www.*WageIndicator*.org

Project no.	*FP6-2004-506590*
Project acronym	*WOLIWEB*
Project title	*The socio-economic determinants of citizens' work life attitudes, preferences and perceptions, using data from the continuous web-based European Wage Indicator Survey*
Instrument:	STREP
Thematic Priority	PRIORITY 7, Research Area 3.2.2.

WOLIWEB national report

Poland

The Gender Pay Gap

Deliverable:	D16 National Report POLAND
Report Version:	Final
Report Preparation Date:	31.03.2007
Authors of this report:	Magdalena Andrałojć, the Poznan University of Economics

TABLE OF CONTENT

1. INTRODUCTION

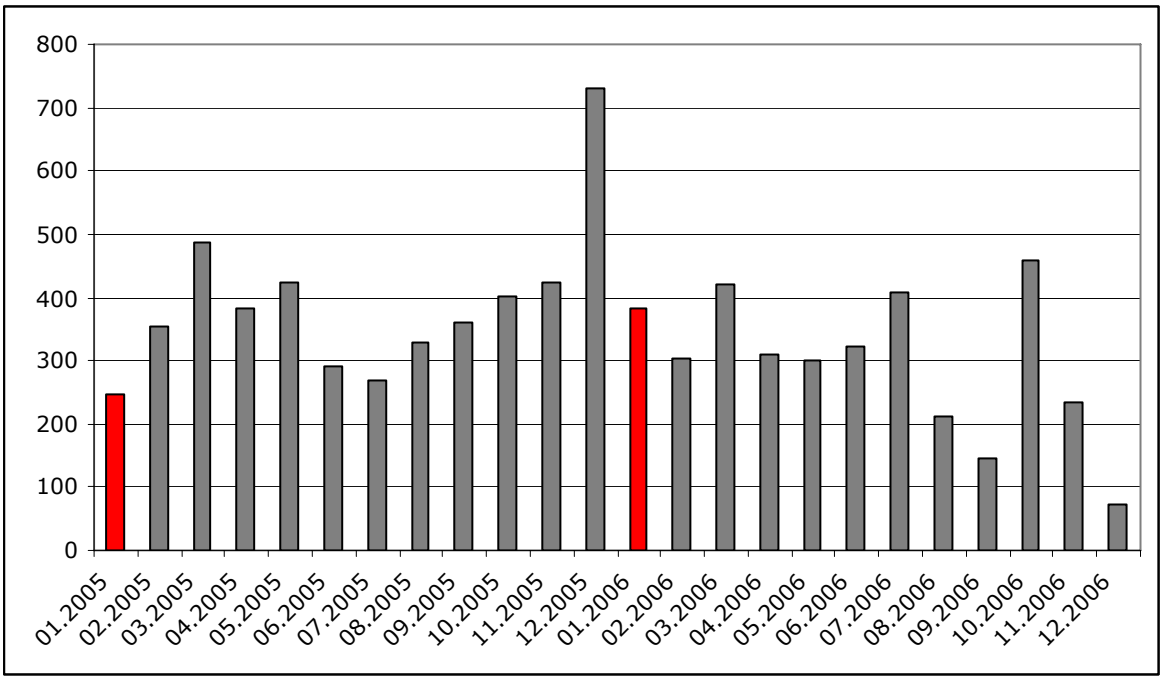
In this paper, an overview on the *WageIndicator* data, release 2-9 (jan2005-dec2006) is given. Furthermore, the results of the analysis on the gender pay inequality in Poland are presented. Polish data were collected through the Internet questionnaire, that was plase at the website www.twojezarobki.pl, supported by one of the biggest Polish trade union – NSZZ Solidarnosc, and national media partner – Gazeta Wyborcza. All in all 8268 people have completed the questionnaire during the period of January 2005-December 2006.

This report presents an analysis of the data in four different sections. In the first section monthly responses was analysed. In the next section WageIndicator data were compared with data from Labor Force Survey. The third section was focused on gross hourly wage. It was explained, why this measure, instead of the monthly wage, was used. In the last section the distribution of the male and female wages was investigated and gender pay gap for different groups of respondent was calculated. Different aspects influencing the gender pay gap in Poland were analyzed.

2. MONTHLY RESPONSE

The process of collecting Polish data begins at the end of 2004. As the data for 2004 were not reliable (the questionnaire was tested then) they were taken out of the final data set. At the beginning of 2005 Polish team started to gather the data on a large scale. Figure 1 shows the number of collected questionnaires per month, beginning in January 2005. The bars in red signify the beginning of each new year, 2005 and 2006.

Figure 1. Number of collected questionnaires per month



Source: *WageIndicator*, data release 2-9

At the beginning of 2005 the number of collected questionnaire slightly increased (from 246 in January to 488 in March). It was an effect of the direct promotion activities (sending e-mails to potential respondents) and indirect promotion through media (information about the project on the website of trade union and media partner, with link to the website of the project). From April till November 2005 the number of respondents was quite stable (during summer holidays small decrease was observed), and circulated around 350 questionnaires per month. Striking peaks in the number of questionnaire was notified in December 2005 (more than 700 questionnaires). It was an effect of strong promotion in media – weekly reports were published in Gazeta Wyborcza (paper version) and at the Internet in the labour market section of Gazeta. At the end of 2005 the number of filled in questionnaires amounted to 4.699.

At the beginning of 2006 the number of questionnaires dropped to about 400 per month and remains stable till July. Then quite significant decrease was observed (about 3

times in two month period), and in October - significant growth again. In the end of 2005 number of monthly collected questionnaires dropped to 73 in December. During all second year 3.569 questionnaires were collected.

First question, which respondents had to answer concerned current employment activity. The routing in the questionnaire depended on that answer. Table 1 and Figure 2 shows, that the dominated group was employees. They constitute more than 80% of all respondents.

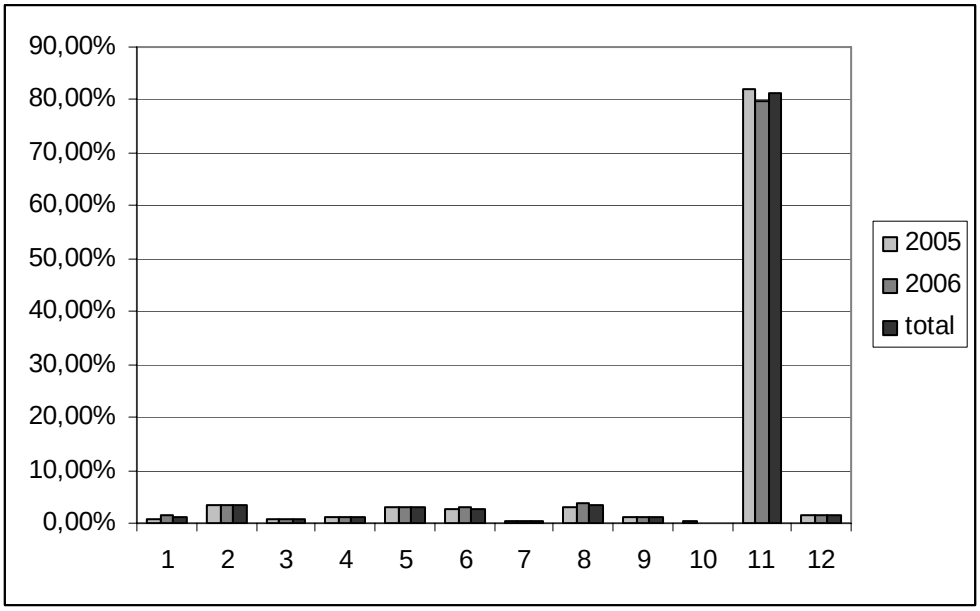
Table 1. Current employment activity

			SURVEYY Year of survey		
			2005	2006	Total
Current employment activity	1 Never had a job	Count	33	56	89
		% within SURVEYY Year of survey	,7%	1,6%	1,1%
	2 Self-employed, own-account worker, freelance	Count	163	128	291
		% within SURVEYY Year of survey	3,5%	3,6%	3,5%
	3 Family worker / working for family business	Count	29	32	61
		% within SURVEYY Year of survey	,6%	,9%	,7%
	4 Free from task	Count	60	47	107
		% within SURVEYY Year of survey	1,3%	1,3%	1,3%
	5 Contract by results	Count	137	104	241
		% within SURVEYY Year of survey	2,9%	2,9%	2,9%
	10 Unemployed / looking for a job	Count	117	108	225
		% within SURVEYY Year of survey	2,5%	3,0%	2,7%
	15 Sickness benefit / incapacity for work	Count	16	7	23
		% within SURVEYY Year of survey	,3%	,2%	,3%
	20 School pupil, student in full-time education	Count	143	137	280
		% within SURVEYY Year of survey	3,0%	3,8%	3,4%
	25 Apprentice, trainee	Count	60	40	100
		% within SURVEYY Year of survey	1,3%	1,1%	1,2%
	30 In a job	Count	9	3	12

	creation scheme	% within SURVEYY Year of survey	,2%	,1%	,1%
	40 Employee	Count	3864	2854	6718
		% within SURVEYY Year of survey	82,2%	80,0%	81,3%
	50 Other	Count	68	53	121
		% within SURVEYY Year of survey	1,4%	1,5%	1,5%
Total		Count	4699	3569	8268
		% within SURVEYY Year of survey	100,0%	100,0%	100,0%

Source: *WageIndicator*, data release 2-9

Figure 2. Current employment activity



1 Never had a job
2 Self-employed, own-account worker, freelance
3 Family worker / working for family business
4 Free from task
5 Contract by results
6 Unemployed / looking for a job
7 Sickness benefit / incapacity for work
8 School pupil, student in full-time education
9 Apprentice, trainee
10 In a job creation scheme
11 Employee
12 Other

Source: *WageIndicator*, data release 2-9

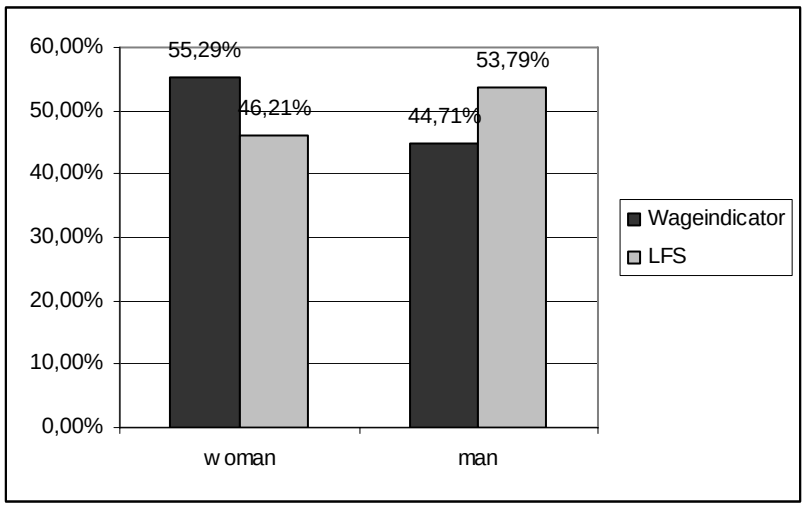
This report concerns pay inequality between women and men who are employed in Poland and have Polish nationality. That is why for further analysis it was decided to choose only Polish employees, who work in Poland. All in all 6.575 questionnaires were analysed.

3. REPRESENTATIVENESS

WageIndicator research is based on ongoing Internet questionnaire, open to be filled in by everyone with access to the Internet. In such mode of data collection no sampling frame is available. One possibility to check, whether the conclusions from the data analysis can be generalized for the whole population of employees is to compare *WageIndicator* database with other official sources. For this purpose data from Labor Force Survey (LFS) were used. Number of characteristics, included in LFS, were analysed, and compared with *WageIndicator* data. Four main characteristics were taken into account: sex, education, age and industry.

About 55% of the WageIndicator respondents were women, and 45% were men (Figure 3). For the LFS it was the opposite – 46% woman and 54% men. Women in WageIndicator dataset were a little bit overrepresented, and men – underrepresented. Nevertheless this very big disproportion.

Figure 3. Gender distribution in LFS 2006, and *WageIndicator*, data release 2-9



Source: LFS 2006, *WageIndicator* data release 2-9

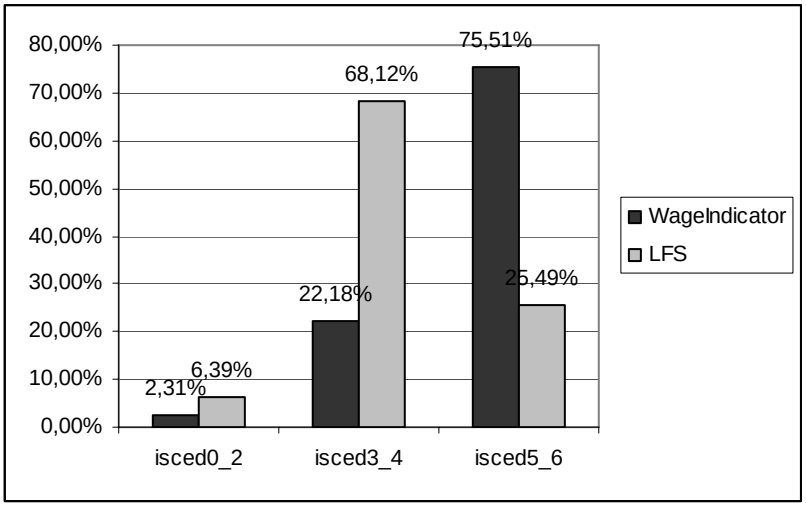
The differences between the two questionnaires become more significant when the educational level of respondents in the LFS and *WageIndicator* is taken into consideration

population (Figure 4). Educational level is described by ISCED categories. Category 0 stands for pre-primary education, category 1 - education at the primary level, category 2 - lower secondary level, category 3 - upper secondary level, category 4 - tertiary level, first stage, of a type that does not lead to a university degree or equivalent, category 5 - tertiary level, first stage, of a type that does lead to a university degree or equivalent, category 6 - tertiary level, second stage, of a type that leads to a post-graduate university degree or equivalent. Some education categories were combined, and in effect 3 educational levels were analysed:

- basic and lower education (categories: 0, 1, and 2),
- middle education (categories 3 and 4),
- high education (categories 5 and 6).

For the WageIndicator, the majority of the respondents were highly educated. This group constituted more than 75% of respondents. Around 22% respondents had middle education, and only 2,3% - low education. For the LFS, the majority was middle educated - 68% of the respondents. High educated respondents constituted only 25%. As Figure 4 shows the differences in the educational level of respondents, taking into account both surveys, is huge. In WageIndicator database people with high education is overrepresented. Compared to the LFS - the *WageIndicator* includes less low educated and more high-educated people. This is a result, which could be expected. This is still a bias in the use of Internet. Highly educated people use the Internet more often then lower educated ones.

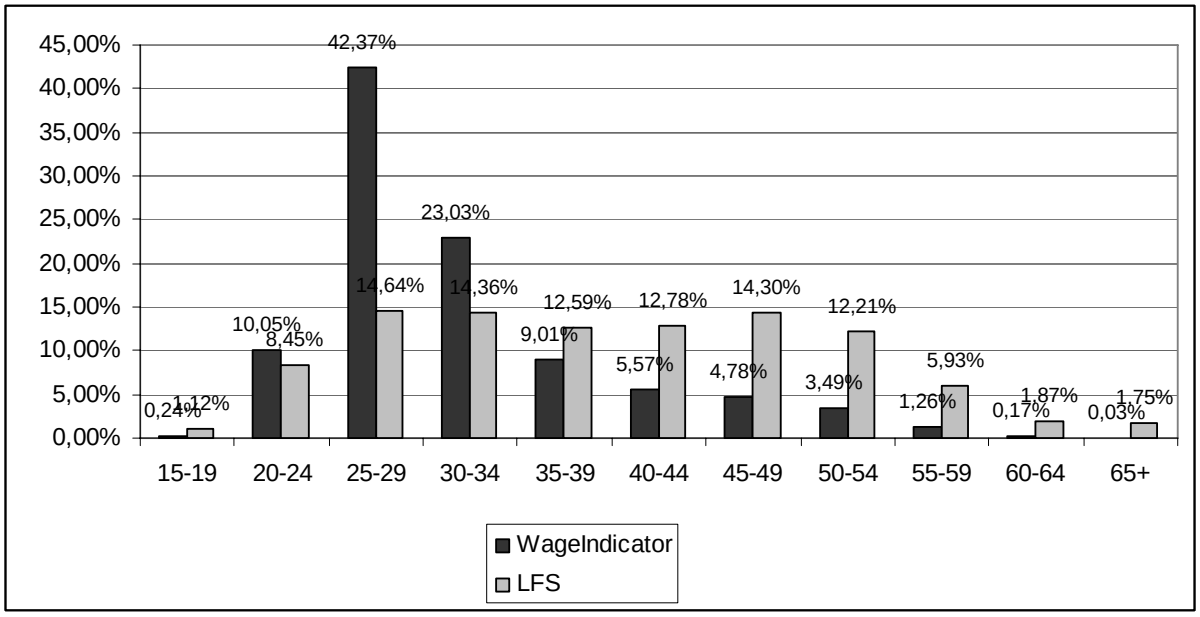
Figure 4. Education level in LFS 2006, and *WageIndicator*, data release 2-9



Source: LFS 2006, *WageIndicator* data release 2-9

Comparing the distribution of age for both the *WageIndicator* and LFS, it can be noticed that in *WageIndicator* database there are substantially more respondents in the age groups of 25 to 29 and 30-34 years, and less respondents in older groups (Figure 5). This is another Internet bias – in general people, who use Internet are young. Moreover young people are more interested in developing their professional carriers, looking for the job and for information on wages. That's *WageIndicator* websites attract a relative young audience.

Figure 5. Age groups in LFS 2006, and *WageIndicator*, data release 2-9



Source: LFS 2006, *WageIndicator* data release 2-9

Industry analysis is based on NACE industry classification. There are 16 categories of industry included into the analysis. These categories are listed in Table 2. Comparing industry groups for both *WageIndicator* and LFS similar profile of the respondents is observed (Figure 6). There were two differences however – less respondents in manufacturing (section D) and more respondents in section K in WageIndicator comparing to LFS .

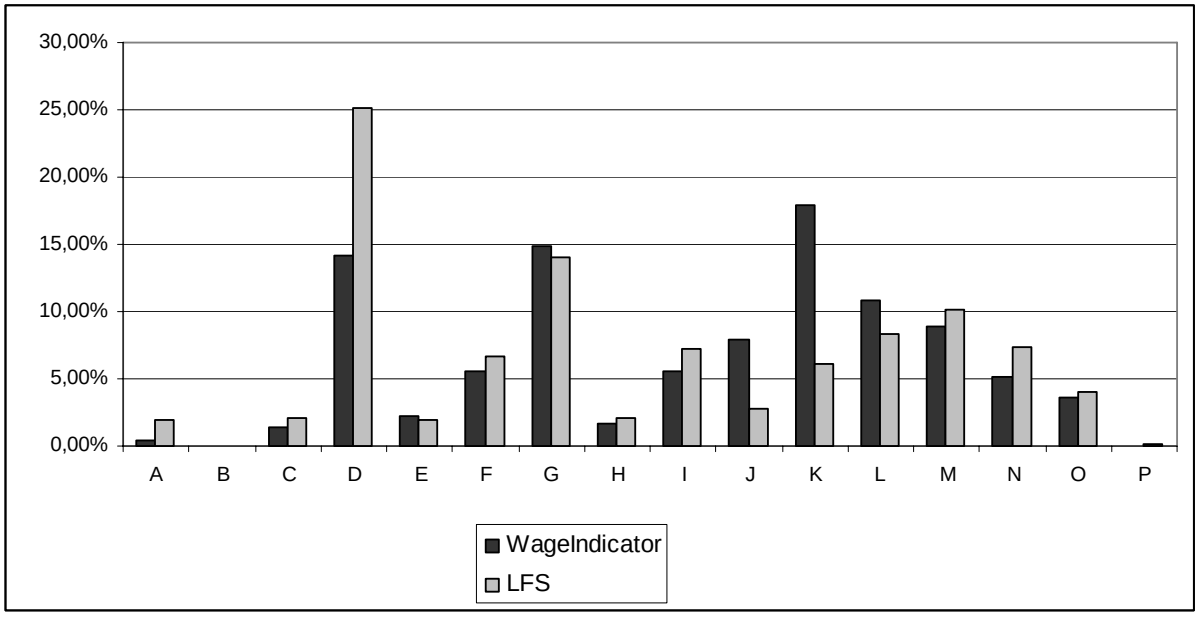
Table 2. NACE categories

Symbol	The label of category
A	Agriculture, hunting and forestry
B	Fishing
C	Mining and quarrying

D	Manufacturing
E	Electricity, gas and water supply
F	Construction
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
H	Hotels and restaurants
I	Transport, storage and communication
J	Financial intermediation
K	Real estate, renting and business activities
L	Public administration and defence; compulsory social security
M	Education
N	Health and social work
O	Other community, social and personal service activities
P	Activities of households

Source: Eurostat

Figure 6. Industry in LFS 2006, and *WageIndicator*, data release 2-9



Source: LFS 2006, *WageIndicator* data release 2-9

4. GROSS HOURLY WAGE

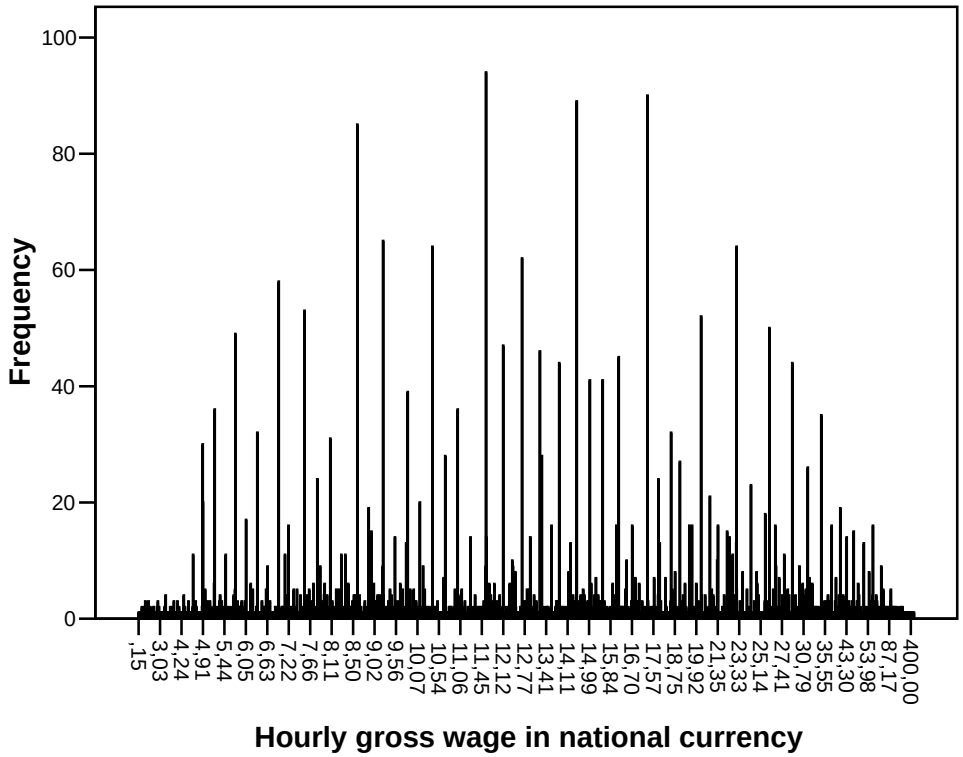
For all the wage calculations involved in the analysis gross hourly wage was used. The main argument for using this measure is that directly measured monthly wage, don't reflect the differencials in pay caused by part time work. Monthly wage, without taking into the consideration the hours spent on work, gives deformed results. Besides, payment period may be different. Some people are paid every day, some weekly, some

monthly. Calculation of hourly wage takes into consiteration both: number of hours worked and payment period.

In general employees knows better the nett wage – it is indicated in the pay slip, and after each payment period this amout appears on the bank account. It might be easier for respondents to give the information about net wage, however for scienticic purposes gross wage is more accurate.

Figure 7 presents the distribution of the gross hourly wage for employees, who filled in *WageIndicator* questionnaire.

Figure 7. Distribution of gross hourly wage



Source: *WageIndicator* data release 2-9

The data seems to be normally distributed – few people earned very low, and few – very high, but after deep analysis it turned out that there are a lot of employees with relatively low earnings and not much employees with relatively high earnings. It might be reflected by comparison of two basic wage measures: mean and median. The mean gross wage was 20 PLN per hour, and median – 13,11 PLN per hour, which is approximately 7 PLN lower than mean.

The relatively high pay inequality in the Polis WageIndicator data was observed. It can be illustrated by decile diversity index (ratio of ninth decile – 33,93 PLN and first decile – 5,9 PLN), that in the WageIndicator sample amounted to 6. According to official

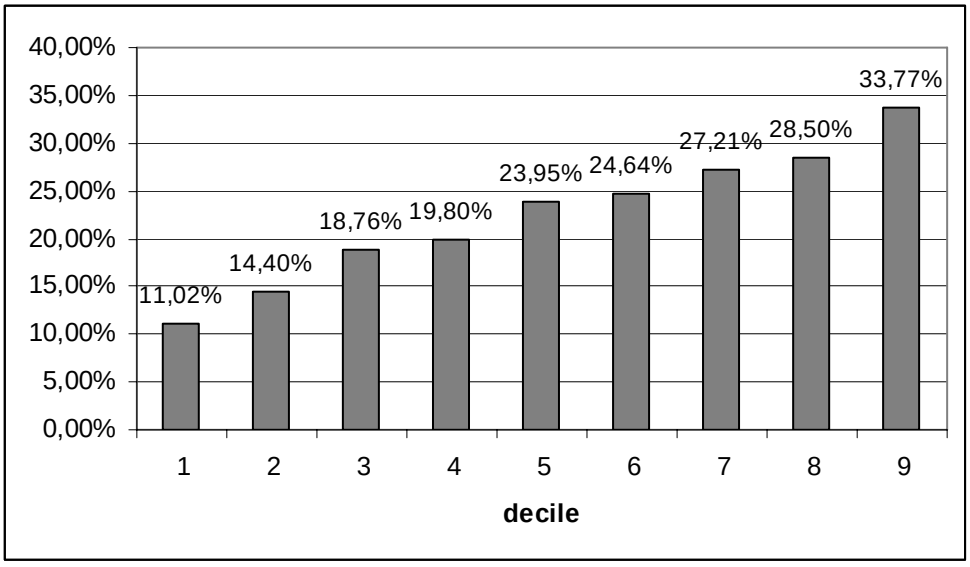
Polish data from National Statistical Office in 2004 this ratio amounted to 4,14, and was the highest since 2001. In general the inequality is higher within males, and lower within women. It was reflected in WageIndicator analysis – the decile diversity index for men amounted to 6,39, and for woman – 4,75 (decile distribution in female and male group is shown in Table 3. It may suggest that men have more chance to increase their pay than woman. As introduction to next section it is worth to mention here, that the pay inequality between men and women are higher between high paid women and high paid men, than between low paid women and low paid men (Figure 8).

Table 3. Decile distribution in male and female group, and pay gap between men and women.

	salary in PLN		
decile	men	women	pay gap
1	6,424142	5,715935	11,02%
2	8,660508	7,41311	14,40%
3	10,68129	8,677829	18,76%
4	12,71948	10,20133	19,80%
5	15,22108	11,57547	23,95%
6	17,98804	13,55593	24,64%
7	22,20827	16,16628	27,21%
8	27,71363	19,81524	28,50%
9	40,97383	27,13626	33,77%

Source: *WageIndicator* data release 2-9

Figure 8. Gender pay gap in decile groups



Source: *WageIndicator* data release 2-9

5. GENDER PAY GAP

In this section gender pay gap in unadjusted form is going to be analysed. There is much evidence in the literature that men earn in general more than women. Despite the reduction in gender pay gap, since 1950, gender inequalities persist. The range of these inequalities varies as far as different aspects of work (connected with person, function and organization) are concerned. In the next sections the gender pay gap will be analyzed. Gender pay gap was calculated only for categories in which there were minimum 50 men and 50 women. If there are less observations the results may not be reliable.

5.1. Person related aspects

Gender pay gap is different for various personal related categories. In further analysis two categories were included: age and education level. There are more aspect, such as work experience and having children that may be important, as well.

5.1.1. Age

Table 4 shows the distribution of gender category (number of men and women) in seven age groups. The biggest age group is second one: 25-29 years old, the smallest one – 55 and more years (there was less than 50 observations for woman in this group, so gender pay gap calculated for this group may be not reliable).

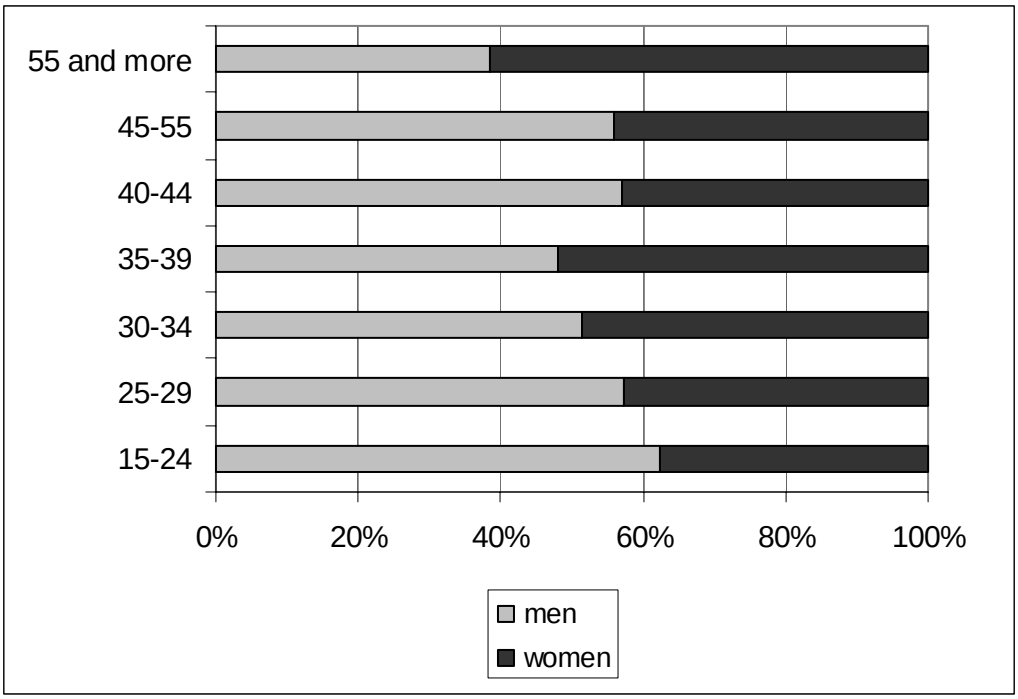
It was observed, that in the older groups the share of women in age group was slightly increasing. It reflects the general demographic phenomenon – women in general live longer than men, that is why the percent of women is higher in older age groups. In the youngest group (15-25) the share of woman was 37% and in oldest group (55 and more) it came to 61% (Figure 9).

Table 4. Gender distribution in age groups

		GENDER		Total no
		Woman	Man	
AGE	15-24	422	254	676
	25-29	1598	1186	2784
	30-34	778	735	1513
	35-39	284	308	592
	40-44	209	157	366
	45-55	304	239	543
	55 and more	37	59	96
Total		3632	2938	6570

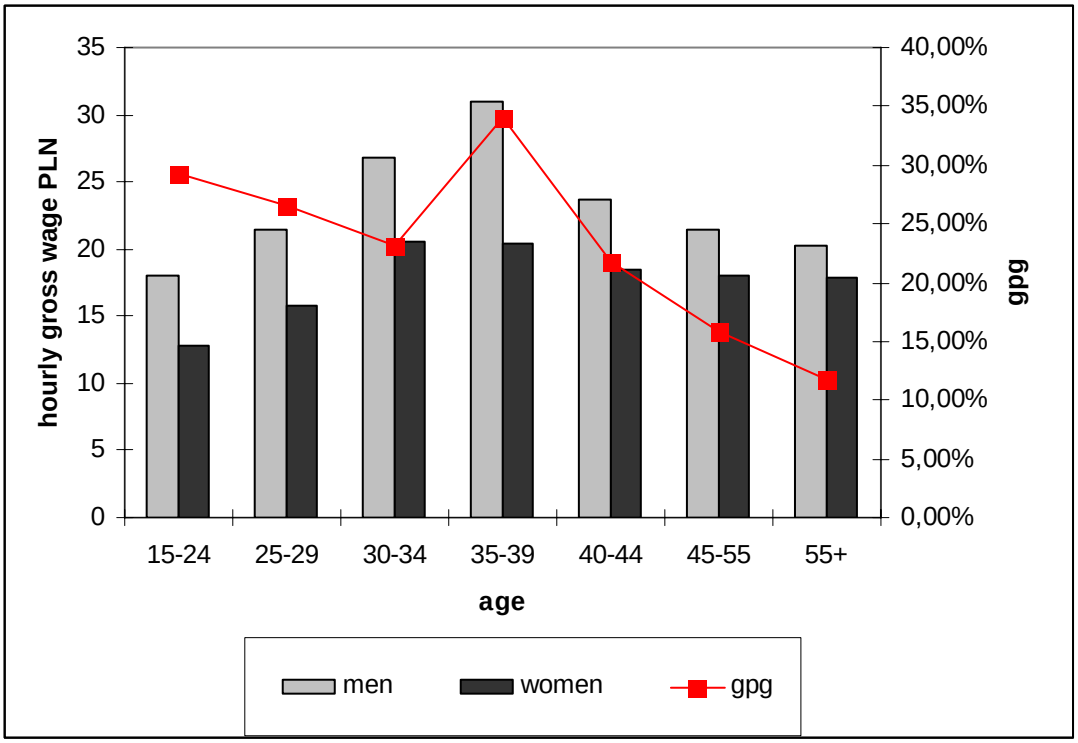
Source: *WageIndicator* data release 2-9

Figure 9. Gender share in age groups



Source: *WageIndicator* data release 2-9

Figure 10. Gender pay gap for age groups



Source: *WageIndicator* data release 2-9

The gender pay gap is shown in Figure 10. Before analysing the graph some explanation have to be given. The columns on the graph represent the gross hourly wages of the men and women. The axis for the interpretation of these wages is found on the left. The red line presents the gap between women and men earnings. The axis with these percentages is found on the right sight of the graph.

Analysing the Figure 10 it can be concluded, that there was a persistent gender pay gap between all different age groups. Male respondents earned more then their female counterparts in all age groups. The gender pay gap however was not equally distributed among these different groups. It was considerably the largest among people in middle age (35-40 years). The smallest lump was observed in the oldest groups (45-55 and 55+). It might be explained by the following aspects:

- young people need more money (they start an adult life, buy houses, decide to have a children), that is why they are more willing to compete for high salary (such attitude is more typical for men than for women),
- after giving the birth young women goes for maternity leave (in Poland in general women take care for children), because of that the professional career doesn't develop as quickly as men career.
- In younger groups dominates men, such situation influence gender pay gap (if there is more men in the group the gender pay gap tends to be higher than in women dominated group).

5.1.2. Education

A second relationship that is investigated concerns the relation between the educational level and the gender wage gap. The hypothesis may be put forward that the pay gap is larger for the more highly educated group. Highly educated people more often are employed in higher paid jobs where the competition is higher. Besides men more often are appointed for high paid jobs. Table 5 shows gender distribution in education groups. The analysis for low educated group was not conducted, as there was to little observations. Women are more represented in middle educated group (48%), than in high educated group (42%).

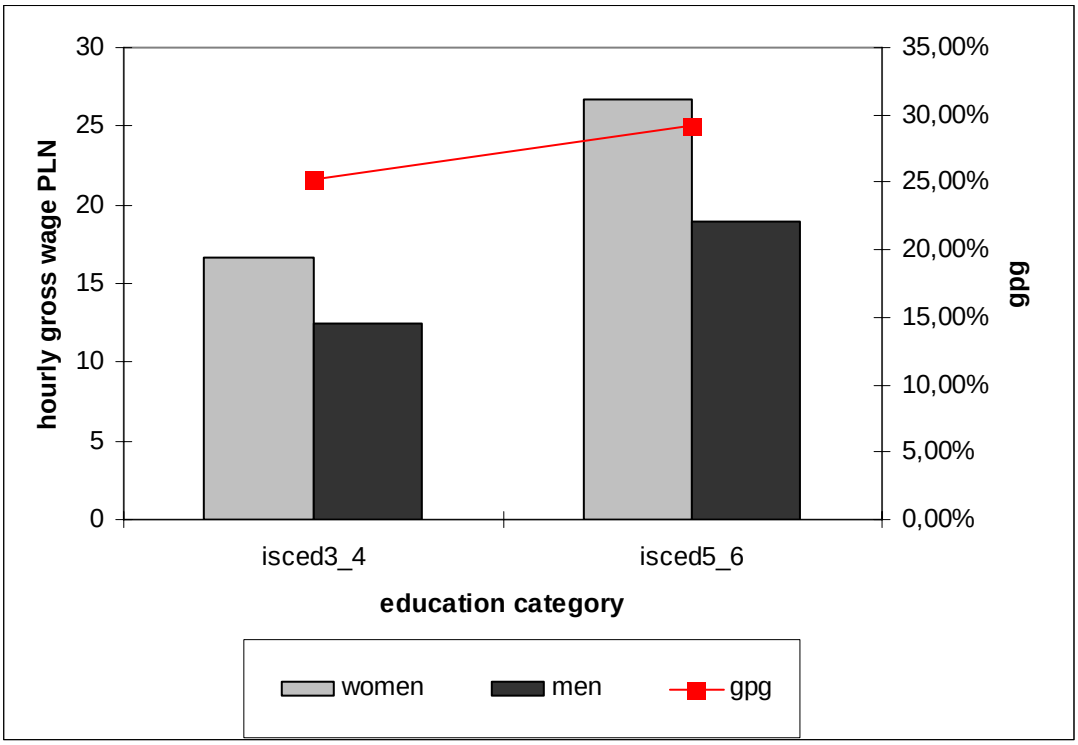
Table 5. Gender distribution in education groups

		GENDER		Total
		Woman	Man	
education	isced0_2	26	113	139
	isced3-4	690	644	1334
	isced5-6	2616	1926	4542
Total		3332	2683	6015

Source: *WageIndicator* data release 2-9

Between the medium level and the high level of education the difference in pay was visible (Figure 11). Highly educated men earned on average 10 PLN per hour more that medium educated ones. For highly educated women, the difference was smaller. They earn 6,5 PLN per hour more than their medium educated counterparts. The gender wage gap rose quite significantly with the educational level. Medium educated women earned 25% less than medium educated men, while high-educated women earned almost one third less then their male counterparts.

Figure 11. Gender pay gap in educational groups



Source: *WageIndicator* data release 2-9

5.2. Function related aspects

Gender pay gap is different for various function related categories. In further analysis two categories were included: type of working hours (part time and full time) and holding managerial position. There may be more aspect connected with organizational function, which could be important, e. g. the job autonomy, the work pressure, the complexity of the job.

5.2.1. Type of working hours: part time and full time

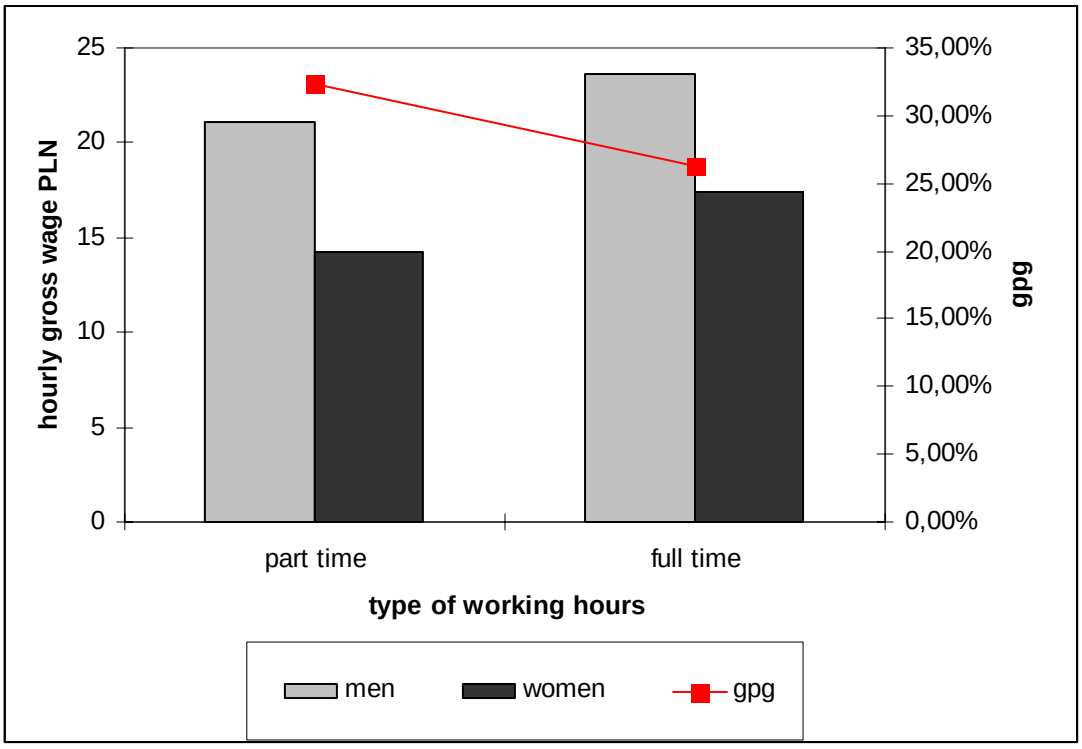
As Table 6 shows, there were no many respondents working part time. Great majority of employees, that took part in the research worked full time. Nevertheless the pay gap can be calculated for both: part timers, and full timers.

Table 6. Gender distribution in education groups

		GENDER		
		Woman	Man	Total
hours	Part time	210	88	298
	Full time	3421	2850	6271
Total		3631	2938	6569

Source: *WageIndicator* data release 2-9

Figure 12. Gender pay gap for part time and full time employed



Source: *WageIndicator* data release 2-9

The calculation of hourly wage took into account the real number of worked hours. On this basis it was possible to make an 'honest' comparison between a part and full time workers. The human capital theory indicates, that full timers to have more opportunities to prove themselves within the organization and thus have more promotion

opportunities. Such situation influences the pay level – full timers on average earn more than part timers. Figure 12 shows pay level for part time and full time employed. There was not significant difference between full time and part time workers earnings, nevertheless the pay gap between males and females was quite big (32% for part timers, and 26% for full times).

5.2.2. Managerial position

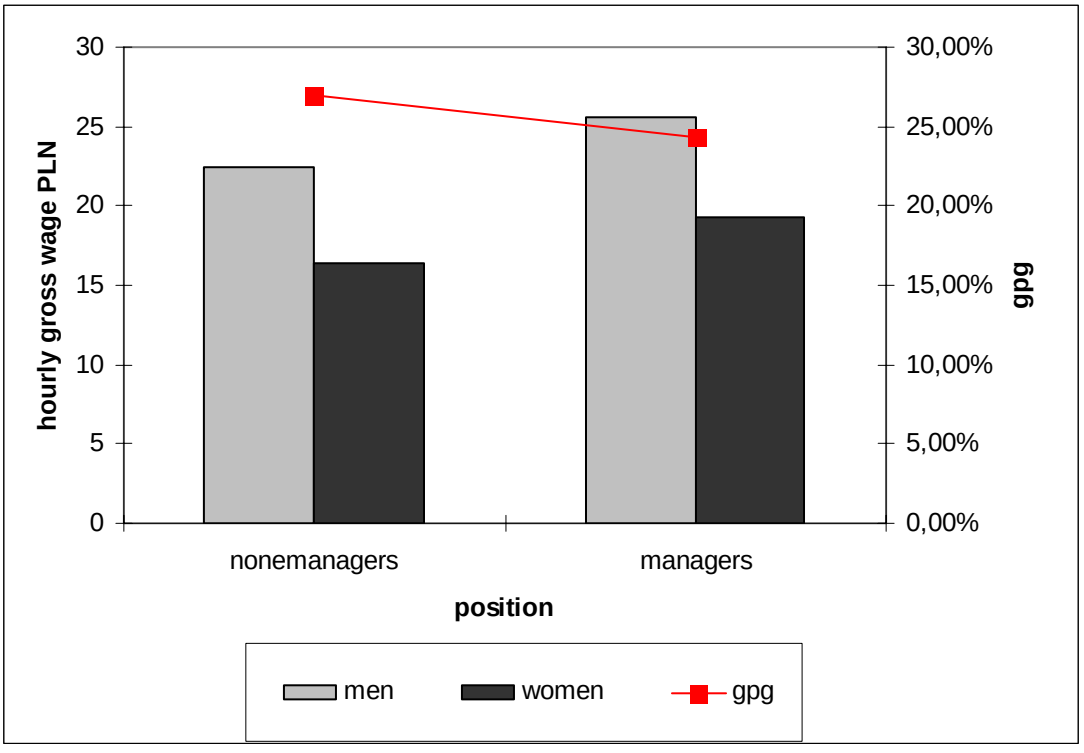
Table 7 shows gender distribution among managers and none managers. In the group of none-managers women constituted 58% of the group, while within none managers – 48%. It could be expected, that the pay gap between men and women will be higher in managerial position, but as the Figure 13 shows, it is slightly lower. In general the position didn't have a big influence on the pay gap between males and females.

Table 7. Gender distribution in managerial and none-managerial positions

		GENDER		
		Woman	Man	Total
Managerial position	No	2619	1880	4499
	Yes	1016	1060	2076
Total		3635	2940	6575

Source: *WageIndicator* data release 2-9

Figure 13. Gender pay gap for managerial and none-managerial positions



Source: *WageIndicator* data release 2-9

5.3. Organization related aspects

Gender pay gap may be influenced by various organization related categories. In further analysis two categories were included: size of the organization and type of the industry. There may be more aspect connected with organization, which were not investigated e.g. the ownership, number of women that work in the company, whether there is a trade union representation.

5.3.1. Size of the organization

As company size is concerned 8 group of companies were analyzed (Table 8). The distribution of respondents (both women and men) was quite equal.

Table 8. Gender distribution in different company size

		GENDER		Total
		Women	Men	
employment	1-50	188	125	313
	50-100	102	93	195
	100-200	99	112	211
	200-500	145	152	297
	500-1000	111	140	251
	1000-2000	111	124	235
	2000-5000	116	146	262
	5000+	218	217	435
Total		1090	1109	2199

Source: *WageIndicator* data release 2-9

The pay level didn't differ a lot, as far as company size was concerned. The exemption was men's earnings in medium organizations – quite high comparing to other groups (Figure 14). High level of men's earnings in this group caused that the pay gap was relatively high here.

Figure 14. Gender pay gap for different company size

Source: *WageIndicator* data release 2-9

5.3.2. Industry

The last analyzed category is industry. The distribution of respondents across all NACE categories is presented in Table 9. There were too few observations for some industries. Gender pay gap was calculated for 11 out of 16 categories.

Table 9. Gender distribution in different industries

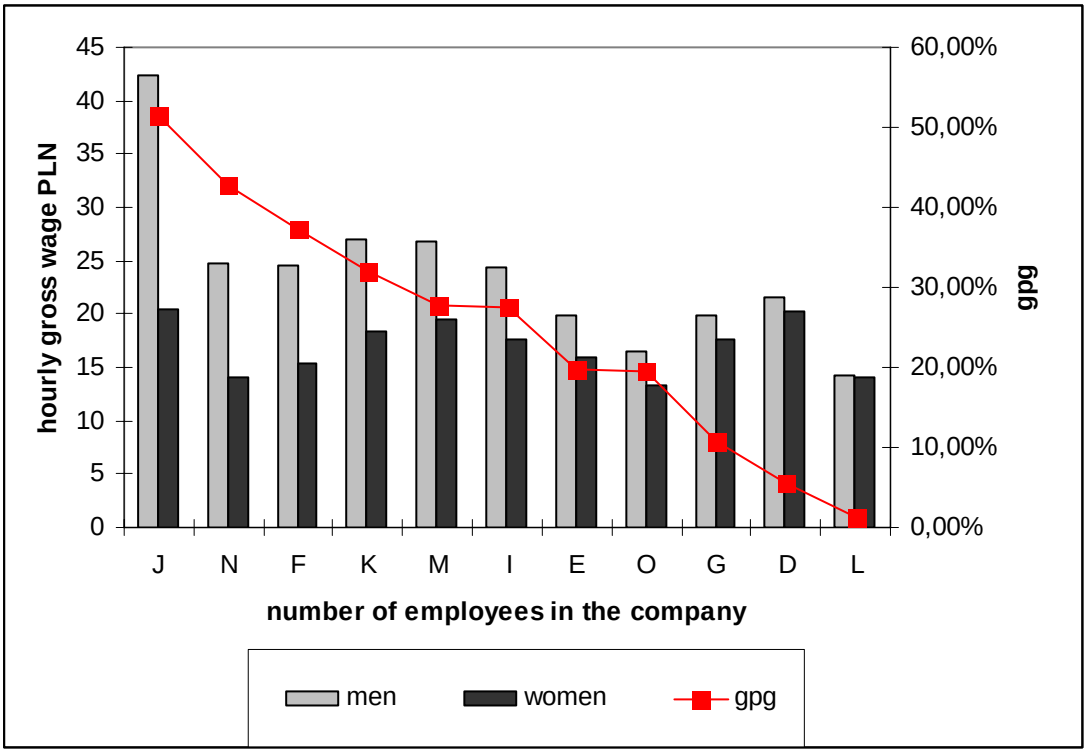
		GENDER		
		Woman	Man	Total
NACE codes	A Agriculture, hunting and forestry	18	12	30
	B Fishing	1	0	1
	C Mining and quarrying	19	68	87
	D Manufacturing	344	559	903
	E Electricity, gas and water supply	52	87	139
	F Construction	160	196	356
	G Wholesale and retail trade; repair of motor vehicles, mot	560	391	951
	H Hotels and restaurants	70	33	103

	I Transport, storage and communication	166	194	360
	J Financial intermediation	304	199	503
	K Real estate, renting and business activities	581	568	1149
	L Public administration and defence; compulsory social sec	435	260	695
	M Education	411	160	571
	N Health and social work	250	76	326
	O Other community, social and personal service activities	155	75	230
	Q Extra-territorial organizations and bodies	1	0	1
Total		3527	2878	6405

Source: *WageIndicator* data release 2-9

As Figure 15 shows there was no big differences in the level of hourly gross salary across industries, as far as women are concerned. Men's salary differ across industries, and it was highest in financial intermediation. In this branch the pay gap between man and woman was the highest (men earned twice as much as women). Industries in Figure 15 were ordered descending as far as pay gap was concerned. In public administration there were no differences between genders in gross hourly pay (mainly because it is low paid an women dominated).

Figure 15. Gender pay gap for different industries



J	Financial intermediation
N	Health and social work
F	Construction
K	Real estate, renting and business activities
M	Manufacturing
I	Transport, storage and communication
E	Electricity, gas and water supply
O	Other community, social and personal service activities
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
D	Manufacturing
L	Public administration and defence; compulsory social security

Source: *WageIndicator* data release 2-9

6. CONCLUSIONS

In the paper the *WageIndicator* data was overviewed. At the beginning monthly responses, and the representativeness were analysed. Comparison of main characteristics, derived from Labor Force Survey 2006, revealed, that WageIndicator dataset in Poland was dominated by young, well educated employees.

As far as gender pay gap is concerned three types of aspect were taken into consideration: personal related (age, education), function-related (type of working hours and managerial position), and company related (the size of the company and industry.

The gender pay gap was very diverse and amounts up to 50% in financial sector. It was considerably large among people in middle age (35-40 years) and was decreasing while moving to older groups. The gender pay gap rose quite significantly with the educational level. Medium educated women earned 25% less than medium educated men, while high-educated women earned almost one third less then their male counterparts. Differences in pay between men and women were lower for full timers, comparing to part timers and for managers in comparison with none-managers. The pay level didn't differ a lot, as far as company size was concerned. The exemption was men's earnings in medium organizations – quite high comparing to other groups. High level of men's earnings in this group caused that the pay gap was relatively high there. Concerning the gender pay gap in the industries it was investigated, that the highest gap was in finance, and the lowest in public administration. It may be partly explained by the fact that finance was very much men dominated, opposite to public administration.