

2. WAGE LEVEL AND SELECTION IN THE PUBLIC SECTOR

2.1 Wage differential between the public and private sector in Hungary between 2002 and 2008

– the long term effect of wage increase

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Contrary to experiences in Western European countries, in Hungary the average wage in the public sector is lower than in the private sector. The growing wage inequality between sectors in the 1990's resulted in social discontent and a decline in the demand for public sector jobs. To alleviate the situation the Government made pledges and introduced various measures: in line with their election campaign promises they increased the basic wage in the public sector on average by 50 per cent. In addition to improving fairness and appeasing public opinion, this also aimed to attract and retain highly qualified workers in the public sector. This chapter explores trends in the development of the wage gap between the public and the private sector in the context of wage reform between 2002 and 2008 using data from the National Employment Office's Wage Tariff Survey. It aims to answer the question of whether the wage increase helped the public sector to compete for a high quality workforce. The analysis is limited to public servants because they were affected by the 50% wage rise, and it concentrates on trends over time between sectors.

The analysis follows *Machado and Mata's* (2005) counterfactual decomposition method using quantile regression that enables us to identify different sources of wage differential: those that arise from the different characteristics of workers and employers, and the unexplained (residual) difference. The latter difference provides a better estimate of the real wage differential between public and private sector workers than the overall wage gap. The method of quantile regression also enables us to analyse the difference at various points of the wage distribution, rather than using the means.¹ Given that the shape of distribution is different in the private and public sector, it is difficult to assess the effect of wage rise for different groups using only the mean.

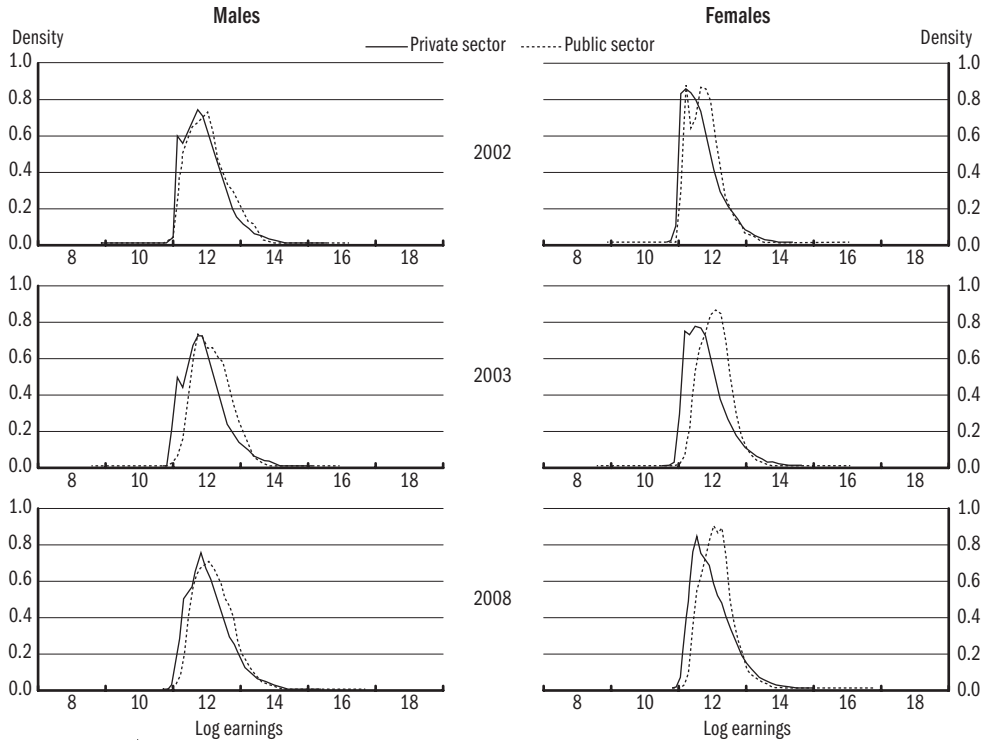
Wages in the public and private sector

Wage setting in Hungary is under political pressure – this is not unique – thus the wage scale is set in a way that ensures that workers in low-skilled jobs are not paid too little and highly skilled workers are not paid too much. Therefore, the spread of wages in the public sector is smaller than in the private sector where the primary aim is competition and wages are based on productivity. These differences can be observed on the density estimation of

¹ Difference between average wages was examined by *Telegdy* (2007). The average wage was 18 per cent higher in the public sector than in the private sector in 2004 as a result of the pay rise. Based on estimated unexplained wage differentials, public sector pay was higher than private sector pay in nearly all educational and occupational categories in 2004 (with the exception of graduates where the differential was under four per cent). This suggests that the government was successful in aligning and even increasing public sector wages.

wage distribution by sectors and gender (*Figure 2.1.1*). For the public sector (public servants) the distributions are more pointy (condensed), while in the private sector the tails of the distributions are flatter. The figures also illustrate the problem of fictitious minimum wages (under-reporting of wage) because there is a clear peak – particularly for men – at the level of minimum wage in the private sector.²

Figure 2.1.1: Unconditional wage distribution in the public and private sector by gender, 2002, 2003, 2008



2 Various studies look at the prevalence and effect of under-reporting of wages, especially “fake minimum wage earners”; see for example *Elek et al.* (2012).

3 The public service pay scale has fixed salary bands while the civil service pay scale sets out of minimum pay level for people in the same occupational group with the same level of education and experience. The pay scale is progressive both horizontally and vertically: wages increase according to 10 educational categories (A–J), within each educational category pay increases according to experience

continued

Note: Estimated Kernel-distribution of the logarithm of wage in the private and public sector, for women and men, 2002, 2003 and 2008. Public sector refers to public servants and the private sector is defined as workers employed by companies with at least 20 employees. Wage is real wages, deflated for 2008 prices using the consumer price index

Source: *Wage Tariff Survey* database.

The Government introduced differential wage increases for different groups of public sector workers (government officials, police, army and judiciary employees) between 2001 and 2003. The most significant wage reform was implemented in 2002 – an average of 50 per cent wage increase for public servants – that affected approximately 20 per cent of the total workforce in Hungary. The Government also modified the existing wage scale³ after it had become squeezed as a result of the minimum wage increase and there-

fore it also changed relative wage. *Figure 2.1.1* shows the impact of changes on the distribution of wages in the two sectors during this period. In 2003, compared to 2002, wage distribution in the public sector moved right as a result of large wage increases; however, in 2008 the distributions became more similar again. The next section takes a closer look at the changes in the relative position of workers in the two sectors and the groups that were most affected by the reform.

Data

The empirical analysis uses the database of the Wage Tariff Survey – this is an annual, representative, cross-sectional survey – that includes information on both private and public sector employees. *Public sector* institutions include public servants, civil servants, judges and prosecutors; however, this analysis focuses on public servants because the 50 per-cent wage increase affected only this group. Public servants make up approximately 85–89 per cent of all public sector employees. Judges and civil servants have separate wage scales. The Wage Tariff database includes a sample of all workers employed by public sector organisations. The *private sector* (business sector) refers to employees of businesses in Hungarian, international or public ownership in Hungary. The sample was limited to those aged between 25 and 55 years and people working part-time (less than 36 hours per week) were excluded.⁴ Businesses with fewer than 20 employees were also excluded because under-reporting of wages is most common among small enterprises (*Elek et al.*, 2009, *Tonin*, 2007).

The database also includes the gross monthly wage of workers as well as the total income defined as the monthly average of gross wage and any regular or incidental benefits in the previous year. Values for the latter are presented here, although trends are very similar for gross wage as well. Income is on 2008 real value, deflated using the Consumer Price Index. In addition to wage and income, the analysis uses covariates related to the characteristics of employees (education, professional experience, years of service, job) and organisations (region, size of organisation). Finally, as a further covariate, variables related to the work environment (whether there is a lunch break, type of contract, difference between actual and official working hours) are also used, even though their scope is somewhat limited.

Table 2.1.1 gives an overview of the mean values of the variables in the first and last period of the analysis. In 2002 average real wage for both men and women was higher in the private sector than in the public sector. In terms of education, the education level appears higher in the public sector:⁵ in the public sector approximately 40–49 per cent of women and 42–45 per cent of men are graduates, while in the private sector the same number is 10–16 per cent and 13–16 per cent respectively. Professional experience is broadly similar in both sectors; however public sector employees have had a longer

in 14 grades. In the revised pay scale in the lowest educational category and grade (A1) pay equals the statutory minimum wage, and in the highest educational category with minimal experience (J1) it is 2.65 times the minimum wage. For graduates the lowest monthly wage was set at 100 thousand forints (in grade F1) which was twice the amount of the statutory minimum wage.

⁴ Part-time employees in the private sector were not included in the data in 2002. The estimation was carried out on the full sample of employees between 2003 and 2008, which produced similar results. The samples from these years show that the proportion of part-time workers was really low, on average 3 per cent of all workers.

⁵ This is also true for many other countries, such as the United States (*Poterba and Rueben*, 1994) and Western European economies (*Dustmann and van Soest*, 1997, *Lucifora and Meurs*, 2004, *Melly*, 2005).

tenure with their current employer. It is important to note for the analysis of trends over time, that there were no significant changes in the composition of the sample within the time frame of the analysis.

Table 2.1.1: Covariate descriptive statistics, 2002 and 2008

Variable	2002				2008			
	Men		Women		Men		Women	
	private	public	private	public	private	public	private	public
Average income ^a (forint, 2008 value)	189,472	155,990	233,020	207,681	188,004	176,512	155,125	132,546
Education (percentage)								
Primary school	16	14	13	10	18	13	25	19
Vocational school	45	22	43	20	24	9	25	10
Secondary education	26	21	28	21	41	33	40	32
Degree	13	42	16	49	16	45	10	40
Experience ^b (years)	22.2	22.9	22.1	22.5	22.6	23.6	23.7	23.4
Time at current employer (month)	104.6	113.7	94.3	115.2	85.9	133.6	106.0	131.4
Region (percentage)								
Central Hungary	31	36	36	39	41	32	36	28
Central Transdanubia	13	7	14	6	14	8	11	10
Western Transdanubia	13	8	11	7	11	8	13	9
Southern Transdanubia	9	10	7	11	7	11	8	10
Northern Hungary	11	11	10	9	9	11	9	14
Northern Great Plain	12	15	12	16	10	16	11	17
Southern Great Plain	12	13	10	13	9	14	11	13
Lunch break ^c (percentage)	46	92	50	96	43	98	40	98
Actual working hours (hours/week)	6.8	7.1	2.9	2.8	2.6	2.5	6.5	6.8
Permanent contract (percentage)	94	94	96	88	94	92	94	97
N	50,859	6,947	53,284	5,465	36,407	22,048	35,689	29,815

^a *Income* is the sum of monthly gross wage and average monthly benefits, Hungarian forints, 2008 value, deflated with the annual consumer price index.

^b *Experience* is potential professional experience: age of employee *minus* years spent in education *minus* six.

^c The *Lunch break* variable indicates whether the work contract provides for a lunch break.

⁶ The method of quantile regression has been applied to the analysis of wage differential between the public and private sector among others by *Lucifora and Meurs* (2004), *Melly* (2005), *Mueller* (1998), *Nielsen and Rosholm* (2001) és *Poterba and Rueben* (1994). *Hámori* (2008) showed that similarly to international experiences the estimation of pay differential between the public and private sector is very sensitive to its position in the distribution.

Methods

For a closer examination of distributions, the method of quantile regression is used (*Koenker and Bassett*, 1978) that enables us to analyse the effect of covariates at different segments of the income distribution.⁶ While in the OLS estimates, the effect of covariates on the dependent variable is measured at conditional means, here the extent of income differential between sectors is estimated at the 10th, 25th, 50th, 75th and 90th conditional percentiles. Therefore, we are not measuring average effect but allow for a different sector effect on the bottom, middle and top parts of the wage distribution. There is good reason to do this: more equal wage practise in the public sector might

mean that those on the bottom of the wage distribution are better off, while those at the top are worse off – this is also shown by the graphs. Quantile estimates provide a more accurate picture on how wage for a certain group of employees would differ in the private sector.

Total wage differential is decomposed using wage functions by quantile.⁷ The Blinder–Oaxaca method (*Blinder, 1973, Oaxaca, 1973*) decomposes the difference between mean wages into a part explained by observable mean differences in characteristics and an unexplained, residual part. The method of quantile decomposition does not decompose wage differential only at the mean but at the quantiles as well. With *Machado and Mata's* (2005) method we are simulating what the income of public sector workers would be if they were working in the private sector (and would be paid the same for their characteristics), or differently we are looking at a counterfactual income distribution. Then this distribution will be compared to the actual distributions of private and public sector by separating the total income difference into a part that is explained by different characteristics and an unexplained part that is due to the fact that different characteristics are paid differently in the two sectors. Results are presented for total differences, differences explained by different characteristics and residual differences, for each year, by quantiles and gender.

Results and conclusions

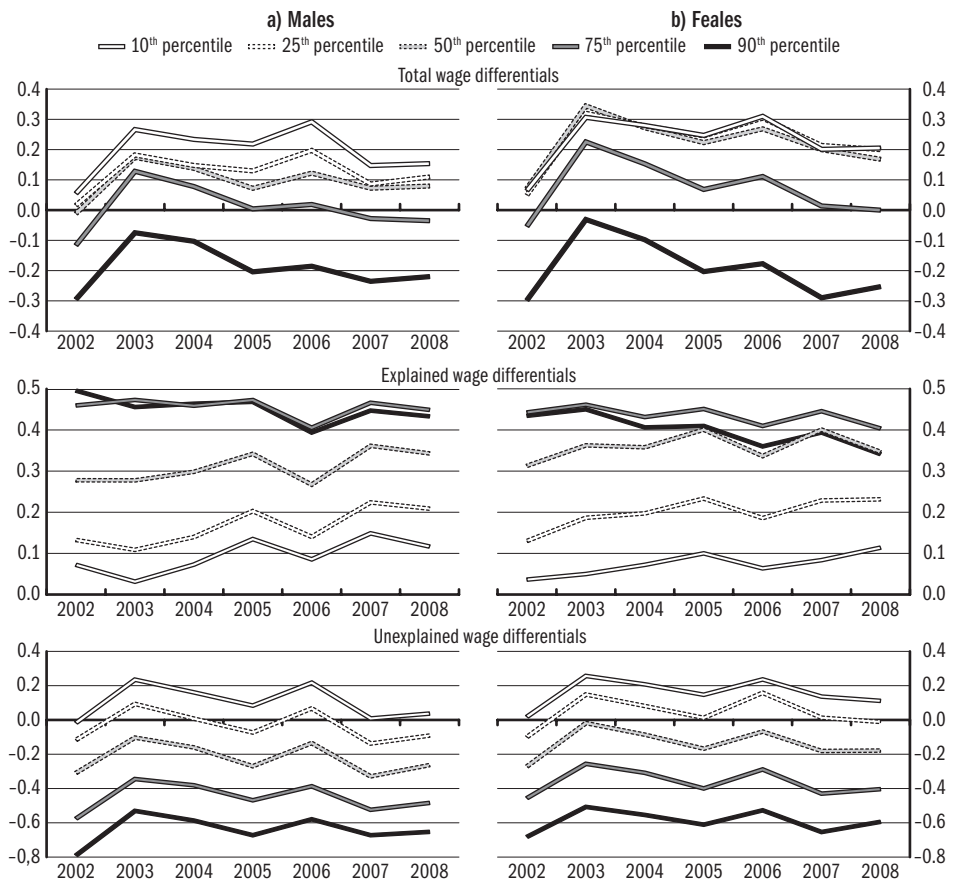
Part a) of *Figure 2.1.2* shows total, explained and unexplained differences between the private and public sector for men. The total difference at the median was 0.02 in 2002; in other words the median income of men (50th percentile) was two percentage points lower in the public sector than in the private sector, while in 2003 this difference was 0.17 in favour of the public sector. This advantage was diminishing between 2004 and 2008; however the advantage of the public sector remained. Looking at the quantiles, a different picture emerges due to the narrow wage structure of the public sector: those at the bottom of the distribution in the public sector and those at the top in the private sector have a wage advantage. Prior to the wage reform the public sector's disadvantage at the 90th percentile was –0.3. After the reform, in 2003, this dropped to –0.07, however it again increased to –0.22 by 2008. The public sector had more favourable employee and organisational indicators for each estimated quantile throughout the studied period, especially because of the higher education level of employees: the explained difference was positive for each quantile.

In terms of the unexplained difference, the private sector has a more substantial advantage than anticipated on the basis of the raw differences: apart from the 10th percentile, the difference is mostly negative. At the median the unexplained difference was –0.28 in 2002 that fell to –0.11 as a result of the

⁷ Selection bias is an issue when estimating the differential between sectors. *Kézdi* (2002) argues that the working conditions are very different in the private and the public sector in Hungary: in the public sector the actual working time is shorter, benefits are more predictable and there is greater job security. We try to filter out this effect by including variables related to working conditions. These provide a weak measure of workplace characteristics; however there was little change over time (*Table 2.1.1*).

wage reform in 2003, then gradually returned to its pre-reform level at -0.27 by 2008. Along the income distribution the unexplained difference, in absolute terms, is increasing towards higher incomes and it is very high around the top percentiles. The difference at the 90th percentile was -0.75 in 2002 that decreased to -0.47 in 2003 and – similarly to other percentiles – it returned close to its pre-reform level at -0.62 in 2008. All in all, it can be argued that relative income in the public sector improved at each estimated percentile, however the unexplained difference at the median (and above) remained negative. By 2008 income differences returned close to their 2002 levels.

Figure 2.1.2: Quantile decomposition, 2002–2008 (logarithms of income differences: total, explained by individual and organisational covariates, and unexplained)



Note: The top part of figure a) and b) shows the unconditional income differences in the public sector in comparison to the private sector at different percentiles; negative values indicate public sector disadvantage. Graphs in the middle show explained differences, and graphs at the bottom depict unexplained income differences.

Part b) of *Figure 2.1.2* shows the comparison of income difference for women. Overall, the graphs show similar trends to men with some notable differences. Women's situation in the public sector is more favourable than men's: they enjoy a bigger advantage over the private sector between the 10th and 50th percentiles. However, at the top end of the distribution the total difference was also -0.3 for women, and by 2008 it was larger than for men, at around -0.25 . As far as the unexplained differences are concerned, after the initial effect of the wage reform these also return close to their original levels.

To put the estimates for Hungary into perspective it is worth highlighting that in Germany the estimated unexplained difference between the public and private sector for men (between 1984 and 2001) was consistently five per cent at the 10th percentile and -17 per cent at the 90th percentile (*Melly, 2005*). The same estimate for Hungary was -10 per cent -75 per cent in 2002, and two per cent and -65 per cent in 2008. This suggests that the public sector wage around the top end of the distribution is not only low in absolute terms compared to Germany – this alone would encourage “brain drain”, especially among health care professionals – but is also low in relative terms compared to the private sector. In order to retain highly skilled workers in the public sector, any future strategies should aim to improve the relative situation of highly skilled or high level employees. This cannot be achieved through a general wage rise for all public servants because its effect on relative wages vanishes in the long run; therefore a more targeted approach is needed.

This study has examined the long term impact of the large and rapid public sector wage rise implemented in 2003. From a researcher's perspective, this wage rise provided a quasi-experimental opportunity to examine the adaptation process following the rapid increase of relative wage. Data for the analysis was available until 2008, and it was clear that the effect of the 50-per-cent wage rise in 2003 had been eroded by then; the situation of public sector employees – especially the highly skilled – did not improve substantially compared to the private sector. There have been no similarly large or rapid increases in relative wage since 2008; however the measures introduced during the economic crisis that affected the public sector – the abolition of the 13th month wage, wage freeze – has probably had an adverse effect on the relative situation of public sector workers and intensified the exit of the highly skilled workforce from the sector.

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