

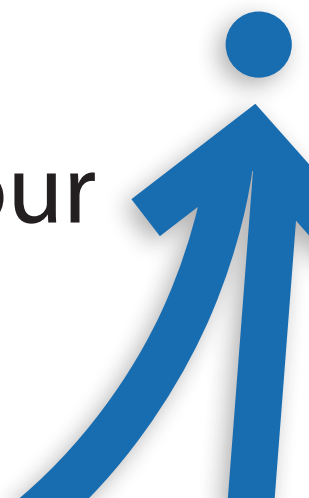


Study of Human Capital in Poland

2011

Report from a survey of general population
conducted in 2010 as part of Study
of Human Capital in Poland

Poles in the labour market



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1. Introduction

We hereby present an initial review of the results acquired in the first round of the study which is part of the Study of Human Capital project conducted by the Polish Agency for Enterprise Development (PARP) in partnership with the Jagiellonian University to the people responsible for planning human capital development policies, and all groups and individuals interested in the current situation in the supply and demand of competences on the Polish labour market. The data was collected by Millward Brown SMG/KRC. The study is aimed primarily at the diagnosis of the demand for employees with specific competences and the availability of these competences on the labour market, among both people who have already completed their education and those who are still in education yet are coming to the end of a substantial stage of it: upper secondary school or first or second-stage degree education. These are the results of the first round of the study (of the planned five), which will allow a snapshot to be taken of not only the state but also the trends concerning the supply and demand for human capital.

Many economists and development strategists have warned that Poland will gradually exhaust its growth potential, resulting on the one hand from an improvement in the allocation of resources thanks to the operation of market mechanisms, and on the other from the increase in productivity of the capital and labour, thanks to the benefits of technology import, appropriate for the period of catching up with highly developed economies. The availability of employees with qualifications sufficient to absorb technology is one of the conditions for making good use of the catch-up period. At the same time, if our country is to move on to the following phase of development based not only on technology absorption, but also on technology development, changes will have to take place in many dimensions of the economy, society, and operation of the state. It is important that there is an increasing number of firms whose decision-making centres and research and development centres are situated in Poland. One of the conditions for such a scenario to take place is the availability of well-prepared managerial and engineering staff, but also non-executive ones furnished with competences necessary for the functioning of an innovative enterprise.

Regulatory and fiscal order should assist in the commercialisation of inventions, which still poses a problem. If the development begins to follow such a scenario, we should perceive that by observing a trend in the demand for staff competences. This is why a study that will allow such a trend to be followed is worth embarking on. Waiting for innovation-based development cannot turn into waiting for Godot, which is a threat should the economy not be able to move fluently between the phases of development, providing this passage with the resources developed in the economy of the catch-up phase. Moreover, even if the developmental processes of the new type can be triggered, a large part of the economy will be based on the traditional model, and will require – besides other conditions – also an appropriate supply of human resources. This is an argument that proves that it is worthwhile to conduct, besides foresight-type studies, diagnostic ones identifying the current tensions and the deficits in competences in the labour market.

The studies whose results we present here are intended to provide information useful for decision making. The organs of public administration which have at their disposal public funds are expected to conduct a suitable educational policy, or, more broadly, one that will develop human capital. The accuracy of public policies beyond doubt depends on the capacity to create adequate provisions of development, and skill in understanding the challenges, and yet it is also determined by the availability of information that allows problems to be identified, their scope to be defined, and concepts to be formulated for solutions to them. At this stage of the project, we quite naturally have at our disposal only a large-scale diagnosis of the status quo. With the subsequent stages being conducted, opportunities for identifying the changes will also arise.

The Study of Human Capital in Poland is a project conceived at the Polish Agency for Enterprise Development (PARP) that reacts to the deficit of information experienced while working on the planned support for the enterprise sector in the development of human resources, using funds from the European Social Fund as part

Introduction

of the Human Capital Operational Programme. Having conducted the pilot initial version of the concept of the study, PARP invited the team of the Centre for Evaluation and Analysis of Public Policies at the Jagiellonian University (CEiAPP), closely related (also personally) to the Department of the Sociology of Economy, Education and Research Methods of the Jagiellonian University – to participate as a partner in the project. From the very beginning, the study was planned as a multi-aspect review of the demand and supply of competences in the labour market repeated in the five successive years.

The study is composed of the following modules, distinguished by the group that they investigate:

1. Study of employers (excluding public administration and agriculture, forestry and fisheries, as well as some other small sections, which are listed in the methodological report)
2. Study of people of working age
3. Study of students in last years of upper secondary schools
4. Study of final-year university students (first and second cycles)
5. Study of unemployed people registered in County Employment Offices (PUPs)
6. Study of job offers placed in County Employment Offices and on online portals
7. Study of training firms and institutions

Based on original research, these studies are complemented with an analysis of institutional data collections, including the Educational Information System (SIO) and information collected by the Central Statistical Office (GUS) from reports on tertiary education (S-10). Detailed information concerning the size of the samples and the data collection methods is provided in the methodology report and in individual thematic reports.

The above list proves that a universal study was successfully conducted on the factors decisive in the situation of human capital in Poland. It was carried out on very large samples that allow a multitude of analyses, also at the level of regions (voivodeships). In this respect, it is definitely a unique study.

During the concept work and consultations, and also during the successive tests, a set of research tools was developed. Such a set is always a compromise between the list of questions to which an answer is sought and the possibility of execution: one cannot conduct a study, going beyond the obligations set forth in acts of law, in which the length of the questionnaire would result in a refusal on the part of the respondent. For this reason we realise that, while some readers may be disappointed by the fact that we did not ask certain questions that we would like to know the answers to, we can say in advance that here we are united in our unsatisfied curiosity. We selected the questions primarily on the grounds of recognition of the information needs of the parties planning to use the results of these studies for construction of more effective public interventions in development of human capital resources in Poland. The proper rhythm of these studies will also be adjusted to the needs of these parties: they will take place at the end of the first and beginning of the second quarter, so that the results can be provided by the end of June, and the final report by September, thus allowing it to be used for planning purposes. Exceptionally, the first round of the study was conducted from the end of August to December 2010. The second round is currently being conducted. Such a timetable has both advantages and disadvantages. The strengths include primarily the possibility of combining the sets to study the profiles of needs articulated by the employers at a lower level of aggregation than in the case of results of a single round. This will also let us study the short-term changes that took place between the end of the period of relative stagnation in the labour market and the period of boom that is beginning. We also captured certain seasonal properties – as the studies have been conducted in two different periods. In the case of the largest firms, we will also follow these changes on a panel subsample. The weaknesses include probably the disruption of the rhythm of the studies from the point of view of following the trend during multi-year studies and the passage of time from when the results are gathered to their use for planning purposes. Nevertheless, we believe that the benefits will at least balance out these weaknesses. The delayed start of the first round of the study resulted from formal and technical reasons (selection of the contractor to conduct work in the field), but unplanned effects were achieved, which will certainly be used during preparation of the reports from the second round of the study.

The samples for the studies were constructed so as to provide useful information not only at the central, but also at the regional level. The details are included in the methodology report. Notable here is the fact that due to this regional dimension of the analyses, both the sample of the whole population, unemployed people, and school sections on the one hand, and the sample of businesses (with the exception of the large enterprise segment, in which we studied all the entities that agreed to participate in the study) were drawn in an identical number in each region. This is a less effective system from the point of view of analysis of the data at the national level (where we make up for this with the count of the samples), but more effective from the point of view of a comparison between the regions and analyses within individual regions. Thus, in the case of the analysis for enterprise demand for personnel, the detailed analyses at the level of the region are frequently limited. Even in our, otherwise very large, sample, only every fifth enterprise declared demand for new personnel. The sample

of enterprises was constructed with a large overrepresentation of businesses employing at least 10 people. According to GUS, businesses employing up to 9 people account for approximately 95% of the group studied. However, the scale of demand for staff from the larger businesses is disproportionately large compared to the proportion in the tested group. Focusing attention on larger businesses is therefore justified. Nevertheless, as a consequence, together with the distribution of the sample for the sake of information needs of the regions, this leads to a dissimilarity of the contents of the sample to the population, in reference to the size segments and the region where the firm has its headquarters. Where the distribution of characteristics is analysed at the level of the whole country, it is therefore necessary to use weighting.

The research provided huge logistical demands. It could be coped with only by the largest research organisations and the Central Statistical Office, which for a variety of reasons could not participate in the conducting of this project. Nevertheless, GUS supports the project to the full extent allowed by law, for which we are exceptionally thankful.

Research in the field was conducted by Poland's largest research operator, Millward Brown SMG/KRC, selected through a tendering procedure. It must be said that even for a firm with such a huge potential, the parallel execution of seven study modules was a major challenge. The study ended in success, although we also learned much while working on it. We are very thankful to our partners from the research firm for their involvement in the project and making efforts to ensure that the data acquisition process meets the highest standards achievable. We are convinced that this cooperation will also bring fruition in the subsequent rounds of the study. The first set of reports that we are supplying to all interested parties are thematic reports that contain summaries of the individual modules. They are a review of the results achieved and provide information about the scope of the information acquired. Moreover, they contain what we hope to be plenty of interesting observations concerning the groups studied.

Nevertheless, the major goal is to provide a report on the results, yet still without interlinking them. Such linkages on the scale of the labour market (with the exclusions on the side of the employers pointed to above) will be presented in the main report, which will be delivered as a separate publication.

Quite naturally, general reports must remain at a certain level of generality, especially when it comes to the description of requirements related to members of personnel sought for various positions. These requirements are frequently unique. Moreover, the characteristic features in the operation of a firm are highly specific. The classifications used in the reports are at a relatively high level of aggregation. This results among others from the fact that despite a very large sample of enterprises, only a fifth of them sought employees, which allowed a decidedly smaller field for conducting analyses. And even if – as in the case of research of the sample of population – the size of the analysed data collection was decidedly larger, the number of the possible occupations was a requirement in the classification. The review presented is the first approximation. Interested readers will be able to generate more detailed listings on their own, using an application that will be made available on the project website.

We count on the fact that both the general reports made available and the synthetic report integrating the results of the studies in individual modules for the sake of the balance of competences in the Polish labour market will provide important data helpful in the planning of operations in the scope of supporting the development of human capital in Poland. We believe that it will also be useful for enterprises – in the scope of planning the development of human resources in firms, and for the sector of training firms – for shaping the range of services offered. We perceive its potential in terms of shaping education policy towards the unemployed, even though representative studies of the registered unemployed encounter significant difficulties. This project is complementary for the other studies in the area, including those conducted by the Educational Research Institute, whose common objective is quality improvement of actions in the field of lifelong education, from early childhood to the late mature age. These actions are one of the strategic development challenges for Poland. To say, quoting Andrzej Frycz-Modrzewski, that the future Republics will be just like the education of their youths, does not go far enough. Because that "education" should now concern not only youth, but also adults. Yet are we, as a society, ready for that?

2. Main conclusions

Generally, in all the analyses – both those concerning various forms of employment, occupations pursued and positions sought, and those that focus on education and self-evaluation of competences, what comes very much to the forefront is the segmentation of the labour market by the gender of the employers. Naturally, many other differentiating factors, such as education, age, and place of residence (the division into countryside and town) cannot be underestimated, yet for many reasons it is gender that is of dominant importance.

In the period from August to November 2010 (the duration of the study), more or less one in two people working were employed on the grounds of an employment contract (*umowa o pracę*), one in nine conducted his own business, one in fourteen had worked during the previous year on the grounds of commission agreement (*umowa zlecenia*) or contract for a specific task (*umowa o dzieło*), and one in 20 was working without a formal contract.

The differentiation between the genders is already visible at this stage: as far as in the case of regular employment women account for half of all employed people, among those running their own business outside agriculture and also working without contracts, there are on average two men for each woman. In turn, the participation of women in internships/traineeships and also not-for-profit activity is more frequent (60%).

The specific occupational choices of women and men run clearly along different paths. Segmentation by gender may become visible at various levels: even at the first level of ISCO classification of occupations (9 major job groups), we see that men are grouped in the categories of skilled workers and plant and machine operators and assemblers, and women in the group of office staff, salespeople, and employees of the services sector. Practically at every stage of the hierarchy, from higher management to workers performing simple jobs, and in every level of detail of the classification – from the most general division into the nine major job groups to the listing of the 400 elementary ones, we systematically encounter occupations with a dominant proportion of women and also ones where it is the proportion of men that dominates. The factors differentiating the masculine and feminine occupations are related to the division into working with people and working with material objects, with the degree of the required physical strain, the scope of the necessary technical skills, and the level of risk appropriate for the given occupation. These conditions are a substantial difficulty both at the level of theory and data analysis and at the practical level, concerning all the intervention programmes focused on all the gender-related inequalities in the labour market.

Also clearly demonstrated is the differentiation between the countryside and towns, which is in an obvious manner related to the significance of agricultural occupations in the countryside. On average, the percentage of people running their own businesses in the countryside is twice as high, with the difference originating mostly from the proportion of the agricultural activity (with the non-agricultural activity being similar, and oscillating around 5%).

The categories most strongly affected by unemployment in this area are workers – both skilled and unskilled. In the highest occupational categories (executive, higher management and directors, professionals, and technicians and associate professionals), unemployment remains at a low level (in most cases ranging from 1% to 5%); with a significant exception being the category encompassing technicians and associate professionals in legal services (secretaries in legal offices) and in art and culture (visual artists, staff of libraries, museums, etc.), where unemployment exceeds 15%. Also of note is the fact that science and engineering associate professionals are mostly people who have already gone through an occupational career and are retired (every fifth person in the group). In no other category among the occupations in the upper part of the ISCO hierarchy is this proportion as high.

2.1. Expected remuneration

Expected remuneration differs strongly depending on the job category. Noteworthy are the quite high expectations of plant and machine operators and assemblers, which points to a significant demand for these services – and actually this category is far less affected by unemployment than the neighbouring categories of workers. The level of expected pay for plant and machine operators and assemblers exceeds that of white-collar associate professionals, and in the average level of actual remuneration they are hardly behind.

Generally, expected remuneration is clearly correlated both with the actual wages in individual regions and also with the unemployment rates present in them (high unemployment is accompanied by lower expectations). In all the occupational categories clearly visible are higher wage expectations among men – the differences are least in the case of occupations at the top of the hierarchy and the category of office staff. It is characteristic that these differences are decidedly and most strongly visible in the area of “optimistic” expectations (“What salary

could you expect to receive with a lot of luck?"). It should nevertheless always be remembered that men and women in most cases feed different specific occupational subcategories, due to which, at this level of aggregation, speaking about expected remuneration "for the same work" is not justified.

2.2. Seeking employment

From the point of view of the statistical definition of an unemployed person, it is interesting that only 70% of people defined as "unemployed" are actively seeking work.

The occupational categories in which professionally active people look for work to a certain degree reflect the current structural unemployment, as it is typical to be ready to find employment in the occupation in which you are already experienced. The segmentation of the market into male and female occupations becomes entirely visible here. Among the occupations preferred by men, it is skilled worker occupations that come to the forefront (especially related to construction and metalworking), occupations involving driving of vehicles and those that require greater qualifications (work in mining, industry, construction, and transport). At the higher levels of the occupational hierarchy, the attention of men focuses on the category of physical, chemical and technical, and business and administration sciences.

Women focused their occupational choices on a number of traditionally feminised groups of occupations associated with frequent contacts with people. To these belong primarily work in sales and personal services (every third woman seeks employment in one of these fields). At the higher levels of the occupational hierarchy, women look for employment in education, as business and administration personnel, and secretaries; at the lower levels – as workers in food, wood and textile industries, and as domestic help and cleaning assistants. A differentiation is also evident in searches for employment related to the age of the respondents. Among older people, there is a tendency to select occupations of lower status – connected with domestic help, cleaning, and preparation of meals (among women), and loading of waste and simple physical work (both sexes). Visible among men is a strong flow of young people away from occupations connected with metalworking.

Women and men looking for employment report similar difficulties related to beginning work (especially lack of job offers in the vicinity, lack of contacts, but also lack of experience and appropriate permits). A major difference arises in the evaluation of the impact of the family situation on the occupational activity of women – they far more strongly emphasise the need to take care of children. This aspect was even more clearly visible in the group of women not active occupationally: it came second only to health condition.

The analysis of where people seeking employment move away from and where they move to proves significant flexibility on the part of labour supply. A significant proportion of people look for employment in an occupation different from the one they have so far followed (even though, naturally, the majority try to continue working in that occupation or to move to a related one). A fairly typical case of migration for economic reasons is the shift of men from worker occupations to the category of drivers, and migrations of women between working in sales and office work (both ways).

2.3. Education

The differences in later occupational choices originate in educational decisions. Characteristic are the differences in the structure of higher education between women and men – women today more frequently graduate from universities, yet their structure of education is significantly different to that of men. In both sexes, economics/administration graduates dominate (approximately 30%), yet among women, the two next positions in the ranking are teaching and humanities (33% jointly), while among men the three are engineering, technology, and IT (24%). Notable is the fact that the last two do not even make it into the first ten subjects selected by women.

2.4. Competences

In the study, competencies divided into 11 more general categories (see the subchapter on measuring competence), with the respondents being asked both for self-assessment of the level of the given competence and desire to perform work that requires that competence. The data proves the general truth that on the one hand people most often want to do what they believe they can do, and on the other hand they acquire skills that are required for the occupation they want to perform.

The respondents showed the best self-assessment of interpersonal competences, that is related to contacts with people (people in their care, clients, or colleagues); with artistic and creative skills finding themselves at the opposite extreme.

Main conclusions

Much like in the case of the occupational structure and education, also visible here are radical differences between the genders, which provide otherwise rational grounds for explaining the differences in occupational choices. In other possible breakdowns (by occupation, age, education, etc.), women systematically acquire grossly lower results in the self-assessment of technical competences; nevertheless manifested is their ascendancy in artistic skills and competences related to office work.

Analysing the structure of competence by age, we perceive an evident manifestation of the digital revolution: competences related to handling computers and use of the Internet, assessed markedly worse by people over 54 years of age, in the youngest group found their way to the very top of the ranking. In this aspect, the difference between "old" and "young" people is nearly twice as strong as the difference in the self-assessment of their physical fitness! In the younger age categories, also visible is the fairly strong ascendancy of men over women in physical fitness and availability, which becomes weaker in higher age categories. This is another corroboration of the limitations in occupational choices of women, related to bringing up children.

Differences in the structure of employment of men and women are manifested in a specific manner, while comparing the average level of competences of the people working in individual occupations. Globally, at the level of the entire sample, women have a (very slightly) better self-assessment of computer and Internet skills; nevertheless, within the specific occupational categories (e.g. professionals, technicians, associate professionals, services and sales workers) a marked ascendancy of men is visible. In other words, women more often than men work in occupations related to the use of computers, yet men working in these are more self-assured in this aspect.

It is very interesting that the differences in the self-assessment of competences are clearly connected to the level of feminisation/masculinisation of the occupations. In occupations dominated by men, the differences in competences between women and men are markedly smaller than in the occupations dominated by women. A more careful study proves a characteristic relationship: in "feminine" occupations (over 70% of women) men assess their competences higher than women (in the case of computer and managerial competences much higher), with this ascendancy disappearing only in the case of artistic skills and office competences. In the "masculine" occupations (over 70% of men) the situation is decidedly different: most of the competences are assessed similarly, by men and women, and each of the genders in certain aspects proves an advantage over the other: men assess their technical competences, physical fitness, and availability higher than women, while women outshine men in creative and office skills.

The self-assessment of the level of individual competences is manifestly related to the remuneration obtained. On the one hand, in this aspect it is generally cognitive (the skill of finding and analysing information, and drawing conclusions), computer, and work self-organisation competences that come to the forefront – these competences seem to be of key importance, especially at the top of the occupational hierarchy. On the other hand, in practically all the occupational categories, it is artistic competences that translate most poorly into income. From the point of view of assessing human capital, fairly significant is the information that, as much as the respondents are generally fairly satisfied with the work they do, beyond the category of professionals and higher managerial staff, among salaried employees, there is a visible feeling of dissatisfaction concerning the options of personal development and availability of training.

3. Methodology of the study

3.1. Selection of the sample

The study of the population, part of which comprised personal interviews (CAPI – computer assisted, and PAPI – pen and paper personal interview) was conducted from 28th July to 23rd November 2010. Information letters were sent to the people drawn, and later, after a set time, the interviewers went to visit these people at their places of residence. If it was not possible to conduct the interview at once on the spot, the interviewer made an appointment with the respondent for a different time. The interviewers also presented a letter of reference from PARP and an information leaflet about Millward Brown SMG/KRC and the study.

The population covered by the research were people of working age, that is women aged 18-59, and men aged 18-64 living in Poland at the time of the study. The contact data came from the Universal Electronic System for Registration of the Population (PESEL) register.

The study was based on a stratified proportional random sample. The strata were based on a division into GUS subregions (66 subregions in the country) and city size classes according to GUS (nine classes). Additionally, the stratification of the sample included the breakdown into genders and age cohorts for individual city size classes, independently for each region.

3.2. Sample description

The sample was intended to allow conclusions to be drawn at the level of individual regions, for which reason each of the regions was represented by at least 1100 respondents. The geographical structure of the regional samples broken down by the size of the city is presented in Table 1.

Table 1

Structure of the sample by region (voivodeship) and city size

Region	N	Village	Below 10,000	10,000-19,000	20,000-49,000	50,000-99,000	100,000-199,000	200,000-499,000	500,000
Dolnośląskie	1101	29.1	10.0	8.1	12.7	10.1	7.9		22.2
Kujawsko-pom.	1102	36.5	7.9	8.7	4.9	8.8	5.7	27.5	
Lubelskie	1103	53.9	5.5	7.5	9.9	9.6		13.6	
Lubuskie	1101	35.7	9.1	18.1	12.4		24.7		
Łódzkie	1146	34.9	4.5	3.2	12.8	14.8			29.8
Małopolskie	1149	52.2	6.0	5.0	9.3	2.3	4.4		20.7
Mazowieckie	1144	36.1	3.8	6.9	9.6	4.5	2.4	4.5	32.3
Opolskie	1129	48.2	9.7	7.4	13.2	7.2	14.3		
Podkarpackie	1132	58.8	6.5	5.4	12.0	8.7	8.6		
Podlaskie	1121	40.9	6.9	6.2	9.5	11.0		25.5	
Pomorskie	1100	33.2	5.2	5.5	17.1	7.1		32.0	
Śląskie	1133	20.7	2.7	4.7	8.9	15.8	29.1	18.0	
Świętokrzyskie	1131	52.7	7.2	6.1	6.8	9.5		17.8	
Warm.-mazurskie	1105	35.7	8.3	13.3	17.1	4.0	21.6		
Wielkopolskie	1107	44.7	9.8	8.7	8.9	9.4	3.4		15.1
Zachodniopom.	1100	30.7	8.3	11.2	15.2	4.2	6.5	23.9	
Total	17904	40.3	6.9	7.8	11.3	7.9	8.0	10.1	7.6

Unweighted data. Percentages by rows.

Source: Study of Human Capital in Poland (BKL) 2010.

Methodology of the study

The basic demographic structure of the sample broken down into country and city is presented in Table 2. Attention should be paid to the fact that, unlike the study of the entire population of adult Poles, there is a numerical overrepresentation of men in the highest age category. This results from the fact that the study encompassed people of working age, for which reason women were investigated until 59, and men until 64 years of age.

Table 2

Demographic structure of the sample

Miejscowość	Płeć	N	Age				
			18-24	25-34	35-44	45-54	55-59/64
Town/city	Men	5006	18.0	22.7	17.9	19.8	21.7
	Women	5611	16.7	23.0	20.6	24.5	15.2
	Total	10617	17.3	22.9	19.3	22.3	18.2
Countryside	Men	3475	16.8	19.7	21.2	21.0	21.3
	Women	3704	20.9	28.2	19.8	20.0	11.1
	Total	7179	18.9	24.1	20.5	20.5	16.0
Grand total	Men	8481	17.5	21.5	19.3	20.3	21.5
	Women	9315	18.3	25.1	20.3	22.7	13.5
	Total	17796	17.9	23.4	19.8	21.6	17.3

Unweighted data. Percentages by rows.

Source: Study of Human Capital in Poland (BKL) 2010.

3.3. Research premises

In the entire Study of Human Capital in Poland project, and especially in the study of the population, the general principle adopted was that data be acquired at the highest possible level of detail. Following that principle, instead of a single general question about the occupation of the respondent, an attempt was made to determine other forms of the respondent's occupational activity so as to acquire the full image of his or her experience in the labour market. Similarly, instead of a single general question about the level of education, an effort was made to determine the full educational path of the respondent, including the occupations learnt at levels above lower secondary school. This resulted in a database abundant with information and allowing various analyses of behaviours, convictions, and competence resources of different social and occupational groups. In this report, we are compelled to be limited to very general analyses, in which nuances disappear while a certain averaged image of reality emerges.

This subchapter includes information concerning the manner in which the occupations were categorised, the definition of the respondent's occupational situation and measurement of competences.

Categorisation of occupations

To acquire as complete information about the occupational history of the respondent as possible, the first part of the questionnaire was divided into blocks devoted successively to various forms of employment. They are presented briefly in Table 3.

Table 3

Question blocks devoted to specific forms of employment

Block	Form of employment
P	self-employed (business or agricultural activity)
Q	self-employed in the past
E	regular employment (job contract)
EE	second regular employment contract
F	regular employment in the past
U	hired labour with commission agreement or contract for a specific task (last 12 mths)
N	work based on an informal contract (last 12 mths)
R	agricultural activity for only use (last 12 mths)
C	unpaid assistance in family business or agricultural activity (last 12 mths)
X1	internships and traineeships (last 12 mths)
X2	not-for-profit work (last 12 mths)

Source: *Study of Human Capital in Poland in Poland (BKL) 2010.*

A number of the respondents declared that they worked in different occupations and in different forms of employment. For the needs of the analyses presented in the report, an algorithm for determining the main occupation of the respondents according to the priorities defined in the list below was designed and used:

1. self-employment / running own business (P)
2. regular employment (job contract) (E)
3. regular employment in the past – if ended less than a year ago (F-1)
4. hired labour with commission agreement or contract for a specific task (U)
5. work based on an informal contract (N)
6. regular employment in the past – if ended more than a year ago (F-2)
7. internship or traineeship (X1)
8. assistance in family business (C)
9. not-for-profit work (X2)

Thus, if the respondent ran his/her own business, he/she was assigned to the occupational category related to this activity; if not, it was checked whether he/she was in regular employment, and so forth.

Research premises

In each case, the respondent was asked to:

- describe his/her occupations
- say what work he/she does, and what the name of the occupation is
- say what he/she does at this work, and what the main duties are
- say what he/she produces, what services he/she provides, and what the employer does.

The occupation was determined according to the recorded answer, in line with the International Standard Classification of Occupations (ISCO-08) proposed by the International Labour Organisation. The occupation was coded at as high a level of detail as possible, yet used in the analyses was mostly one- and two-digit categorisation, where the first level denoted the major group, and the second the sub-major group). In some tables and charts, where the amount of text had to be reduced for legibility's sake, the following acronyms were used for ISCO major groups:

Table 4

Major groups ISCO-08

Occupational category (level 1)	
1 MANA	Managers
2 PROF	Professionals
3 ASSO	Technicians and associate professionals
4 CLER	Clerical support workers
5 SERV	Service and sales workers
6 CRAF	Skilled agricultural, forestry and fishery workers
7 CRAF	Craft and related trades workers
8 OPER	Plant and machine operators and assemblers
9 ELEM	Elementary occupations

Source: BKL – own study.

Defining the work situation

In a separate question towards the end of the questionnaire, the respondent was asked to define his or her work situation within the following categorisation:

1. full-time work [-]
2. part-time work [1]
3. temporary break in work [6]
4. unemployed [5,6]
5. retired/pensioner [1,2,6]
6. in education [1]
7. homemaker [1,2,4,5]

Following the principle of acquiring full information, it was permitted to name more than one category. For the needs of the analysis, an algorithm of selecting a single option was assumed: categories that held priority in case of conflict are ranked above in square brackets.

Having considered many available classifications and manners of measuring competences, it was decided to use a classification accounting for 11 higher-order categories, of which some were divided into subcategories.¹ In the questions about competences, the aspect related to the level of skill/disposition as such was disconnected from the one related to the level of motivation (willingness to perform work requiring a given skill/disposition). Due to the circumstances and conditions of the survey, the test approach was abandoned in favour of making the respondents conduct a realistic self-assessment. The introduction to the competence block in the questionnaire attempted to emphasise the context, combining the questions with professional work:

Different types of work require various skills and abilities. It is frequently the case that in one or two fields our potential is fairly high, while in others it is markedly lower. Everyone has a certain notion of what work they would like to perform. At times there is something we do very well, but we do not want to do a job involving it. On the other hand, we may very much want to perform certain work, but as yet may not have sufficient skills.

Now I will read to you a list of various skills. For each of them, please assess your level on a five-point scale, where 1 denotes low level, 2 – basic, 3 – average, 4 – high, and 5 – very high.

Then I will ask you whether you would like to perform a job requiring this skill and ask you to answer on a five-point scale, where 1 means definitely not, 2 – not really, 3 – neither yes nor no, 4 – rather yes, and 5 – definitely yes..

Table 5

Main competences

Skrót	Kompetencje	Sformułowanie w kwestionariuszu
COG	Cognitive	Finding and analysing information, and drawing conclusions
TEC	Technical	Handling, assembling, and repairing devices
MAT	Mathematical	Performing calculations
COM	Computer	Handling computer and using the Internet
ART	Artistic	Artistic and creative skills
FIZ	Physical	Physical fitness
SLF	Self-organisational	Self-organisation of work and showing initiative, timeliness
PER	Interpersonal	Contacts with other people
OFF	Office	Organising and running office work
MNG	Managerial	Managerial skills and organisation of work
AVL	Availability	Availability

Source: *Study of Human Capital in Poland in Poland (BKL) 2010*.

In this report, wherever required by the limitations of space, acronyms defining the competences quoted in Table 5 are used.

¹ In studies of the employers, which required condensation of the questionnaire, only higher-order categories were used, for which reason, to maintain the capacity for comparisons, all higher-order categories are taken into account as separate items in the study of the population (which in certain cases may make a justified impression of excess in relation to the detailed categories).

Comments on the interpretation of the results

Comments on the interpretation of the results

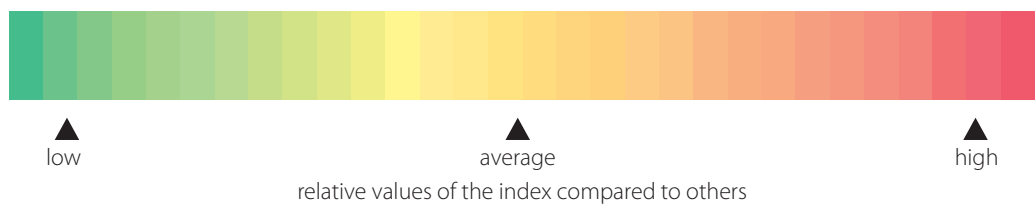
At this point we would like to reiterate the general remark, which is at the same time a warning, concerning the interpretation of the results quoted in the report. In a study covering such a diverse population and at the same time accounting for so many variables of different nature, excessive simplifications and unjustified generalisations are easy to make. The reader should be aware that every statistical category discussed (“people running their own businesses”, “southern region”, “Technicians and associate professionals”, to quote just a few) pertains in fact to highly differentiated collections of people, and the results presented are only a standardised image of reality. Every analysis conducted at such a level of generality is loaded with the risk of accentuating spurious correlation, which disappear when we go to a lower level of aggregation. We are convinced that the huge value of the Study of Human Capital in Poland project allows a specific, detailed analysis to be carried out on the data collections built within the project and suitable for specific research and decision-making problems. We encourage especially the readers who are not satisfied with the compromise between faithfulness to detail and generality of the conclusions to which we were compelled when presenting the “main” results of the study to perform such an analysis.

Unless marked otherwise, the data provided in all the tables and charts was weighted for optimum adjustment of the sample to the population studied.

In other tables where colour coding was used for better legibility, the “topographic” approach, known from the convention of map colouring, was assumed: green represents relatively low, yellow – average, and red – relatively high values. It is to be emphasised that the colours refer to the relative values of the individual indices, i.e. show the position that the given category assumes compared to the others.

Figure 1

Colouring of the tables



4. Review of the study results

4.1. Forms of employment and work situation

The study encompassed a detailed ascertainment of the respondent's occupational situation, including other forms of employment in which he or she worked currently or in the past 12 months (see the subchapter on the categorisation of the occupations). The most popular combinations of forms of employment are given in Table 6.

Table 6

Combinations of forms of employment

Forms of employment	Description	Frequency	Percentage
E regular employment	has a full-time job	3598	20.1%
F regular employment in the past	had a full-time job	3060	17.1%
EF	has a full-time job, used to have another	2626	14.7%
O not stated	not stated	1685	9.4%
PF	runs own business, had a full-time job	550	3.1%
P own business	runs own business	530	3.0%
X internship	internship	313	1.8%
QF	ran own business, had a full-time job	287	1.6%
U commission agreement or contract for a specific task	commission agreement or contract for a specific task	277	1.5%
PR	runs own business, owns farmland	245	1.4%
FU	had a full-time job, commission agreement or contract for a specific task	231	1.3%
Q own business in the past	had own business	225	1.3%
FN	had a full-time job, works without a contract	224	1.2%
N informal	works without a contract	198	1.1%
QEF	had own business, has a full-time job, had a different full-time job	197	1.1%
C family assistance	assists the family business	194	1.1%
EX	has a full-time job, internship	183	1.0%
QE	had own business, has a full-time job	161	0.9%
PFR	has own business, had a full-time job, owns farmland	158	0.9%
FX	had a full-time job, internship	127	0.7%
FR	had a full-time job, owns farmland	119	0.7%
EFX	has a full-time job, had another full-time job, internship	118	0.7%
FC	had a full-time job, assists in family business	117	0.7%
EU	has a full-time job, commission agreement or contract for a specific task	116	0.6%
EFC	has a full-time job, had another full-time job, assists in family business	107	0.6%
EFU	has a full-time job, had another full-time job, commission agreement or contract for a specific task	106	0.6%
R agricultural, subsistence	owns farmland	95	0.5%
Remaining combinations	--	2056	11.5%
Total		17904	100.0%

Forms of employment and work situation

More or less a half of the population are people with professional experience limited to regular employment currently (E) or in the past (F). This group also includes 14.7% of the people who have changed employer (EF). Nearly 10% of people did not declare any form of employment (these were mostly young people continuing education). The group of people running their own business, besides those who restrict themselves to this form of self-employment (P) frequently included cases of combining this work with subsistence agricultural activity (PR, PFR); many of these people also had earlier experience with salaried employment (PF, PFR). A separate case study can be devoted to the people who abandoned their own business for the sake of salaried employment (QE, QEF). The individual forms of employment frequently gather together people with a characteristic combination of social and occupational characteristics (Table 7).

Table 7

Characteristic traits of people in individual forms of employment

Form of employment	%	Gender (%W)	Age (in years)	Work situation (%)							Country (%)	Wages (in PLN)
				Full-time	Part-time	Break	Unemployment	Pension/retirement	Education	Home		
Self-employed	11%	39%	43	92%	4%	1%	1%	2%	0%	5%	60%	2259
Including: agricultural	5%	42%	43	96%	5%	0%	0%	1%	0%	3%	92%	1580
Including: non-agricultural	6%	33%	42	96%	4%	0%	0%	1%	0%	1%	31%	3038
Job	45%	50%	39	93%	5%	2%	0%	1%	1%	2%	30%	1970
Second job	1%	55%	42	92%	10%	2%	0%	0%	0%	2%	15%	2909
Commission agreement or contract for a specific task	7%	52%	34	50%	20%	3%	11%	7%	17%	3%	23%	1719
Without a written contract	5%	29%	33	29%	15%	6%	30%	5%	20%	3%	36%	1407
Agricultural subsistence	6%	43%	45	71%	6%	1%	6%	9%	0%	12%	90%	1441
Underpaid assistance in family business	6%	44%	35	41%	6%	2%	16%	13%	19%	9%	72%	1493
Traineeships/internship	7%	58%	28	43%	7%	2%	17%	3%	29%	6%	36%	1621
Not-for-profit work	2%	60%	32	41%	9%	2%	12%	7%	31%	6%	26%	1782
Total	11%	50%	40	55%	5%	2%	12%	15%	10%	7%	38%	1705

Note: Categories of employment are not disjunctive (e.g. one can be self-employed and work without a written contract at the same time), nor are the categories of self-description of the occupational situation (e.g. one can work part-time and be a homemaker).

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Let us interpret the table using the first row (self-employed) as an example. This type of activity was conducted by one person in nine (11%). In this group, women accounted for 39%, and the average age was 43. A vast majority (92%) worked full-time, 4% worked part-time, and 5% declared that they were homemakers at the same time. Residents of rural areas ran 60% of businesses, and the average net wages of self-employed people amounted to PLN 2259. Attention must be paid here to the significant differences between businesses in the agricultural sector and businesses in other sectors: in agriculture, the percentage of women was higher, and these businesses were conducted mostly by residents of rural areas (92%) with the average wages approximately twice as low as in other sectors (PLN 1580 in agriculture, and PLN 3038 in other sectors).

In the most numerous group of working people in full-time jobs, half are women, the average age is 39, and the average net wages amount to PLN 1970. Interestingly, the group of people with two jobs is dominated by women (55%).

Commission agreements and contracts for a specific task are characteristic in the case of somewhat younger employees (average age: 34). Only half of this group work full-time. Among the people who had such a contract during the last 12 months, 11% described themselves as unemployed during the study, 7% were retired/pensioners, and 17% people continuing education. Average wages amounted to PLN1719, but it must be remembered that this form of contract is frequently only a supplement to full-time employment (see: Table 6). The group of people working during the past 12 months without a formal contract (every 20th working person) is strongly dominated by men (with the percentage of women not exceeding 30%). A major proportion in that group is held by people defining themselves as unemployed (30%) and continuing education (20%). It is worth noting that the average level of revenue in this group is markedly lower than in those listed above. Unpaid assistance in the family business is not rare, even though it mostly concerns rural areas (72%). Traineeships and internships are primarily the domain of women (58%), and are the category with the lowest average age (28) and a relatively high proportion of people still in education (29%). Very similar is the characteristic of the group of people who in the past 12 months were involved in not-for-profit employment. There were no significant differences between the six regions of the country in respondents' self-description of their occupational situation; manifested far more strongly within each region was the differentiation between the country and the city (Table 9). Easy to predict, the difference is primarily in the fact of a smaller proportion of people in the country living from hired work, and a larger proportion being self-employed (mostly in agriculture). The following aggregation of administrative regions (voivodeships) into supra-regions was made for the purposes of the analysis:

Table 8
Grouping of regions into supra-regions

Supra-region	(abbreviated form)	Administrative regions
Central	(C)	mazowieckie, łódzkie
Southern	(S)	śląskie, małopolskie
Eastern	(E)	podlaskie, lubelskie, świętokrzyskie, podkarpackie
Northwestern	(NW)	zachodniopomorskie, lubuskie, wielkopolskie
Southwestern	(SW)	dolnośląskie, opolskie
Northern	(N)	pomorskie, kujawsko-pomorskie, warmińsko-mazurskie

Source: own study.

Table 9

Occupational situation – differences between urban and rural areas in supra-regions

Region		N	Work situation						
			Hired employment	Own business (agricultural)	Own business (non-agricultural)	Own business (non-agricultural)	Learning	Break from work/home	Retirement
C	city	2378	59%	1%	8%	8%	9%	4%	12%
	country	1219	38%	18%	4%	11%	9%	5%	14%
	Total	3597	52%	6%	7%	9%	9%	5%	13%
S	city	2498	54%	1%	5%	10%	9%	8%	14%
	country	1203	46%	6%	6%	9%	9%	9%	15%
	Total	3701	51%	2%	5%	10%	9%	8%	14%
E	city	1513	49%	1%	7%	13%	12%	5%	14%
	country	1558	34%	14%	4%	14%	10%	8%	16%
	Total	3071	41%	8%	5%	14%	11%	7%	15%
NW	city	1787	52%	1%	6%	10%	10%	5%	16%
	country	1099	41%	11%	7%	12%	8%	8%	13%
	Total	2886	48%	5%	7%	11%	9%	7%	15%
SW	city	1231	50%	1%	6%	13%	10%	7%	13%
	country	621	44%	8%	5%	13%	9%	7%	15%
	Total	1852	48%	3%	6%	13%	9%	7%	14%
N	city	1706	53%	1%	6%	11%	11%	5%	14%
	country	965	35%	14%	3%	17%	10%	8%	14%
	Total	2671	46%	5%	5%	13%	11%	6%	14%
POLAND	city	11113	53%	1%	6%	10%	10%	6%	14%
	country	6665	39%	12%	5%	13%	9%	8%	14%
	Total	17778	48%	5%	6%	11%	10%	7%	14%

Percentages by rows.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

4.2. Occupational and remuneration structure

Occupational and remuneration structure

From the point of view of human capital, of central importance is the variable that defines the field of occupational activity of an individual. In this chapter, we shall focus on the occupational characteristics of the population.

Characteristics of work categories

The first, quite superficial approximation of the situation is the division into the major job groups (the first level of the ISCO classification). Table 10 also encompasses people working at present, and those who have had employment experience in the past.

Table 10

Characteristic traits of major job groups (ISCO, level 1)

Main occupation (ISCO-1)	N	%	Gender (% W)	Age (years)	Work situation %				% Country	Wages (PLN)
					Full-time	Unemployed	Retired/pensioner	In education		
1 Managers	417	3%	47%	43	84%	3%	10%	1%	25%	3008
2 Professionals	1637	11%	68%	40	80%	3%	8%	4%	22%	2562
3 Technicians and associate professionals	1609	10%	54%	41	68%	8%	13%	5%	24%	1995
4 Clerical support workers	1243	8%	70%	39	62%	11%	9%	8%	25%	1701
5 Service and sales workers	2903	19%	72%	37	57%	12%	11%	8%	30%	1538
6 Skilled agricultural, forestry and fishery workers	1138	7%	43%	43	78%	4%	6%	4%	89%	1467
7 Craft and related trades workers	3008	19%	22%	42	55%	15%	20%	3%	40%	1646
8 Plant and machine operators and assemblers	1533	10%	15%	44	63%	9%	23%	1%	37%	1805
9 Elementary occupations	1946	13%	54%	41	39%	20%	18%	11%	45%	1168
Total	15435	100%	49%	41	61%	11%	14%	6%	37%	1737

Note: The populations on which average net wages are based are on average twice as low (some respondents were not gainfully employed at the time of the study).

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The first striking aspect in the table above is the vast diversity in the characteristics of the individual major job groups in every dimension presented above, except age. Most clearly visible is the hierarchy in remuneration – in this aspect the first two categories of managers (approximately PLN 3000 before tax) and professionals (PLN 2550), are clearly high above the others. We should also emphasise the lack of significant differences in remuneration between office workers (PLN 1700), skilled workers (1650 PLN) and plant and machine operators, and assemblers (PLN 1800). Predictably, at the very bottom of the payment ladder are unskilled workers (below PLN 1200). Besides the above, the last category is also most strongly affected by unemployment (20%); their fate is shared by industrial workers and craftsmen(15%). Again, managers and professionals prove to be in the best position.

Even at this level of generality, a radical differentiation between the occupational choices of men and women becomes visible. Women decidedly dominate the categories of professionals (68%), office employees (70%) and also sales and services (72%). At the other extreme are the typical male job categories: skilled workers (nearly 80% of men) and plant and machine operators, and assemblers (85% of men). Both the genders in turn are equally represented at the top and bottom of the hierarchy – in the categories of managers and unskilled workers.

Characteristics of work categories

Worth emphasising is the radical difference between blue-collar occupations and the remaining ones in the proportion of the retired people. Among the people professionally active at the time of the study, 18%-23% of those in blue-collar jobs were retired. In the managerial and professional categories, the rate was twice as low. Three occupational categories stand out due to a significant proportion, when compared with the others, of people in education; these are office workers and people working in services and sales people (8% each), and especially unskilled workers (11%).

This very superficially drawn job profile of Poland assumes more concrete shapes when we move from the division into the nine major job groups to a more precise categorisation, accounting for 40 sub-major groups (Table 11). A comparison of the two tables gives a good insight into the advantages and disadvantages of analyses based on strong data aggregation. On closer inspection, most of the major groups proved to be strongly differentiated internally; especially the radical differences in the degree of feminisation of the individual subcategories become manifested.

Table 11
**Characteristics
of work categories**
Characteristic traits of major job groups (ISCO, level 2)

Main occupation (ISCO-1)	N	%	Gender (% W)	Age (years)	Work situation %				% Country	Wages (PLN)
					Full-time	Unemployed	Retired/pensioner	In education		
11 Chief executives, senior officials	69	0.4%	26%	45	81%	1%	13%	0%	20%	3695
12 Administrative and commercial managers	137	0.9%	65%	43	87%	2%	10%	0%	24%	3105
13 Production and specialist services managers	159	1.0%	35%	44	84%	3%	10%	1%	29%	2834
14 Hospitality, retail and other services managers	52	0.3%	59%	38	84%	6%	7%	6%	21%	2875
21 Science and engineering professionals	219	1.4%	29%	39	80%	2%	11%	4%	24%	2864
22 Health professionals	306	2.0%	85%	43	81%	3%	6%	5%	18%	2085
23 Teaching professionals	588	3.8%	80%	41	78%	2%	10%	4%	25%	2277
24 Business and administration professionals	329	2.1%	69%	38	83%	6%	7%	1%	19%	3190
25 Information and communications technology professionals	66	0.4%	12%	34	91%	1%	0%	6%	27%	3354
26 Legal, social and cultural professionals	129	0.8%	61%	39	72%	5%	8%	10%	16%	2786
31 Science and engineering associate professionals	403	2.6%	31%	43	67%	7%	19%	4%	23%	1987
32 Health associate professionals	155	1.0%	81%	39	65%	8%	11%	8%	23%	1768
33 Business and administration associate professionals	792	5.1%	59%	41	72%	7%	12%	2%	25%	2161
34 Legal, social, cultural and related associate professionals	195	1.3%	73%	39	54%	16%	10%	11%	23%	1446
35 Information and communications technicians	65	0.4%	13%	32	62%	5%	4%	26%	24%	2242
41 General and keyboard clerks	460	3.0%	84%	38	60%	12%	8%	11%	23%	1680
42 Customer services clerks	221	1.4%	79%	39	58%	5%	12%	9%	18%	1611
43 Numerical and material recording clerks	447	2.9%	53%	40	65%	13%	9%	5%	30%	1723
44 Other clerical support workers	115	0.7%	63%	39	60%	14%	11%	6%	32%	1878
51 Personal service workers	627	4.1%	76%	36	50%	12%	11%	13%	34%	1499
52 Sales workers	1784	11.6%	80%	36	59%	13%	8%	7%	29%	1505
53 Personal care workers	134	0.9%	90%	39	43%	16%	15%	13%	33%	1226
54 Protective services workers	358	2.3%	20%	44	66%	8%	21%	3%	23%	1884
61 Market-oriented skilled agricultural workers	1070	6.9%	44%	43	81%	3%	5%	3%	89%	1468
62 Market-oriented skilled forestry, fishery and hunting workers	38	0.2%	7%	44	36%	31%	23%	3%	80%	1580
63 Subsistence farmers, fishers, hunters and gatherers	30	0.2%	42%	32	27%	15%	3%	42%	84%	1190
71 Building and related trades workers, excluding electricians	885	5.7%	3%	41	56%	18%	16%	3%	39%	1765
72 Metal, machinery and related trades workers	847	5.5%	7%	44	58%	11%	24%	4%	37%	1742
73 Handicraft and printing workers	149	1.0%	46%	43	58%	15%	20%	3%	43%	1598
74 Electrical and electronic trades workers	270	1.8%	10%	43	64%	8%	19%	4%	35%	2053
75 Food processing, wood working, garment and other craft and related trades workers	857	5.6%	56%	42	48%	20%	20%	3%	44%	1306
81 Stationary plant and machine operators	541	3.5%	25%	43	58%	9%	27%	1%	42%	1645
82 Assemblers	139	0.9%	38%	38	61%	13%	15%	3%	26%	1752
83 Drivers and mobile plant operators	844	5.5%	5%	45	67%	8%	22%	1%	36%	1934
91 Cleaners and helpers	538	3.5%	89%	47	44%	15%	22%	2%	32%	1074
92 Agricultural, forestry and fishery labourers	340	2.2%	50%	37	16%	25%	23%	21%	81%	934
93 Labourers in mining, construction, manufacturing and transport	687	4.5%	28%	37	45%	24%	13%	10%	43%	1382
94 Food preparation assistants	97	0.6%	94%	40	43%	19%	17%	13%	37%	1230
95 Street and related sales and service workers	39	0.3%	57%	24	3%	14%	3%	67%	26%	577
96 Refuse workers and other elementary workers	236	1.5%	44%	44	45%	16%	20%	7%	35%	1120
Total	15416	100%	49%	41	61%	11%	14%	6%	37%	1738

Note: The populations on which average net wages are based are on average twice as low (some respondents were not gainfully employed at the time of the study).

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Characteristics of work categories

At the top of the occupational hierarchy is the group of directors/higher executives and production managers, dominated by men, and managerial staff in the sales and hospitality sector and services, where women prevail. In the vast group of professionals, great differences are similarly visible, both in the degree of feminisation and the level of remuneration (strongly connected to it). What we have here on the one hand is the category of health associate professionals, of whom 85% are women, with average wages at a level below PLN 2100, and on the other, information and communications technology professionals, 88% of them men, with average wages at a level of PLN 3350. What must be noted is the fact that the average age in the group of IT professionals is nearly 10 years lower than in the group of health professionals (no representative of this occupation has as yet managed to go into retirement). What commands attention is the fact that the huge group following the IT professionals closely are the professionals in business and management – a category with a fairly large participation of women (nearly 70%).

Very similar is the picture emerging at the level of associate professionals. On the one hand, we find here strongly feminised (81%) health associate professionals with wages at a level below PLN 1800, and on the other, information and communications technology professionals younger on average by seven years (nearly 90% of men) with wages exceeding PLN 2200 (every fourth person in this group is still in education). And much like previously, there emerges the category of business and administration associate professionals (59% of women) with wages not much below those of information and communication professionals. Against the remaining professions in this group notable are the legal, social, cultural and related associate professionals (73% of women) strongly affected by unemployment (16%), with wages clearly lower than those of skilled workers. Worth examining too are science and engineering associate professionals (69% of men) with a fairly high average age (43 years) – every fifth member of this group is already retired.

In the sector of service and sales workers, as we already know from Table 10, women reign almost supreme. Yet even here a profession dominated 80% by men is found – protection services. In this category, workers are clearly older (average age: 44 years), with one in five already having managed to retire, and the wages exceeding the average within the whole group by over PLN 300 (see Table 10).

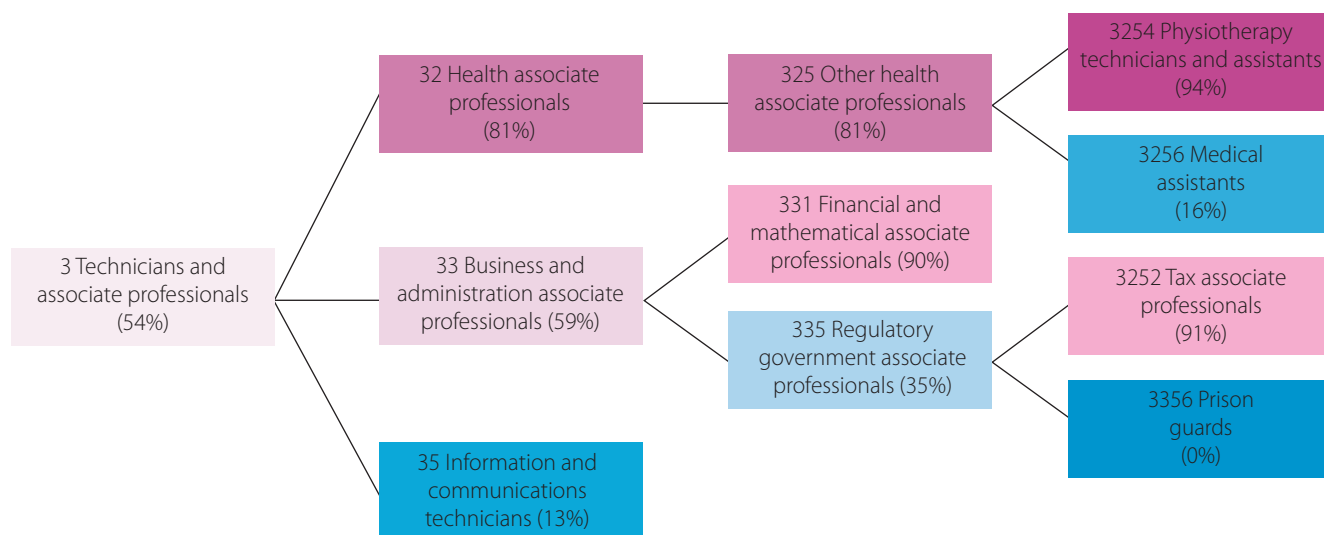
Farmers aside, the two next major professional groups (craft and related trades workers and plant and machine operators, and assemblers) are in turn the domain of men. A more powerful representation of women arises here, especially in the group of handicraft and printing workers, and food processing, wood working, garment and other craft and related trades workers, which feature remuneration levels markedly lower than average (especially in the last case). At the very bottom of the professional hierarchy, most strongly feminised among other elementary occupations are the professions related to cleaning, helping at home and food preparation. Men are visible (72%) in the category of elementary occupations in mining, industry, construction, and transport – a category that ensures the highest wages relatively. Closing, it is worth paying attention to the group of people providing services on the streets (including street vendors). This is the category with the lowest average age of all (24 years), in which only 3% of people work full-time, and 67% (an absolute record) are people who are continuing their education.

To sum up, the data points to a far-ranging segmentation of the labour market by gender. At practically every level of aggregation, professions fall into masculine, feminine, and seemingly neutral – and every time when going a rung lower, a new dimension of this disparity may unveil before our eyes. How this segmentation is manifested while looking into the successive subcategories at a lower level of aggregation is illustrated in Figure 2. The data concerns selected categories from the major group of jobs “technicians and associate professionals” (no. 3), which at the most general level is filled more or less half and half with men and women.

Figure 2

Segmentation of the category Technicians and associate professionals by gender of professionals

Characteristics of work categories



Numbers in brackets refer to the percentage of women in the category.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Professional categories featuring men usually have a component connected to physical strain, risk, or use of technology.

Real and expected remuneration

Real and expected remuneration

In the final tally, a key value in human capital is the capacity of generating material value based on personal resources of knowledge, skills, and motivation. This skill must find reflection, even approximate, in the remuneration structure of the society.

Compared in Table 12 are the medians of net wages in a group of salaried employees (job contract).

Table 12

Net wages median by region and profession (ISCO-1)

Region	1 MANA*	2 PROF	3 ASSO	4 CLER	5 SERV	7 CRAF	8 OPER	9 ELEM	Total
Dolnośląskie	3082	2274	2000	1700	1500	1600	2000	1200	1800
Kujawsko-pom.	4034	2000	2000	1500	1300	1600	1800	1029	1500
Lubelskie	1732	2184	2058	1635	1454	1913	2042	1200	1800
Lubuskie	2704	2000	1988	1613	1320	1800	1789	1200	1600
Łódzkie	2200	2185	2000	1600	1400	1900	2000	1200	1800
Małopolskie	2300	2500	2000	1600	1400	2000	2200	1251	1800
Mazowieckie	3888	2500	2300	2015	1700	1800	2218	1600	2000
Opolskie	3180	1856	2452	1570	1477	1600	1852	1200	1600
Podkarpackie	3531	2200	1700	1500	1300	1392	1500	1200	1500
Podlaskie	2976	2199	1788	1672	1245	1636	1500	1241	1700
Pomorskie	3004	2248	2004	1700	1593	2000	1800	1618	1955
Śląskie	3500	2000	2300	2000	1200	1800	2000	1245	1800
Świętokrzyskie	3000	2000	1700	1600	1400	1654	1662	1301	1600
Warm.-mazur.	3000	2100	2109	1500	1500	1630	1643	1070	1794
Wielkopolskie	2300	2267	1700	1800	1400	1800	1600	1360	1700
Zachodniopom.	3000	2281	2000	1905	1400	1800	1855	1200	1800
Total	3000	2300	2000	1700	1400	1800	1925	1200	1800

*In the case of executive personnel, the values are burdened with high random error due to the small populations.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Clearly visible are lower average wages among people employed in sales and services and elementary workers. The Mazowieckie Region (Warsaw) stands out against the entire country with wages, and in terms of the remuneration of elementary workers the Pomorskie Region does too.

People looking for work were asked questions about the value of remuneration for "work they find agreeable, performed for 40 hours a week" broken down into three levels:

- [min]** What is the lowest salary for which you would start the job?
- [mid]** What salary would you consider fairly satisfactory?
- [max]** What is the highest salary you could expect with a lot of luck?

A comparison of average remuneration expected by people seeking employment in specific occupational categories (and the actual averages obtained by workers employed in those occupational categories on job contracts) is presented in Table 13. Worth emphasising is the very high consistency evident between the expected and actual pay – for the minimum and for the fairly satisfactory remuneration the rate of correlation amounts to over 0.97!² Moreover, in all the groups with the exception of elementary workers the minimum admissible pay is on average lower than the real wages.

² If the data collected from the people looking for work is removed from the calculations of average wages, the correlation drops slightly, yet still it amounts to nearly 0.9.

Table 13**Expected and real remuneration****Real and expected remuneration**

Profession	Expected pay			Real pay*
	minimum (min)	satisfactory (mid)	highest (max)	
1 MANA	2501	3156	4367	3208
2 PROF	2151	2848	4489	2677
3 ASSO	1788	2369	3604	2223
4 CLER	1472	2016	2901	1859
5 SERV	1404	1836	2676	1579
7 CRAF	1647	2174	3433	1891
8 OPER	1844	2467	3780	2076
9 ELEM	1399	1817	2702	1382
Total	1628	2146	3247	1990

* For people employed on the basis of job contracts.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

In the field of expected remuneration, a very clear distinction between the genders becomes visible, reflecting to an extent the real differences in remuneration (Table 14). The minimum pay that men would want for the work is PLN 337 higher than the pay demanded by women. This difference increases even further in the case of remuneration considered satisfactory.

Table 14

Difference between expected wages of women and men

Profession	Difference between expected wages		
	minimum (min)	satisfactory (mid)	highest (max)
1 MANA*	180	170	742
2 PROF	594	888	1581
3 ASSO	453	368	703
4 CLER	141	76	551
5 SERV	399	522	820
6 CRAF	209	327	814
7 OPER**	510	488	697
8 ELEM	287	460	841
Total	337	427	862

Populations exceeding 50, with the exception of:

* N for men: 9, N for women: 8

** N for women: 7

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Two occupational categories where the disproportions of expectations are clearly lower are managers and clerical support workers (yet the first result is hardly authoritative due to the low numbers of respondents seeking employment in higher executive posts). In the group of clerical support workers, the minimum expected remuneration of men is on average higher by approximately PLN 140, while the level of fairly satisfactory payment for men is higher by only PLN 76 than that among women. The largest disproportions of expectations are visible in the category of professionals, which to a great extent may be caused by the internal differentiation of that category (see Table 11).

Clearly the strongest differences between the genders are, however, present in the area of "fantasy" expectations, that is the maximum wages that one could expect with a lot of luck. In this aspect, in no category do the divergences go below PLN 500, and among the majority they reach on average nearly PLN 900. Similarly interesting conclusions result from a comparison of the expected remuneration with the real remuneration, unemployment rate (% bezr.), and percentage of inhabitants of rural areas (% wieś) broken down into individual regions (Table 15).

Table 15**Expected wages, actual pay, unemployment rate, and place of residence in rural areas****Real and expected remuneration**

Region	min	mid	max	real1*	real2**	% unemployed	% country
Dolnośląskie	1620	2119	3292	1763	1996	13.6	29.1
Kujawsko-pomorskie	1490	1936	2909	1538	1790	11.3	38.1
Lubelskie	1505	2028	3008	1558	1939	13.9	51.0
Lubuskie	1468	1949	2949	1655	1870	14.8	35.6
Łódzkie	1593	2115	3227	1697	1936	10.4	34.0
Małopolskie	1666	2125	2997	1655	1965	9.7	49.1
Mazowieckie	1847	2398	3731	2020	2295	9.0	34.0
Opolskie	1446	1853	2545	1755	1944	12.5	46.6
Podkarpackie	1510	2081	2963	1396	1751	15.2	57.0
Podlaskie	1472	1977	3070	1761	1894	10.5	36.9
Pomorskie	1594	2016	2776	1748	2173	12.5	32.8
Śląskie	1596	2139	3377	1751	1960	10.8	21.2
Świętokrzyskie	1462	1985	3071	1417	1779	17.3	52.8
Warm.-mazurskie	1440	1928	2853	1698	2023	17.3	38.8
Wielkopolskie	1635	2141	3487	1676	1806	8.8	42.6
Zachodniopomorskie	1704	2215	3242	1640	1858	12.6	30.5
Total	1604	2113	3193	1705	1970	11.7	37.5

* real1 – average net wages of all working people

** real2 – average net wages of people with work contracts

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Looking at the data above, one can say with (slight) exaggeration that as far as remuneration is concerned, Poland falls into the Mazowieckie Region (meaning: Warsaw) and the rest of the country. However far ahead of other regions the centre is, the expected remuneration is also relatively high in the Zachodniopomorskie, Wielkopolskie and Dolnośląskie, and also Śląskie, Małopolskie and Łódzkie regions. An analysis of correlations at the inter-regional level (Table 16a) shows that all the three levels of pay expectations (min, mid, and max) are very closely linked with both real remuneration and also the economic situation in the region (measured by the percentage of people declaring themselves as unemployed). Moreover, also visible is the markedly lower expected remuneration of residents of rural areas, which is no wonder if one considers the lower than average wages of this group of the population, visible in the negative correlation between the wages and residing in rural areas (Table 16b). Incidentally, we note that the rate of unemployment in the regions is negatively correlated with the actual average pay.

Table 16**Correlations between the variables in Table 15**

a)	min	mid	max	b)	real1	real2
real1	0,563	0,437	0,410	% unemployed	-0,558	-0,274
real2	0,543	0,422	0,239	% country	-0,636	-0,423
% unemployed	-0,627	-0,516	-0,493			
% country	-0,376	-0,311	-0,398			

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

4.3. Seeking employment

A total of 15.6% of respondents declared that they were seeking employment. This proportion is more or less the same among women and men, and also among the four general categories of education (primary/lower secondary, vocational, secondary, higher). Almost half of all people seeking employment were above 35 years of age. Table 17 lists data concerning jobseeking and the work situation of the respondents:

- the yellow column contains information about the percentage of people in a specific occupational situation looking for employment
- the green (last) column contains information about the composition of the group of jobseekers (what part of the group are the people in a specific work situation).

Table 17

Seeking employment and the work situation of respondents

Work situation	Number of all people (A)	Number of jobseekers (B)	How many people seeking employment? (B)/(A)	What is the work situation of the jobseekers? (B)/(C)
Working full-time	9699	702	7.2%	25.2%
Working part-time	722	158	21.9%	5.7%
Temporary break in work	334	92	27.5%	3.3%
Unemployment	1995	1402	70.3%	50.3%
Retirement/pension	2461	99	4.0%	3.5%
In education	1744	213	12.2%	7.6%
Homemaker	820	92	11.2%	3.3%
Not stated clearly	123	32	26.0%	1.1%
Total	17898	(C)= 2790	15.6%	100.0%

Source: *Study of Human Capital in Poland in Poland (BKL) 2010.*

The number of jobseekers is dominated by unemployed people – which stands to reason – yet they account for only half of the group. Interestingly, every fourth jobseeker was employed full-time at the time of the study. Notable is the fact that in the group of people who define themselves as unemployed, 70% were actively seeking work (and the remaining 30% may be defined as only nominally unemployed). The second category in the declared willingness to find employment are people experiencing a temporary break in employment (27.5%) and part-time workers (21.9%).

The image of the jobseeker is complemented by students and homemakers, among whom every tenth person declared that he or she was seeking employment, and also retired people and pensioners, of whom 4% expressed a readiness to return to the labour market.

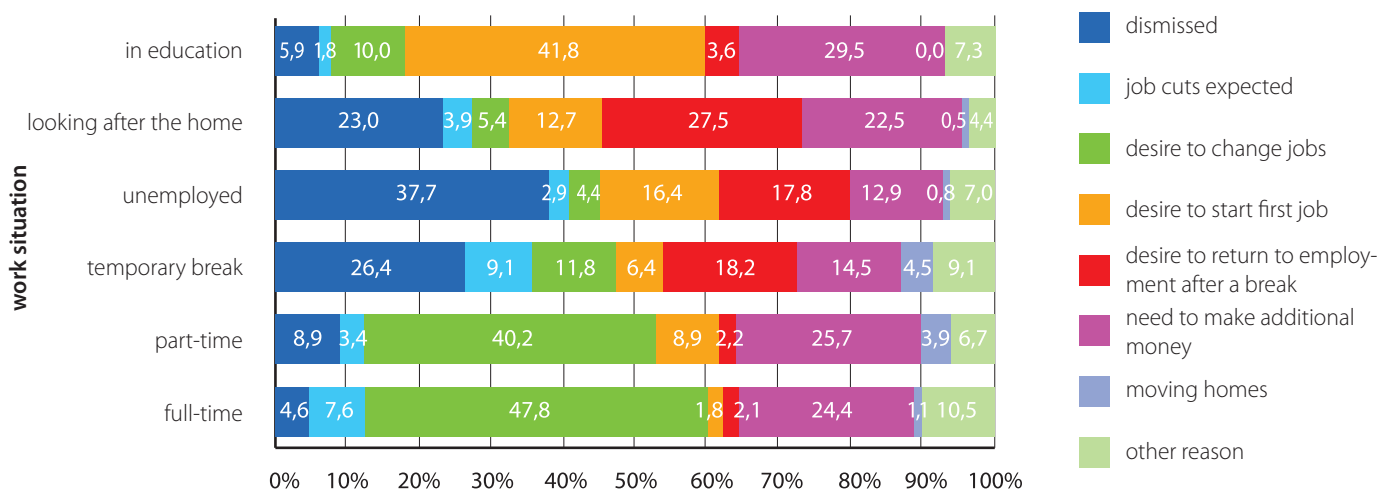
Circumstances leading people to seek work

Due to the work situation and circumstances accompanying seeking work, three groups of people can be distinguished (Chart 1).

Circumstances leading people to seek work

Chart 1

Reasons for seeking work and work situation



Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The first group are secondary school and university students, among whom dominant is the desire to get the first job in life, and “get some extra money”.

The second group – composed of unemployed people, homemakers, and people having a temporary break in employment – seek employment because of dismissal from their previous job and a desire to return to the labour market. In the case of the two remaining occupational situations: working full-time and part-time (group three), most frequent is the desire to change the present place of employment.

Naturally, a reason that is frequently listed in all the groups is simply the need to increase the level of wages.

Work supply in occupational categories

Table 18 compares information about professions in which employment is sought by at least 20 people. Here, we can precisely trace which occupations are supplied by women and men in the individual age groups.

Work supply in occupational categories

Table 18

Work supply in occupational categories (ISCO, level 2)

Occupational category (ISCO-2)	N	Gender		Male					Female					Total							
		Age		18-24	25-34	35-44	45-54	55+	Total	18-24	25-34	35-44	45-54	55+	Total	18-24	25-34	35-44	45-54	55+	Total
21 Science and engineering professionals		1.0	4.4	3.1	1.5	0.0	2.4	2.7	3.0	0.8	0.8	2.7	2.0	1.8	3.8	2.0	1.1	1.1	2.2	2.2	2334
22 Health professionals		0.7	0.3	0.0	0.5	0.0	0.3	1.9	1.5	2.1	2.5	1.4	1.9	1.2	0.9	1.1	1.6	0.5	1.1	1.1	
23 Teaching professionals		0.3	0.8	1.8	0.0	0.0	0.7	8.4	5.5	5.5	1.3	2.7	5.1	4.1	3.0	3.7	0.7	1.1	2.8	1.8	
24 Business and administration professionals		0.0	2.8	0.4	2.0	0.9	1.3	2.3	3.3	2.5	0.4	0.0	2.1	1.1	3.0	1.5	1.1	0.5	1.7	1.7	
26 Legal, social and cultural professionals		2.3	1.4	1.3	0.5	0.9	1.4	3.1	3.0	2.9	0.0	0.0	2.2	2.7	2.2	2.2	0.2	0.5	1.8	1.8	
31 Science and engineering associate professionals		7.0	5.8	4.0	2.5	1.8	4.9	1.1	0.6	1.7	3.0	0.0	1.4	4.3	3.3	2.8	2.7	1.1	3.2	3.2	
32 Health associate professionals		0.7	1.1	0.0	0.0	0.9	0.6	2.7	1.2	0.4	0.8	0.0	1.2	1.6	1.2	0.2	0.5	0.5	0.9	0.9	
33 Business and administration associate professionals		8.0	7.5	4.5	1.5	0.0	5.4	7.3	9.1	8.0	7.2	8.1	8.0	7.7	8.3	6.3	4.6	3.2	6.6	6.6	
34 Legal, social, cultural and related associate professionals		2.0	0.8	0.9	0.5	0.0	1.0	0.8	2.4	1.7	3.0	0.0	1.8	1.4	1.6	1.3	1.8	0.0	1.4	1.4	
35 Information and communications technicians		5.0	0.6	0.4	2.0	0.0	1.8	0.0	0.0	0.8	0.0	0.0	0.2	2.7	0.3	0.7	0.9	0.0	1.0	1.0	
41 General and keyboard clerks		4.7	4.2	0.0	1.5	1.8	2.8	13.0	20.0	9.2	11.0	5.4	13.3	8.6	11.7	4.8	6.6	3.2	8.0	8.0	
43 Numerical and material recording clerks		2.3	1.9	3.1	1.0	2.7	2.2	0.0	0.3	0.0	0.4	0.0	0.2	1.2	1.2	1.5	0.7	1.6	1.2	1.2	
51 Personal service workers		4.7	3.6	0.0	0.5	1.8	2.5	19.5	11.2	5.9	8.9	5.4	11.1	11.6	7.2	3.0	5.0	3.2	6.7	6.7	
52 Sales workers		3.0	5.0	4.9	2.0	1.8	3.7	24.8	24.2	23.9	21.1	13.5	23.0	13.2	14.2	14.8	12.4	6.5	13.1	13.1	
53 Personal care workers		0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.8	2.9	3.4	12.2	3.0	0.7	0.9	1.5	1.8	4.9	1.5	1.5	
54 Protective services workers		3.0	0.8	0.4	3.0	11.7	2.7	2.3	0.3	0.8	0.8	2.7	1.1	2.7	0.6	0.7	1.8	8.1	1.9	1.9	
71 Building and related trades workers, excluding electricians		8.0	11.9	13.0	14.0	7.2	11.1	0.0	0.0	0.0	0.0	0.0	0.0	4.3	6.2	6.3	6.4	4.3	5.7	5.7	
72 Metal, machinery and related trades workers		8.4	6.9	10.3	13.0	16.2	9.8	0.0	0.0	0.4	0.0	2.7	0.3	4.5	3.6	5.2	5.9	10.8	5.1	5.1	
74 Electrical and electronic trades workers		2.0	3.3	3.6	3.5	1.8	2.9	0.0	0.0	0.4	0.4	0.0	0.2	1.1	1.7	2.0	1.8	1.1	1.6	1.6	
75 Food processing, wood working, garment and other craft and related trades workers		2.7	6.9	6.3	4.5	2.7	4.9	1.1	5.2	11.3	5.5	6.8	5.7	2.0	6.1	8.9	5.0	4.3	5.3	5.3	
83 Drivers and mobile plant operators		13.7	11.9	9.9	14.0	8.1	12.0	0.4	0.3	1.3	0.8	1.4	0.7	7.5	6.4	5.4	6.9	5.4	6.5	6.5	
91 Cleaners and helpers		0.3	0.0	0.0	0.5	0.0	0.2	0.0	1.8	10.9	10.5	13.5	5.9	0.2	0.9	5.6	5.9	5.4	3.0	3.0	
93 Labourers in mining, construction, manufacturing and transport		12.0	9.4	13.5	15.5	12.6	12.2	0.8	0.0	0.0	2.1	2.7	0.8	6.8	4.9	6.5	8.2	8.6	6.6	6.6	
94 Food preparation assistants		0.3	0.0	0.4	0.0	0.0	0.2	0.4	0.6	1.3	3.0	6.8	1.6	0.4	0.3	0.9	1.6	2.7	0.9	0.9	
96 Refuse workers and other elementary workers		0.3	0.6	1.3	4.0	11.7	2.3	0.0	0.0	0.4	1.7	4.1	0.7	0.2	0.3	0.9	2.7	8.6	1.5	1.5	
99 Elementary occupations		2.3	2.5	10.3	7.0	8.1	5.2	1.5	0.3	3.8	9.3	6.8	3.6	2.0	1.4	6.9	8.2	7.6	4.4	4.4	

Percentages by columns.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Analysing the data in Table 18, one should focus primarily on the following facts:

1. The largest labour supply is present in category 5 of ISCO, namely, “service and sales workers”, with the caveat that in this category the supply is generated primarily by women looking for employment as shop assistants and in related occupations.
2. Clearly visible is the very sharp division into masculine and feminine professions; practically every occupational category is dominated by one of the genders.

Among the occupations preferred by men, what come to the forefront are qualified worker occupations (especially related to construction and metalworking), occupations involving driving of vehicles, and work in mining, industry, construction, and transport not requiring higher qualifications. At the high levels of the professional hierarchy, the attention of men is focused on the categories of science and engineering (no. 31) and business and administration (no. 33) associate professionals.

Women focus their professional choices on a number of groups of occupations, traditionally female-dominated, related to frequent contacts with people. These include primarily work in sales and personal services (every third woman is seeking employment in one of these fields!) At the higher levels of the occupational hierarchy, women seek employment as teachers, personnel for business and administration, and as secretaries, and at lower levels – as food processing, woodworking, garment and other craft and related trades workers, and as cleaners and helpers.

3. The exceptions “proving the rule” of the gender polarisation of occupations include the professions of science and engineering professionals, and occupations connected to management, administration, business, law, society, and culture. In the case of blue-collar workers, the exceptions concern elementary occupations and workers in food processing, wood working, garment and other craft and related trades.
4. Characteristic is the variation in seeking work in relation to age. Both among men and women, visible is a slight shift among older people towards occupations that stand lower in the hierarchy, are connected to assistance at home, cleaning, and food preparation (among women), and refuse working and simple elementary physical jobs (both genders). Visible among men is a clear negative flow of young people away from occupations connected to metalworking.

In the services sector, older women focus on the field of personal care, and older men on protective services. There is an interesting situation among business and administration associate professionals: seeking employment in these professions are women of all ages, while men are predominantly young (none above 54 years of age!)

Factors rendering starting work difficult

A question about factors that make starting work difficult was asked to both jobseekers and people whose personal situation renders entering employment impossible. The respondents were presented with a list of 14 possible obstacles; they first assessed whether the given factor plays a role in their case, and if it did, to what extent it renders starting work difficult in their case. To summarise the results succinctly, the answers were coded in the following way:

the factor...	does not render starting work more difficult	0
	is a small obstacle	1
	is a medium-sized obstacle	2
	is a major obstacle	3

Table 19 presents the averages, showing to what extent the individual factors render starting work more difficult for the respondents; for greater clarity's sake, the obstacles have been ordered from the worst to the least bad.

Table 19

Factors rendering starting work difficult (average significance on a scale 0-3)

Factor	Person seeking a job			Person unable to get a job		
	Male	Female	Total	Male	Female	Total
Lack of job offers in the vicinity	1.8	2.0	1.9	0.6	0.7	0.7
Lack of contacts, acquaintances	1.4	1.6	1.5	0.5	0.5	0.5
Health condition	0.3	0.3	0.3	1.4	1.0	1.2
Level of education	0.6	0.7	0.6	0.5	0.5	0.5
Continuing education or supplementary education	0.2	0.3	0.3	0.8	0.7	0.7
Insufficient experience	0.7	0.8	0.7	0.4	0.4	0.4
Lack of certificates and permits	0.7	0.7	0.7	0.3	0.4	0.3
Age	0.3	0.3	0.3	0.6	0.5	0.6
Childcare	0.1	0.5	0.3	0.1	0.8	0.5
Inconvenient access	0.4	0.6	0.5	0.2	0.3	0.2
Taking care of home	0.1	0.2	0.2	0.2	0.6	0.4
Taking care of a member of the family	0.1	0.1	0.1	0.1	0.3	0.2
Other	0.1	0.1	0.1	0.2	0.2	0.2
Taking care of farm	0.1	0.1	0.1	0.2	0.2	0.2
Gender	0.0	0.1	0.1	0.0	0.1	0.1

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

We should note the fact that as far as the factors rendering making the decision to enter employment difficult, the life situation differentiates the respondents far stronger than their gender.

Among the factors/situations rendering finding employment difficult most frequently listed, there is consistency in the opinions of men and women seeking employment. In most cases they pointed to the lack of appropriate job offers in the vicinity, lack of appropriate contacts and acquaintances, insufficient experience, lack of appropriate certificates and permits, and level of education held.

Among the people who could not enter employment, the reason most strongly accentuated was health limitations. It is notable that men complained about poor health more strongly than women.

The largest differences between the genders were observed in the case of the need to care for a child. Difficulties connected to such a circumstance were significantly more often mentioned by women, both in the group of the jobseekers and in that of people who could not enter employment. Additionally, the women unable to "enter" the labour market far more often than men emphasised that duties related to caring for the home determined their work situation.

Interesting from the point of view of human capital is horizontal occupational mobility – related to the readiness to make an effort to acquire new skills and qualifications.

Based on the information about the occupations in which the respondents seek work³, the initial matrix of occupational migration (the M1 Matrix containing weighted populations) was made, and was later presented in two ways in terms of percentages (Matrices M2 and M3). This analysis is limited to the occupations where employment was sought by at least 40 people.

For the needs of this analysis, we will use the notion of “entering occupation X” for people declaring that they want to enter employment in occupation X, while the notion of “leaving occupation X” will define people seeking work, for whom the dominant occupational experience so far has been employment in occupation X. It must be emphasised here that a given person may be (and very often is) at the same time “leaving” and “entering” the same occupation, in other words, there are employees seeking employment in the occupation in which they have been active so far.

The occupations are ordered according to the numbers “leaving the occupation”; as there decidedly the most people seeking work belong to the category “52 Sales workers”, this category is set in the first line and in the first column of the table. The populations in the rows of the M1 Matrix add up to the total number of people leaving the given job category. Displayed on the diagonal of the M1 Matrix are the people who are at the same time “leaving” and “entering” the given occupation⁴ (that is, as was said above, are seeking employment in the current occupation). Let us for example analyse the category “51 Personal service workers” (situated in the fifth line and fifth column of the matrix). There were 103 people “leaving” the occupation, which means that 103 people who have so far done this job are seeking employment (the sum total in the line). There were 135 people (the sum in the column) “entering” this occupation, that is seeking employment in it. The cell lying on the diagonal, that is in the intersection of the fifth row and the fifth column, contains the number 64, which means that there are 64 members of the occupational category in question seeking employment in this category.

The M2 Matrix “Where do they leave for...?” originated by dividing the population in individual cells of the given row by the number of population in the line. Thus, the values in the M2 Matrix inform us as to what percentage of people leaving the occupation in the row intend to move to the occupation in the column. For example, 15% of the employees in the category “51 Personal service workers” are moving to the category “52 Sales workers”, and 62% are “moving” to their previous category, or in other words intend to remain in the same occupation.

The M3 Matrix “Where do they come from...?” originated by dividing the populations in individual cells of the given row of the M1 Matrix by the number of population in this column. An interpretation of the results contained is therefore the following: we are examining the totality of people seeking employment in the given occupation and consider what occupations these people were active in so far. For easier legibility, the M3 Matrix was later turned around so that the results could be read from the rows. Let us for example have a look at the category “33 Business and administration associate professionals”. People seeking employment in this occupation had either worked in it before (22%), or they were assigned to the category “52 Sales workers” (17%), or were in the category “43 Numerical and material recording clerks” (12%), or had another occupation not accounted for in the table (“Other” – 12%).

While analysing the data in any of the matrices – M1, M2, and M3 – one must nevertheless remember that migrations between similar categories may in most cases result from the problem with unambiguous coding of occupational categories. Therefore, if in the M2 Matrix we see that 20% of people from the category “91 Cleaners and helpers” moved to the category “52 Sales workers”, the move is most probably a real one, while the shift of 25% of people from the category “33 Business and administration associate professionals” to the category “41 General and keyboard clerks” may be no more than an artefact of the coding process.

3 The original question was: *in what occupation are you looking for work? Please define it as precisely as possible. If you are considering multiple types of work, please name the most realistic option.*

4 An exception is the cells lying on the intersection of the two extreme rows (categories 61 and 92, to which nobody “came” = nobody sought employment in these) and the three final columns (categories 31, 21, and 99), which had low counts (31, 21), or were not at all accounted for (99) among the occupations that are “left”.

M1 Matrix

Occupational migrations (populations)

Leaving the occupation	52	93	71	75	51	91	72	33	43	83	41	81	96	54	74	24	23	31	21	99	Other	Total
52 Sales workers	143	1	3	9	4	4	23	1	6	28	3	1	6	10	6	10	2	5	4	30	279	
93 Labourers in mining, construction, manufacturing and transport	11	55	15	11	3	2	12	6	3	17	5	2	1	1	1	1	8	3	10	16	182	
71 Building and related trades workers, excluding electricians		31	73	6	1	9	4	4	13	1	5	4	3				8	1	1	5	168	
75 Food processing, wood working, garment and other craft and related trades workers	6	10	1	59	5	6	4	2	8	1	1	2	2				1	1	8	7	123	
51 Personal service workers	15	1	1	64	2	3	3	3	2	1	1	1	1	1	1	2	2	1	1	6	103	
91 Cleaners and helpers	19	2	6	6	21	2	3	1	1	1	3	2	3	2	2	2	2	13	9	9	93	
72 Metal, machinery and related trades workers	1	5	7	1		49	2	7	1	1	1	1	1	1	1	1	5	2	5	3	90	
33 Business and administration associate professionals	11			3	3	2	30	1	1	20				4	4	2		2		5	81	
43 Numerical and material recording clerks	7	1	1	5	1	1	17	8	2	16	1	2	4	1	1	1	1	1	1	11	81	
83 Drivers and mobile plant operators	3	1	3	1	1	2		5	40	4	5	4	2	2	2	1	1	5	2	2	81	
41 General and keyboard clerks	6						9	1	30	1	30			3	3	5	1	2	1	6	64	
81 Stationary plant and machine operators	6	4	1	3	2	1	5	5	4	1	7	4	4	1	1	1	3	10	4	4	61	
96 Refuse workers and other elementary workers	2	8	2			3	2	1	7	4	4	4	4				1	1	8	4	54	
54 Protective services workers	7	3		1	1	5	3	10	1	1	10	1	1	1	1	2	2			6	50	
74 Electrical and electronic trades workers				1	1	1	2	4	1	1	14			14			10			12	45	
24 Business and administration professionals	2	2	2			10			7					13	1	1	5			4	44	
23 Teaching professionals																26	1			5	32	
61 Market-oriented skilled agricultural workers	4	5	6	5	7	6	8	1	4	2	1	1	1	1	1	5	5	3	3	4	62	
92 Agricultural, forestry and fishery labourers	5	3	6	2	5	3	3	1	3	4	3	1	3	1	1	1	4	2	8	5	59	
Other	22	16	4	9	23	12	3	17	3	6	28	1	1	6	4	6	7	14	20	9	97	
Total	270	145	122	107	135	62	108	139	26	137	151	14	29	42	37	39	58	69	43	86	241	2060

The hatched line separates the part of the table where the same occupational categories are present in the same order in rows and columns. Column categories: not present in the rows: 31: Science and engineering associate professionals; 21: Science and engineering professionals; and 99: Workers in elementary occupations.
Source: Study of Human Capital in Poland in Poland (BKŁ) 2010.

M2 Matrix

Occupational migrations: Where do they leave for...?

Leaving the occupation	52	93	71	75	51	91	72	33	43	83	41	81	96	54	74	24	23	31	21	99	Other	Total
52 Sales workers	51		0	1	3	1		8	0	2	10			1	0	2	4	1	2	1	11	100
93 Labourers in mining, construction, manufacturing and transport	6	30	8	6	2	1	7	3	2	9	3		1	1	1	1		4	2	5	9	100
71 Building and related trades workers, excluding electricians		18	43	4		1	5	2	2	8		1	3	2	2			5		1	3	100
75 Food processing, wood working, garment and other craft and related trades workers	5	8	1	48	4	5	3	2		7	1	1	2	2				1		7	6	100
51 Personal service workers	15	1	1		62	2	3	3		3	2		1	1		1	2	1	1		6	100
91 Cleaners and helpers	20	2		6	6	23	2	3	1	1	1		3	2			2	2		14	10	100
72 Metal, machinery and related trades workers	1	6	8	1			54	2		8			1	1	1			6	2	6	3	100
33 Business and administration associate professionals	14				4		2	37	1	1	25				5	2			2		6	100
43 Numerical and material recording clerks	9	1		1	6	1	1	21	10	2	20		1	2	5	1		1	1	1	14	100
83 Drivers and mobile plant operators	4	1	4	1	1		2		6	49		5	6	5	2	2	1			6	2	100
41 General and keyboard clerks	9							14		2	47				5	8		2	3	2	9	100
81 Stationary plant and machine operators	10	7	2	5	3	2	8	8		7	2	11	7			2		5		16	7	100
96 Refuse workers and other elementary workers	4	15	4			6	4	2		13	7	7	7	7	7			2		15	7	100
54 Protective services workers	14	6			2		10	6		20	2		20	2	2			4			12	100
74 Electrical and electronic trades workers					2		2	4		9	2				31			22			27	100
24 Business and administration professionals	5		5					23		16					30	2			11		9	100
23 Teaching professionals																	81	3			16	100
61 Market-oriented skilled agricultural workers	6	8	10	8	11	10	13	2		6	3		2		2			8		5	6	100
92 Agricultural, forestry and fishery labourers	8	5	10	3	8	5	5	2		5	7		5	2			2	7	3	14	8	100
Other	7	5	1	3	7	4	1	6	1	2	9	0	0	2	1	2	2	5	6	3	31	100
Total	13	7	6	5	7	3	5	7	1	7	7	1	1	2	2	2	3	3	2	4	12	100

The hatched line separates the part of the table where the same occupational categories are present in the same order in rows and columns. Column categories not present in the rows: 31: Science and engineering associate professionals; 21: Science and engineering professionals; and 99: Workers in elementary occupations.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

M3 Matrix

Occupational migrations: Where do they come from...?

Entering the occupation	52	93	71	75	51	91	72	33	43	83	41	81	96	54	74	24	23	61	92	Other	Total
52 Sales workers	53	4		2	6	7	0	4	3	1	2	2	1	3		1		1	2	8	100
93 Labourers in mining, construction, manufacturing and transport		38	21	7	1	1	3		1	1		3	6	2				3	2	11	100
71 Building and related trades workers, excluding electricians	1	12	60	1	1		6			2		1	2			2		5	5	3	100
75 Food processing, wood working, garment and other craft and related trades workers	3	10	6	55		6	1		1	1	3							5	2	8	100
51 Personal service workers	7	2		4	47	4		2	4	1	1	1		1	1			5	4	17	100
91 Cleaners and helpers	6	3	2	10	3	34		2	2	2	5	2	5				10	5	19	100	
72 Metal, machinery and related trades workers		11	8	4		2	45	2	1	2		5	2	5	1		7	3	3	100	
33 Business and administration associate professionals	17	4	3	1	2	2	1	22	12		6	4	1	2	1	7		1	1	12	100
43 Numerical and material recording clerks	4	12	15			4		4	31	19										12	100
83 Drivers and mobile plant operators	4	12	9	6	2	1	5	1	1	29	1	3	5	7	3			3	2	4	100
41 General and keyboard clerks	19	3		1	1	1		13	11		20	1	3	1	1	5		1	3	19	100
81 Stationary plant and machine operators			7	7						29		50								7	100
96 Refuse workers and other elementary workers		7	17	7			3		3	17		14	14					3	10	3	100
54 Protective services workers	7	2	10	5	2	7	2		5	10		10	10	24					2	14	100
74 Electrical and electronic trades workers	3	3	8			5			11	5		11	3	3	38			3		11	100
24 Business and administration professionals	15	3			3		3	10	3	5	8		3	3		33				15	100
23 Teaching professionals	17				3	3		3		2	9	2				2	45		2	12	100
61 Market-oriented skilled agricultural workers	3	12	12	1	1	3	7		1		1	4	1	3	14		1	7	6	20	100
92 Agricultural, forestry and fishery labourers	12	7			2		5	5	2		5				12				5	47	100
Other	5	12	1	9		15	6	1	1	6	1	12	9					3	9	10	100
Total	12	7	2	3	2	4	1	2	5	1	2	2	2	2	5	2	2	2	2	40	100
Ogólne	14	9	8	6	5	5	4	4	4	4	3	3	3	2	2	2	2	3	3	15	100

The hatched line separates the part of the table where the same occupational categories are present in the same order in rows and columns.

Column categories not present in the rows: 61 Market-oriented skilled agricultural workers, and 92 Agricultural, forestry and fishery labourers.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

To sum up the data from the matrices presented above, the occupational categories with convergent thematic ranges were grouped so as to – bypassing the problem of coding ambiguity– elicit the occupations with the best ratio between joining and leaving. The results are presented in Table 20.

Table 20
Occupational areas with positive occupational migration ratio

Area	ISCO-2 Categories	A Outgoing	B Incoming	$\frac{B - A}{B}$
Information technology	25,35	13	36	1,77
Sciences and technical sciences	21,31	42	112	1,67
Teaching and education	23	32	58	0,81
Driving vehicles	20	81	137	0,69
Law, social and cultural matters	26,34	42	60	0,43
Personal services	51	103	135	0,31
Office services	24,33,41,43,44	293	361	0,23
Metalworking, mechanical	72	90	108	0,20
Healthcare	22,32	36	42	0,17
Personal care	53	25	28	0,12

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

4.4. Education

Before we move on to discuss competences, we will present a handful of basic facts on education in this chapter.

Table 21 presents detailed information about the education of the unemployed people included in the examination. The most numerous category among them are people with basic vocational education (28%), followed by secondary vocational education (graduates from technical secondary schools) – 16%, general secondary education (graduates from general secondary schools) and primary education – 13%, and higher education, with a master's degree – 10%.

Table 21

Detailed categories of education in the population

Level of education	Number	Percentage
Primary	2333	13%
Lower secondary	208	1%
Basic vocational	4970	28%
General secondary (general secondary school)	2325	13%
Vocational secondary (technical secondary school)	2917	16%
Vocational secondary (specialist secondary school)	955	5%
Discontinued education at secondary school with matriculation examination (general / vocational / technical secondary schools)	177	1%
Continuing to attend a school with matriculation examination (general / vocational / technical secondary schools)	616	3%
Secondary vocational (post-secondary school)	522	3%
Secondary vocational (other school, non-higher)	89	0.5%
Discontinued education at post-secondary school (primary school / other)	4	0.02%
Continuing to attend a post-secondary school (primary school / other)	16	0.1%
Higher, bachelors	497	3%
Higher, masters	1712	10%
Higher, technical	269	2%
Higher (postgraduate studies)	233	1%
Higher, MBA	9	0.1%
Higher, doctorate	35	0.2%
Total	17889	100%

Source: *Study of Human Capital in Poland in Poland (BKL) 2010.*

Adults with higher education account for over 16% of the investigated population, with a visible disproportion between graduates of masters programmes and graduates with the title of engineer – the former are five times as numerous.

The differentiation of education based on the division between the city and country and age categories is presented in Table 22.

Table 22**Education by place of residence and age**

Place of residence	Age	N	Primary / lower secondary	Vocational	Secondary	Higher
City	18-24	1831	31.8%	7.4%	54.2%	6.5%
	25-34	2530	10.6%	16.0%	38.5%	34.9%
	35-44	2182	10.4%	24.7%	41.6%	23.4%
	45-54	2498	14.5%	30.3%	39.3%	16.0%
	55-59/64	2058	20.2%	32.5%	39.2%	8.2%
	Total	11099	16.7%	22.6%	42.0%	18.7%
Country	18-24	1240	30.8%	15.6%	47.3%	6.3%
	25-34	1527	10.5%	32.2%	39.2%	18.1%
	35-44	1362	15.3%	48.0%	26.1%	10.6%
	45-54	1481	20.4%	44.8%	27.1%	7.7%
	55-59/64	1073	36.9%	40.3%	18.1%	4.8%
	Total	6683	21.7%	36.5%	31.9%	9.9%
Total	18-24	3071	31.4%	10.7%	51.4%	6.4%
	25-34	4057	10.6%	22.1%	38.8%	28.5%
	35-44	3544	12.3%	33.7%	35.6%	18.5%
	45-54	3979	16.7%	35.7%	34.7%	12.9%
	55-59/64	3131	25.9%	35.2%	31.9%	7.0%
	Total	17782	18.6%	27.8%	38.2%	15.4%

Percentages by rows.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

It is important to note the fact that belonging to a given age category is quite clearly connected to the level of education. Comparing the category of people aged 25-34 with the oldest age category encompassed by the study (55+), we find that there is four times as high a proportion of people with higher education and 2.5 times lower of people with primary or lower secondary education in the first group.

Table 23 presents the breakdown of education by gender. Men more frequently than women stopped their education at basic vocational or lower levels, and were less likely to have graduated from secondary and higher schools.

Table 23**Education breakdown by gender**

Gender	N	Education (4 categories)			
		Primary/lower secondary	Vocational	Secondary	Higher
Men	8865	20,1	33,4	34,2	12,3
Women	9024	17,2	22,3	42,1	18,5
Total	17889	18,6	27,8	38,2	15,4

Percentages by rows.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Education

Table 24 contains a list of the 10 groups of most popular degree subjects (total, and breakdown between women and men). Most popular were studies in economics and administration.

Table 24

Most popular degree courses

Total	Women	Men
economics and administration 30%	economics and administration 32%	economics and administration 28%
teaching 16%	teaching 22%	technical and engineering 16%
humanities 9%	humanities 11%	IT 8%
technical and engineering 8%	medical 8%	teaching 8%
social 7%	social 7%	humanities 7%
medical 6%	biological 3%	social 7%
IT 4%	legal 3%	architecture and construction 5%
legal 4%	services for people 3%	production and processing 4%
architecture and construction 3%	mathematics and statistics 3%	legal 4%
biological 3%	agriculture, forestry and fishery 3%	medical 4%

Source: *Study of Human Capital in Poland in Poland (BKL) 2010.*

Second and third in frequency among men with higher education are subjects that belong to the “technical and engineering” (16%) and “IT” (8%) course groups, while in the case of women and the whole population with higher education, it was the “teaching” and “humanities” courses. Women graduated twice as often as men from subjects that belonged to the “medical” group.

4.5. Competences

The central part of the study of the population encompassed by the Study of Human Capital in Poland project was the assessment of the level of 11 key competences, and an attempt at tying this information to the social and occupational structure. As has been discussed in the subchapter on the investigative approach, competences were examined in two aspects: through the self-assessment of the level of the given competence or disposition by the respondent, and by the respondent's disclosure of the level of motivation, that is willingness to perform work related to the use of the given competence.

Competence: skills and motivation

The list of 11 higher-level competence categories together with correlation factors between the levels of skills and motivation corresponding to the individual categories are presented in Table 25. The high correlation between the skills and motivation allowed a focus on further analyses on skills as such.

Table 25

Correlations between the level of skills and the willingness to perform work associated with them

Variable		R	R ²
COG	Finding and analysing information, and drawing conclusions	0.717	0.514
TEC	Handling, assembling, and repairing devices	0.782	0.612
MAT	Performing calculations	0.766	0.586
COM	Handling computer and using the Internet	0.850	0.722
ART	Artistic and creative skills	0.837	0.700
FIZ	Physical fitness	0.715	0.511
SLF	Self-organisation of work and showing initiative, timeliness	0.804	0.647
PER	Contacts with other people	0.786	0.617
OFF	Organising and running office work	0.839	0.704
MNG	Managerial skills and organisation of work	0.839	0.704
AVL	Availability	0.763	0.582

Source: *Study of Human Capital in Poland in Poland (BKL) 2010*.

Well over half of respondents (between 58 and 74%) provided identical answers to both the questions, namely, about skill and motivation (e.g. marking the value of "2" in both the question about the level of technical skills and the question about the willingness to perform work related to the use of technical skills. Table 26 portrays the distribution of the differences between the declared level of skills (U), and motivation (capital M):

- zero denotes that the person declared the same level of U and M
- positive values denote that the level of U exceeds that of M
- negative values denote that the level of M exceeds that of U.

In every case, over 90% of people provided similar answers to both the questions, with an accuracy of one level. In the case of the majority of the variables, there is a small positive slant of the distribution (greater slants in favour of the skills are present).

Table 26

Difference between the level of skills and the level of motivation (U-M)

U-M	COG	TEC	MAT	COM	ART	FIZ	SLF	PER	OFF	MNG	AVL
-4											
-3											
-2	2	2	1	2	1	1	1	1	1	1	1
-1	16	12	12	12	11	11	14	13	10	12	11
0	58	64	63	69	69	62	70	74	70	71	70
1	18	16	18	12	16	18	12	9	15	13	12
2	5	4	5	3	2	6	2	2	3	2	3
3	1	2	1	1		2		1	1		1
4		1									

Data in percentages by columns.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

We will illustrate the close relationship between the level of skills and motivations by referring to competence profiles of six occupational groups, different both in their position in the ISCO hierarchy and also the percentage of women and men (see: Table 11). The following categories were chosen for the presentation (both in the list and in Chart 2, the masculinised professions are marked in cyan, and the feminised ones in magenta):

Professionals:

- 21 Science and engineering professionals (71% men)
- 22 Health professionals (85% women)

Service and sales workers:

- 54 Protective service workers (80% men)
- 52 Sales workers (80% women)

Elementary occupations

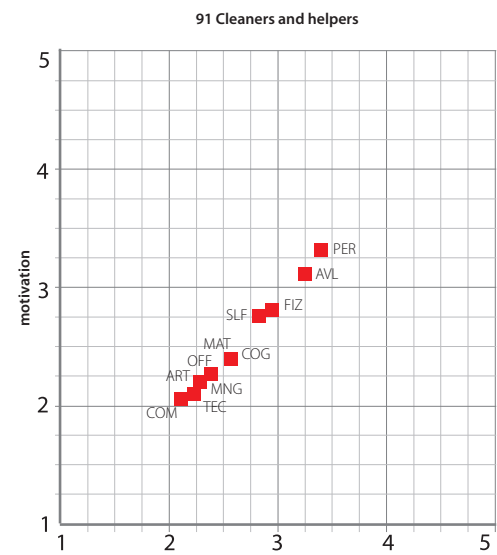
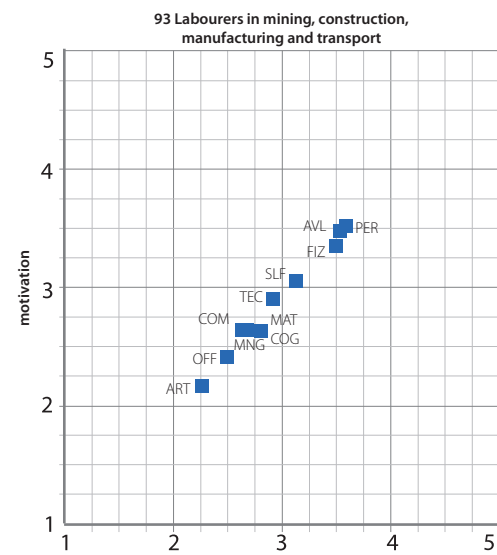
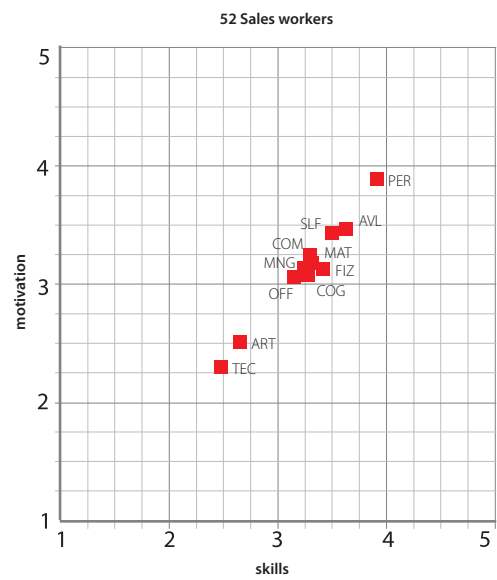
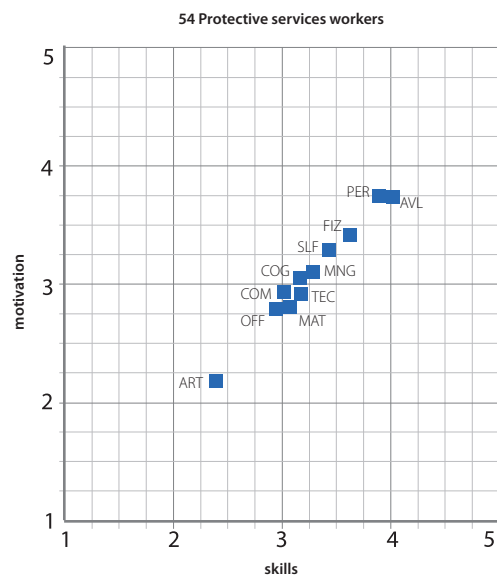
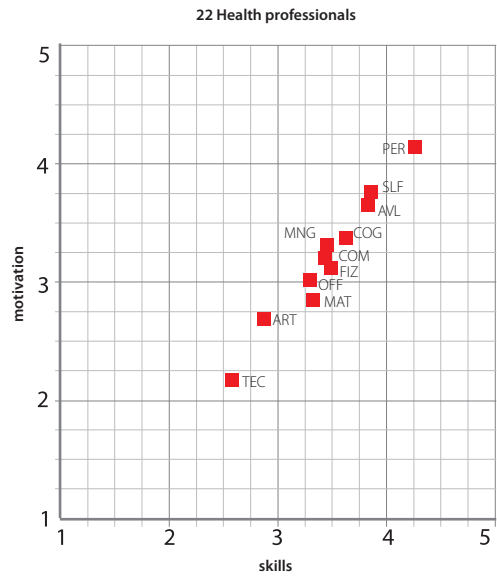
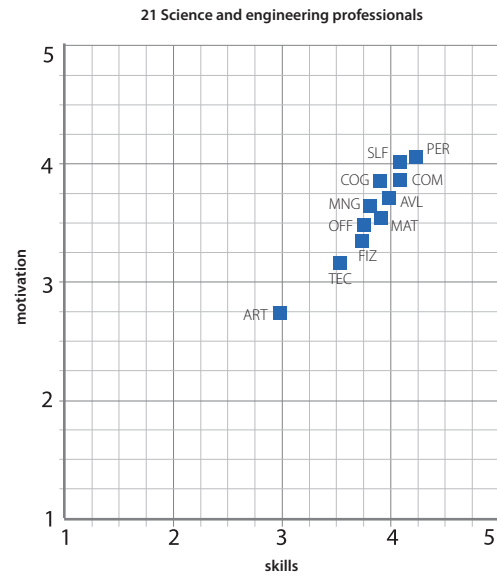
- 93 Labourers in mining, construction, manufacturing and transport (72% men)
- 91 Cleaners and helpers (89% women)

As is easy to notice, in all the six groups, that is independent of the position in the occupational hierarchy and the level of feminisation, the competences provide a very clear line dependence. This proves that on the one hand people in most cases want to do what they believe they can, and on the other that they acquire skills required in the profession that they want to perform.

Chart 2

Competence: skills and motivation in selected occupational categories

Competence: skills and motivation



Competence: skills and motivation

The vertical comparison of the charts discloses a systematic shift of the competence profile towards a lower self-evaluation while moving from professionals, via service and sales workers, to elementary occupations. Comparing the charts horizontally, we can grasp the characteristic differences between evaluations of competences in masculinised and feminised occupations at the same level of ISCO occupational hierarchy. Easiest to grasp is the difference in the relative situation of technical and artistic competences. In occupations dominated by men, the artistic competences are always in the very tail, while in the occupations dominated by women the same happens to the technical ones.

Skills: description of the population

Table 27 sums up information concerning the skill-related aspect of competencies. The blocks of competences are listed from the highest to the lowest level of self-evaluation. Topping the list is the skill of “contacts with other people, both colleagues and clients or people in the person’s care”, which the respondents evaluated at 3.8 on average (on a scale from 1 to 5). The list closes with “artistic and creative skills” with an average of 2.5. In the case of “multi-dimensional” competences, statistics are also provided for all the sub-dimensions of the given skill. Each block begins with the description of the higher-level competence, which is followed by a listing of the constituent competences (if accounted for in the questionnaire), also in the order from the highest to the lowest average.

Each scale is described successively by a list of measures and a full-percentage breakdown of the answers (the percentage of people describing their level as 1=low, 2=basic, 3=medium, 4=high, 5=very high).

The four measures taken into account in the description are:

1. Arithmetic mean (calculated jointly for all the respondents).

2. Standard deviation – the measure of the variation in the level of skills between people (increases proportionally with the dispersion of cases around the mean value). For this data, it may assume values from the range 0 (if all people declare precisely the same level of competence, for example, if everyone rates themselves at 5, or if everyone rates themselves at 3, etc.) to 2 (if the population were absolutely polarised, with half of it rating themselves at 1, and the other half at 5).

3. Range – the difference between the average for the (second level) ISCO category achieving the highest result for the given competence, and the average for the category achieving the worst result for the competence.

4. Eta² (η^2) – the measure ranging from 0 to 1. It shows to what degree the differentiation of the skill may be associated with belonging to various occupational categories (second level ISCO). A value of zero would mean that occupational groups did not differ in the average at all. The value of the η^2 grows in proportion to the amount of dissimilarity between groups and the amount of similarity within groups.

Table 27

Higher-level competences and their constituent elements (scale 1-5)

Skills: description of the population

Competence	Measures*				Level of skill (%)				
	mean	deviation	range	η^2	low	basic	average	high	very high
(PER) contacts with other people	3.8	0.93	1.06	0.10	2.0	6.8	25.2	44.3	21.6
cooperation within the group	3.8	0.90	1.10	0.08	1.6	6.2	23.5	47.1	21.6
ease in establishing contacts with colleagues	3.8	0.91	0.96	0.09	1.7	6.3	24.2	45.3	22.5
being communicative	3.8	0.93	1.15	0.10	1.7	7.2	26.4	43.7	21.0
solving conflicts between people	3.3	0.99	1.33	0.09	4.0	14.3	37.5	33.0	11.1
(AVL) availability	3.6	1.03	1.12	0.07	4.4	9.7	28.7	39.3	17.9
flexible working hours	3.3	1.11	1.08	0.04	7.9	15.0	31.4	33.0	12.7
frequent travel	3.0	1.18	1.41	0.05	13.0	20.2	30.8	25.4	10.5
(FIZ) physical fitness	3.4	1.04	0.87	0.02	5.3	11.9	34.8	33.8	14.3
(SLF) self-organisation, initiative, punctuality	3.4	1.02	1.50	0.13	4.8	13.1	33.7	35.8	12.6
timely completion of planned actions	3.6	0.97	1.15	0.10	2.6	9.7	28.8	41.7	17.2
independent making of decisions	3.6	0.97	1.45	0.12	3.0	9.8	31.2	40.0	16.0
resistance to stress	3.3	1.00	1.32	0.07	4.8	12.7	37.4	33.9	11.4
entrepreneurship and showing initiative	3.3	1.01	1.69	0.13	4.6	14.9	36.0	32.9	11.6
creativity	3.3	1.03	1.58	0.14	5.0	15.4	34.5	33.2	11.9
(COG) finding information drawing conclusions	3.1	0.99	1.76	0.21	5.7	18.0	41.6	26.6	8.1
continuous learning of new things	3.4	1.00	1.62	0.16	3.6	14.0	33.9	34.9	13.6
logical thinking, factual analysis	3.3	0.98	1.70	0.20	3.8	14.6	36.3	34.1	11.2
quick summarising of large amount of text	2.9	1.05	1.61	0.19	9.7	24.3	37.8	22.0	6.3
(MAT) performing calculations	3.1	1.04	1.77	0.14	6.9	20.7	36.9	26.8	8.7
performing simple calculations	3.4	1.07	1.61	0.15	4.7	15.2	31.0	32.7	16.4
performing advanced mathematical calculations	2.4	1.15	2.25	0.13	25.8	28.5	27.3	13.4	5.0
(COM) working with computers and using the Internet	3.0	1.34	2.75	0.23	19.5	15.1	25.5	24.5	15.4
using the Internet	3.0	1.45	2.77	0.22	24.2	13.7	20.4	22.8	19.0
basic knowledge of MS Office-type package	2.7	1.39	2.90	0.24	29.6	16.6	21.8	19.9	12.1
knowledge of specialist software	2.0	1.19	2.98	0.12	47.8	21.0	17.0	10.1	4.1
(MNG) managerial skills and organisation of work	3.0	1.15	2.09	0.16	12.1	19.7	32.8	26.0	9.5
delegating tasks to other members of staff	3.1	1.14	2.13	0.14	11.1	19.8	32.1	27.2	9.8
coordination of work of other staff	3.0	1.15	2.09	0.15	11.4	19.8	32.1	26.9	9.8
disciplining other staff	3.0	1.14	1.85	0.12	11.9	21.4	32.4	25.2	9.1
(OFF) organisation, and conducting office work	2.9	1.20	2.02	0.24	15.4	22.6	28.6	24.0	9.3
(TEC) handling, assembling, and repairing equipment	2.8	1.23	1.79	0.13	17.6	22.8	27.7	22.5	9.3
(ART) artistic and creative skills	2.5	1.16	1.34	0.08	23.6	26.5	29.4	15.2	5.3

* The mean and standard deviation referred to the total population studied.

* The range refers to the difference between occupational categories (ISCO second level) achieving the highest and lowest value of self-assessment for the given skill, respectively.

* Eta² is the measure of the differentiation in the level of skills between occupational categories (ISCO second level).

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Skills: description of the population

As can be seen from Table 27, generally the highest self-assessment can be seen with our interpersonal skills, especially concerning collaboration in the group, ease in establishing contacts, and being communicative (we only assess our ability to solve conflicts somewhat lower). The question arises, quite naturally, as to what degree such a high self-assessment is true in real life.

Generally, there is fairly high conformity between the self-assessment of the higher-level skill and its constituents, with the exception being “performing advanced mathematical calculations” and “knowledge of specialist computer software, ability to write applications, and author websites”, which are clearly the lowest assessed competences. Only every 25th person described their level as “very high”, with nearly half defining their level – most probably correctly – as “low”.

It is characteristic that the competences that are most distinguishing both for individuals and for entire occupational categories are computer competences. The range, being in this case the difference in the average level of these skills between the category “25 Information and communications technology professionals” and the category “91 Cleaners and helpers” amounts to 2.75 points on a five-point scale. In the knowledge of specialist software, it reaches nearly full three points (between these professionals, and “94 Food preparation assistants”). Worth paying attention to here is the not too high value of the η^2 coefficient, which means that the majority of occupational categories do not differ from one another, and the categories that stand out positively are exceptions of not too high numerical power (the same is still visible in advanced mathematical competences).

What come to the forefront in the differentiation of occupations are also office competences, which are fairly highly assessed by the occupations standing higher in the ISCO hierarchy, and clearly lower by the blue-collar occupations, even though the range here is far smaller than in the case of computer competences. The third distinguishing factor for the occupations are the cognitive competences that include the skill of continuous learning of new things, logical thinking, and quick summarising of large volumes of text. In penultimate place in the self-assessment come technical skills, that is those related to handling, assembly, and repairs of equipment.

Variety of competences

We will begin the presentation of the data portraying the scale of variety of self-assessment of the skills with a closer look at the link between the skills and the work situation of the respondents. We do not devote a separate part to the fact that is seen as definitely the strongest determinant of the character of occupational competences and choices, namely gender, as this subject will be addressed in most sub-points.

- ***Variety of competences due to occupational situation***

The current work situation fairly clearly differentiates the respondents in self-assessment of competences (Table 28). The categories that are visibly strongly positive in this aspect compared to the others include primarily: 1) self-employed people (outside agriculture), but also 2) those in paid employment/holding jobs (category “hired work”) and 3) people who are still studying.

Table 28**Variety
of competences****Average values of main competences vs. occupational situation**

Work situation	PER	AVL	FIZ	SLF	COG	MAT	COM	MNG	OFF	TEC	ART	Average
Hired work	3.9	3.8	3.6	3.6	3.3	3.3	3.3	3.2	3.1	3.0	2.6	3.3
Company (non-agricultural)	4.2	4.1	3.7	4.0	3.6	3.6	3.6	3.8	3.3	3.2	2.8	3.6
Company (agricultural)	3.5	3.3	3.3	3.3	2.8	2.9	2.1	2.7	2.4	2.9	2.1	2.8
Unemployed	3.5	3.4	3.4	3.0	2.8	2.8	2.6	2.6	2.6	2.6	2.3	2.9
Learning	3.9	3.7	3.9	3.6	3.5	3.4	4.1	3.2	3.1	2.7	2.9	3.5
Break in employment/ homemaker	3.6	3.1	3.3	3.1	2.9	2.8	2.7	2.7	2.7	2.3	2.5	2.9
Retirement/pension	3.3	3.0	2.4	2.7	2.6	2.6	2.0	2.5	2.4	2.6	2.1	2.6
Total	3.8	3.6	3.4	3.4	3.1	3.1	3.0	3.0	2.9	2.8	2.5	3.2

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

As expected, the ascendancy of farm owners is visible primarily in the managing, interpersonal, availability, and work self-organisation competences. On the other end of the competence scale are four very similar categories: involved in agricultural business, unemployed, experiencing a break in employment and taking care of the home, and retired people. Characteristic of these categories is general low self-assessment, compared to those working and learning, with retired people and farmers having decidedly the lowest results when it comes to use of computers. In this last field, the best results were achieved by people studying, as clearly visible in Table 29, which discloses a radical drop in computer skills parallel with age.

- **Differentiation of competences broken down by age**

Table 29**Average values of main competences vs. age**

Age	PER	AVL	FIZ	SLF	COG	MAT	COM	MNG	OFF	TEC	ART	Average
18-24	3.9	3.7	3.9	3.5	3.4	3.2	3.9	3.1	3.0	2.8	2.8	3.4
25-34	3.9	3.7	3.7	3.6	3.3	3.2	3.5	3.2	3.1	2.9	2.7	3.4
35-44	3.8	3.6	3.5	3.5	3.2	3.2	3.0	3.1	2.9	3.0	2.6	3.2
45-54	3.7	3.5	3.1	3.3	3.0	3.0	2.5	2.9	2.8	2.8	2.4	3.0
55-59/64	3.5	3.3	2.8	3.0	2.8	2.9	2.1	2.8	2.6	2.8	2.2	2.8
Total	3.8	3.6	3.4	3.4	3.1	3.1	3.0	3.0	2.9	2.8	2.5	3.1

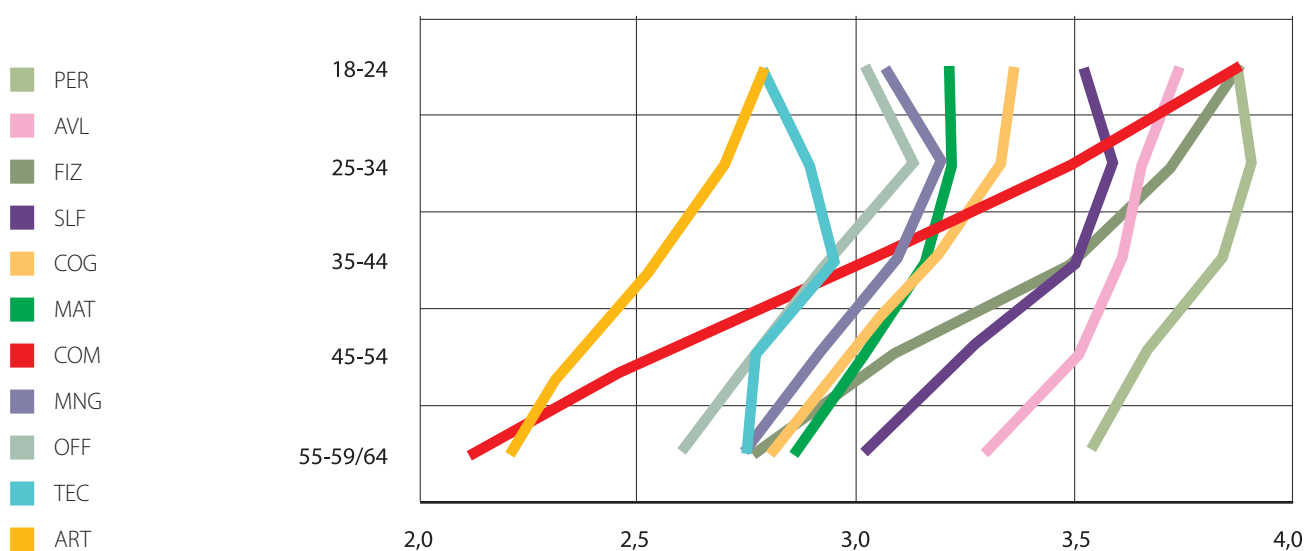
Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Variety of competences

There is a general rule that self-assessment concerning all the competences weakens with age. Computer competences are an extreme case of this dependency: here the difference between the youngest and oldest is nearly 2 points, and is markedly stronger even than the differences in the self-assessment of physical fitness! In a somewhat weaker form, we observe a drop in the self-assessment of the current competences with age in the case of cognitive and self-organisational competences. This data is well illustrated in Chart 3. Clearly visible here is the fact that the generation change is of not only a quantitative but also a radically qualitative nature. The computer competences that in the oldest age group are assessed at a definitely lower level (together with the cognitive competences) moved to the very top of the ranking in the youngest group! It would be difficult to find a better illustration of the so-called information revolution.

Chart 3

Change of self-assessment of competences with age



Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The only skills that actually do not change with age are the technical competences. Yet here, again, we must make the caveats that in this case, there is a vast difference in the self-assessment between women and men (Table 30).

Table 30**Variety
of competences****Differences between men and women in age categories***

Age	PER	AVL	FIZ	SLF	COG	MAT	COM	MNG	OFF	TEC	ART
18-24	-0,12	0,10	0,31	-0,07	-0,11	0,02	0,08	-0,16	-0,47	1,13	-0,43
25-34	0,00	0,41	0,37	0,05	-0,03	-0,02	-0,02	0,04	-0,37	1,17	-0,31
35-44	-0,11	0,27	0,28	-0,04	-0,08	-0,05	-0,07	0,00	-0,32	1,07	-0,32
45-54	-0,16	0,08	0,14	-0,07	-0,13	-0,13	-0,15	-0,06	-0,48	1,10	-0,32
55-59/64	-0,07	0,07	-0,01	-0,09	-0,10	-0,11	-0,21	0,01	-0,39	1,12	-0,33
Total	-0,09	0,19	0,23	-0,04	-0,09	-0,06	-0,06	-0,03	-0,40	1,11	-0,34

* Positive values denote the dominance of men, and negative ones the dominance of women.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Two issues that come absolutely to the forefront are: 1) a radical dominance of men in the self-assessment of technical skills in all the age categories, exceeding one full point; 2) a clear ascendancy of women in office and artistic competences across all age categories. Moreover, there is a noticeable dominance of men in availability and physical fitness that is visible in the lower age categories, but drops with age.

A very interesting case that we shall return to later concerns computer competences. In the younger age categories, the differences between men and women are very small, yet among older people a slight ascendancy of women becomes visible.

- **Variation of competences by level of education**

The easily foreseeable differences in competence profiles between the individual levels of education are illustrated in Table 31.

Table 31**Average values of main competences vs. level of education**

Education	PER	AVL	FIZ	SLF	COG	MAT	COM	MNG	OFF	TEC	ART	Average
Primary/lower secondary	3.4	3.2	3.2	2.9	2.6	2.6	2.4	2.4	2.3	2.6	2.2	2.7
Vocational	3.5	3.4	3.2	3.1	2.7	2.8	2.3	2.6	2.3	2.9	2.2	2.8
Secondary	3.9	3.7	3.5	3.6	3.4	3.3	3.4	3.3	3.2	2.9	2.7	3.4
Higher	4.3	4.0	3.7	4.1	4.0	3.7	4.1	3.8	3.8	2.8	3.0	3.8
Total	3.8	3.6	3.4	3.4	3.1	3.1	3.0	3.0	2.9	2.8	2.5	3.1

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Variety of competences

The above table portrays clearly two leaps in competence: the first separating primary and lower secondary education from vocational and secondary, and the second secondary from higher. The only skills that do not differentiate the levels of education are – much like in the previous analyses – technical skills related to the handling, assembling, and repairs of equipment.

Visible also at the individual levels of education are the specific differences between the genders (Table 32).

Table 32

Differences between men and women at individual levels of education

Education	PER	AVL	FIZ	SLF	COG	MAT	COM	MNG	OFF	TEC	ART
Primary/lower secondary	-0.03	0.22	0.28	-0.03	-0.04	-0.04	0.08	-0.02	-0.22	0.92	-0.31
Vocational	0.04	0.33	0.25	0.15	0.07	0.04	0.10	0.14	-0.15	1.26	-0.22
Secondary	0.00	0.26	0.32	0.11	0.08	0.05	0.19	0.15	-0.32	1.23	-0.20
Higher	-0.02	0.30	0.33	0.03	0.10	0.20	0.21	0.13	-0.21	1.00	-0.28
Total	-0.09	0.19	0.24	-0.03	-0.08	-0.06	-0.06	-0.02	-0.40	1.11	-0.32

* Positive values denote the dominance of men, and negative ones show the dominance of women..

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Besides the evident differences we observed when accounting for the age categories, presented here in a more systematic manner are the discrepancies in the self-assessment of availability and physical fitness.

Very interesting is the fact that despite the (albeit microscopic) domination of women in computer competences in the entire sample (the value of -0.06 in the line "Total"), men dominate it at every level of education, with their ascendancy growing from microscopic at the primary/lower secondary level to more concrete at secondary and higher levels. The explanation for this seeming contradiction can be found through reference to Table 23 showing that women more often than men obtain secondary and higher education (which improves computer literacy). Thus, at the global level, women balance out men's ascendancy in the area thanks to a more beneficial structure of education. Additionally, in the case of people with higher education, domination of men in mathematical skills becomes visible.

- ***Variation of competences depending on occupation***

Table 33 lists the key components of the Study of Human Capital in Poland project by presenting competence profiles of individual occupations. The easily foreseeable general picture is such that the level of competence in self-assessment grows systematically while moving upwards through the ISCO occupational hierarchy. Refuse workers (category 96) are nearly 1.5 point away in competences from representatives of chief executives and senior officials (the last column with the heading "average").

It can be noticed further that individual occupational categories reach results that are exceptionally high in competences that are specifically connected to the given type of work: managers stand out in their managerial and (on a par with professionals) cognitive skills, information professionals in computer skills, and administrative workers in office skills, metal, machinery and related trades workers and machine operators in technical skills.⁵ Standing out against the general picture with their level of artistic skills are teachers, legal, social and cultural professionals, and managers in hospitality, retail and other services. Besides the highest managerial level, mathematical competences are characteristic of information and communications technology professionals, science and engineering professionals, business and administration professionals, and business and administration associate professionals.

Physical fitness differentiates occupational categories very poorly.

The relatively high self-assessment of street and related sales and services workers results from the fact that they are generally young people, frequently still in education (see Table 11), who consider this only a temporary way of making money.

⁵ By comparison with Table 11, it is easy to see that the occupational categories declaring a higher than average level of technical skills are at the same time the category strongly dominated by men.

Table 33

Average values of mean main competences, and the occupational structure (ISCO, second level)

Main occupation (ISCO-2)	PER	AVL	SLF	FIZ	COG	MAT	MNG	COM	OFF	TEC	ART	Average
11 Chief executives, senior officials	4.4	4.3	4.3	3.8	4.2	4.0	4.4	4.0	4.2	3.4	3.0	4.0
12 Administrative and commercial managers	4.3	4.2	4.2	3.5	4.1	4.0	4.3	4.1	4.1	2.5	2.7	3.8
13 Production and specialist services managers	4.5	4.3	4.2	3.7	3.9	3.7	4.3	3.9	3.8	3.3	2.7	3.9
14 Hospitality, retail and other services managers	4.4	4.2	4.3	3.8	4.2	4.0	4.4	4.1	4.1	2.8	3.2	3.9
21 Science and engineering professionals	4.2	4.0	4.1	3.7	3.9	3.9	3.8	4.1	3.7	3.5	3.0	3.8
22 Health professionals	4.2	3.8	3.9	3.5	3.6	3.3	3.4	3.4	3.3	2.6	2.9	3.4
23 Teaching professionals	4.3	3.8	4.1	3.7	4.0	3.5	3.6	3.9	3.5	2.6	3.4	3.7
24 Business and administration professionals	4.4	4.1	4.2	3.5	4.1	4.0	4.0	4.4	4.2	2.7	2.9	3.9
25 Information and communications technology professionals	4.2	4.0	4.0	3.8	4.3	4.2	3.6	4.9	3.6	3.7	2.8	3.9
26 Legal, social and cultural professionals	4.4	4.0	4.2	3.5	4.1	3.3	3.8	4.0	3.8	2.6	3.3	3.7
31 Science and engineering associate professionals	4.0	3.7	3.7	3.6	3.4	3.5	3.3	3.3	3.1	3.5	2.5	3.4
32 Health associate professionals	4.0	3.9	3.6	3.5	3.5	3.2	3.3	3.4	3.2	2.8	2.9	3.4
33 Business and administration associate professionals	4.1	4.0	3.9	3.4	3.7	3.8	3.6	3.8	3.8	2.8	2.8	3.6
34 Legal, social, cultural and related associate professionals	4.0	3.7	3.6	3.4	3.3	3.0	3.3	3.3	3.4	2.5	3.0	3.3
35 Information and communications technicians	4.0	3.9	3.9	3.5	3.8	3.7	3.4	4.4	3.6	3.7	2.9	3.7
41 General and keyboard clerks	4.0	3.8	3.8	3.5	3.6	3.5	3.5	3.8	4.0	2.6	3.0	3.5
42 Customer services clerks	4.1	3.7	3.8	3.5	3.6	3.4	3.4	3.6	3.6	2.4	2.7	3.4
43 Numerical and material recording clerks	3.9	3.8	3.6	3.4	3.3	3.4	3.2	3.5	3.4	2.8	2.5	3.4
44 Other clerical support workers	4.0	3.7	3.7	3.5	3.4	3.2	3.3	3.5	3.3	2.8	3.0	3.4
51 Personal service workers	3.9	3.6	3.4	3.4	3.0	2.9	3.0	3.0	2.8	2.4	2.8	3.1
52 Sales workers	3.9	3.6	3.5	3.4	3.2	3.3	3.2	3.3	3.2	2.5	2.6	3.2
53 Personal care workers	3.9	3.6	3.4	3.3	3.2	3.1	3.1	3.1	3.1	2.3	2.8	3.2
54 Protective services workers	3.9	4.0	3.4	3.6	3.2	3.1	3.3	3.0	3.0	3.2	2.4	3.3
61 Market-oriented skilled agricultural workers	3.5	3.2	3.2	3.3	2.7	2.9	2.7	2.2	2.4	2.8	2.1	2.8
62 Market-oriented skilled forestry, fishery and hunting workers	3.6	3.4	2.9	3.5	2.9	2.8	2.6	2.1	2.3	3.2	2.0	2.9
63 Subsistence farmers, fishers, hunters and gatherers	3.8	3.6	3.3	3.7	3.3	3.2	3.0	3.2	2.8	2.8	2.7	3.2
71 Building and related trades workers, excluding electricians	3.6	3.6	3.2	3.5	2.8	2.8	2.7	2.4	2.3	3.4	2.3	3.0
72 Metal, machinery and related trades workers	3.6	3.5	3.2	3.3	2.9	2.9	2.8	2.6	2.4	3.7	2.2	3.0
73 Handicraft and printing workers	3.7	3.5	3.1	3.3	2.9	3.0	2.8	2.7	2.8	3.0	2.7	3.0
74 Electrical and electronic trades workers	3.8	3.6	3.5	3.5	3.1	3.1	3.0	3.1	2.8	3.9	2.4	3.2
75 Food processing, wood working, garment and other craft and related trades workers	3.5	3.3	3.0	3.2	2.7	2.7	2.6	2.3	2.4	2.6	2.4	2.8
81 Stationary plant and machine operators	3.5	3.4	3.1	3.3	2.8	2.7	2.6	2.6	2.5	3.1	2.2	2.9
82 Assemblers	3.8	3.9	3.3	3.6	3.0	3.1	3.0	2.9	2.8	3.8	2.5	3.2
83 Drivers and mobile plant operators	3.6	3.7	3.2	3.3	2.9	2.9	2.8	2.6	2.4	3.5	2.1	3.0
91 Cleaners and helpers	3.4	3.3	2.8	2.9	2.6	2.6	2.4	2.1	2.3	2.2	2.3	2.6
92 Agricultural, forestry and fishery labourers	3.5	3.2	2.9	3.4	2.7	2.7	2.4	2.4	2.2	2.6	2.1	2.7
93 Labourers in mining, construction, manufacturing and transport	3.6	3.5	3.1	3.5	2.8	2.8	2.6	2.7	2.5	2.9	2.2	2.9
94 Food preparation assistants	3.6	3.3	3.0	3.1	2.8	2.6	2.3	2.4	2.4	2.1	2.4	2.7
95 Street and related sales and service workers	3.9	3.3	3.5	3.6	3.2	3.0	3.0	3.3	2.9	2.4	2.7	3.2
96 Refuse workers and other elementary workers	3.5	3.4	3.0	3.1	2.7	2.5	2.4	2.3	2.4	2.7	2.1	2.7
Total	3.8	3.6	3.4	3.4	3.2	3.1	3.1	3.0	2.9	2.9	2.5	3.2

Entering a somewhat higher level of generality (ISCO first level), we can have a closer look at how in individual occupational categories, competence differences become visible between the genders.⁶ What is generally seen here is a very similar layout of distribution as in the two previous comparative tables (Tables 30 and 32). Systematically, visible in every category is a clear domination of men in computer competences (with a significant exception being general and keyboard clerks), and in the case of experts and skilled workers – also in mathematics competences. Women retain primacy in the area of artistic and office skills, with their ascendancy in office competences concentrating in the categories of chief executives and managers, associate professionals and – decidedly most strongly – among clerical support workers. Generally, the category of clerical support workers is seen as a group with the competition balance moved farthest in favour of women. Interpreting the differences described above, one must bear in mind that analysed here are the most general occupational categories, which vary strongly internally, and the data presented are the results of averaging.⁷

Table 34
Differences between men and women in major occupational groups

Main occupation (ISCO-1)	PER	AVL	SLF	FIZ	COG	MAT	MNG	COM	OFF	TEC	ART
1 Chief executives	0.06	0.28	0.01	0.35	-0.09	0.00	-0.02	0.10	-0.33	1.22	-0.28
2 Professionals	0.00	0.26	0.06	0.27	0.21	0.34	0.20	0.39	-0.02	0.98	-0.20
3 Technicians and associate professionals	0.06	0.27	0.16	0.40	0.15	0.03	0.22	0.28	-0.32	1.22	-0.11
4 Clerical support workers	-0.03	0.16	0.01	0.28	-0.09	-0.19	-0.10	-0.02	-0.64	0.87	-0.45
5 Service and sales workers	0.17	0.39	0.19	0.33	0.23	0.12	0.33	0.37	0.01	1.10	-0.13
6 Skilled agricultural, forestry and fishery workers	-0.12	0.15	-0.02	0.17	0.05	0.02	0.02	0.05	-0.28	1.17	-0.31
7 Craft and related trade workers	0.13	0.52	0.30	0.43	0.20	0.26	0.37	0.40	-0.01	1.35	-0.20
8 Plant and machine operators, and assemblers	0.14	0.26	0.24	0.34	0.09	-0.01	0.28	0.16	-0.01	0.90	-0.18
9 Elementary occupations	0.01	0.30	0.06	0.41	0.05	0.06	0.10	0.29	-0.13	1.07	-0.14
Total	-0.10	0.18	-0.05	0.25	-0.10	-0.09	-0.04	-0.09	-0.42	1.15	-0.33

* Positive values denote the dominance of men, and negative ones show the dominance of women.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

⁶ To save space, we do not present the differentiation at the second level of ISCO.

⁷ For example, the lack of differentiation of mathematic competences in the huge group number 3 of "associate professionals" (the difference of only 0.03) in fact disguises the fact that among health associate professionals, and legal, social and cultural professionals, men assess themselves much higher, and among business and administration associate professionals (the largest subcategory) women are dominant.

Variety of competences

Keen to obtain a better insight into the nature of competences differentiation between the genders, we asked ourselves the question whether differences in competences depend in any way on the level of feminisation/masculinisation of an occupation. To answer this, we analysed the correlation between the percentage of men in the given occupational category (ISCO, second level) and the average gap in self-assessment of individual competences between men and women working in the occupational category.⁸ The data that we used for that purpose – using office competences in three sample occupational categories – were as follows:

Table 35

Sample data to analyse correlation

ISCO-2category	No. of men	No. of women	Percentage of men	Average self-assessment of office competences		Difference in averages M – W
				men (M)	women (W)	
11 Chief executives and senior officials	44	12	78.6	4.21	4.64	-0.43
22 Health professionals	43	205	17.3	3.81	3.27	0.54
35 Information and communication technicians	33	5	86.8	3.54	4.14	-0.60

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The results of the correlation are presented in Table 36. For easier inspection, they are ordered from the most to the least negative.

Table 36

Correlations between the percentage of men in an occupation and the average difference in competence self-assessment*)

Competence	Correlation
COG Finding and analysing information, and drawing conclusions	-0.356
PER Contacts with other people	-0.296
COM Handling computer and using the Internet	-0.238
MAT Performing calculations	-0.232
MNG Managerial skills and organisation of work	-0.226
ART Artistic and creative skills	-0.211
OFF Organising and running office work	-0.207
SLF Self-organisation of work and showing initiative, timeliness	-0.062
FIZ Physical fitness	-0.029
AVL Availability	-0.018
TEC Handling, assembling, and repairing devices	0.092
Averaged competence self-assessment	-0.250

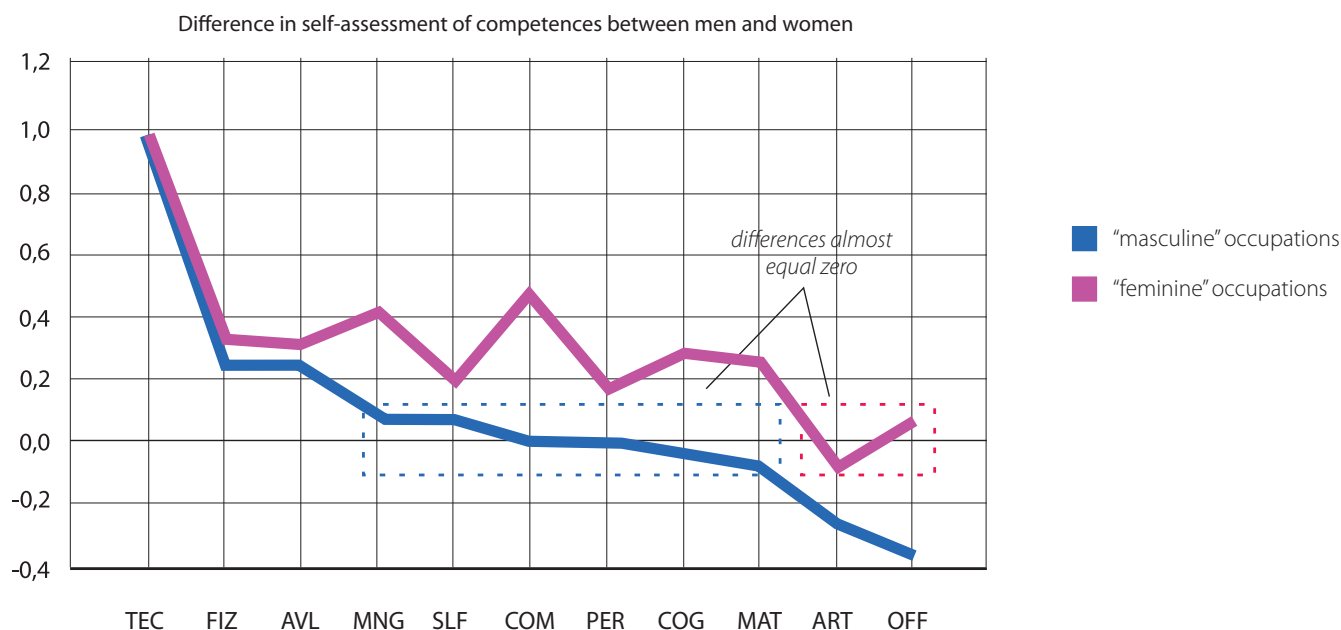
* Accounts only for people working full-time.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The first aspect of note in the above table is the fact that practically all the correlations with the exception of the last one are negative. This means that on average (besides technical competences) the more masculinised an occupation is, the smaller the difference⁹ in the self-assessment of competences between men and women. This can be very clearly observed when the occupational categories are divided into “masculine” (those with at least 70% men) and “feminine” (those with at least 70% women). Chart 4 shows the differences in the self-assessment of competences between men and women present in “masculine” and “feminine” occupations.

Chart 4

Difference in self-assessment of competences between men and women



* Only people working full-time were taken into account.

A “masculine” (“feminine”) occupation = at least 70% men (women).

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The greatest domination of men over women, which we have repeatedly seen before, pertains to technical competences (men obtain a whole point more, in the group of both “masculine” and “feminine” occupations). Yet it is the remaining part of the chart that is more interesting, as it allows the specific characteristics of the differences between the genders in the professions dominated either by men or by women to be read. In the “feminine” occupations, men regularly obtain better self-assessment results than women in all the competences with the exception of artistic and office competences (which, as we know, from the early analyses, are the domain of women). The situation looks entirely different in the group of “masculine” occupations: in this group, men dominate women in self-assessment of technical competences, physical fitness, and availability, while they fall far below them in the case of artistic and office competences. The differences in the remaining competences are near zero.

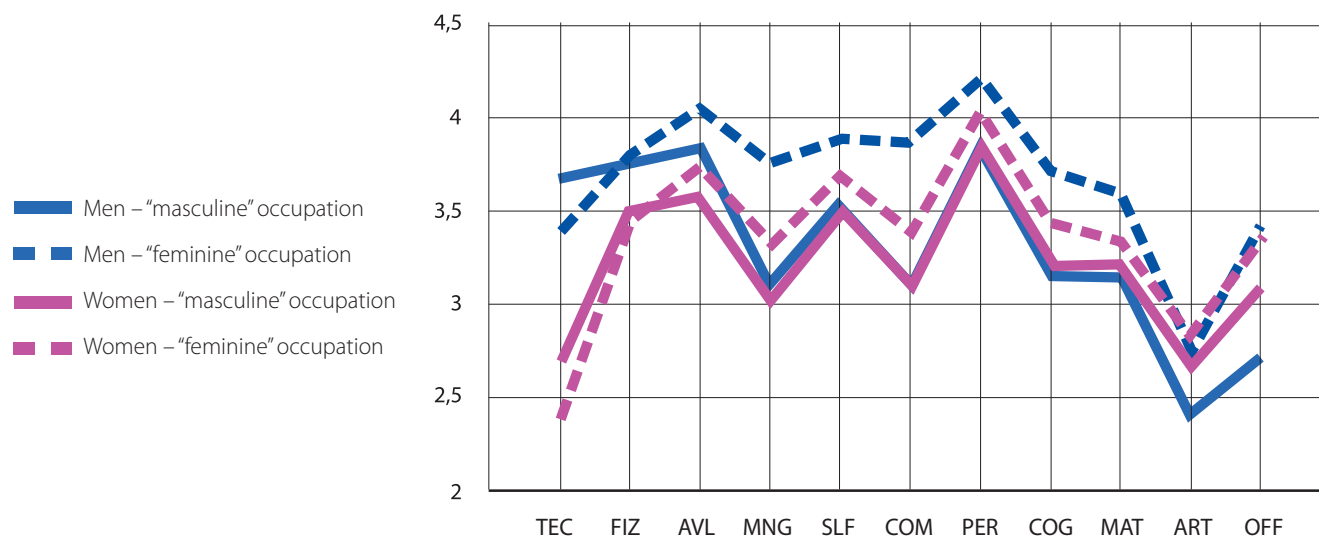
Also worth noting is the fact that the decrease in the difference between the self-assessment of competences of men and women while passing from feminised to masculinised occupations is related most closely to the fact that the men operating in a work environment dominated by women have results in all non-technical competences higher than the men operating in a predominantly masculine environment – and these differences are quite substantial:¹⁰ in the case of cognitive, office, and computer competences they lie within the range from 0.5 to nearly 0.8 points (Chart 5).

⁹ This difference must be understood properly: it is not the absolute difference in the self-assessment of the competences, but the relative difference, that is “considered with the sign”. Taking an example from Table 35: in the group of health professionals, there is a positive difference (i.e. to the advantage of men) which equals 0.54, while in the group of information and communications technicians, the difference is negative (i.e. to the advantage of women), and equals -0.60. Of these two differences, the difference in the group of information and communications technicians is relatively smaller, as $-0.60 < 0.54$, even though in absolute terms, there is a greater difference (= a greater distance separating the genders) in the group of health professionals.

¹⁰ We do not determine to what degree the self-assessment corresponds to the actual level of competences.

Chart 5

Average self-assessment of competences of women and men in "masculine" and "feminine" occupations



Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Competences and wages

To check how competences are connected to wages, in every major occupational group (ISCO, first level), a set of regression analyses were conducted, forecasting the wages of the population on the grounds of the declared level of the given competence, while checking age and gender. The results of the analyses are presented in Table 37.

Table 37

Monetary dimension of competences

	COG	COM	SLF	MNG	PER	MAT	OFF	FIZ	AVL	TEC	ART
1 Chief executives	639			169					156		
2 Professionals	355	379	217	224			121		154	145	49
3 Technicians and associate professionals	341	275	362	232	198	260	219	170	200	148	131
4 Clerical support workers	214	196	185	178	46		163		161	92	115
5 Service and sales workers	200	155	203	215	126	163	170	119	152	124	87
6 Skilled agricultural, forestry and fishery workers	257	226	269	223	307	233	174	159	155	201	132
7 Craft and related trade workers	227	215	280	238	199	215	174	230	196	195	125
8 Plant and machine operators, and assemblers	189	197	242	121	168	83	83	225	62	109	
9 Elementary occupations	138	158	173	130	127	126	108	117	99	104	60

The table contains regression coefficients for individual competences, calculated in models forecasting wages on the grounds of three independent variables: the level of the given competence, age, and gender of the people investigated. The table accounts for people with wages not exceeding PLN 10,000. Empty fields in the table mean lack of significant dependency.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

The values in the table provide information about the result of comparison of two average members of the given occupational category of people who do not differ in gender and age: how much more does a person standing one point higher on the scale of self-assessment for the given competence earn on average? Reading the subsequent rows of the table¹¹ we can make preliminary conclusions about the monetary significance of various competences for individual occupations. On the one hand, what generally come to the forefront are the cognitive competences, computer competences, and competences related to the self-organisation of work. Especially at the top of the occupational hierarchy, these very competences seem to be gaining advantage over the remaining ones. On the other hand, in practically all the occupational categories, the artistic competences find the poorest translation into wages.

4.6. Job satisfaction

The deciding factor that influences people’s willingness to improve their occupational competences and effectiveness of action, and their tendency to minimise effort or abandon work performed so far is the level of satisfaction from the current stage in the professional career. Table 38 compares a number of basic satisfaction factors for major occupational groups (ISCO, first level).¹² The scale of satisfaction was five-point: from “highly dissatisfied” (1) to “highly satisfied”(5). The questionnaire question was asked in the following manner:

Job satisfaction may be examined in a number of ways.
Please state how much you are satisfied or dissatisfied with your...

- wages [the wages column in the table]
- promotion opportunities [promotion]
- conditions of performing work [conditions]
- security of employment [security]
- possibility of personal development and training [development]
- the work itself (what you are doing) [work]

This block was complemented at the end with a general question:

- Taking into account all this – both the work and the conditions of performing it, including the wages related to it – to what degree do you find this work suitable? [the general column]

Table 38

Job satisfaction

Main occupation (ISCO-1)	Work	Conditions	Security	Development	Wages	Promotion	General
1 Chief executives	4.3	4.1	4.0	3.9	3.8	3.6	4.2
2 Professionals	4.3	4.1	4.0	3.9	3.4	3.5	4.0
3 Technicians and associate professionals	4.1	4.0	3.9	3.6	3.4	3.3	3.9
4 Clerical support workers	4.0	4.0	3.8	3.4	3.3	3.2	3.8
5 Service and sales workers	3.9	3.8	3.8	3.3	3.3	3.1	3.8
6 Skilled agricultural, forestry and fishery workers	3.9	3.7	3.8	3.0	3.3	2.8	3.9
7 Craft and related trade workers	3.9	3.7	3.7	3.3	3.3	3.0	3.8
8 Plant and machine operators, and assemblers	3.8	3.7	3.7	3.2	3.3	3.0	3.8
9 Elementary occupations	3.7	3.7	3.6	3.1	3.0	2.8	3.6
Total	4.0	3.9	3.8	3.4	3.3	3.2	3.8

Data for people in regular salaried employment.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

¹¹ The general tendency (though with numerous exceptions) of the lowering of the values of the coefficient while moving down individual columns is associated with the fact of lower average wages at the bottom of the occupational hierarchy.

¹² Taken into account are only regular salaried employees, working on the basis of employment contracts.

Job satisfaction

The data from Table 38 may be summed up in the briefest manner in the following few observations: 1) people are most satisfied with the type of work they perform, 2) generally, satisfaction in every aspect grows parallel to the position in the occupational hierarchy, 3) below the second level of ISCO, a fairly clear division between the first three dimensions of satisfaction and the other ones is visible – especially telling is the difference between the relatively high satisfaction with security of employment and much lower satisfaction with the opportunity of personal development.

What are the differences between men and women against this background? Let us have a closer look at the data in Table 39. The disproportions in satisfaction prove to concentrate in lower categories of the hierarchy and concern the possibility of development, promotion, and – primarily – wages. Worth noting here is the exceptional situation in the group of clerical support workers – practically in every aspect, women, and not men, are in the ascendancy here.

Table 39

Differences in job satisfaction between men and women

Main occupation (ISCO-1)	Work	Conditions	Security	Development	Wages	Promotion	General
1 Chief executives	0.01	0.12	0.06	-0.03	0.11	0.22	0.17
2 Professionals	0.08	0.20	0.17	0.07	0.38	0.21	-0.11
3 Technicians and associate professionals	-0.03	-0.06	0.02	0.00	0.12	0.04	-0.10
4 Clerical support workers	-0.17	-0.33	0.01	-0.23	-0.09	-0.11	0.04
5 Service and sales workers	0.06	0.04	0.11	0.29	0.18	0.21	0.09
6 Skilled agricultural, forestry and fishery workers	-0.01	0.13	0.03	0.31	-0.13	0.35	0.00
7 Craft and related trade workers	0.16	0.02	0.19	0.25	0.45	0.25	0.20
8 Plant and machine operators, and assemblers	0.05	-0.02	0.27	0.22	0.31	0.20	0.18
9 Elementary occupations	0.10	0.06	0.13	0.32	0.54	0.23	0.03
Total	-0.04	-0.08	0.05	-0.02	0.20	0.04	0.00

* Positive values denote the dominance of men, and negative ones show the dominance of women.

Source: Study of Human Capital in Poland in Poland (BKL) 2010.

Closing on a much lighter note, it is worth paying attention to the last cell of the table, which contains the value 0.0, zero. It says that *summa summarum* or all told, "taking into account both the work itself and the condition of performing it – including the wages related to it" (a phrase from the questionnaire) the average level of satisfaction is identical among women and men – at least with an accuracy of two decimal places.

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The Polish Agency for Enterprise Development (Polska Agencja Rozwoju Przedsiębiorczości, PARP) is a government agency reporting to the Minister of Economy. It was established on the power of the Act of 9th November 2000. The task of the agency is to manage funds received from the State Treasury and the European Union allocated to manage entrepreneurship and innovativeness and to develop human resources.

For over a decade, PARP has supported entrepreneurs in implementing competitive and innovative projects. The goal of the agency is to conduct programmes aimed at developing the economy, supporting innovation and research activity in small and medium-size enterprises (SMEs), regional development, growth of export, development of human resources, and the use of new technologies.

The Agency's mission is to establish favourable conditions for sustained development of the Polish economy by supporting innovation and international activity of businesses and promotion of environmentally friendly forms of production and consumption.

In the financial perspective 2007–2013, PARP is responsible for the implementation of tasks in three operational programmes: **Innovative Economy, Human Capital, and Development of Eastern Poland.**

One of the Agency's priorities is the promotion of innovative attitudes and encouraging entrepreneurs to apply state-of-the-art technologies in their businesses. To achieve this, PARP operates a web portal devoted to innovation – www.pi.gov.pl – and organises the annual competition **Polish Product of the Future (Polski Produkt Przyszłości)**. Representatives of SMEs are welcome to participate in regular meetings of the **Club of Innovative Enterprises**. The objective of the educational portal **Akademia PARP** (PARP Academy, www.akademiaparp.gov.pl) is facilitation of access and dissemination of business knowledge through e-learning among micro-, small and medium-sized businesses. Moreover, PARP supports the development of e-business through its website web.gov.pl. Operating at the agency is a centre of the **Enterprise Europe Network**, offering entrepreneurs information on EU law and the principles of conducting business in the Single Market.

PARP initiated the development of the **National SMEs Service Network (Krajowy System Usług, KSU)**, which helps business start-ups and companies developing their business activity. In over 150 KSU centres (including KSU Consultation Points, KSU National Innovation Network, and loan and guarantee funds collaborating within the KSU) situated all over Poland, enterprises and start-ups are welcome to acquire information, participate in training on how to run business, and receive loans and/or guarantees. Besides the above, the agency runs the KSU website (www.ksu.parp.gov.pl). PARP's regional partners in the implementation of selected activities are the Regional Financing Institutions (RFIs).

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