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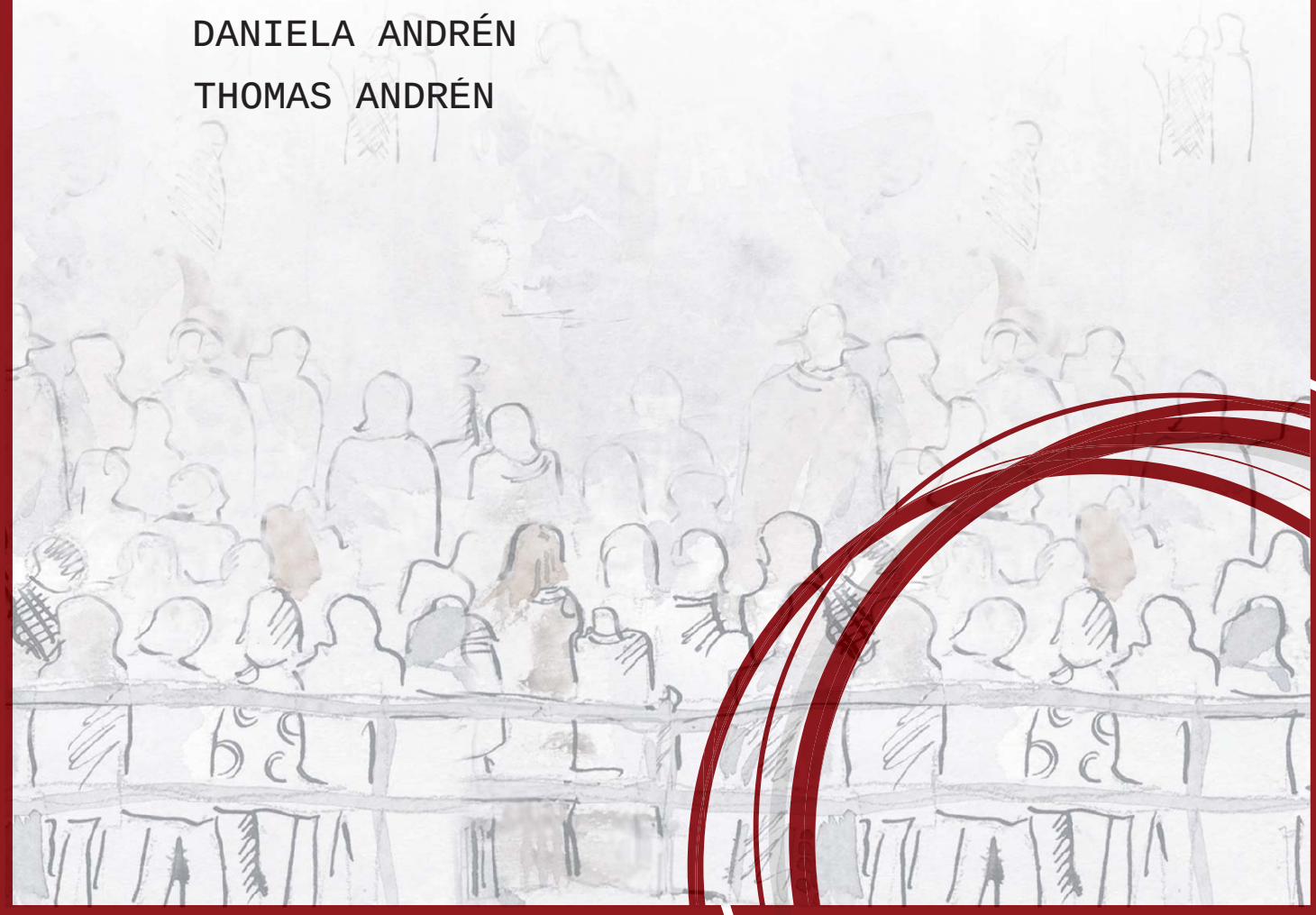

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ABSTRACT

Gender and occupational wage gaps in Romania: from planned equality to market inequality?

In Romania, the communist regime promoted an official policy of gender equality for more than 40 years, providing equal access to education and employment, and restricting pay differentiation based on gender. After its fall in December 1989, the promotion of equal opportunities and treatment for women and men did not constitute a priority for any of the governments of the 1990s. This paper analyzes both gender and occupational wage gaps before and during the first years of transition to a market economy, and finds that the communist institutions did succeed in eliminating the gender wage differences in female- and male-dominated occupations, but not in gender-integrated occupations. During both regimes, wage differences were in general much higher among workers of the same gender working in different occupations than between women and men working in the same occupational group, and women experienced a larger variation of occupational wage differentials than men.

Keywords: Romania, female- and male-dominated occupations, gender wage gap, occupational wage gap

JEL Classification: J24, J31, J71, J78, P26, P27

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1 Introduction

In Romania, the communist regime proclaimed from its establishment in the middle of the 1940s that liberty, gender equality and the emancipation of women were some of the main targets in the development of the new socialist society. A nationwide campaign was launched in order to eliminate female illiteracy, to increase the enrollment of women in secondary schools and universities, and to increase female employment outside of the household. Although all "able-bodied" citizens of working-age had the right and duty to work and were guaranteed a job, labor markets in particular were subject to a number of constraints, including a strict regulation of mobility, central allocation of university graduates to jobs, and a centralized wage-setting process. Additionally, from 1966, women were required to have more children. Hence, it does not seem likely that the communist regime could have reached its targets. However, the statistics show that by its fall in December 1989, at least some of the communist regime's targets regarding in particular the emancipation of women and gender equality in general had indeed been achieved. The most impressive achievement was that of the literacy rates. While in 1945, only 27% of the population was unable to read or write, in 1989, the literacy rates were 95.6% for women, and 98.6% for men (UNESCO, 2002; 2005). Another impressive achievement is the relatively high and gender neutral proportion of young people who were enrolled in high schools or universities in 1988/89: a) about 70% of males aged 15-19 years, and about 72% of females in the same age interval were enrolled in high school education; b) about 6% of both males and females aged 19-25 years were enrolled in some form of higher education (National Commission for Statistics, 1995). Nevertheless, the workforce participation rates were unusually high relative to Western standards for both women (about 90-95% during the 1970s and 1980s), and men, approached 100 percent.

Before December 1989, the institutional support for women rights was strong. Romania ratified the United Nations Convention on the Elimination of All Forms of Discrimination Against Women on January 7, 1982. The Constitution of the Socialist Republic of Romania, adopted in 1965, states that "*women and men have equal rights*",[1] and the new constitution, adopted in 1991 and modified in 2003, reinforces "*equal pay for equal work*" (or mot à mot, "on equal work with men, women shall get equal

[1] "In Republica Socialista Romania, femeia are drepturi egale cu barbatul." (Art. 26).

wages").[2] However, under central planning, wages were set according to industry-specific wage grids varying only with the difficulty of the job and with worker education and experience, and not with gender. Given that the promotion of equal opportunities and treatment did not constitute a priority for any of the governments of the 1990s (United Nations, 2003),[3] the question is how much the communist setting of gender equality was affected by the economic and social downturns of the transition years.

Previous research on other transition economies found that the gender wage gap generally decreases in the transition process. Given the similarities between the Romanian economy and the other transition economies from Central and Eastern Europe, especially in terms of issues related to gender equality, it was not unexpected that the gender wage gap in Romania reached similar levels in the first years of transition (Paternostro and Sahn, 1999; Skoufias, 2003). The contribution of this study is not only the analysis of the wage gap during the communist regime and during the first ten years of transition, but also the use of a structural approach that controls for occupational attainment and institutional settings. The main hypothesis is that the process of labor reallocation caused by the economic transition had an impact not only on the occupational distribution of women and men, but also on the gender wage gap and the occupational wage gap. Therefore, we analyze not only the gender wage gap, as previous studies on Romanian data, but also the wage gap between occupations in general, but also separately for men and women. The results from different regimes characterized by different settings and interventions suggest that public policies aimed to decrease the gender wage gap should focus more on redistributing labor or redirecting potential labor market entrants across occupations.

The study is organized in the following way. Section 2 presents some aspects related to gender equality in Romania during the communist regime and the transition period, and Section 3 describes the empirical specification. The data and the samples

[2] "La munca egala, femeile au salariu egal cu barbatii." (Art. 38, §4 from 1991, and Art. 41, § 4 from 2004).

[3] In 2000, the last year of the available data, a special Commission for Equal Opportunities was established. The new Romanian Constitution, modified in 2003, states that "everyone has the free choice of profession and workplace", and reinforces the guarantee for equal opportunities for women and men in gaining access to a public office or dignity, civil or military. However, in 2003, there was a major gap between policy and practice, with women earning less, being concentrated in low-paid sectors and under-represented in management (Vasile, 2004).

used in this study are presented in Section 4, while the results are presented in Section 5. Section 6 contains a summary of the paper with some policy implications.

2 The gender issues and the institutions

The gender equality actions in Romania were developed during the communism era when "liberty", gender equality, and the emancipation of women were emphasized in the constitution as well as in other official documents (e.g., the Communist Party's decisions, laws and decrees). During the second half of the 1940s when communism was imposed in Romania, the society was predominantly rural with a strong mentality towards the woman as the crucial "factor" of the family. Therefore, it was impossible to imagine that Romanian women could engage in work outside the household in general, and especially in work considered to be suitable for men only. However, in the 1950s, this aspect of gender equality in the economy was evoked in party speeches by the presence of "women heroes" working in areas which had typically been male-dominated: from working in mines underground, or in industrial, chemical and metallurgical operations, to professions in areas such as surgery and experimental sciences (Vese, 2001). Furthermore, the state launched a nationwide campaign to virtually eliminate female illiteracy and to increase the enrollment of women in secondary schools and universities. At the same time that these changes were being put into place, the state was demanding that women have more children. This was done through different regulations, such as a fertility policy that banned abortion and limited contraception; the introduction of a tax on adults older than twenty-five years, single or married, who were childless; and the offering of a number of positive incentives to increase births, e.g., parents of large families were given additional subsidies for each new birth, families with children were given preference in housing assignments, the number of child care facilities were increased, and maternal leave policies were put into place (Keil and Andreescu, 1999).

Beginning in 1951, Romania set into practice the Soviet system of central planning based on five-year development cycles. The development program assigned top priority to the industrial sector (the machinery, metallurgical, petroleum refining, electric power, and chemical industries), necessitating a major movement of labor from the agriculture occupations in the countryside to industrial jobs in newly created urban

centers. The labor market was characterized by a centralized wage-setting process with a standard set of rules based on industry, occupation, and length of service (Earle and Sapatoru 1993). Wages were set according to industry-specific wage grids varying only with the difficulty of the job and with the worker's education and work experience, not with gender. After the fall of communism, in December 1989, the new wage law of February 1991 formally decentralized wage determination in Romania. All state and privately owned commercial companies were granted the right to determine their wage structure autonomously through collective or individual negotiations between employees and employer. All restrictions on eligibility for promotion, bonuses, and internal and external migration were lifted. Also, hours of work per week were reduced from 46 to 40 without any decrease in monthly wages (Skoufias, 2003).

The structural starting point of the economic transformation was an oversized state-owned industry characterized by low competition and weak interaction with the world market. Despite still being the majority owner, the state did not intervene with any policy regarding wage differentials. Instead, its interventions have been limited to periodic indexations. Nevertheless, the state allowed sometime specific indexations only for the state institutions in order to diminish an increasing gap caused by the more rapid wage increases in the some industries because of negotiations of the collective and individual contracts. This system was supplemented by price liberalization and privatization, financial crises and a lack of (rule of) laws. All these factors have an effect on the labor market participation, occupational attainment and, nonetheless, on people's opinion about their opportunities and their place on the labor market. The 2000 Gender Barometer indicates that about half of those interviewed answered that it does not exist real equality of rights between women and men.[4] A majority (about 75-88%) considered gender not to be important in some occupations with respect to who should be employed (e.g., media, nongovernmental organizations, public administration, health, agriculture and banking), but that men should be employed in mining and metallurgy and construction, and women should be employed in the textile industry (See Table A1 in the Appendix).

[4] The Gender Barometer of the Open Society Foundation covers a representative sample of 1,839 persons aged 18 and over, and it is the first documented attempt to examine the Romanian society in terms of the roles of women and men, their relationships, and their everyday life.

3 Empirical framework

The earlier literature on wage differentials suggests that the fact that occupations differ in average wage rate enhances and distorts the overall wage differentials between groups of people. Controlling for individual characteristics and observed occupational choice is not enough to hedge this distortion, and therefore we formulate a selection model with an endogenous switch among three broad types of occupational groups.[5] Within this framework, a given individual could be in any of the three sectors, and each sector has its own wage-generating function that will depend on the observed and unobserved characteristics of the individual, everything else equal. To analyze the wage differences among the sectors for a given individual requires formulating an wage equation for each sector:

$$Y_1 = X\beta_1 + U_1 \qquad \text{male-dominated (MD) occupations,} \qquad (1)$$

$$Y_2 = X\beta_2 + U_2 \qquad \text{gender-integrated (GI) occupations,} \qquad (2)$$

$$Y_3 = X\beta_3 + U_3 \qquad \text{female-dominated (FD) occupations,} \qquad (3)$$

where Y_j is the market wage for sector j, j =1, 2 or 3; sector 1 represents the male-dominated (MD) occupations, sector 2 the gender-integrated (GI) occupations, and sector 3 the female-dominated (FD) occupations. X is a matrix with explanatory variables for the market wage, and β_j is the associated parameter vector, which is unique for each sector.

The occupational choice is based on the taste or the propensity for a specific occupation: male dominated (i.e., occupation with a high density of men), gender integrated, and female-dominated (i.e., occupation with a low density of men). The choice mechanism is specified as a linear latent variable model:

$$D^* = Z\gamma + \varepsilon \ , \qquad (4)$$

[5] Several papers analyze the occupational segregation and wages by estimating the effect of women's density in different occupations on individual wages. A potential problem in these studies is the endogeneity of occupational choice. Except for a few studies that do take this problem into account, e.g., Hansen and Wahlberg (2007), Macpherson and Hirsch (1995), Sorensen (1989; 1990), and England et al. (1988), most of the literature is based on the assumption that occupational attainment is exogenous.

where Z is a matrix with explanatory variables that determine the size of the occupational propensity score, and γ is the associated parameters vector of these factors. The dependent latent variable D^* represents the propensity to choose a male-dominated occupation. A low value of D^* represents a low propensity to choose a male dominated occupation, which should be seen as equivalent to a high propensity to choose a female-dominated occupation. If the latent variable takes a value between a high and a low value, the individual will choose an occupation from the gender-integrated sector. The observed counterpart of the latent variable is defined as:

$$D = \begin{cases} 1 & \text{if} \quad D^* < c_1 \quad \text{(MD)} \\ 2 & \text{if} \quad c_1 \le D^* \le c_2 \quad \text{(GI)} \\ 3 & \text{if} \quad D^* > c_2 \quad \text{(FD)} \end{cases} \quad <=> \quad D = \begin{cases} 1 & \text{if} \quad \varepsilon < c_1 - Z\gamma \\ 2 & \text{if} \quad c_1 - Z\gamma \le \varepsilon \le c_2 - Z\gamma \\ 3 & \text{if} \quad \varepsilon > c_2 - Z\gamma \end{cases}, \qquad (5)$$

with c_1 and c_2 being two unknown break points that will be estimated, and may be interpreted as intercepts, since Z does not include any constant.

The model, as defined by equations (1)-(5), contains four stochastic components that presumably are related to each other if the occupational choice is endogenous. We assume that these components are *i.i.d.* drawings from a multivariate normal distribution, i.e., $(U_1, U_2, U_3, \varepsilon) \sim N(0, \Sigma)$. In principle, one can allow for any potential correlation among the stochastic components. However, for a given individual, we only observe the actual wage and the indicated occupational choice in pairs, and not simultaneously with wages in other sectors. Therefore, the observability is partial, and we have to make inference on the population based on marginal distributions that correspond to the observed data. In particular, $Cov(U_1, \varepsilon)$, $Cov(U_2, \varepsilon)$ and $Cov(U_3, \varepsilon)$ are identified by the data and are therefore allowed to be non-zero, while the covariances among the residuals from the output equations, $Cov(U_1, U_2)$, $Cov(U_1, U_3)$ and $Cov(U_2, U_3)$, are left unspecified. The variances of the output equations, $Var(U_1)$, $Var(U_2)$ and $Var(U_3)$, are identified, and we choose to normalize the variance of the residual of the selection equation to 1.

In order to form the likelihood function, we make use of the marginal bivariate normal density functions for (U_1,ε), (U_2,ε), and (U_3,ε), and define the following indicator variables

$$\delta_1 = \begin{cases} 1 & \text{if } D=1 \\ 0 & \text{elsewhere} \end{cases}, \ \delta_2 = \begin{cases} 1 & \text{if } D=2 \\ 0 & \text{elsewhere} \end{cases}, \ \delta_3 = \begin{cases} 1 & \text{if } D=3 \\ 0 & \text{elsewhere} \end{cases}.$$

Using this information, we construct the following likelihood function

$$L = \prod_{i=1}^{N} \left[\int_{-\infty}^{c_1 - Z_i\gamma} f(U_{1i},\varepsilon_i) d\varepsilon_i \right]^{\delta_1} \left[\int_{c_1 - Z_i\gamma}^{c_2 - Z_i\gamma} f(U_{2i},\varepsilon_i) d\varepsilon_i \right]^{\delta_2} \left[\int_{c_2 - Z_i\gamma}^{\infty} f(U_{3i},\varepsilon_i) d\varepsilon_i \right]^{\delta_3}.$$

The conditional expectation of the wage residuals from each of the three sectors tells us whether there is a positive or a negative selection into the analyzed sector, and they are given by the following expressions

$$E[U_1 \mid X, D=1] = Cov(U_1,\varepsilon) \times \underbrace{E[\varepsilon \mid \varepsilon < c_1 - Z\gamma]}_{Negative}, \tag{6}$$

$$E[U_2 \mid X, D=2] = Cov(U_2,\varepsilon) \times \underbrace{E[\varepsilon \mid c_1 - Z\gamma \le \varepsilon \le c_2 - Z\gamma]}_{Positive/negative}, \tag{7}$$

$$E[U_3 \mid X, D=3] = Cov(U_3,\varepsilon) \times \underbrace{E[\varepsilon \mid \varepsilon > c_2 - Z\gamma]}_{Positive}. \tag{8}$$

Since the sign of the second term of the product in Equations (6) and (8) is fixed by construction, it is the sign of the covariance that determines the sign of the conditional expectations. This means that if $Cov(U_1,\varepsilon) > 0$ and $Cov(U_3,\varepsilon) < 0$, then there is a positive selection effect of the occupational sector on wage. In equation (7), on the other hand, the covariance is just one of several factors determining the direction of the selection. The estimates are used to compute the components of the gender wage gap for the whole sample (i.e., all occupations together) and by occupational sector (i.e.,

MD, GI and FD occupations), as well as the occupational wage gap for women and men separately.[6]

4 Data

The data used in the empirical analysis is drawn from the Romanian Integrated Household Survey (RIHS). For the socialist years, 1960-1989, we use retrospective information in the 1994 survey, and for the analyzed transition years, we use the annual household survey (1994, 1996, 1998, and 2000).[7] The number of observations that include information about the wages and explanatory variables relevant for analysis vary across the cross-sections, starting at 25,565 in 1994, decreasing to 21,518 in 1998, and decreasing to 17,480 in 2000. The labor force history's data contains about 12,000 individuals.

The net monthly wage is computed as earnings on the primary job in the previous month minus taxes and other mandatory contributions. The wage variable refers to the previous month from 1994 to 2000 and to the starting wage from 1950 to 1989. Our concern are gender and occupational wage gaps rather than the overall level of real wages, so that our approach of estimating repeated cross-sections involves no deflation of the dependent variable. Nevertheless, the significant inflation during the 1990s requires some within survey period adjustments, for which we use monthly dummies. The evolution of women's net monthly wages relative to men's varies between 84% in 1971-75 and 91% during 1986-89 (Figure A1 in the Appendix). Compared to the female-male wage ratio reported by Brainerd (2000), the Romanian values are near to those in Columbia (85% in 1988) and Sweden (84% in 1992), but higher than those in USA (70% in 1987) and the Russian Republic (69% in 1989).

The next important variable in our analysis is occupation. Using a conventional approach that splits occupations into three groups based on the proportion of female workers in the occupation,[8] we define occupations with less than 33% women as being male-dominated occupations and occupations with more than 67% women as being female-dominated category. The remaining occupations form the gender-integrated

[6] See Andrén and Andrén (2007) for a detailed description of the decomposition and each of its components.
[7] We analyzed all cross-sections (1994-2000), but we report results for every second year. Unfortunately, although originally designed as a panel, the data do not permit linking of individual observations across all years.
[8] See Jacobs (1995) for details about occupational groups.

occupations category.[9] The highest difference between women and men wages was in the gender-integrated sector, the women's net monthly wages being about 80% of the men's during transition years. The smallest difference was in female-dominated sector, where women earn on average about 90-95% of men's monthly wages during 1981-1996 (Figure A1 in the Appendix).

During the period before 1989, the relative differences between net monthly wages between the three occupational sectors suggest that there was a moving trend towards equalization of occupational wage differences for both women and men (Figure A2 in the Appendix). Regardless of their gender, those working in male-dominated occupations earned more than those working in gender-integrated occupations, but this relationship switched direction after 1994, and increased again during 1996 and 1997. Furthermore, the evolution of the relative differences in the occupational wage gap during transition years was different for women and men, suggesting that the market mechanisms can generate occupational wage differences. The occupational differences were larger for women than for men after 1994. For men, there is basically no difference between gender-integrated and female-dominated occupations, while women working in the sector of female-dominated occupations earn less than women working in the sector of gender-integrated occupations.

Another group of variables, important in analyzing the effect of occupational selection on the domain-specific wages were the instruments for occupational choices. Concerning this, it is generally difficult to obtain observable characteristics that influence occupational choice but not wages. Using data for several years characterized by different structural changes in the economy makes it even harder to find instruments that work well for both women and men for all years. However, the institutional settings during the analyzed period suggest that the wage differentiation based on gender was restricted under central planning, and even in the beginning of the transition period. Wages were set according to industry-specific wage grids varying only with the difficulty of the job and with worker education and experience, and not with gender.

[9] The distribution of individuals across these three groups was almost the same when we chose another cutting point (e.g., 25%, 30%, 35%). Figure A3 shows the evolution of these groups during 1951-2000. We divide the period before 1990's into 5-year periods that overlap five-year development plans. Table A2 shows the proportion of women working in occupations with more than 50%, 60%, 70%, 80% and 90% women, and the same figures for men. Tables A3-A5 in the Appendix present basic descriptive statistics (by gender) for some variables used in the empirical analysis.

Additionally, under the central plan, given their last completed level of education and their ranking (based on academic grades and political, cultural and even sportive involvement), people could choose from a given and very limited list of jobs. Therefore, we argue that last completed level of schooling is an exogenous source of variation in occupational attainment that allows us to identify the causal effect of occupation. More exactly, after finishing compulsory education (i.e., 8 years of schooling), people had to pass an admission test in order to continue their education at the high school level. A majority of those who did not pass the test instead continued into vocational schools (most of the time, being vocational programs of 1-2 years at the working place). Those who passed the test were admitted to high school (lyceums), which could be general (e.g., mathematics-physics, natural sciences, and philosophy-history), specialized (e.g., economic, pedagogical, health care, and art), industrial or agro-industrial. After two years of high school, students had to pass a new test in order to continue the last two years of high school. When finishing these two additional years, students had to pass another set of tests in order to receive high school diploma. Only those who had high school diploma could then take the university admission test (the university education was 3-6 years). High school graduates who were not admitted at university usually did not have many occupational choices; only few (usually those who graduated from a specialized high school) had a certain situation regarding their occupation (e.g., nurses, teachers in the pre-school and primary education). From those who were not admitted at university, graduates from general high schools had on average better academic merits and their human capital were better off on average than their peers who had graduated from industrial and agro-industrial high schools., but there were no clear rules for who would get the most attractive job. Sometimes they had to compete even with their peers who graduated a shorter vocational program (from vocational schools). These are some of the institutional settings that suggest that wages were related to the occupation, as a combination of factors such as education, job, and task-specific requirements during the analyzed years (both before 1989, and the first years of the transition). Due to this combination, it happened that people in different occupations with different level of education but with different working conditions had almost the same salary. Hence, in order to control for the effect of the education on wages and occupational attainment, respectively, we use two different groups of educational dummies. The first group, used

in the wage equations, includes three variables for educational level: lower, medium and higher, while the second group, used in the selection equation, includes five variables for the human capital's specialization: compulsory, vocational, 2 or 4 years high school, post-high school, and university. The "lower" category in the wage equation covers the "compulsory" (which can be 4 or 8 years) and "vocational" in the selection equation, while "medium" covers "high school" and "post-high school"; and "higher" is the same as "university". Due to these differences, we use the "vocational", "2 or 4 years high school", and "post high school" as instruments. In addition to these instruments, we use three region-dummies that control for occupational "specialization" within ethnic groups [(Borjas (1992; 1995), Lehrer (2004)]. We control for this effect through geographical regions. Following the same strategy as for education, the regions are aggregated in different groups of dummies: (i) four dummies for the richest geographical regions (R4-R8), in the wage equations; and (ii) five dummies for regions with a big majority of ethnic Romanians (R1-R4 and R8) in comparisons with the regions with a relatively high proportion of other ethnicities, mainly ethnic Hungarians,[10] in the selection equation.

5 Results

We estimate a selection model with an endogenous switch among three broad types of occupational groups defined by their gender composition: male-dominated, gender-integrated, and female-dominated occupations. The parameters for the occupational selection equation and the domain-specific wage equations are estimated simultaneously.

5.1 Selection into occupational groups

The parameters for the occupational selection equation and the domain-specific wage equations are estimated simultaneously. Table 1 presents the estimates of the selection equations for women and men, respectively.[11]

[10] See Andrén (2007) for a detailed description and analysis of wage differences between ethnic Romanians and ethnic Hungarians.

[11] Tables A6 and A7 in the Appendix present the estimates of domain-specific (i.e., MD, GI and FD) wage equations for women and men respectively.

Table 1 Selection equation estimates, by gender, 1960-2000

	Women					Men				
	1960-89	1994	1996	1998	2000	1960-89	1994	1996	1998	2000
c_1	-0.894***	-0.510**	-1.072***	-1.345***	-0.682**	-1.285***	-0.938***	-0.544***	-0.610***	-0.754***
c_2	2.138***	2.112***	1.658***	1.547***	2.149***	1.595***	1.698***	2.174***	2.214***	1.931***
Age	0.425***	0.365***	0.004	0.000	0.274*	-0.119	-0.303***	-0.008	0.029	-0.009
$Age^2/10$	-0.049**	-0.034**	0.014	0.005	-0.024	0.026	0.048***	0.007	0.003	0.012
Educational Level[1)]										
Vocational	0.113*	0.222***	0.219***	0.253***	0.182***	-0.128**	0.155***	0.105***	0.097***	-0.255***
High school 2 years[#]	0.766***	0.802***	0.173***	0.226***	0.273***	0.208***	0.372***	0.034	0.139***	-0.172***
High school 4 years			0.934***	0.975***	0.932***			0.403***	0.421***	-0.017
After high school	0.922***	0.718***	0.805***	1.066***	1.033***	0.719***	0.689***	0.634***	0.652***	-0.546***
University	0.163	0.159***	0.296***	0.347***	0.343***	0.076	0.470***	0.381***	0.466***	0.065
Region										
R1: North-East	-0.101*	-0.174***	-0.185***	-0.240***	-0.173***	-0.010	-0.107***	-0.182***	-0.151***	0.033
R2: South-East	-0.067	-0.008	-0.087**	-0.151***	-0.101**	-0.277***	0.047	-0.047	-0.110***	-0.183***
R3:South	0.057	-0.114***	-0.072*	-0.122***	-0.094**	-0.145**	-0.064**	-0.140***	-0.128***	-0.089**
R4: South-West	-0.017	-0.075*	-0.162***	-0.200***	-0.215***	0.007	-0.050	-0.086**	-0.076*	0.019
R8: Bucharest	0.154*	-0.090**	-0.050	-0.055	-0.089*	-0.023	0.096**	0.043	-0.025	-0.099**
Hungarians*Center	-0.225	-0.403	-0.150	0.242	-0.434	-0.761	-0.287	-0.185	0.101	-0.428
Married	-0.046	-0.013	0.031	-0.030	0.004	-0.046	-0.127***	-0.105***	-0.225***	-0.071*
Urban	-0.109**	0.072**	-0.020	-0.056	-0.014	0.034	0.032	-0.009	0.026	0.082***
Ethnicity[2)]										
Romanian	-0.234*	-0.083	-0.025	-0.003	-0.015	-0.212*	-0.042	-0.053	-0.154*	-0.009
Hungarian	0.048	0.330	0.067	-0.201	0.404	0.635	0.255	0.060	-0.196	0.575
Sector [3)]										
Agriculture		-0.538***	-0.563***	-0.327***	-0.208**		-0.523***	-0.457***	-0.352***	-0.437***
Industry		-0.565***	-0.477***	-0.428***	-0.433***		0.127***	0.217***	0.227***	0.116***
Private ownership	0.406***	0.046	0.034	-0.040	-0.135***	-0.179**	0.138***	0.099***	0.065**	0.107***
Children aged< 18	-0.072***	-0.048***	-0.042***	-0.041***	-0.006	-0.020	0.010	0.010	0.020	-0.022*
Multi-generation household	-0.086	0.058	0.014	-0.097**	0.062	0.034	0.010	0.065*	0.033	0.109***
Variance-covariances										
$Var(U_1)$	0.158**	0.230***	0.231***	0.276***	0.274***	0.143***	0.233***	0.266***	0.259***	0.363***
$Var(U_2)$	0.362***	0.196***	0.196***	0.180***	0.201***	0.246***	0.203***	0.203***	0.186***	0.210***
$Var(U_3)$	0.275***	0.236***	0.209***	0.159***	0.188***	0.148***	0.177***	0.129***	0.156**	0.464***
$Cov(U_1, \varepsilon)$	-0.241	-0.284***	-0.332***	-0.380***	-0.381***	0.010	-0.329***	-0.402***	-0.391***	0.516***
$Cov(U_2, \varepsilon)$	-0.300***	-0.245***	-0.279***	-0.292***	-0.319***	0.142***	-0.264***	-0.293***	-0.271***	0.292***
$Cov(U_3, \varepsilon)$	-0.461***	-0.374***	-0.271***	-0.162**	-0.243***	-0.103	-0.255**	-0.085	0.139	0.619***
Likelihood	-6266.7	-12476.5	-11197.5	-9426.8	-8267.2	-6923.4	-17877.1	-15364.5	-13023.9	-10944

Notes: The estimate is significant at the 10% level (*), at the 5% level (**), and at the 1% level (***). These notes hold for all tables of estimates. (1) the comparison group is compulsory; (2) the comparison group is all other ethnicities; (3) the comparison group is services. Dummies for 5-year plan periods and three dummies for ownership were also included.

Additionally, Table 1 presents the estimated variances and covariances of the error terms of the wage and selection equations, which provide useful information regarding the sorting behavior of individuals across sectors. The estimated coefficients of the occupational selection (or attainment) equation indicate that the probability to work in a given occupational group (i.e., MD, GI or FD) differs between women and men. Even though it is not possible to pinpoint a clear trend, the parameters suggest that men's preferences for a given occupation were more stable than women's. Women's correlations between observables and occupational choice are less stable over time. However, when these correlations are statistically significant, they suggest that women changed preferences during transition years. The differences between women and men during the communist era might be due to the big changes in the economy during that time (such as industrialization, mass privatization of the agriculture, prohibition of abortion, etc.), while the differences during the transition years might indicate the collapse of the socialist support for women but also the changes in the economy and society, which might have changed women's work preferences and/or opportunities. However, the covariances for 2000 are positive for both women and men, indicating a negative selection effect for those that chose to work in male dominated occupations and a positive selection effect for those that work in female dominated occupations.

For women, the estimated correlations are negative for all the analyzed samples, suggesting the existence of hierarchical sorting. This means that women performed similarly in all sectors during both the communist regimes and the transition years. However, this was not the case for men.

For men, the covariances have different signs for the communist period, which suggests that men's sorting into occupational sectors during this regime was consistent with the theory of comparative advantage (Roy, 1951), suggesting that those who perform relatively well in one sector will perform relatively less well in another sector. More exactly, a given man selected the sector that paid him better than the average worker with the same characteristics and under the same working circumstances. Except 2000, when all were positive, the correlations were negative for all the other transition years, suggesting hierarchical sorting. This sorting structure implies that there is a positive selection into one sector and a negative selection into the other sector. Additionally to the interesting differences in sorting behavior of women and men across occupational

sectors revealed by the covariance parameters, the other parameters also reveal differences between women and men during the two eras. We use age as a proxy for the different regulation and structural changes that people born in different cohorts were facing. We use the continuous variable instead of age intervals in order to avoid the multicoliniarity with the educational dummies. The estimated parameters are significant for women during the communist period and in 1994 and 2000, while for men only in 1994, and they indicate that the probability of choosing a female-dominated occupation increased with age during these years.

The highest educational level attained is strongly correlated with the occupational choice for both women and men. However, women's parameters are much higher than men's, and are always positive, which suggest that women are more oriented towards female-dominated occupations when they have more schooling than what is compulsory. During all analyzed years of transition, the higher education parameter is statistically significant only for men, which indicate the collapse of the socialist support for women in male-dominated occupations, but also the freedom of the market economy, which restructure jobs and occupations but also how women and men choose their occupations.

The geographical region where people live is also correlated with the occupational choice for both women and men; both women and men living in some regions with a big majority of ethnic Romanians (R1 and R2, which are also relatively poorer regions) have a lower probability to choose to work in a female-dominated occupation than those living in a region with an ethnic overrepresentation (R5-R7). However, being an ethnic Hungarian living in a region with a relatively high concentration of ethnic Hungarians does not have a statistically significant impact on occupational choice. This might suggest that the policy of territorial development during the communist years makes this region more heterogeneous than the others. The same explanation might be used for the relationship between people living in urban areas and occupational choices. This is statistically significant for men in 2000 and for women during the communist regime and in 1994. Women who lived in an urban area had a lower probability to choose a female-dominated occupation during the communist regime, but a higher probability in 1994. Men who lived in an urban area had a higher probability to work in a female-dominated occupation in 2000. These findings might be

explained by the structural changes that made it more attractive for men to work in occupations within banking and insurance industries, or as real estate agents, accountants, etc. The results for the communist period might be explained by the concentration of big industries in the urban area, while the results for the transition might indicate that the changes in that era (such as restructuring of or the total collapse of the big industrial firms and of the whole agricultural system, as well as the increased private initiative oriented mainly towards commerce and services) re-allocated male labor towards female-dominated occupations.

The effect of the number of children younger than 18 in the household on occupational choice is significant (and negative) for women in all years except in 2000, while for men only in 2000. The significant parameters indicate that those with more children are more likely to work in male-dominated or gender-integrated occupations, which suggests that family structure might influence the occupational choice.

5.2 Decomposing the gender wage gap

5.2.1 The overall gender wage gap

Table 2 presents the evolution of the observed gender wage gap and its components for the whole sample (i.e., all occupational sectors together). The first component of the decomposition is related to endowments and comes from differences in observables such as age, education, and other socioeconomic factors important for the wage setting. The second component (addressed as the occupational effect) is related to differences between men and women in both the structure of occupational attainment and their qualifications for the chosen occupation. The third effect (addressed as the selectivity effect) is related to self selection into occupations that is driven by the unobservables. Since the occupational choice is made on the basis of the individual's preferences, skills, or abilities related to different work tasks, this self selected choice could potentially affect the wages positively under the assumption that strong preferences and productivity have a positive association. If the mean selection effect for men is stronger than for women, the total effect will be positive (as was the case in all analyzed years, except 2000). However, if the sorting into different sectors is random, the corresponding effect will be zero. The last component (addressed as discrimination) comes from differences in return to observables between men and women. Under the case of no

discrimination, this component would be zero,[12] which was not the case in our analysis. Except 2000, when the magnitude of this component was very low, all other transition years have values higher than before 1989.

Table 2 Overall gender wage gap decomposition, all occupations 1960-2000

	1960-1989	1994	1996	1998	2000
Observed	0.280	0.205	0.221	0.189	0.214
Endowments*	0.048	-0.016	-0.009	-0.016	-0.015
Occupational	0.001	-0.125	-0.091	-0.041	0.252
Selectivity	0.050	0.040	0.035	0.022	-0.061
Discrimination	0.172	0.302	0.286	0.223	0.036

Note: *we refer often to endowments as the component of the wage gap explained by the observables, or the explained part of the wage gap.

The observed overall gender wage gap, measured as the difference between mean log wages of male and female workers, stands at 0.28 during the communist era. In other words, the average female worker earned about 72% of the mean male wage. While the observed gender wage gap has remained almost constant over time, the relative importance of the individual components of the decomposition varies across years, with much higher variations in both female-dominated and male-dominated sectors during the transition period. These results support our earlier hypotheses and explanations about the effects of the structural changes in the economy during the transition period on both labor reallocation and the wage setting across occupations. The communist direction of gender equality spotlighted examples of "women heroes" working in typically masculine areas: from working in mines underground, or in industrial, chemical, and metallurgical operations, to areas such as surgery and experimental sciences. Our results show that on average, women were better off during the transition. However, this holds only for the formal market. Given that the informal market was growing substantially during the analyzed years of transition, it might be that on average women are much more discriminated now.

Our results suggest that some of the traditional motivations for the existence of the gender wage gap as in Becker's (1957) model are not supported by the institutional settings of a planned economy (education, experience, the discriminatory tastes of employers, co-workers, or customers). Even though women were expected to deliver more and more children (due to the 1966 abortion ban and almost no information about or supply of birth control), and the Romanian society is characterized by strong cultural

[12] However, a non-zero effect could also be due to lack of controlling for relevant variables.

traditions that hold women responsible for the well-functioning of the household, women (from our samples) invested in education and worked almost in the same way as men did. The fact that women tend to work the same amount of work hours as men (in the same occupation), but due to the cultural norms, women continued to spend longer hours doing housework, which might decreased labor productivity in the workplace. However, they received their fixed monthly wages, instead of decreased wages, as Becker (1985) suggested (for a market economy). This was the case even during the first years of transition.

5.2.2 The gender wage gap by occupational sector

Table 3 presents the decomposition within each occupational sector, which for obvious reasons does not include any occupational effect other then the effect that comes from self selection. The wage differential between male and female was different across sectors, with the highest observed differences in the gender-integrated occupations during all analyzed years. In this sector, the observed gender wage gap was highest during the communist regime, while the observed wage gaps for the other two sectors were almost zero: 2.7% in the male-dominated occupations, and 0.1% in the female-dominated occupations. These numbers are in accordance with the official policy of gender equality during the communist regime, when wages were set according to industry-specific wage grids varying only with the difficulty of the job and with worker education and experience, and not with gender. Compared to other sectors, the female-dominated occupations were characterized by less difficulty of the job tasks and less risk for accidents, which implies less “bonus”. These occupations were also more homogenous with respect to requirements for education (for example, the nurses and the teachers for the first four grades had graduated from specialized high schools), which also implies relatively lower wages. On the contrary, almost all male-dominated occupations were characterized by some degree of difficulty and/or risk, which increased the average wages. Moreover, it may have happened that women who worked in that sector chose occupations with lower degree of difficulty, and therefore their average wages were lower. The gender-integrated occupations may have included a diversity of occupations that could be rewarded differently because of the different degrees of difficulty and various levels of education. The selection into these

occupations may explain the gender wage gap. However, the endowments, or the part of the gender wage gap explained by the observables, offer another picture of the gender gap. The explained part is negative and much higher in magnitude than the observed gender wage gap in both male-dominated and female-dominated occupations. This indicates women's returns to endowments were higher than those of their male peers. This was not the case for the gender-integrated occupations, where the observables explain about 26% of the gender wage gap.

Table 3 Gender wage gap decomposition by sector, 1960-2000

	1960-1989	1994	1996	1998	2000
Male-dominated (MD) occupations					
Observed	0.027	0.164	0.099	0.081	0.146
Explained	-0.096	-0.026	-0.049	-0.043	-0.116
Discrimination (I)	0.585	0.257	0.226	0.333	1.649
Selection (II)	-0.481	-0.073	-0.077	-0.204	-1.394
Unexplained (I+II)	0.104	0.183	0.150	0.128	0.256
Gender-integrated (GI) occupations					
Observed	0.316	0.217	0.245	0.202	0.219
Explained	0.070	-0.016	-0.006	-0.013	-0.011
Discrimination (I)	0.198	0.332	0.352	0.315	0.177
Selection (II)	0.040	-0.104	-0.103	-0.102	0.054
Unexplained (I+II)	0.238	0.228	0.250	0.213	0.231
Female-dominated (FD) occupations					
Observed	0.009	0.110	0.115	0.081	0.145
Explained	-0.051	-0.009	0.002	-0.025	0.015
Discrimination (I)	-0.458	0.168	-0.068	-0.446	-1.590
Selection (II)	0.516	-0.053	0.186	0.551	1.723
Unexplained (I+II)	0.057	0.115	0.117	0.105	0.133

During the analyzed transition years, the observed gender wage gap increased in male-dominated and female-dominated occupations, and decreased in gender-integrated occupations, although the magnitude was still the highest in this sector. The observed gaps were the same in the male and female-dominated occupations in 1998 (about 8%) and 2000 (about 14.5%). Except the female-dominated occupations in 1996 and 2000, the component of the gap explained by the observables is negative for all other analyzed years and sectors. In the gender-integrated and female-dominated occupations, the magnitude of this component is (about 0.01) much smaller than during the communist period. In the male-dominated occupations, the magnitude is relatively higher than in the other sectors (0.04), and even higher in 2000 (0.116) than during the communist period. It is interesting that when controlling for selection into occupation, the unexplained component of the gender wage gap varies greatly across years in the male-dominated occupations, and it is almost the mirror image of the evolution of this component for the female-dominated occupations. This suggests once more that the

transition changes had a direct impact on the labor reallocation of women and men, but also on the pay in various female-dominated occupations (much higher wages in banking and accounting) and male-dominated occupations. This would suggest that the market economy played its role by bringing the wages to different levels, and policies such as affirmative action would have only limited effect on the level of the unexplained wage gap. Nevertheless, the discrimination component of the wage gap is negative for female-dominated occupations during communist era and the last transition years (1996, 1998, and 2000), while positive and relatively high in all other sectors during all analyzed years. This might suggest that women working in female-dominated occupations were rewarded better than their peers men in 1996, 1998 and 2000, everything else being the same.

5.3 Decomposing the occupational wage gap

Table 4 presents the observed occupational wage gap (MD-FD; MD-GI; and FD-GI) and its components for women and men respectively. The first component (i.e., endowments) represents the wage difference due to observed and explained factors. The second component should be seen as an occupational effect expressing the fact that some factors are rewarded differently in different occupations. The third component represents the selection factor and contains wage effects from unobserved individual characteristics that influence the wage of the individual.[13] All observed occupational wage gaps were positive for men, while for women the observed MD-FD differences were negative, but almost zero during the transition period and in 1994. Except for these two periods, the occupational wage gaps were relatively lower for men than for women. Most of the years, the men's values were lower than 0.1 (or 10%), while the women's values were more often 0.1-0.2, indicating that men's average wages did not differ a lot across. Moreover, the part of the men's occupational wage gap explained by endowments is positive only for the FD-GI gap during the communist period and in 2000, and for the MD-FD gap in 1998. All other twelve values are negative, which might suggest that the wages of "the average observables" for men were lower in the first sector (MD or FD) than in the second (FD or GI); here first and second refer to the

[13] Figure A4 in the Appendix presents the observed occupational wage gap, the explained (or the endowments) and the unexplained (i.e., occupational and selectivity together, for "readability" reason) components.

order of comparison. Nevertheless, the women's MD-FD gap explained by their endowments is positive and much higher than the observed gap during all years of transition. This suggests that "the average observables" for women is much higher in MD-occupations than in FD-occupations.

Table 4 Occupational wage gap (owg) decomposition by gender

		1960-89	1994	1996	1998	2000
Women						
MD-FD owg	Observed	-0.003	-0.013	0.055	0.052	0.034
$E(Y_1 - Y_3 \mid X, Z)$	Endowments	0.113	0.077	0.112	0.116	0.168
	Occupational (I)	-1.302	-1.075	-1.018	-1.005	-1.185
	Selectivity (II)	1.186	0.985	0.961	0.941	1.051
	Unexplained (I+II)	-0.116	-0.091	-0.057	-0.064	-0.134
MD-GI owg	Observed	0.415	0.120	0.203	0.200	0.199
$E(Y_1 - Y_2 \mid X, Z)$	Endowments	0.154	-0.015	0.006	-0.002	0.036
	Occupational (I)	-0.199	-0.316	-0.378	-0.490	-0.523
	Selectivity (II)	0.460	0.451	0.575	0.692	0.687
	Unexplained (I+II)	0.261	0.135	0.197	0.202	0.164
FD-GI owg	Observed	0.417	0.133	0.148	0.148	0.165
$E(Y_3 - Y_2 \mid X, Z)$	Endowments	-0.004	-0.110	-0.112	-0.057	-0.029
	Occupational (I)	1.147	0.778	0.646	0.453	0.560
	Selectivity (II)	-0.726	-0.534	-0.385	-0.248	-0.365
	Unexplained (I+II)	0.421	0.244	0.260	0.205	0.195
Men						
MD-FD owg	Observed	0.015	0.040	0.039	0.053	0.034
$E(Y_1 - Y_3 \mid X, Z)$	Endowments	-0.064	-0.026	-0.045	0.006	-0.085
	Occupational (I)	-0.128	-0.901	-0.617	-0.134	0.789
	Selectivity (II)	0.207	0.967	0.700	0.181	-0.669
	Unexplained (I+II)	0.079	0.067	0.083	0.046	0.180
MD-GI owg	Observed	0.126	0.067	0.057	0.079	0.126
$E(Y_1 - Y_2 \mid X, Z)$	Endowments	-0.018	-0.040	-0.036	-0.025	-0.045
	Occupational (I)	0.194	-0.377	-0.505	-0.481	0.163
	Selectivity (II)	-0.050	0.483	0.598	0.584	0.007
	Unexplained (I+II)	0.144	0.106	0.093	0.104	0.214
FD-GI owg	Observed	0.110	0.026	0.019	0.026	0.091
$E(Y_3 - Y_2 \mid X, Z)$	Endowments	0.094	-0.050	-0.045	-0.089	-0.005
	Occupational (I)	0.273	0.560	0.166	-0.288	-0.580
	Selectivity (II)	-0.257	-0.484	-0.102	0.404	0.676
	Unexplained (I+II)	0.017	0.076	0.064	0.115	0.059

The unexplained portion of the wage gap is often interpreted as a result of discrimination. Under this view, once differences among women in the relevant determinants of wages are taken into account, any remaining difference in pay must be due to discrimination. This cannot be gender discrimination, but something else that we cannot observe. However, except for women's MD-FD samples, for all other samples, the unexplained part of the gap was positive and with a few exceptions, higher in magnitude than the observed gaps. During the communist era, this might be a direct reflection of the institutional settings of the labor market and the social security system, which gave privileges (such as access to day care, health care subsidized lunches, etc.) only to workers from given companies, while the variation in the unexplained part of the occupational wage gap during the transition period could be due to a relative

improvement in unmeasured labor market skills. Nevertheless, the choice of occupation is related to the institutional and democratic settings, and therefore the results are a reflection of the multitude of changes accrued during the transition years. An individual who prefers characteristics associated with a typical female occupation will be more likely to enter an FD occupation than someone who prefers characteristics associated with a typical male occupation.

6 Summary and conclusions

After the communist regime's fall in December 1989, Romania has experienced profound political, democratic, and economic transformation. The labor market is one arena that experienced most of the market economy shocks: the official birth of unemployment and its social implications, the restructuring process of almost all big industrial companies and the whole agricultural sector, the expansion of the private sector, the growth of a decentralized system of wage setting, and the effect of these factors on the composition of employment (who works and where). Ignoring the relatively large percentage of those who did not work (many of them retired very early), our results show that the gender wage differentials remained stable during the period, which may suggest that the structural changes that occurred in 1994-2000 played a limited role in determining the gender wage gap for those who worked. However, the more predominant reallocation of male labor from the public to the private sector (due mainly to the mass privatization of the state enterprises) was expected to increase wage inequality and to result in a wider gender wage gap.

The very low values of the gender wage gap in female- and male-dominated occupations during the communist years support the hypothesis that if solidarity wage bargaining were effective in promoting equal pay for equal job types, then controlling for job characteristics should generate an adjusted pay gap of zero. In other words, this suggests some effects of the wage bargaining in securing equal treatment of men and women in the Romanian labor market during the communist regime.

The decomposition of the gender wage gap shows that the endowments (or the observables) have a negative contribution to the overall difference. Moreover, during the last analyzed transition years, the discrimination and the selection components of the wage gap developed in opposite directions for male-dominated and female dominate occupations. The discrimination component was negative only for the female-dominated

occupations, which might suggest that women working in the female-dominated occupations were getting a “gender bonus”. Never the less, the “unadjusted” gender gap might be explained (largely) by nondiscriminatory factors, such as family responsibilities and especially the different involvement of women and men in housework. However, given that the economy and society in general and the labor market in particular experienced a multitude of complex changes during the analyzed period, it is possible that much of the wage gap is due to institutional norms, employer practices, and labor market policies. These three elements changed continuously, and reflect the structural conditions of the labor market and the societal restrictions, which may not only create different labor market opportunities for different groups of people, but also relative values of different occupations in society. The fact that women were more risk adverse than men in the new free market economy created an advantage for men, who become over-represented in higher wage occupation such as managers and politicians.. Therefore, it is not surprising that occupational differences explain a big part of the overall gender wage gap. However, the macro statistics show that in the first years of the transition men were more affected than women by the restructuring and closing of the big factories, and therefore it could be that men who did not find job contributed to reducing the weight of the men situated at the low end of the distribution of the offered wages. Even though the labor participation of women and men was high during the communist era (exceeding 90%) and even in the first years of transition (about 75%), the selection biases due to the fact that we observe only the wages of persons who work in the formal sector might be a relatively high source of errors in the assessment of wage differentials between groups and in the evaluation of the components of these differentials.

Nevertheless, our results indicate that the wage differences were in general much higher among workers of the same gender working in different occupations than between women and men working in the same occupational group, and women experienced a larger variation of occupational wage differentials than men during both regimes. These results seem to be in line with earlier literature that supports the belief that gender differences in preferences play some role in gender differences in occupations (Gunderson, 1989). The role of occupational upgrading in narrowing the gender pay gap raises the question of why occupational differences between men and

women have declined. The rise in women's acquisition of career-oriented formal education may reflect not only changes in women's preferences and their response to greater market opportunities, but also changes in the admission practices of educational institutions and responses of other institutions that support the promotion of women in a male-dominated world. In Romania, these factors were strong during the communist period, but light, almost absent (in a broad perspective) during the first years of transition, and this might contributed to the fact that the gender wage gap was low during the communist regime, and higher during the transition years. This implies that if policy makers are concerned with these issues, they should help women more in gaining a career-oriented formal education. Additionally, women should be giving assistance in motivating them to participate in the labor market in general, but also to choose occupations that match their education.

Romania has no sustained debate about "making work pay", instead in the preparation for a European Union (EU) membership the focus has been on preparing the legal and institutional processes and developing economic and social policy in line with EU guidelines and requirements. However, the EU has an explicit commitment to raising the employment rate for women and to advance gender mainstreaming and gender equality in both employment and social inclusion policies. Moreover, even the measure of the gender pay gap is part of the EU list of "structural indicators" (designed, after the Lisbon Special European Council in March 2000, to follow up on progress regarding employment and other issues). It seems that Romania would once more benefit from written and spoken policies about women's rights and their involvement in the labor market. We hope that more would be invested in motivating girls and young women to acquire career-oriented formal education and Romanian women to get involved in well-paid occupations.

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Appendix

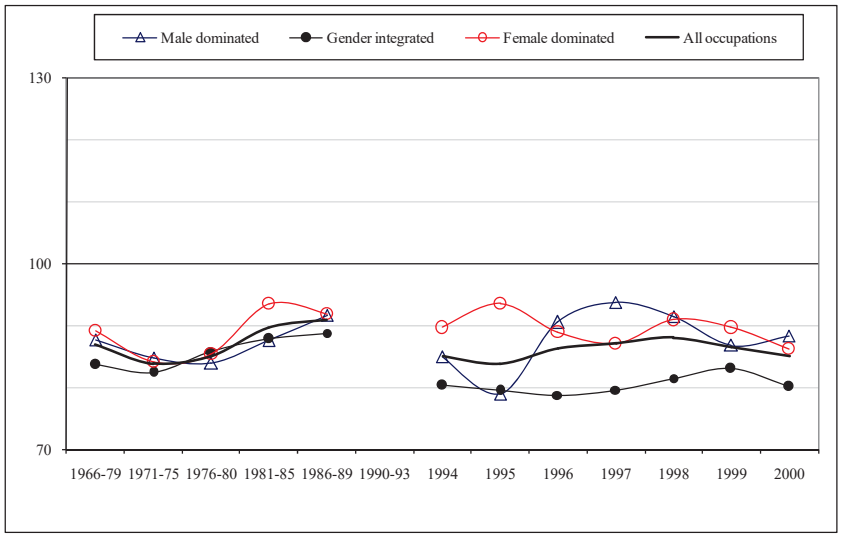
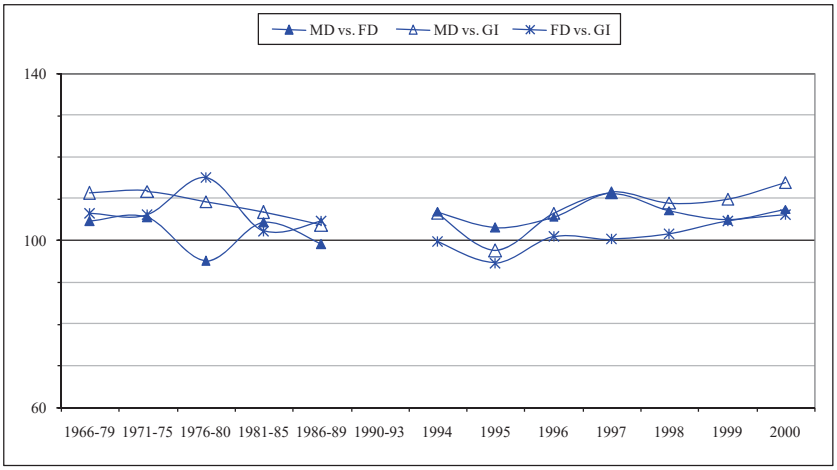
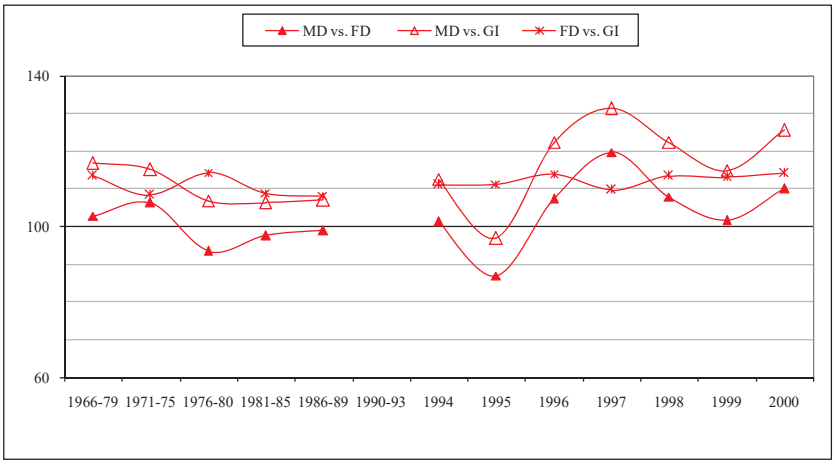


Figure A1 The women's monthly net wages relative to men's (in %)



a) Men



b) Women

Figure A2 The relative monthly net wages between occupations (in %) by gender

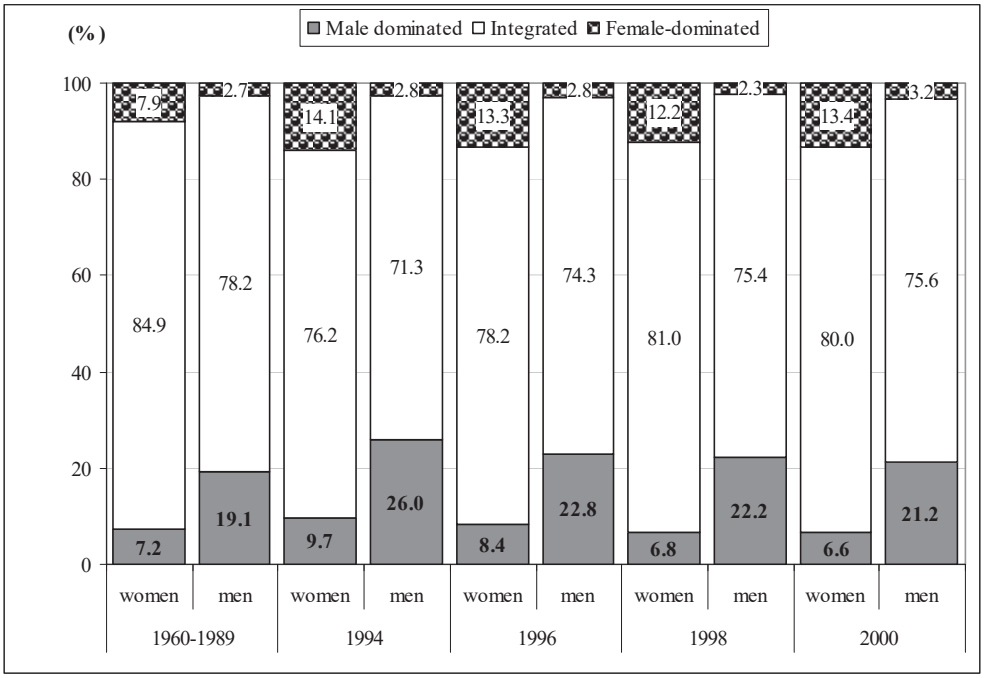
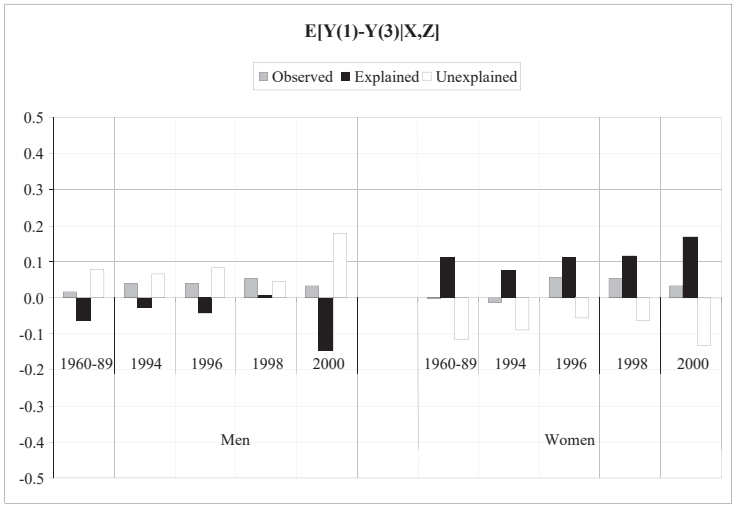
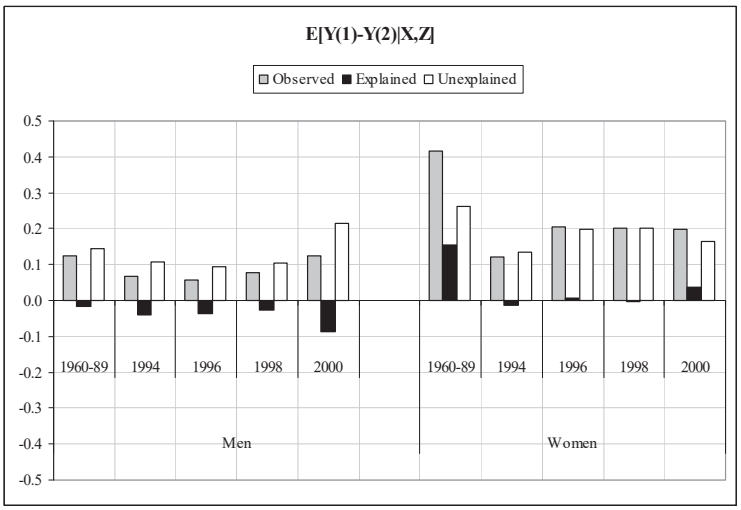


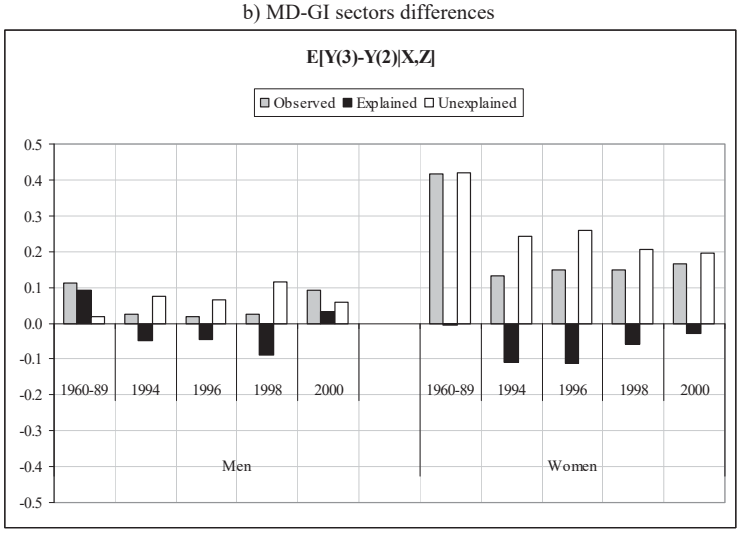
Figure A3 The distribution of the occupational groups, 1960-2000, selected years



a) MD-FD sectors differences



b) MD-GI sectors differences



c) FD-GI sectors differences

Figure A4 Occupational wage gap by gender, 1960-2000

Table A1 The public opinion about *Who should be employed in the following domains*

Domain	Men	Women	Gender is not important
Agriculture	0.22	0.02	0.76
Mining and metallurgy	0.87	0	0.13
Textile industry	0.03	0.74	0.23
Construction	0.83	0	0.17
Transportation	0.64	0	0.37
Education	0.03	0.25	0.72
Health	0.03	0.21	0.76
Public administration	0.17	0.07	0.76
Non-Governmental organizations	0.12	0.10	0.77
Media	0.06	0.06	0.88
Food Industry/Commerce	0.03	0.25	0.72
Banking System	0.16	0.09	0.75
Justice	0.28	0.04	0.69
Government	0.42	0.02	0.56

Table A2 Occupational concentration, 1966-2000

		Proportion (%) of women working in occupation with						Proportion (%) of men working in occupation with					
		50% +	55% +	60% +	65% +	70% +	75% +	50% +	55% +	60% +	65% +	70% +	75% +
		women workers						men workers					
1966-70	1231	25.8	25.8	25.8	5.0	0.0	0.0	74.2	55.6	55.6	47.4	14.5	14.5
1971-75	1312	43.2	21.8	15.0	15.0	9.2	9.2	56.8	56.8	56.8	14.8	11.8	11.8
1976-80	1683	37.1	21.1	14.3	14.3	14.3	4.9	62.9	57.2	16.0	16.0	1.8	0.3
1981-85	1740	32.9	15.6	15.6	6.0	6.0	0.0	67.1	67.1	20.2	14.2	14.2	2.1
1986-89	2361	14.7	14.6	14.6	14.6	5.3	5.3	85.4	54.4	12.2	12.2	12.2	1.5
1994	25549	27.0	16.3	16.3	16.3	7.5	7.5	73.0	54.1	54.1	54.1	19.2	17.4
1995	23644	28.3	28.3	17.2	17.2	7.7	7.7	71.7	53.3	53.3	53.3	53.3	17.8
1996	23910	37.9	28.2	17.1	17.1	7.3	7.3	62.1	53.7	53.7	53.7	16.7	14.0
1997	15502	37.8	28.6	16.7	16.7	7.0	7.0	62.2	53.2	53.2	53.2	16.3	14.8
1998	21515	49.0	29.7	17.3	17.3	6.7	6.7	51.0	51.0	51.0	51.0	15.4	13.2
1999	18961	50.8	31.3	18.8	18.8	7.5	7.5	49.2	49.2	49.2	49.2	14.9	13.6
2000	17480	40.8	31.9	19.5	19.5	7.8	7.8	59.2	48.9	48.9	48.9	14.6	13.4

Table A3 Descriptive statistics, male-dominated occupations,

	1960-89		1994		1996		1998		2000	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Wage[#]	1.472	1463.18	151.78	128.89	328.86	297.55	992.60	907.56	2348.77	2073.2
Age	27.69	25.0	39.27	37.60	39.11	37.97	39.68	38.80	39.60	39.06
Education										
Lower education	0.76	0.66	0.67	0.56	0.66	0.53	0.65	0.49	0.61	0.48
Medium education	0.17	0.29	0.26	0.38	0.26	0.39	0.26	0.42	0.30	0.43
Higher education	0.06	0.04	0.07	0.06	0.08	0.08	0.08	0.08	0.09	0.09
Region										
R1: North-East	0.20	0.18	0.14	0.14	0.14	0.13	0.13	0.13	0.13	0.16
R2: South-East	0.17	0.15	0.15	0.13	0.16	0.14	0.16	0.16	0.15	0.15
R3: South	0.18	0.16	0.18	0.20	0.17	0.16	0.18	0.20	0.17	0.15
R4: South-West	0.09	0.09	0.12	0.10	0.11	0.10	0.11	0.11	0.11	0.10
R5: West	0.09	0.12	0.11	0.08	0.11	0.08	0.10	0.07	0.10	0.09
R6: North-West	0.12	0.13	0.12	0.12	0.13	0.15	0.11	0.10	0.14	0.12
R7: Center	0.09	0.10	0.11	0.11	0.10	0.11	0.12	0.12	0.11	0.10
R9: Bucharest	0.06	0.08	0.08	0.12	0.08	0.12	0.09	0.12	0.10	0.13
Married	0.84	0.78	0.83	0.80	0.82	0.79	0.84	0.80	0.82	0.79
Urban	0.51	0.72	0.55	0.74	0.54	0.74	0.57	0.78	0.63	0.82
Ethnicity										
Romanian	0.92	0.93	0.94	0.95	0.94	0.94	0.94	0.95	0.94	0.94
Hungarian	0.06	0.06	0.05	0.04	0.05	0.05	0.05	0.04	0.05	0.05
Other	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01
Sector										
Agriculture			0.21	0.12	0.19	0.11	0.15	0.10	0.12	0.06
Industry			0.36	0.74	0.32	0.67	0.32	0.68	0.32	0.69
Services			0.42	0.14	0.49	0.22	0.53	0.22	0.55	0.25
Ownership										
State	0.83	0.88	0.89	0.92	0.80	0.80	0.67	0.65	0.48	0.36
Private	0.09	0.05	0.08	0.05	0.14	0.13	0.23	0.20	0.37	0.47
Other	0.06	0.04	0.01	0.02	0.00	0.02	0.00	0.01	0.00	0.01
Household members	3.56	3.57	3.95	3.74	3.84	3.68	3.76	3.62	3.64	3.42
Multi-generation household	0.12	0.12	0.21	0.14	0.21	0.15	0.21	0.15	0.20	0.13
Children <18	0.88	1.04	1.20	1.14	1.10	1.07	0.99	0.99	0.95	0.88
n	1190	351	3887	1025	3137	860	2680	643	2025	521

Note: [#] monthly wage in thousands of Romanian lei, and it is the starting wage for 1951-1989. This holds for all tables.

Table A4 Descriptive statistics, gender-integrated occupations

	1960-89		1994		1996		1998		2000	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Wage[#]	1371.11	1166.76	142.55	114.49	308.72	243.06	911.77	742.17	2062.32	1651.0
Age	28.20	26.90	38.89	38.07	38.83	38.00	39.37	38.70	39.62	38.62
Education										
Lower education	0.77	0.72	0.59	0.50	0.64	0.52	0.62	0.49	0.58	0.47
Medium education	0.17	0.23	0.28	0.35	0.25	0.35	0.25	0.36	0.28	0.37
Higher education	0.06	0.05	0.13	0.15	0.11	0.13	0.13	0.15	0.15	0.16
Region										
R1: North-East	0.22	0.22	0.13	0.13	0.13	0.14	0.13	0.14	0.13	0.14
R2: South-East	0.11	0.11	0.12	0.11	0.11	0.11	0.12	0.12	0.11	0.11
R3: South	0.15	0.15	0.15	0.13	0.16	0.14	0.16	0.13	0.15	0.13
R4: South-West	0.10	0.11	0.10	0.10	0.11	0.10	0.11	0.10	0.12	0.11
R5: West	0.09	0.10	0.09	0.09	0.09	0.09	0.09	0.10	0.09	0.10
R6: North-West	0.13	0.11	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.16
R7: Center	0.14	0.13	0.14	0.14	0.15	0.15	0.14	0.15	0.13	0.14
R9: Bucharest	0.07	0.07	0.13	0.15	0.11	0.12	0.10	0.12	0.11	0.12
Married	0.82	0.76	0.80	0.76	0.79	0.74	0.78	0.74	0.77	0.72
Urban	0.52	0.57	0.65	0.79	0.62	0.74	0.66	0.77	0.68	0.77
Ethnicity										
Romanian	0.87	0.89	0.91	0.92	0.91	0.91	0.91	0.91	0.91	0.91
Hungarian	0.10	0.09	0.07	0.07	0.07	0.08	0.07	0.07	0.08	0.08
Other	0.03	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.01
Sector										
Agriculture			0.08	0.04	0.07	0.04	0.07	0.03	0.05	0.02
Industry			0.51	0.41	0.52	0.40	0.49	0.38	0.48	0.38
Services			0.42	0.55	0.41	0.56	0.44	0.59	0.47	0.60
Ownership										
State	0.81	0.69	0.88	0.83	0.77	0.71	0.62	0.59	0.40	0.37
Private	0.08	0.07	0.10	0.12	0.17	0.23	0.26	0.30	0.43	0.45
Other	0.10	0.23	0.01	0.03	0.01	0.02	0.01	0.02	0.01	0.02
Household members	3.49	3.35	3.81	3.62	3.78	3.60	3.71	3.53	3.63	3.48
Multi-generation household	0.13	0.08	0.22	0.16	0.24	0.19	0.24	0.19	0.24	0.20
Children <18	0.84	0.87	1.13	1.06	1.05	0.98	0.96	0.87	0.87	0.81
n	4934	4371	10671	8057	10202	7963	9097	7655	7224	6338

Table A5 Descriptive statistics, female-dominated occupations

	1960-89		1994		1996		1998		2000	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Wage[#]	1462.96	1388.34	141.99	127.22	311.25	276.84	926.18	841.49	2186.27	1885.4
Age	29.80	25.90	40.82	38.37	39.90	38.64	39.94	38.86	40.27	39.86
Education										
Lower education	0.43	0.27	0.37	0.19	0.21	0.13	0.20	0.13	0.19	0.15
Medium education	0.49	0.69	0.56	0.78	0.71	0.82	0.74	0.83	0.68	0.79
Higher education	0.09	0.04	0.07	0.03	0.08	0.05	0.06	0.04	0.14	0.06
Region										
R1: North-East	0.17	0.13	0.16	0.12	0.14	0.11	0.15	0.11	0.13	0.12
R2: South-East	0.12	0.12	0.12	0.13	0.13	0.13	0.12	0.14	0.12	0.12
R3: South	0.15	0.14	0.19	0.15	0.12	0.14	0.12	0.14	0.14	0.15
R4: South-West	0.12	0.09	0.12	0.10	0.13	0.09	0.13	0.09	0.10	0.09
R5: West	0.13	0.11	0.08	0.11	0.10	0.12	0.12	0.12	0.15	0.11
R6: North-West	0.11	0.11	0.12	0.13	0.14	0.14	0.17	0.15	0.14	0.15
R7: Center	0.10	0.15	0.08	0.12	0.12	0.13	0.11	0.13	0.13	0.14
R9: Bucharest	0.09	0.14	0.13	0.14	0.12	0.14	0.09	0.12	0.09	0.11
Married	0.83	0.74	0.80	0.77	0.81	0.77	0.81	0.76	0.80	0.77
Urban	0.65	0.79	0.65	0.80	0.63	0.77	0.63	0.77	0.70	0.80
Ethnicity										
Romanian	0.91	0.90	0.94	0.93	0.94	0.93	0.93	0.92	0.94	0.91
Hungarian	0.07	0.09	0.04	0.06	0.04	0.06	0.04	0.07	0.06	0.08
Other	0.02	0.02	0.02	0.01	0.02	0.01	0.03	0.01	0.01	0.01
Sector										
Agriculture			0.10	0.05	0.08	0.04	0.05	0.06	0.06	0.04
Industry			0.21	0.27	0.19	0.25	0.19	0.24	0.16	0.22
Services			0.69	0.68	0.73	0.71	0.76	0.70	0.79	0.73
Ownership										
State	0.83	0.81	0.87	0.86	0.81	0.77	0.69	0.68	0.50	0.47
Private	0.10	0.11	0.09	0.10	0.14	0.17	0.23	0.23	0.32	0.33
Other	0.06	0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Household members	3.25	3.13	3.56	3.37	3.46	3.35	3.35	3.33	3.46	3.31
Multi-generation household	0.12	0.12	0.20	0.16	0.20	0.18	0.20	0.17	0.20	0.16
Children <18	0.63	0.67	0.90	0.83	0.87	0.78	0.75	0.75	0.78	0.72
n	162	439	418	1491	391	1357	283	1157	309	1063

Table A6 Wage equation estimates by occupation, women, 1960-2000

	1960-89	1994	1996	1998	2000
Male-dominated					
Intercept	5.783 ***	3.685 ***	3.925 ***	4.541 ***	5.102 ***
Age	0.034	0.114	0.593 ***	0.480 ***	0.419 *
$Age^2/10$	-0.009	-0.013	-0.080 ***	-0.054 **	-0.044
Medium education	-0.144	-0.068	-0.114 **	-0.133 **	-0.093
Higher education	0.318 ***	0.522 ***	0.527 ***	0.511 ***	0.762 ***
Married	0.049	0.015	-0.014	-0.027	-0.131 **
Urban	0.095 **	0.069 **	0.155 ***	0.048	0.036
Agriculture	0.265 ***	-0.049	-0.024	-0.112	-0.142
Industry	-0.032	0.085	0.146 ***	0.070	0.219 ***
State ownership	-0.032	0.046	0.064 *	-0.007	-0.029
Long-term contract	-0.001	0.275 ***	0.038	0.175	0.447 ***
Multi-generation household	0.040	-0.107 **	-0.121 **	-0.121 **	-0.198 ***
Household members		0.008	-0.017	-0.003	0.006
Integrated					
Intercept	5.213 ***	3.946 ***	4.451 ***	5.118 ***	6.134 ***
Age	0.090	0.189 ***	0.255 ***	0.268 ***	0.179 ***
$Age^2/10$	-0.022 *	-0.019 ***	-0.026 ***	-0.024 ***	-0.012 *
Medium education	0.001	0.024 *	0.029 **	0.045 ***	0.021
Higher education	0.363 ***	0.479 ***	0.522 ***	0.522 ***	0.532 ***
Married	0.019	0.001	0.010	0.007	-0.007
Urban	0.267 ***	0.107 ***	0.130 ***	0.117 ***	0.095 ***
Agriculture	-0.056	0.103 **	0.088 **	0.078 **	0.106 **
Industry	-0.116 *	0.067	0.036	0.100 ***	0.084 *
State ownership		0.000	0.043	-0.057 *	-0.024
Long-term contract		0.064 **	0.221 ***	0.169 ***	0.164 ***
Multi-generation household					
Household members	-0.005	-0.015 ***	-0.018 ***	-0.016 ***	-0.032 ***
Female-dominated					
Intercept	6.911 ***	4.947 ***	5.359 ***	6.038 ***	6.577 ***
Age	0.211	0.151	0.285 ***	0.285 **	0.300 **
$Age^2/10$	-0.026	-0.016	-0.030 **	-0.029 *	-0.029 *
Medium education	-0.216 ***	-0.135 ***	-0.145 ***	-0.070 *	-0.020
Higher education	0.319 ***	0.207 ***	0.278 ***	0.212 ***	0.255 ***
Married	-0.069	-0.033	-0.069 **	-0.038	0.000
Urban	0.054	0.119 ***	0.114 ***	0.062 **	0.076 **
Agriculture	0.121 **	0.191 ***	0.262 ***	0.055	0.020
Industry	0.113 ***	0.246 ***	0.198 ***	0.127 ***	0.119 ***
State ownership	0.001	0.005	-0.052 **	-0.008	-0.008
Long-term contract	0.025	0.082	0.092	-0.013	0.234 **
Multi-generation household	0.081	-0.089 **	-0.124 ***	-0.074 *	-0.044
Household members		0.013	0.003	-0.024 **	-0.015

Note: we also control for region (5 dummies), ownership (3 dummies), and "time" (5 dummies controlling for the five-year periods for the communist period, and 11 monthly dummies for the transition years). This note holds also for the next table.

Table A7 Wage equation estimates by occupation, men, 1960-2000

	1960-89	1994	1996	1998	2000
Male-dominated					
Intercept	6.264***	3.887***	4.126***	5.560***	7.054***
Age	0.146	0.283***	0.404***	0.068	0.315***
$Age^2/10$	-0.016	-0.035***	-0.049***	-0.006	-0.033***
Medium education	0.026	0.001	0.008	0.006	0.198***
Higher education	0.357***	0.409***	0.409***	0.438***	0.829***
Married	-0.031	0.076***	0.116***	0.166***	0.048
Urban	0.072***	0.094***	0.141***	0.091***	0.127***
Agriculture	0.060*	-0.118***	-0.100***	-0.104***	-0.428***
Industry	0.054	0.003	0.036**	0.050***	0.138***
State ownership	-0.058	0.028	0.078***	0.127***	0.107***
Long-term contract	0.002	0.144***	0.128***	0.074	0.082
Multi-generation household	-0.011	-0.073***	-0.073***	-0.091***	-0.029
Household members		-0.003	-0.010*	-0.015**	-0.008
Integrated					
Intercept	5.702***	4.231***	4.762***	5.451***	5.993***
Age	0.038	0.281***	0.310***	0.326***	0.314***
$Age^2/10$	-0.003	-0.034***	-0.036***	-0.037***	-0.031***
Medium education	0.059***	-0.002	-0.004	0.025**	0.116***
Higher education	0.285***	0.309***	0.347***	0.373***	0.466***
Married	0.020	0.079***	0.083***	0.122***	0.088***
Urban	0.165***	0.099***	0.120***	0.123***	0.117***
Agriculture	0.376***	-0.005	-0.007	-0.088***	-0.199***
Industry	0.081***	0.081***	0.130***	0.124***	0.134***
State ownership	-0.014	0.050***	0.069***	0.076***	0.062***
Long-term contract	0.006	0.070***	0.159***	0.154***	0.157***
Multi-generation household	0.002	-0.085***	-0.096***	-0.077***	-0.109***
Household members		-0.011***	-0.006*	-0.010***	-0.002
Female-dominated					
Intercept	5.417***	4.374***	4.731***	5.501***	5.909***
Age	0.596**	0.462***	0.553***	0.387	-0.166
$Age^2/10$	-0.068*	-0.055***	-0.060***	-0.044	0.027
Medium education	0.131*	-0.114***	-0.119**	-0.102	0.111*
Higher education	0.269**	0.121	0.087	0.282**	0.337***
Married	-0.111	0.080	0.156**	0.014	0.161**
Urban	0.256***	0.187***	0.176***	0.043	0.083
Agriculture	0.043	0.184**	-0.001	-0.096	-0.280***
Industry	-0.120	0.072	0.104	0.046	0.073
State ownership	-0.159	0.050	-0.030	-0.026	0.099**
Long-term contract	0.065**	0.170	-0.022	-0.013	-0.094
Multi-generation household	-0.254*	-0.070	0.028	-0.170**	0.004
Household members		-0.020	-0.039**	-0.016	0.009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