

EMPLOYMENT, UNEMPLOYMENT AND WAGES BY LEVEL OF EDUCATION IN POLAND

Walentyna Kwiatkowska*

Abstract

Education is of big importance for the creation of the knowledge-based economy. Educational level attainments by individuals influence not only their rates of unemployment and employment but also their levels of incomes achieved in the labour market. The main goal of the paper is to describe how the levels of education of individuals in Poland determine their rates of unemployment and employment and their levels of wages between 1992-2006.

The structure of the paper is as follows. In the first part the role of the human capital and its influences on the labour market are described. In the second part the structure of employed persons by level of education in Poland and in the EU countries are shown. The third part is devoted to the characteristics of the structure of unemployment by level of education in Poland and other UE countries. The fourth part shows the influence of the levels of education on the levels of wages in different occupations and for men and women. The fifth part contains summary and conclusions.

The analysis of the paper indicates that a high quality of human capital is a prerequisite for socio-economic and civilization progress, as well as for building a knowledge-based economy. The analysis allows to formulate a conclusion about a growing role of education in the Polish society. The analysis shows that persons with tertiary education have the best position in the Polish labour market.

1. Introduction

Education plays a special role in building a knowledge-based economy. Rising levels of society's education create opportunities accelerating social development and economic expansion. The importance of education for the labour market was explained in human capital theory developed by G. S. Becker, T. W. Schultz and J. Mincer (see Blaug, 1995, chapter 13). According to the theory, the amount of human capital comprising education, occupational skills and qualifications accumulated by individuals is the main factor differentiating their positions in the labour market. The stock of the capital influences

* University of Lodz, Poland, wkwiatk@uni.lodz.pl

employment opportunities available to individuals, but also shapes the levels of wages.

This study sets out to establish the importance of person's education for his or her position in the labour market in Poland between 1992 and 2006. In particular, it attempts to show the influence of education on the course of employment, unemployment and the level of wages.

2. Economically active persons by level of education

The structure of employment by education and qualifications is an important element of the labour market structure. Workers' level of education can be assumed to reflect their skills. Qualifications and education of prospective employees are key factors determining employers' demand for labour. Table 1 presents the structure of employment by educational attainment in the years 1992-2006.

Analysis of data compiled in table 1 shows a number of favourable changes in the structure of employment by level of education that occurred in the examined period. Firstly, the share of economically active persons with tertiary education increased substantially between 1992 and 2006 (by 12.4 p.p.). The labour market demand for workers with tertiary education and higher qualifications grew systematically and steadily. The need for knowledge and high qualifications is driven by the expanding innovativeness of the Polish economy, resulting from the growing technical sophistication of both processes and products; a similar progress can be found in the area of organization and management. Another stimulant is the inflow of foreign direct investments that bring with them new techniques and technologies that require operators with high or the highest qualifications also stimulates the need. Integration processes compelling higher productivity and competitiveness in enterprises and in the entire economy are an important incentive propelling the demand for knowledge and skills. Moreover, workers themselves invest in their self-development and raise the value of their human capital by taking a degree, and then continue life-long learning at post-Master's level, at specialist courses, etc. They do so, because they are increasingly aware of the relationship between person's educational attainment and their labour market position. Interestingly, women represent the largest group among the economically active persons with tertiary education. The 1992 share of women with tertiary education in total female employment was 10.4%, but the rate increased to 24.5% by 2004. Male workers also show growing awareness of the importance of higher education – between 1992 and 2004 the proportion of working men with higher education increased from 9.5 to 17.3%.

Table 1. Structure of employment in Poland by level of education, years 1992-2006 (%)

Employed	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total including education:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
– tertiary	9.9	10.5	11.1	11.4	11.6	12.0	13.0	13.4	14.1	15.6	17.1	19.1	20.5	21.8	22.3
– post-secondary general and secondary vocational	32.5	25.5	27.2	27.9	28.2	28.8	29.5	31.2	30.5	29.8	29.9	29.1	29.0	29.7	29.9
– secondary		7.0	6.3	6.0	6.0	6.2	6.0	7.1	7.0	6.8	7.1	7.6	7.9	7.9	8.1
– basic vocational	30.7	32.2	32.9	33.5	34.0	34.5	34.6	33.3	33.6	33.9	32.7	32.3	31.3	30.7	30.3
– primary and incomplete primary	26.9	24.8	22.5	21.2	20.2	18.5	16.9	15.0	14.8	13.9	13.2 ^{a/}	11.9 ^{a/}	11.2 ^{a/}	9.9 ^{a/}	9.4 ^{a/}

^{a/} including lower secondary education.

Source: *Aktywność zawodowa i bezrobocie w Polsce*, GUS, Warsaw 1992, p. 71; *Aktywność ekonomiczna ludności Polski: listopad 1993*, p. 33; November 1994, p. 43; November 1995, p. 21; November 1996, p. 21; November 1997, p. 17; 4th quarter of 2000, p. 15; 2001, p. 15; 4th quarter of 2003, p. 23; 4th quarter of 2004, p. 77; *Aktywność zawodowa i bezrobocie w Polsce w listopadzie 1998 r.*, GUS, Warsaw 1999, p. 51; *Statistical Yearbook of the Republic of Poland 1991*, pp. 128; 2003, p. 146, GUS, Warsaw; *Small Statistical Yearbook of Poland 2006*, p. 140; 2007, p. 143; author's calculations.

Secondly, the total percentage of persons with secondary vocational education, post-secondary general education and secondary general education kept growing steadily in total employment, from 32.5% in 1992 to 38% in 2006. Persons with secondary general education were the smallest group in that category of workers, probably because of their inclination to continue learning at a higher level in order to acquire qualifications that were more practical. In the economically active population with secondary education, women were more numerous than men were, although both groups' shares increased in the analysed period. Among working women the share of persons with secondary education grew from 40.2% in 1992 to 42.7% in 2004 and the proportion of men with this education in total male employment increased from 26.2% in 1992 to 32.3% in 2004.

Thirdly, the proportion of persons with primary and incomplete primary education, and lower secondary education in total employment decreased significantly after 2002. Between 1992 and 2006, the rate dropped by 17.5 p.p., more among women than men. The reason was the withdrawal of older persons from the labour force, who frequently had primary education (or even incomplete primary education) and predominated in this group of workers. The

declining share of persons with primary and incomplete primary education in employment is a positive phenomenon. Because it proves falling demand for the services of persons with low and very low qualifications, the tendency is expected to maintain also in the future (see Kwiatkowska 2007, pp. 136-144; Boni 2001, p. 15).

Fourthly, it must be noted that workers with basic vocational education were the main group of the economically active population (they accounted for one third of all workers in the examined years). Their share in total employment started slightly decreasing after 2002. In 2005, the share was the same as in 1992, but a year later it fell slightly. They are a serious problem for the Polish economy, because basic vocational education prevents direct access to tertiary-level studies. Men predominated in that category and their share in total male employment increased from 38.6% in 1992 to 38.8% in 2004. The share of women also grew somewhat, by 1.1 p.p. (from 21% in 1992 to 22.1% in 2004). It is worth stressing that many job-related skills were acquired in a non-competitive economic regime. Therefore, the structure of persons with basic vocational education largely corresponds to an obsolete economic structure that has changed in the period of transition.

Adjustments in the structure of employment by level of education must be viewed as positive, because the total share of population with tertiary and secondary education increased in the analysed years (especially of persons with post-secondary general and secondary vocational education) from 42.4% to 60.3%, while the total proportion of persons with basic vocational education and primary and incomplete primary education fell from 57.6% to 39.7%. Notwithstanding, their share continues to be significant. The adjustments prove gradual and qualitative transformations taking place in the employment structure, induced by employers' growing preference for workers with higher education and high qualifications over those with limited qualifications and knowledge.

Percentage of persons with tertiary education is lower in Poland than in some transitional countries, such as Bulgaria (32.1%), Estonia (38.6%), Lithuania (56.5%), or Latvia (25.2%)¹.

Comparison of employment rates in Poland and in developed EU countries indicates that persons with tertiary education show the highest probability of getting a job (see table 2).

In EU-15, the employment rate for persons with higher education was around 83%. Portugal, UK, Denmark, Denmark and Sweden had the highest rates (ranging from 86 to 88%) compared with the average, whilst Greece,

¹ 2001 data. In 2001, the Hungarian share of economically active persons with tertiary education (19.2%) also exceeded Poland's rate in that period, while the Czech rate was only 11.8%, *Employment and Labour Market in Central European Countries*, 2002, pp. 48-54.

France and Italy had the lowest employment rates for this group of persons (79-82%). In Poland, the rate was similar to the EU-15 average, which validates the conclusion that highly educated and qualified persons have the best position in the labour market.

Table 2. Rates of economically active persons by level of education in the age group 15-64 years in EU-15 and in Poland in 2002 (%)

Country	Level of education		
	Tertiary	Secondary	Low
Austria	85.0	72.9	48.2
Belgium	82.8	65.7	40.8
Denmark	87.0	80.6	60.4
Finland	85.5	72.8	48.9
France	79.2	69.8	46.6
Greece	77.5	58.2	52.8
Spain	80.2	57.2	49.2
Netherlands	86.2	79.8	61.7
Ireland	84.8	71.2	48.1
Luxembourg	83.6	69.1	50.8
Germany	83.0	69.8	43.6
Portugal	88.6	64.7	67.3
Sweden	86.2	79.6	58.2
UK	87.3	77.3	50.9
Italy	81.8	64.8	45.3
EU-15	82.8	70.5	49.4
Poland	82.4	57.8	25.0

^{a/} including junior secondary education

Source: Employment In Europe: Recent Trends And Prospects, European Commission 2003, Brussels.

The Polish employment rate for persons with secondary education is much lower than the EU-15 average (by around 13 p.p.) and similar to rates in Greece and Spain. According to the rate, only 58% of persons with secondary education were able to find jobs in the Polish economy.

Uneducated persons and persons with low qualifications have the most unfavourable position in the labour force. As data in table 2 show, the EU-15 employment rate for persons with low education was 49.4%. In Poland, the rate was smaller by almost a half, which confirms that the low-skilled persons are the most strongly exposed to unemployment and that their labour market position is not competitive. The falling demand for low-skilled workers requires actions

that might improve their chances for employment and for social inclusion. Some relevant measures are the development of vocational training courses and subsidized employment, as well as support to local initiatives aimed at maintaining so-called secondary labour market that offers jobs to problem groups, including persons with low education and qualifications.

The enrolment ratio² in higher education (age group 19-24 years) growing from 9.8% in the years 1990/91 to 38.0% in the years 2005/2006 (see Statistical Yearbook of the Republic of Poland 2001, pp. 235; 2006, p. 343) proves positive changes in the level of education of the Polish society. In that period, numbers of the tertiary students more than quadrupled (from 403,800 in years 1990/91 to 1,941,400 in 2006/2007 – Statistical Yearbook 2001, p. 246; Small Statistical Yearbook of Poland 2007, p. 249). One of the reasons of the phenomenon was mushrooming non-public tertiary education institutions, with the ensuing growth in the number of tertiary students per 10,000 population in Poland, from 142 (1990/91) to 535³ (2003/2004). This rate is comparable (and sometimes even higher) with the rates in some EU countries in the same period, e.g. France – 360, Spain – 420, Portugal – 375, Ireland – 478, Belgium – 415, but it is below the rate for Finland (574) and for other developed countries, such as the US (575), Canada (600) (years 1997/1998), and Australia (556 in years 2001/2002) (Statistical Yearbook 2006, p. 775). In 1999, the Polish rate of tertiary education for population aged 25-34 years stood at 12, ranking the country 22nd - 23rd (together with Portugal) among the 25 OECD countries (before the Czech Republic (11) and Italy (10)) – Informationen 2001, p. 3616⁴. The rate has probably improved by now.

Despite all these advantageous changes, the Polish tertiary school system must be further developed to ensure higher percentage of economically active persons with tertiary education. An important prerequisite for the development to happen is larger state budget allocations to science and higher education, as their shares in GDP are relatively small (in 1995 they totalled 0.63% and 0.57% in 2005⁵ – Statistical Yearbook 2005, p. 424), despite the many voices calling

² The following data concern a so-called net enrolment ratio, i.e. the ratio between the number of persons at school (as of beginning of a school year) at a given level of education (in a given age group) and the number of population (as of 31 December) in the age group corresponding to the given level of education.

³ Including foreigners.

⁴ In 1999, the tertiary education rates for population aged 25-34 years were in selected countries as follows: Canada – 47, Japan – 45, Finland – 38, USA – 38, Belgium – 34, Norway – 33, Spain – 33, Sweden – 32, France – 31, Australia – 29, Denmark – 29, Ireland – 29, UK – 27, Greece – 26, Switzerland – 26, Netherlands – 25, Germany – 22, Luxembourg – 21, Hungary – 14, Austria – 13.

⁵ Total outlays on the activities of scientific institutions, R+D institutions and tertiary education institutions are taken into account.

for their enlargement. The development of science and tertiary education is a key factor boosting economic effectiveness. Combined with other factors, such as the level of capital investments, the transfer of new technologies, and the expansion of infrastructure, it constitutes an effectual way of making the Polish economy more competitive (Kasperkiewicz 2002).

3. Education and unemployment

Education is a factor that predetermines employment opportunities available to individuals. Table 3 provides data on the structure of the Polish unemployment by level of education in the current period of transition.

According to the data, throughout the analysed period most unemployed persons had lower levels of education, especially basic vocational education and primary and incomplete primary education (in 2002 their group was joined by those with lower secondary education). In the period 1992-2001, such unemployed accounted for more than 60% of total unemployment⁶, but between 2003 and 2005 their share dropped below 60% (59% in 2003, 58.2% in 2004 and 58.6% in the 2nd quarter of 2005.)⁷. The largest group was unemployed workers with basic vocational education. Their rate exceeded 40% of total unemployment in the analysed period (somewhat less in the 2nd quarter of 2005 – 39.8%). They predominated in registered employment too (between 1992 and 1999 they made up 38%-39%, but the rate dropped in the years 2000-2006 from 36.9% to ca 31% – Small Statistical Yearbook of Poland 2007, p. 155). The group of unemployed persons with the lowest education (primary or lower education, and lower secondary education) was also rather large. According to the LFS, their share declined between 1992 and 2004, from 23.5% to 16.9%, slightly growing, however, to 18.8% in 2005. On the other hand, statistical reports show that unemployment in this group was basically stable and ranged from 31 to 32.5% (Statistical Yearbook of the Republic of Poland 2003, pp. 161; 2004, p. 248, Small Statistical Yearbook of Poland 2007, p. 151; 2006, p. 155). Such considerable variations between the two measurement methods suggest that some persons in that group apply for registration to become entitled to either unemployment benefits or insurance benefits, others take jobs in the grey economy, and yet others continue their education, especially persons with lower

⁶ According to statistical reports, unemployed persons with that level of education exceeded 70% of all registered unemployed in the years 1992-2000, *Statistical Yearbook of the Republic of Poland 2003*, p. 161.

⁷ The GUS data show that in the years 2003-2005 registered unemployment among persons with this type of education still exceeded 60% (67.9% in 2003, 66.1% in 2004 and 65% in 2005) – *Statistical Yearbook of the Republic of Poland 2004*, p. 248 and *Small Statistical Yearbook of Poland 2005*, pp. 151; 2006, p. 153.

secondary education and unemployed persons who became economically inactive.

Table 3. Structure of unemployment by level of education in Poland in the years 1992, 1995, and 2000-2005, % of total unemployment (based on the LFS)

Education	1992	1995	2000	2001	2003	2004	2005 ^{b/}
Tertiary	3.6	2.4	3.7	4.7	6.7	6.9	6.9
Post-secondary general	2.6	2.6	2.6	2.8	3.1	3.3	2.7
Secondary vocational	22.3	20.9	22.8	22.5	21.6	22.3	22.1
Secondary general	7.4	7.1	8.9	8.9	9.5	9.3	9.6
Basic vocational	40.5	43.5	42.2	43.2	41.6	41.3	39.8
Primary and incomplete ^{a/} primary	23.5	23.5	19.8	17.9	17.4	16.9	18.8

^{a/} and lower secondary education between 2002 and 2005;

^{b/} 2nd quarter of 2005.

Source: *Aktywność ekonomiczna ludności Polski w latach 1992-2001*, p. 174, 4th quarter of 2003, p. 41; 4th quarter of 2004, p. 115; 2nd quarter of 2005, p. 119; author's calculations.

The large representation of unskilled or low-skilled persons in the stock of unemployment has many causes rooted in the education, employment and remuneration policies followed in the period of real socialism. The then full employment principle and appreciation of physical labour (better paid), because of the domination of the heavy and extracting industries in the structure of the Polish economy discouraged investments in human capital. In addition, the drawback of the Polish system of education became apparent, i.e. its frequent preference for basic training, whose low level and narrowly defined specialization rendered pupils leaving vocational schools uncompetitive workers. The transitional period changes following from economic restructuring, technical adjustments, the introduction of new technologies, etc., constrained the range of options allowing the inclusion of such persons into the work process. In order to reduce their share in unemployment they must be provided with vocational training and retraining programmes responding to the labour market needs, but also the quality of the vocational school system itself must be changed.

Interestingly, the percentage of persons with secondary vocational education in total unemployment was relatively large. It was quite stable and stood at 22.3% in 1992 and in 2004 (it was the highest in 2000 – 22.8%). Additionally, such unemployed persons made up approximately one fifth of all registered unemployment. Their comparatively large representation in total unemployment suggests that neither the quality nor structure of this type of

education fully meets the requirements of a modern labour market and that the persons have insufficient hands-on job experience.

Unemployed persons with post-secondary general education (ca 3%) and secondary general education were relatively few in total unemployment (according to the LFS, their rate grew from 7% to over 9% in the years 1992-2005, but statistical reports show its drop from 7.2% to 7%, and a growth to 9.5% in 2006). Most of them certainly continue education at a higher level to acquire qualifications and occupational proficiency.

The Polish structure of unemployment is characterised by its relatively low proportion of jobless workers with tertiary education, although their number doubled in the period 2004-2005 compared with the first years of this analysis⁸. Persons with high education and occupational qualifications show the highest probability of finding a job, and additionally their position in the workplace is relatively stable. The growing percentage of unemployed persons with tertiary education in total unemployment can be explained by the undersupply of jobs, when the numbers of tertiary-level graduates grows so fast, but also by the structural character of their unemployment determined by the preference for some types of studies and majors, for which the labour market already shows some signs of reaching the saturation level. A report published by the Department of Analyses and Forecasts, Ministry of Economy, entitled „Employment in Poland in 2005” openly stresses the inappropriate structure of tertiary-level majors that fails to meet the growing market demand for physical sciences and technical majors graduates (e.g. natural and engineering sciences) that might save the process of building a modern economy from the lack of adequately qualified workforce (p. 121).

The above discussion clearly confirms the significance of educational attainment for a person's position in the labour market in Poland.

The Polish unemployment rates by level of education (table 4) corroborate the finding that unemployment is the least probable among persons with tertiary education. Another source of optimism is the slowing down growth of unemployment rate for persons with tertiary education in 2004 and the rate's only slight increase in 2005 (by 0.4 p.p.), but particularly its decline in 2006 (by 1.5 p.p.).

⁸ According to GUS reports, the percentage of unemployed persons with tertiary education increased between 1992 and 2004 from 2.3% to 5%, reaching 5.5% in 2005, *Small Statistical Yearbook of Poland 2006*, GUS, Warsaw, p. 153.

Table 4. Rates of unemployment by level of education in Poland, years 1992, 1995, 2000-2006 (%)

Education	1992 November	1995 November	2000	2001	2002	2003	2004	2005	2006
			4 th quarter						
Tertiary	5.3	3.0	4.8	6.4	7.5	7.7	6.9	7.3	5.8
Post-secondary general	9.2	9.3	12.4	13.8	16.2	16.8	16.2	14.8	10.9
Secondary vocational	13.5	11.6	13.8	16.5	17.6	16.9	16.2	14.4	
Secondary general	16.5	15.3	19.6	22.9	24.0	22.9	20.4	21.0	16.1
Basic vocational	16.9	16.4	19.2	22.4	23.8	23.5	22.4	20.6	14.5
Primary and incomplete ^{a/} primary	12.7	14.4	20.2	22.6	25.4	26.0	24.8	25.1	18.8

^{a/} including lower secondary education in the years 2002-2004.

Source: *Aktywność ekonomiczna ludności Polski w latach 1992-2001*, p. 179; 4th quarter of 2003, p. 6; 4th quarter of 2004, p. 77; *Kwartalna informacja o aktywności ekonomicznej ludności*, 4th quarter of 2002, p. 11; *Small Statistical Yearbook of Poland 2006*, p. 157; *Kwartalna informacja o rynku pracy*, GUS, Warsaw 2007, p. 9.

Unemployment is the most common, and thus the most probable, among persons having primary and lower education, lower secondary education, as well as basic vocational and secondary general education. In the years 2001-2005, unemployment rates in these groups started exceeding 20% and their highest values were found for unemployed persons with the lowest educational attainment (around 26% and 25% in the years 2002-2005). In 2006, the situation turned to the better, especially a considerably lower rate of unemployment in the group with basic vocational education could be observed.

Comparison of the Polish and EU-15 unemployment rates by educational attainment demonstrates that the risk of unemployment is the highest among persons with lower levels of education (see table 5).

However, the Polish unemployment rate for such persons is much higher than in any of the EU-15 countries. In the examined years, the EU-15 unemployment rate for persons with low education was, on average, over 2.5 times lower than the Polish rate. This undeniably stresses the structural character of unemployment in Poland. Another argument is the significantly higher rate of unemployment among Polish workers with secondary education than in EU-15. Unemployment rates for persons with higher education show the smallest

variations (around 2 p.p. in 2002 and only 1 p.p. in 2005). In this case, only the Spanish and Greek rates exceeded the Polish rate. In 2005, also the French, Italian and German unemployment rates for persons with higher education (slightly more than 5%) surpassed the EU-15 average.

Table 5. Rates of unemployment by level of education in EU-15 and in Poland, years 2002-2005, (%)

Country	Tertiary		Secondary		Lower than secondary (incomplete primary, primary and vocational)	
	2002	2005	2002	2005	2002	2005
Austria	1.9	2.1	3.4	4.0	6.9	8.7
Belgium	3.5	3.4	6.0	6.9	10.3	12.1
Denmark	3.5	3.7	3.4	4.2	6.2	7.2
Finland	4.5	4.6	8.8	7.4	12.2	11.1
France	5.2	5.1	6.8	6.5	11.8	11.0
Greece	6.4	7.0	9.6	9.3	7.3	8.7
Spain	7.7	6.0	9.5	7.4	11.2	9.8
Netherlands	2.1	2.8	2.2	4.1	3.8	6.0
Ireland	1.8	2.0	2.8	3.0	5.9	6.3
Luxembourg	1.8	3.3	1.2	3.5	3.8	5.0
Germany	4.5	5.6	9.0	11.2	15.3	20.1
Portugal	3.9	3.8	4.3	6.4	4.4	7.6
Sweden	3.0	4.4	4.6	6.1	5.8	9.1
UK	2.4	2.2	4.1	3.5	8.5	6.9
Italy	5.3	5.3	6.4	5.2	9.0	7.6
EU-15	4.4	4.7	6.5	7.0	9.8	10.3
Poland	6.3	5.7	18.1	16.4	26.6	29.1

Source: *OECD 2004, Education at a Glance – OECD Indicators*, pp. 306-308, Eurostat (LFS), www.eurostat.ec.europa.eu, data as of 13 Dec. 2006.

Generally, however, the lowest rate of unemployment among the best-educated persons proves that such persons have a more competitive labour market position than those with lower education and qualifications.

4. Education and the level of wages

According to human capital theory, worker's remuneration depends on the level of their education and qualifications. A certain regularity can be observed

here – the higher education, the better material status of a person. It seems worth verifying, whether the finding holds true also in the Polish economy.

Table 6 presents data on amounts earned by workers with various educational attainment in 1996.

Table 6. Average gross monthly wages of full-time workers by level of education, gender and sector of ownership, March 1996

Education A - zlotys B - %	Total	Men	Women	Public sector	Private sector
Total					
A	849.74	943.26	747.24	897.04	757.86
B	100.0	100.0	100.0	100.0	100.0
Including:					
Tertiary					
A	1224.89	1444.13	1047.13	1155.91	1523.16
B	144.1	153.1	140.1	128.8	200.9
Post-secondary general and secondary vocational					
A	839.02	979.21	744.16	858.25	794.62
B	98.7	103.8	99.6	95.7	104.8
Secondary general					
A	839.83	990.95	798.30	867.43	785.83
B	98.8	105.1	106.8	96.7	103.7
Basic vocational					
A	756.14	830.35	571.64	858.08	631.58
B	98.0	88.0	76.5	95.6	83.3
Primary and incomplete primary					
A	707.99	798.28	584.32	756.01	616.33
B	83.3	84.6	78.2	84.3	81.3

Source: Wynagrodzenia zatrudnionych w gospodarce narodowej według zawodów za marzec 1996, Informacje i Opracowania Statystyczne, GUS, Warsaw 1997, Tab. 7, p. 14, Tab. 8, p. 15.

Table 6 shows that persons with tertiary education earned the most, more than average wages paid in the country. This finding applies to both genders and to public and private sector employees. Workforce representing other levels of education earned relatively less, but the difference between average wages received by persons with secondary education and with basic vocational education was not significant. Women invariably earned 20-30% less than men with the same educational attainment did, which reveals gender-based wage discrimination in the labour market. Especially low wages were paid to women with basic vocational education.

In the group of economically active persons, workers without qualifications or having low qualifications earned 57.8% of wages paid to workers with tertiary education. In the private sector, the difference was substantially larger, because workers with primary or incomplete primary

education earned only 40.5% of wages received by persons with tertiary education. In the public sector, the rate was 65.4%.

It is noteworthy that educational attainment generally produced stronger wage variations in the private sector than in the public sector. Especially, a clear gap existed between earnings of tertiary graduates and of workers representing other levels of education. Tertiary graduates working in the private sector earned much more than their counterparts in the public sector. On the other hand, workers with secondary, basic vocational and primary education (complete and incomplete) earned less in the private sector than in the public sector.

These findings substantiate the conclusion that both sectors appreciated human capital possessed by workers with tertiary education.

Let us now examine the results of a survey investigating the relationship between wages and educational attainment, which was conducted in 2006 based on a sample containing 60,000 Polish workers.

Table 7. Gross monthly wages earned in Poland by persons with different levels of education in 2006, zlotys

Specification	Sample size	10% earn below	25% earn below	Median	25% earn above	10% earn above
Level of education:						
- MBA	611	2700	4700	8500	14500	27000
- Post-Master	8844	1550	2150	3300	5500	9500
- Tertiary	34530	1400	1920	2940	4750	8000
- Bachelor's degree and incomplete tertiary	7449	1100	1500	2150	3400	5500
- Secondary	12174	1025	1350	1900	2800	4300
- Vocational	1471	1000	1350	1896	2800	4200
- Primary	170	991	1200	1660	2500	5275

Source: Internetowe Badania Wynagrodzeń 2006 przeprowadzone przez firmę Sedlak & Sedlak, www.wynagrodzenia.pl.

According to data in table 7, workers' wages are closely correlated with their educational attainment – the higher education, the better wages. Correspondingly, the MBA graduates earn the best. In 2006, their average gross monthly earnings amounted to 8,500 zlotys, with half respondents in that group receiving from 4,700 to 14,500 zlotys a month and 10% even above 27,000 zlotys. Wages of workers who acquired additional knowledge and qualifications at post-Master's studies were, on average, lower by 5,000 zlotys than wages of the MBA graduates, and the 10% of top earners in the first group earned three

times less than 10% of the best MBA earners. Tertiary graduates received 360 zlotys less than persons with post-Master's education did, but 10% of them were paid less than 1,400 zlotys and the best earners received more than 5.5 times as much. On average, workers with Bachelor's degree and with incomplete tertiary education received wages that were 800 zlotys lower than earned by tertiary graduates and by 25% lower than wages paid to the MBA graduates. On the other hand, they earned only 13% more than workers with secondary education did. Secondary education and vocational education were rewarded with almost the same wages, i.e. higher by 14% than wages paid to workers with primary education. Relatively low wages were earned by persons with the lowest education, as 50% of them earned between 1,200 and 2,500 zlotys, and 10% less than 1,000 zlotys. It must be stressed, however, that average gross monthly wages earned by workers with education lower than tertiary do not show significant variations.

Equal education of men and women does not guarantee their receiving equal amounts of pay.

Table 8. Average gross wages earned by men and women by level of education in 2006, zlotys

Education	Average gross wages	
	Men	Women
MBA	9200	6250
Post-Master	4100	2800
Tertiary	3500	2400
Bachelor's degree and incomplete tertiary	2500	1900
Secondary	2100	1630
Primary and basic vocational	1950	1363

Source: see table 7.

Data in table 8 show that women earn relatively less than men do, regardless of the level of education they have attained. The largest variations can be found among the MBA graduates. In 2006, female graduates earned 2,950 zlotys less than men did (and so male wages were higher by almost 47%). For lower levels of education, the gaps between male and female earnings are only slightly smaller. Men with tertiary and secondary education earned around 30% more than women did, but in the case of primary and vocational education the spread was larger, as male wages exceeded female wages by 43%. The above variations between wages earned by men and women are unrelated to worker's level of education and so they prove that the two genders do not have equal

chances in the labour market, as well as the existence of wage discrimination against female workers.

A good method for validating the above conclusion is analysis of gender-related wage variations by group of occupations.

Table 9. Level of average gross monthly wages by occupational group and gender in Poland, years 2000-2004

Occupational groups	Gross wages, zlotys			
	2000		2004	
	M	F	M	F
MPs, high-ranking officials and managers	4413	3273	6181	4383
Specialists	2813	1999	3751	2862
Technicians and other middle-level personnel	2265	1619	2842	2106
Office personnel	1681	1619	2016	2023
Personal service workers and salespersons	1419	1087	1508	1269
Farmers, gardeners, foresters and fishermen	1310	1188	1679	1482
Industrial workers and artisans	1700	1083	1979	1295
Operators and fitters of machinery and equipment	1720	1441	2069	1660
Labourers	1243	1026	1468	1269

M - men

F - women

Source: Statistical Yearbook of the Republic of Poland, years 2002, p. 170; 2003, p. 182; 2004, p. 267; 2006, p. 272, GUS, Warsaw.

As table 9 shows, the best-paid persons have occupations requiring the highest qualifications and special predisposition, for instance Members of Parliament, high-ranking officials, managers, and specialists. Workers doing simple jobs and having low qualifications earn the least. Additionally, variations between male and female wages within each occupational group can be observed. Especially large female/male wage differentials are found in the group of Members of Parliament, high-ranking officials and managers. In 2004, female wages were lower than male wages by 1,798 zlotys. Among specialists, men earned 31% more than women did, but unlike the previous occupational group the gap decreased compared with 2000. An improved relation between female and male wages can be observed among office workers. They are the only category where female wages exceeded male wages (by 7 zlotys on average). In the group of industrial workers and artisans, female wages were 35% below male wages. Regarding workers doing simple jobs, the difference was 14%. It can be concluded, therefore, that wage relations are generally formed assuming lower wages for women, but the reason for this should not be sought in their lower qualifications and levels of education.

5. Final remarks

Changes that appeared in the Polish economy in the period of transition resulted from restructuring processes, changing techniques, and from the introduction of new technologies. They limit the range of options allowing the inclusion of persons with low education and qualifications, and all the more those without any vocational background, in the work process. Low-educated persons represent the smallest proportion of employment, but the largest of unemployment. To increase their share in the economically active population they must be first and foremost covered by a vocational training and retraining programme tailored to the new labour market demands. Certain qualitative adaptation of the school system (including vocational schools) also seems necessary, in order to raise the level of school-leavers' theoretical and practical knowledge.

Higher education usually guarantees stable position in the labour market, offers better prospects of professional career and promises relatively higher remuneration. The strengthening relationship between educational attainment and the level of wages is especially noticeable in the case of tertiary graduates employed in the private sector subjected to the market economy rules. The discernible and positive correlation between person's wages and education is a strong incentive that encourages reaching for better and better education and qualifications. This situation additionally requires enhancement of measures reducing gaps between male and female wages, as expected by the European Social Chart that guarantees women equality of employment conditions.

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