R.	1988	4.0	5.7		1992	5.3	6.7	
Rutkowski (1996)	Poland	1987			5.0	1993			7.5
Campos and Jolliffe (2004)	Hungary	1986			6.4	1998			11.3
Human Development Report - Slovenia (1998)	Slovenia	1983	3.8	3.3		1993	5.5	5.8	
Sheidvasser and Benitez-Silva (1999)	Russia					1992-99	3.2	4.9	4.0

The determination coefficient in basic equations for both of the observed periods (1996 and 2004) is not particularly high (0.18 in 1996 and 0.32 in 2004), which is common for earnings regressions. Even inclusion of the sectoral dummies that should account for different pace of restructuring between industries did not improve the goodness of fit significantly. Increase of the determination coefficient over time is not the usual finding since transition reforms tend to make the determination coefficient of earnings equations

regions in Croatia (it is expected that new breakdown will be defined on the course of the negotiation process between Croatia and the EU): Central Croatia (comprising of Krapinsko-zagorska, Varaždinska, Međimurska, Koprivničko-križevačka, Bjelovarsko-bilogorska, Sisačko-moslavačka and Karlovačka counties), Adriatic Croatia (comprising of Istarska, Primorsko-goranska, Ličko-senjska, Zadarska, Šibensko-kninska, Splitsko-dalmatinska and Dubrovačko-neretvanska counties), Eastern Croatia (comprising of Virovitičko-podravska, Osječko-baranjska, Vukovarsko-srijemska, Brodsko-posavska and Požeško-slavonska counties) and the Zagreb region (comprising of the city of Zagreb and the Zagreb county). Croatia submitted a new proposal to form two NUTS-2 regions only, but an agreement with the European Commission and the Eurostat was not yet reached at a time this article was written.

[7] One hour or more, in the relevant week, spent at work on the job that provides the means for living.

[8] Denny, Harmon, and Lydon (2000), who estimate the Mincerian return to schooling using homogenized data for different European countries, find an average Mincerian return to schooling of around 6.5 percent in Europe. Harmon, Walker and Westergaard-Nielsen (2001) report similar results in their review of literature. However, most studies (including Denny, Harmon, and Lydon 2000) use gross (i.e. before tax) wages, while our data allow us to use net wage only. Given that most tax systems are progressive, but with the degree of progresivity varying among countries, cross-national comparisons have to be interpreted with care, especially if estimates based on gross wages are mixed with estimates based on net wages.

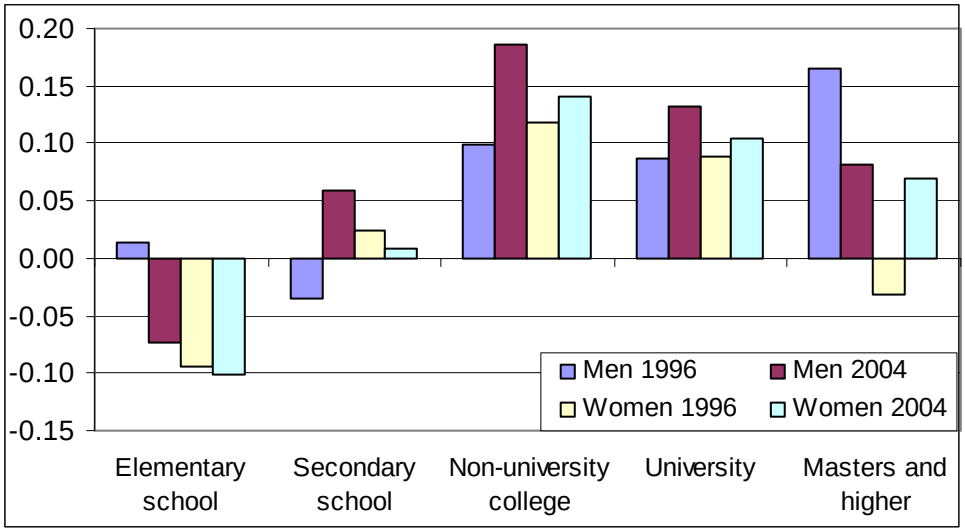
lower due to the increasing complexity of the production structure and less control over the wage setting process. The fact that in our case it increases could simply reflect the fact that for 2004 we operated with more reliable data because the LFS became better established over the years. However, it is also possible that in 2004 the same independent variables indeed better explained the structure of earnings than in 1996. New wage structures might have started to emerge in 1996, after the end of the conflict, and deep nto the transition process, overlaping with the old ones. Overlap of the "old" wage structure with the emergence of different new wage patterns might have resulted in more dispersed earnings distribution.

Result of both basic and augmented regressions show that the impact of experience and tenure on wages is insignificant for the earlier observed period, while it appears significant, albeit rather low, for the later period. Such results for the earlier period may be the result of poor data, since the quality of the indicator depends on the memory of the respondent. Much more likely, they demonstrate relative unimportance of these two factors during the mid-1990's, when the transition process made previously acquired experience obsolete. Although the evidence on return to experience is not clear-cut, pattern of decreasing returns to experience during the transition is well documented for some countries (for Slovenia see Orazem and Vodopivec, 1997). Flattening of the earnings profiles may also result from rising returns to experience of younger cohorts. Even in the later period, when the patterns of the return to experience in Croatia stabilized, the return to an additional year of experience remained low as males with thirty years of experience earned only about 18% more than those without any experience, based on the specifications that do not include tenure. Return to experience for females was even lower, although it was less curved, due to the prevalence of tenure effects, so females with a long experience (thirty years or more) earned higher premium than males. If the effect of the experience is separated from the tenure, then it appears even less important.

Augmentation of basic equations with dummy variables denoting highest educational attainments, which describe the marginal effect on wage from acquisition of a certain degree, does not substantially improve their overall fit. However, most of these variables appear to be significantly different from zero. Also, their inclusion in the initial period reduces rate of return associated with an additional year of education by about a quarter for males and by about a third for females, indicating that a significant portion of return to education in Croatia results from credentials. Moreover, it seems that the importance of credentials even increased during the transition. Additional return associated with credentials explains most of the increase in return to education for men, accounting for about half the return to education in 2004, while the relative importance of credentials for females remained about the same. It is also interesting to observe the marginal effects arising from attainment of a certain degree on the wage premium. Clearly, non-university college and university degree are associated with largest additional returns, both for males and females. While these premiums increased during the observed period, the premium associated with masters or higher degree was somewhat reduced. The structure of premiums for females changed very slightly, the only important change being the increase of premium for masters and higher degrees[9].

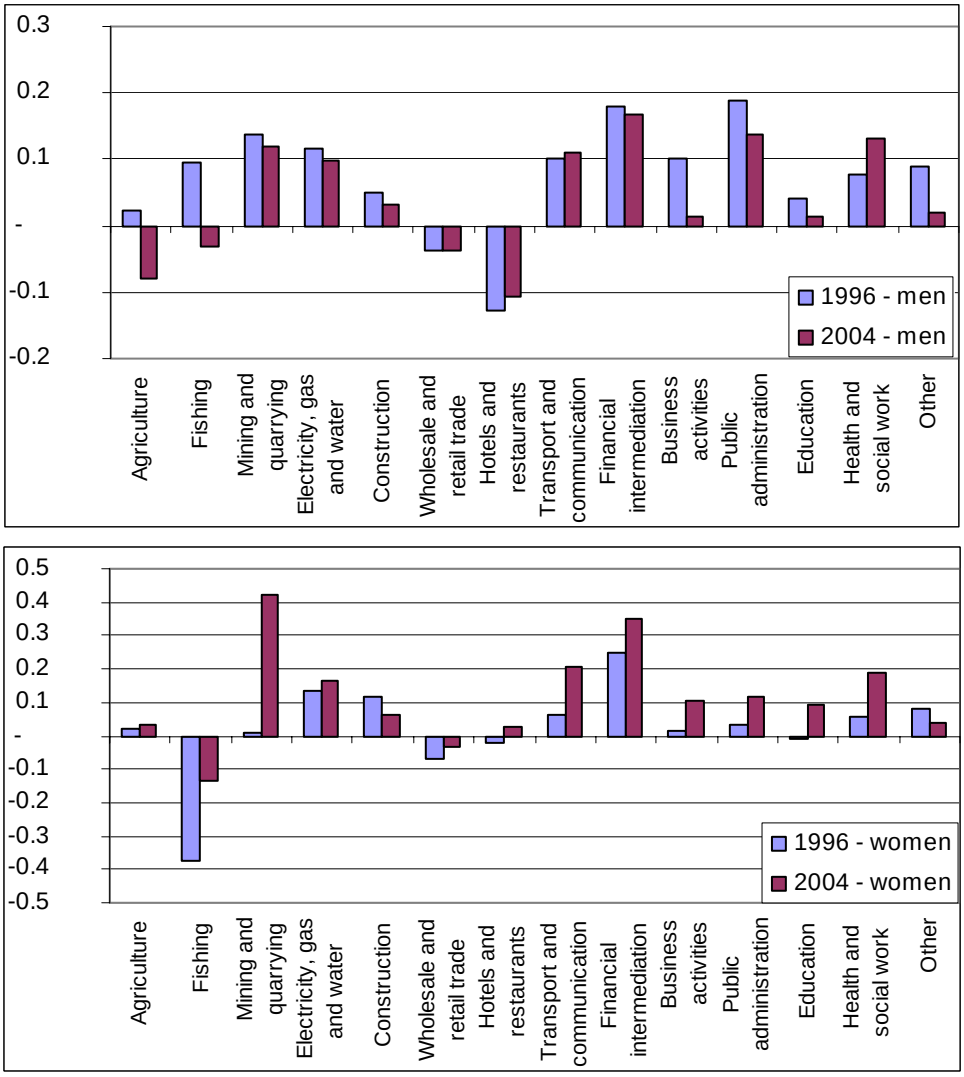
[9] There are very few persons with masters or higher degree in the sample so it is not strange to find that the results are not significant. It is similar to the small number of persons without education, which are used as a benchmark in the regressions.

Figure 4 Evolution of marginal wage premiums to degrees



The structure of wage premiums according to economic activities remained fairly stable during the observed period. Sectors with the highest wage premiums (over the manufacturing, which served as a benchmark) include financial intermediation, public administration, mining, utilities and health. Wage premium in public administration was somewhat reduced over the observed period, while in health sector it grew healthy. Industry dummies have to be interpreted with some caution as they interact with the state sector dummy. State employees comprise most of the employees in certain sectors, such as public administration and health, while in other activities state is less present. While results for 1996 indicate that state sector employment was on average associated with somewhat lower wages, this effect disappeared by 2004 and even turned into a wage advantage of the state sector employees. This was accompanied by a change in the relative share of state sector employees. As privatization advanced, and new jobs were created in the private sector, the portion of state sector employees shrank from over a half in 1996 to 38% in 2004.

Figure 5 Evolution of wage premiums, according to economic activities (men)



The last set of variables describes geographical differences. Wages in East and Central Croatia were significantly lower than wages in the Zagreb region and the Adriatic Croatia. The wage gap between those regions has even widened over the observed period. Living in urban settlement does seem to be related with higher wages, although the premium is not so high. Finally, marriage appears to be associated with somewhat higher wages for men only, which is consistent with the findings in the literature.

4. Conclusion

Transition countries experienced a rapid convergence of wage premiums from egalitarian towards more dispersed wage structures that exist in developed market economies. This increase in premiums for education started in the early transition and persisted. Until now there were no empirical studies of wage premiums to education in Croatia. This paper fills in that gap. We look at the dynamics of wage premiums in Croatia and compute return to investment in education for 1996 (first year for which we had LFS data) and 2004. We compare results with selected transition countries and look at some possible explanations of the findings.

Contrary to most of the transition countries, premiums for education in Croatia began to grow only by the end of the 1990s. In a way, wage adjustment in Croatia has been delayed. We offer some possible explanations for that. Most plausible one, of course, is that the war delayed transition in labor market, as

well as in other markets. By 2004, however, the return to education reached the same (and even slightly higher than average) level as in other transition countries and advanced market economies, thus creating clear market incentives for investment in education.

We also look at the impact of credentials, as well as additional features of the wage structure, such as tenure, economic sector of employment and regional affiliation. We find that a large portion on the return to education can be explained by nonlinearities associated with certain degrees and most of the additional return to education, especially for men, came through higher return to credentials. Return to education also increased due to higher probability of being in employment for educated persons, but we leave more formal investigation of this effect for future research. Experience and tenure do not appear to be important determinants for earnings, which may have to do with irrelevance of experience acquired under the previous regime. Also, we find that wage advantage associated with working in certain economic activities remained fairly stable, especially for men. Wage advantage associated with working in public sector increased, along with the significant decline in relative share of public sector in total employment.

References

Ashenfelter, O., Harmon, C. and Oosterbeek, H., (1999) "Empirical estimation of the school/earnings relationship - a review". *Labour Economics,* 6 (4), 453-470.

Bajo, A., (**2003)** *Financiranje visokog školstva i znanosti.* Zagreb: Institut za javne financije.

Barro, R. J. and Lee, J. W., (1997) "Schooling Quality in a Cross-Section of Countries". *NBER Working Paper* 6198.

Barro, R., (1991) "Economic Growth in a Cross Section of Countries". *Quarterly Journal of Economics,* 106 (2), 407-43.

Barth E. and M. Røed, (2001) "Do we need all that higher education? Evidence from 15 European countries" in *Public funding and private returns to education* [online]. Available from: [http://www.etla.fi/PURE/Loppuraportti.htm].

Bird, E., Schwarze J. and Wagner G., (**1994**) "Wage Effects of the Move Toward Free Markets in East Germany," *Industrial and Labor Relations Review* 47(3), pp. 390–400.

Blöndal, S., Field, S. and Girouard, N., (2002) "Investment in Human Capital Through Post-Compulsory Education and Training: Selected Efficiency and Equity Aspects". *OECD, Economics Department Working Paper, No. 333.*

Campos, N. and Jolliffe, D., (2004) "After, Before and During: Returns to Education in Hungary 1986-1998". *CEPR Discussion Paper* No. 4215

Card, D., (1999) "The Causal Effect of Education on Earnings", in O. Ashenfelter and D. Card, eds. *Handbook of Labor Economics.* Amsterdam: North Holland, 1801-1863.

Chase, R. S., (1997) "Markets for Communist Human Capital: Returns to Education and Experience in the Czech Republic and Slovakia". *Economic Growth Center, Yale University, Center Discussion Paper,* No. 770.

Clark, A., (2000) "The Returns and Implications of Human Capital Investment in a Transition Economy: An Empirical Analysis for Russia, 1994–98". *CERT Discussion Paper* No. 2000/02.

De la Fuente, A. and Ciccone, A., (2002) "Human capital in a global and knowledge-based economy" [online]. Available from: [http://pareto.uab.es/wp/2003/56203.pdf].

Denny, K. J., Harmon, C. P. and Lydon, R., (2001) *Cross Country Evidence on the Returns to Education: Patterns and Explanations*. Warwick: University of Warwick.

Dornbusch, R., Gentilini, F. and Giavazzi, F., (2000) "Italian Labor Force Participation; Disguised Unemployment on Campus" [preliminary version online]. Available from: [http://www.mit.edu/~rudi/media/PDFs/ItalianLaborForce.pdf].

Državni zavod za statistiku, (2003) *Rezultati ankete o radnoj snazi, Hrvatska 2002.- Europa 2002.* Statističko izvješće br. 1211.

European Union, (**2000)** *Presidency conclusions. Lisbon European Council.*

European Union, (**2003)** *Council Decision on guidelines for the employment policies of the Member States.*

Ferrer, A. M. and Riddell, W. C., (2002) "The Role of Credentials in the Canadian Labour Market", *Canadian Journal of Economics 35(4)*, pp. 879-905.

Flanagan, R. J., (**1995)** "Wage Structures in the Transition of the Czech Economy". *IMF Working Paper* WP/95/36.

Flanagan, R. J., (**1998)** "Were Communists Good Human Capitalists? The Case of the Czech Republic". *Labour Economics,* 5 (4), 295-312.

Haltiwanger, J. C. and Vodopivec M., (2003) "Worker flows, job flows and firm wage policies: An analysis of Slovenia", *The Economics of Transition* 11 (2), 253–290

Harmon, C., Oosterbeek, H. and Walker, I., (2000) "The Returns to Education: A Review of Evidence, Issues and Deficiencies in the Literature". London: Centre for the Economics of Education: London School of Economics and Political Science.

Harmon, C., Oosterbeek, H. and Walker., I., (2000) "The Returns to Education – A Review of Evidence, Issues and Deficiencies in the Literature." Working Paper no. 5, London: Centre for the Economics of Education: London School of Economics and Political Science.

Harmon, C., Walker, I and Westergaard-Nielsen, N., (2001) "Returns to education in Europe" in *Public funding and private returns to education* [online]. Available from: [http://www.etla.fi/PURE/Loppuraportti.htm].

Heckman, J., Lochner, L. and Todd, P. E., (**2001**) "Fifty Years of Mincer Earnings Regressions". NBER Working Paper No. 9732.

Human Development Report - Croatia, (2002) Zagreb: Ekonomski institut.

Human Development Report - Slovenia, (1998) "Chapter 3: Knowledge and Education", Ljubljana: Institute of Macroeconomic Analysis and Development.

Keane, M. P. and Prasad, E. S., (2002) "Changes in the Structure of Earnings During the Polish Transition". IMF Working Paper WP/02/135.

Krueger, A. B. and Pischke, J. S., (1995) "A Comparative Analysis of East and West German Labor Markets: Before and After Unification", in R. B. Freeman and F. Katz, eds. *Differences and Changes in Wage Structures.* Chicago: The University of Chicago Press.

OECD, (1996) 'The Jobs Strategy: Pushing Ahead with the Strategy" [online]. Available from: [http://www1.oecd.org/sge/min/pdf1996.htm].

OECD,(2001)a. *Education at a Glance: OECD Indicators 2001 Edition*. Paris: OECD.

OECD, (2001)b. *The Well-Being of Nations: The Role of Human and Social Capital*. Paris: OECD, Centre for Educational Research and Innovation.

OECD, (**2001)c**. "*Thematic Review of National Policies for Education: Croatia"***.** Paris: Centre for Co-operation With Non-members, Directoriate for Education, Labour and Social Affairs, Education Committee, CCNM/DEELSA/ED(2001)5.

Orazem, P. F. and Vodopivec, M., (1995) "Winners and Losers in Transition: Returns to Education, Experience, and Gender in Slovenia." *World Bank Economic Review 9(2),*201-230.

Psacharopoulos, G., (1994) "Returns to investment in education: a global update". *World Development*, 22 (9), 1325-1343.

Rutkowski, J., (1996) "High Skills Pay-off: The Changing Wage Structure during Economic Transition in Poland". *Economics of Transition*, 4 (1), 89-112.

Statistički ljetopis Republike Hrvatske, razna godišta. Zagreb: Državni zavod za statistiku.**Svejnar, J., 1998.** "Labor Markets in the Transitional Central and East European Economies" in O. Ashenfelter and D. Card, eds. *Handbook of Labor Economics.* Amsterdam: North Holland, 2809-2857.

Temple, J., (2000) "Growth Effects of Education and Social Capital in OECD Countries". *OECD Economics Department Working Paper*, No. 263.

World Bank, (2002) *Constructing Knowledge Societies: New Challenges for Tertiary Education*. Washington: World Bank.

Appendix 1:

Table 1: Descriptive statistics

	2004			1996		
Averages	Males	Females	All	Males	Females	All
Net wage per hour (HRK)	21.3	19.3	20.4	11.7	10.4	11.1
Years of education	11.6	12.0	11.7	11.5	12.0	11.7
Tenure	11.0	11.5	11.2	11.1	10.0	10.6
Experience	18.2	17.2	17.8	16.6	13.8	15.4
Proportion of the sample						
Education						
No school	2.1	1.5	1.9	4.5	2.8	3.7
Elementary school	13.8	14.5	14.1	15.8	14.9	15.4
Secondary school	67.6	59.7	64.3	61.0	57.8	59.6
Non-university college	6.2	9.6	7.6	5.8	9.6	7.5
University	9.2	14.1	11.3	9.8	11.7	10.7
Masters and PhD	1.0	0.8	0.9	1.5	1.6	1.5
Personal characteristics						
Married	69.0	68.8	68.9	74.1	70.3	72.4
Urban population	51.6	62.9	56.4	64.5	74.4	68.9
State sector employees	34.6	43.3	38.3	50.6	56.7	53.3
Economic activities						
Agriculture, hunting and forestry	7.8	4.4	6.4	6.7	2.8	5.0
Fishing	0.4	0.1	0.3	0.3	0.1	0.2
Mining and quarrying	1.1	0.1	0.6	1.0	0.1	0.6
Manufacturing	24.7	18.4	22.1	27.1	22.6	25.1
Electricity, gas and water supply	3.1	1.2	2.3	3.7	0.9	2.4
Construction	14.4	1.6	9.0	12.1	1.5	7.4
Wholesale and retail trade	12.6	18.9	15.3	12.8	18.7	15.5
Hotels and restaurants	4.7	7.1	5.7	4.1	5.7	4.8
Transport, storage and communication	10.3	3.5	7.4	11.4	4.1	8.1
Financial intermediation	1.1	3.4	2.1	1.2	4.8	2.8
Real estate, renting and business activities	4.2	4.2	4.2	3.2	4.3	3.7
Public administration	7.3	7.9	7.5	6.4	7.2	6.7
Education	3.0	12.3	6.9	3.1	10.7	6.5
Health and social work	2.3	11.8	6.3	3.2	12.2	7.2
Other community and social activities	3.0	4.9	3.8	3.5	3.8	3.6
Regions						
Zagreb region	22.2	28.3	24.8	25.3	29.3	27.1
Central Croatia	25.5	22.1	24.1	27.3	25.3	26.4
Adriatic Croatia	31.4	32.1	31.7	30.5	30.7	30.6
East Croatia	20.9	17.5	19.5	16.9	14.7	15.9

Table 2: Regression results (standard errors in parentheses)

	1996					
	Basic equations		Augmented equations		Augmented - experience only	
Variable	Males	Females	Males	Females	Males	Females
Constant	1.7069 ***	1.6066 ***	1.8452 ***	1.8624 ***	1.8452 ***	1.8622 ***
	(0.0413)	(0.0404)	(0.0578)	(0.0601)	(0.0577)	(0.0601)
Years of education	0.0494 ***	0.0513 ***	0.0373 ***	0.0336 ***	0.0372 ***	0.0334 ***
	(0.0028)	(0.0027)	(0.0072)	(0.0078)	(0.0072)	(0.0078)
Elementary school			0.0139	-0.0943 *	0.0136	-0.0924 *
			(0.0428)	(0.0538)	(0.0428)	(0.0535)
Secondary school			-0.0348	0.0249	-0.0343	0.0257
			(0.0342)	(0.0359)	(0.0342)	(0.0358)
Non-university college			0.0991 ***	0.1177 ***	0.0991 ***	0.1183 ***
			(0.0327)	(0.0295)	(0.0327)	(0.0294)
University			0.0867 **	0.0887 ***	0.0871 **	0.0893 ***
			(0.0380)	(0.0334)	(0.0380)	(0.0333)
Masters and higher			0.1659 **	-0.0320	0.1651 **	-0.0322
			(0.0764)	(0.0683)	(0.0763)	(0.0683)
Tenure	-0.0017	-0.0011	-0.0020	-0.0002		
	(0.0032)	(0.0037)	(0.0032)	(0.0037)		
Tenure^2	0.0001	0.0000	0.0001	0.0000		
	(0.0001)	(0.0001)	(0.0001)	(0.0001)		
Experience	0.0032	0.0020	0.0035	0.0017	0.0022	0.0016
	(0.0029)	(0.0034)	(0.0029)	(0.0033)	(0.0021)	(0.0023)
Experience^2	0.0000	0.0001	-0.0001	0.0001	0.0000	0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Marital status	0.0734 ***	-0.0159	0.0667 ***	-0.0147	0.0669 ***	-0.0147
	(0.0179)	(0.0160)	(0.0178)	(0.0159)	(0.0178)	(0.0159)
State sector	-0.0591 ***	-0.0299	-0.0604 ***	-0.0368 **	-0.0610 ***	-0.0380 **
	(0.0174)	(0.0186)	(0.0173)	(0.0184)	(0.0167)	(0.0179)
Urban settlement	0.0210	0.0682 ***	0.0205	0.0646 ***	0.0204	0.0648 ***
	(0.0168)	(0.0175)	(0.0167)	(0.0173)	(0.0167)	(0.0173)
Agriculture, hunting and forestry	0.0260	0.0263	-0.0062	-0.0045	-0.0055	-0.0042
	(0.0325)	(0.0458)	(0.0326)	(0.0456)	(0.0325)	(0.0455)
Fishing	0.0947	-0.3762	0.0835	-0.3439	0.0832	-0.3409
	(0.1282)	(0.2350)	(0.1274)	(0.2324)	(0.1274)	(0.2321)
Mining and quarrying	0.1377 *	0.0109	0.1352 *	-0.0445	0.1347 *	-0.0470
	(0.0713)	(0.2347)	(0.0707)	(0.2322)	(0.0707)	(0.2320)
Electricity, gas and water supply	0.1170 ***	0.1327 *	0.1303 ***	0.1306 *	0.1303 ***	0.1310 *
	(0.0404)	(0.0746)	(0.0402)	(0.0737)	(0.0401)	(0.0737)
Construction	0.0499 **	0.1145 **	0.0491 **	0.1049 *	0.0500 **	0.1052 *
	(0.0250)	(0.0580)	(0.0248)	(0.0574)	(0.0246)	(0.0574)
Wholesale and retail trade	-0.0366	-0.0710 ***	-0.0325	-0.0594 ***	-0.0321	-0.0589 ***
	(0.0247)	(0.0224)	(0.0245)	(0.0225)	(0.0244)	(0.0223)
Hotels and restaurants	-0.1262 ***	-0.0192	-0.1129 ***	-0.0112	-0.1129 ***	-0.0108
	(0.0380)	(0.0332)	(0.0377)	(0.0328)	(0.0377)	(0.0327)
Transport, storage and communication	0.1023 ***	0.0629 *	0.1049 ***	0.0761 **	0.1057 ***	0.0764 **
	(0.0255)	(0.0378)	(0.0253)	(0.0376)	(0.0253)	(0.0375)
Financial intermediation	0.1800 ***	0.2489 ***	0.1617 **	0.2484 ***	0.1615 **	0.2491 ***
	(0.0672)	(0.0356)	(0.0668)	(0.0353)	(0.0668)	(0.0352)
Real estate, renting and business activities	0.1019 **	0.0166	0.0652	0.0121	0.0655	0.0132
	(0.0428)	(0.0370)	(0.0429)	(0.0367)	(0.0427)	(0.0365)
Public administration	0.1875 ***	0.0353	0.1830 ***	0.0353	0.1839 ***	0.0368
	(0.0334)	(0.0321)	(0.0332)	(0.0318)	(0.0326)	(0.0313)
Education	0.0420	-0.0120	-0.0234	-0.0500 *	-0.0224	-0.0492 *
	(0.0446)	(0.0286)	(0.0453)	(0.0292)	(0.0451)	(0.0291)
Health and social work	0.0784 *	0.0571 **	0.0421	0.0576 **	0.0412	0.0581 **
	(0.0436)	(0.0269)	(0.0438)	(0.0267)	(0.0437)	(0.0266)
Other community and social activities	0.0879 **	0.0821 **	0.0745 *	0.0790 **	0.0748 *	0.0801 **
	(0.0408)	(0.0391)	(0.0407)	(0.0388)	(0.0403)	(0.0387)
Central Croatia	-0.0654 ***	-0.0596 ***	-0.0602 ***	-0.0591 ***	-0.0601 ***	-0.0591 ***
	(0.0209)	(0.0197)	(0.0208)	(0.0196)	(0.0207)	(0.0196)
Adriatic Croatia	-0.0229	-0.0642 ***	-0.0179	-0.0696 ***	-0.0176	-0.0700 ***
	(0.0194)	(0.0181)	(0.0193)	(0.0179)	(0.0193)	(0.0179)
East Croatia	-0.0936 ***	-0.1115 ***	-0.0866 ***	-0.1131 ***	-0.0860 ***	-0.1131 ***
	(0.0229)	(0.0224)	(0.0227)	(0.0221)	(0.0227)	(0.0221)
Included observations:	2873	2316	2873	2316	2873	2316
R-squared	0.184	0.238	0.199	0.257	0.199	0.257
Adjusted R-squared	0.177	0.230	0.190	0.247	0.191	0.248

	2004					
	Basic equations		Augmented equations		Augmented - experience only	
Variable	Males	Females	Males	Females	Males	Females
Constant	2.0425 ***	1.7604 ***	2.4541 ***	2.1249 ***	2.4593 ***	2.1266 ***
	(0.0304)	(0.0292)	(0.0488)	(0.0521)	(0.0489)	(0.0521)
Years of education	0.0624 ***	0.0781 ***	0.0266 ***	0.0520 ***	0.0275 ***	0.0520 ***
	(0.0021)	(0.0020)	(0.0064)	(0.0065)	(0.0064)	(0.0065)
Elementary school			-0.0725 *	-0.1019 **	-0.0737 *	-0.1007 **
			(0.0380)	(0.0458)	(0.0381)	(0.0458)
Secondary school			0.0596 **	0.0088	0.0539 **	0.0074
			(0.0260)	(0.0273)	(0.0260)	(0.0274)
Non-university college			0.1852 ***	0.1402 ***	0.1803 ***	0.1422 ***
			(0.0252)	(0.0224)	(0.0253)	(0.0224)
University			0.1318 ***	0.1041 ***	0.1315 ***	0.1021 ***
			(0.0266)	(0.0229)	(0.0267)	(0.0229)
Masters and higher			0.0818	0.0689	0.0816	0.0700
			(0.0578)	(0.0584)	(0.0579)	(0.0585)
Tenure	0.0076 ***	0.0053 ***	0.0067 ***	0.0059 ***		
	(0.0018)	(0.0019)	(0.0017)	(0.0018)		
Tenure^2	-0.0002 ***	-0.0001 **	-0.0001 ***	-0.0002 ***		
	(0.0001)	(0.0001)	(0.0000)	(0.0001)		
Experience	0.0083 ***	0.0039 *	0.0087 ***	0.0037 **	0.0122 ***	0.0076 ***
	(0.0019)	(0.0021)	(0.0018)	(0.0019)	(0.0015)	(0.0015)
Experience^2	-0.0001 ***	0.0001	-0.0002 ***	0.0001	-0.0002 ***	0.0000
	(0.0000)	(0.0001)	(0.0000)	(0.0001)	(0.0000)	(0.0000)
Marital status	0.0813 ***	0.0102	0.0806 ***	0.0094	0.0776 ***	0.0085
	(0.0120)	(0.0106)	(0.0118)	(0.0104)	(0.0118)	(0.0104)
State sector	0.0789 ***	0.0728 ***	0.0773 ***	0.0708 ***	0.0906 ***	0.0768 ***
	(0.0128)	(0.0142)	(0.0126)	(0.0139)	(0.0123)	(0.0137)
Urban settlement	0.0174 *	0.0187 *	0.0167 *	0.0148	0.0156	0.0147
	(0.0103)	(0.0104)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
Agriculture, hunting and forestry	-0.0796 ***	0.0332	-0.1123 ***	-0.0289	-0.1154 ***	-0.0328
	(0.0195)	(0.0245)	(0.0195)	(0.0248)	(0.0195)	(0.0248)
Fishing	-0.0308	-0.1345	-0.0232	-0.2212	-0.0382	-0.2107
	(0.0692)	(0.1694)	(0.0682)	(0.1663)	(0.0683)	(0.1664)
Mining and quarrying	0.1190 ***	0.4220 **	0.1176 ***	0.3397 **	0.1170 ***	0.3529 **
	(0.0452)	(0.1696)	(0.0445)	(0.1667)	(0.0446)	(0.1668)
Electricity, gas and water supply	0.0992 ***	0.1634 ***	0.1057 ***	0.1697 ***	0.1058 ***	0.1691 ***
	(0.0287)	(0.0434)	(0.0283)	(0.0426)	(0.0283)	(0.0426)
Construction	0.0323 **	0.0621 *	0.0263 *	0.0741 **	0.0154	0.0711 **
	(0.0153)	(0.0366)	(0.0151)	(0.0359)	(0.0150)	(0.0359)
Wholesale and retail trade	-0.0386 **	-0.0306 **	-0.0344 **	-0.0100	-0.0423 ***	-0.0140
	(0.0162)	(0.0151)	(0.0159)	(0.0151)	(0.0159)	(0.0150)
Hotels and restaurants	-0.1057 ***	0.0292	-0.0930 ***	0.0395 **	-0.0984 ***	0.0364 *
	(0.0232)	(0.0202)	(0.0229)	(0.0199)	(0.0229)	(0.0198)
Transport, storage and communication	0.1097 ***	0.2075 ***	0.1130 ***	0.2156 ***	0.1117 ***	0.2149 ***
	(0.0174)	(0.0273)	(0.0171)	(0.0268)	(0.0171)	(0.0268)
Financial intermediation	0.1684 ***	0.3524 ***	0.1479 ***	0.3623 ***	0.1366 ***	0.3626 ***
	(0.0454)	(0.0271)	(0.0449)	(0.0266)	(0.0449)	(0.0266)
Real estate, renting and business activities	0.0152	0.1077 ***	-0.0107	0.1014 ***	-0.0199	0.0988 ***
	(0.0246)	(0.0248)	(0.0244)	(0.0243)	(0.0243)	(0.0242)
Public administration	0.1385 ***	0.1142 ***	0.1279 ***	0.1099 ***	0.1235 ***	0.1081 ***
	(0.0218)	(0.0228)	(0.0215)	(0.0224)	(0.0214)	(0.0223)
Education	0.0143	0.0922 ***	-0.0456	0.0503 **	-0.0518 *	0.0479 **
	(0.0300)	(0.0207)	(0.0299)	(0.0208)	(0.0299)	(0.0207)
Health and social work	0.1327 ***	0.1879 ***	0.1120 ***	0.1909 ***	0.1114 ***	0.1892 ***
	(0.0324)	(0.0194)	(0.0324)	(0.0191)	(0.0324)	(0.0191)
Other community and social activities	0.0199	0.0406 *	-0.0010	0.0409 *	-0.0094	0.0381 *
	(0.0285)	(0.0236)	(0.0282)	(0.0232)	(0.0282)	(0.0231)
Central Croatia	-0.1222 ***	-0.1185 ***	-0.1239 ***	-0.1161 ***	-0.1246 ***	-0.1158 ***
	(0.0142)	(0.0136)	(0.0140)	(0.0133)	(0.0140)	(0.0133)
Adriatic Croatia	0.0030	-0.0513 ***	-0.0020	-0.0586 ***	-0.0029	-0.0589 ***
	(0.0129)	(0.0118)	(0.0127)	(0.0116)	(0.0127)	(0.0116)
East Croatia	-0.1264 ***	-0.1330 ***	-0.1312 ***	-0.1313 ***	-0.1333 ***	-0.1329 ***
	(0.0145)	(0.0139)	(0.0143)	(0.0136)	(0.0143)	(0.0136)
Included observations:	5834	4263	5834	4263	5834	4263
R-squared	0.325	0.481	0.346	0.502	0.343	0.501
Adjusted R-squared	0.322	0.478	0.342	0.499	0.340	0.498

* - significant at 1% level
** - significant at 5% level
*** - significant at 10% level