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Skills shortages and mismatches on the Polish labour market and public policy recommendations

Studies from various countries indicate that one of the most important issues recently affecting the labour market is skills mismatch and skills shortage. This paper presents the results of imbalances on the Polish labour market in the period 2010–2014. The research took a unique approach by comparing data on positions and skills from both the demand and supply perspectives in order to deduce the impacts on skills shortage and skills mismatch. It examined a wider range of skills as compared to other similar approaches and further referred them to positions for which they were requested by employers. The findings were then juxtaposed with the opinions of job seekers for the same positions. Based on the results, the paper presents a set of recommendations for public policies designed to address those problems. The findings of this research are consistent with similar studies in other countries, thus emphasising the applicability of the method and the findings in a broader context.

Keywords: skills shortage, skills mismatch, labour market, public policy

Introduction

The first studies on skills development and its effect on labour market started with human capital theories in the early 1960s (Becker, 1994; Mincer, 1958). However, it quickly became apparent that these models looked at the labour market in a very simplistic way. They were inadequate in explaining the complexity of human capital and labour market relations. Contrary to initial assumptions, it turned out that the balance of supply and demand of human capital assets did not occur and there are different kinds of mismatches visible in the labour market. Over the following decades, a number of theories and models strived to offer a better explanation of those mismatches (Acemoglu, Autor 2011; Frank 1978; Haskel, Martin 2001; Kiersztyn 2013; McGuinness, Sloane 2011; Quintini 2011; Sattinger 1993; Sloane 2003; Sicherman, Galor 1990; Thurow 1975), but a lot of uncertainty remains.

Originally, the idea of labour market mismatches was a subject of interest of human capital managers and economists, but soon the meaning of skills and skills mismatches was acknowledged as a significant problem for the entire economy and became one of the main area of public policies dealing with labour market problems. Since the early 2000s, the skills mismatch problem has been one of the key issues of public policy in many countries (European Commission 2008; OECD 2012a; CEDEFOP 2010, 2015a; World Bank 2012), and the proposed solutions seem to be insufficient to balance the labour market and ensure economic development.

The growing interest in skills mismatch has led to studies and theories focused on different effects of that labour market phenomenon, including a variety of social and economic fields such as the decreasing productivity of companies and its impact on the economy (Haskel, Martin 1996; Nickell, Nicolitsas 1997; Tether et al. 2005), lack of job satisfaction and decreased well-being (Badillo-Amador, Vila 2008; Battu et al. 1999; Friedland, Price 2003), hampering economic and social development (Acemoglu, Autor 2011), decreasing wages of individuals and increasing

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cost of investments in training for individuals, companies and governments (Bennett, McGuinness 2009), as well as increasing unemployment rates (CEDEFOP 2015c; Manacorda, Petrongolo 1999; Thisse, Zenou 2000). These effects of skills mismatches on the economy and society are very important for their understanding and, using the best available knowledge, should be addressed by policy makers and employers as well.

Unfortunately, skills mismatch is only a recent research topic in Poland. Even though vast data related to the labour market are continuously gathered by public statistics agencies, none of them is particularly useful for diagnosing potential skills mismatches. Labour market institutions such as the Central Statistical Office (GUS) or Voivodship Labour Offices collect data on the main economic indicators (e.g. unemployment rate, recruitment needs of employers), but there is no information about skills needs or skills assets available on the Polish market, necessary to assess skills mismatches. Only recently, a few research projects have focused on skills measurement, which has allowed for a more complex analysis of skills mismatch problems (Chłoń-Domińczak, Żurawski 2017; Górniak 2011; IBE 2013a, 2017).¹

Hence, the main goal of article is, given the lack of sufficient data showing skills mismatches for the Polish labour market, to explore this field and present some general information. Overall, the general indicators of the Polish economy have been optimistic (decreasing employment rate and increasing economic development), indicating that the Polish labour market may be performing better. However, the innovation rate of Polish companies is still one of the lowest amongst the EU countries (Nieć 2015). Undercapitalisation of firms hampers better performance and investments (Białek-Jaworska, Ziemiński, Zięba 2016). Adequate human capital assets seem one of the potential solutions for such problems (OECD 2012a). Based on the results of the “Study of Human Capital” (SHC) project, we know that a lot

of Polish employers have experienced recruitment problems, and the main reason cited is the lack of needed skills (Kocór, Strzebońska, Dawid-Sawicka 2015). Since Polish employers have mostly used the so-called screening strategy of searching for employees (preferring candidates with adequate skills for a given job position rather than employing people with general skills and developing their skills for the job position later), requirement problems seem to be even more important (Szczycka, Turek, Worek 2014b). Additionally, both employers and employees invest and participate in training relatively less frequently in comparison to more developed countries, which is a particularly disturbing trait of the Polish labour market (Szczycka, Turek, Worek 2014a). Finally, Polish employers sometimes have a low recognition of the skills needs of their own institutions and organisations, which impedes their activities and precludes a better use of skills assets (IBE 2013b).

Taking into account these general conclusions that we drew following five years of research in the period 2010–2014, it seems legitimate to state that the skills mismatch is at least a significant, if not a major, problem of the Polish labour market. It is, therefore, important to understand the problem of skills mismatch on the Polish labour market and further monitor changes in this field.

Identifying and characterising the problems affecting the Polish labour market should be complemented by measures to avoid such problems. As skills mismatch seems to be persistent in the recent years, it is worth proposing some countermeasures to this problem. This article, therefore, is also an insight into the public policies coping with different types of mismatches in the labour market, and its second part addresses such policy issues. Notably, the literature still lacks specific courses of action or public policies (Desjardins, Rubenson 2011; Quintini 2011), and this paper may shed a new light on the topic.

Before presenting the main findings concerning labour market mismatches, the paper briefly defines all the concepts used in the project in both theoretical and methodological contexts. It then summarises the results with regards to skills shortage and skills mismatch experienced in Poland. Finally, the findings will be juxtaposed with recommended policy measurement dealing

¹ The second round of the Study of Human Capital project is currently continuing till 2023 (<https://biznesdlaedukacji.parp.gov.pl/badania/bkl>) and another project focused on sectoral skills and qualifications started in 2016 (http://badaniesektorowe.pl/?page_id=85).

with imbalances in the labour market, which will be discussed in Polish context.

Different types of mismatch

The conceptual dimension of the skills mismatch in the labour market is fairly accurate, although the application of these concepts is still challenged in many ways. When mentioning mismatch, usually either of two things are implied: lack of employees with specific skills required on the labour market (skills shortage) or an inadequate skills level held by the employees or job candidates (skills mismatch) (CEDEFOP 2010; McGuinness 2006; Quinti 2011). In both cases, demands of the labour market (needs of employers) are compared with skills assets available in the labour market (employees skills as well as skills of students, unemployed and inactive people who are trying to enter that market). With regards to skills shortage, employers cannot find the right people with the required skills, and skills mismatch occurs when the skills of employees or job candidates do not meet the requirements of the employers. Of course, both of these mismatches are related: the lack of employees with specific skills necessitates the employment of people with skills lower than required (or, in some situations, higher than those expectations).

Apart from theory, measurement methods of the mismatch are considerably more confusing. The main reason behind this is the lack of precision and of a validated approach to measure skills mismatch. When it comes to skill shortage, it is quite simple: this mismatch is often taken as the number of employers declaring difficulty in finding suitable candidates (with the required skills) for a given job position. In order to obtain a more precise measurement of skills shortages, sometimes employers are interviewed for the exact number of vacancies caused by the lack of candidates with specific skills. Compared to this, the measurement of skills mismatch is more complex and, therefore, there is some confusion as regards the meaning of such mismatch. As mentioned above, its meaning is simply the difference in the employers' expectations of the skills required for given positions and

the level of those skills possessed by the employees or candidates for the job. Very often, the problem is the lack of such data about the skills required and the skills possessed and, therefore, an analysis of skills mismatch is usually based on the difference of qualifications or education levels (qualification/education mismatch).² In such a case, the education level or qualifications of employees or candidates are taken as indicators of skills. In this approach, mismatch is understood as a simple difference in the education level or qualifications. These kinds of analyses are the most common attempts to delineate the mismatches on the labour market (CEDEFOP 2012; Hartog 2000; Desjardins, Rubenson 2011). Unfortunately, such results give inaccurate answers as to the causes and effects of skills mismatch. Recently, an increased criticism of this method has been visible, and it is argued that the levels of education or qualifications are only formal certificates and do not indicate specific skills. A literature review of recent research results shows a significant skills heteronomy within the same levels of education and qualifications, which demonstrates a bias in this method of skills measurement (Chevalier 2003; Desjardins, Rubenson 2011).

With the recognised need for a new approach, researchers are trying to determine skills mismatch based on measurements of objective skills such as numeracy and literacy skills, using the results of the well-recognised, and assumed to be accurate, Programme for the International Assessment of Adult Competencies (PIAAC) (Desjardins 2004; Desjardins, Rubenson 2011; OECD/Statistic Canada 2005; Reder 2009). While these analyses of skills mismatch are more accurate because they are based on the actual levels of skills, there are two big constraints that must be pointed out. First, the approach to measure skills mismatch does not take into account employers' expectations for literacy and numeracy as they are difficult to evaluate. Second, skills mismatch is defined with respect to two skills only – literacy and numeracy – and leaves out a number of important employees' characteristics such as interpersonal or cognitive skills, which

² Education mismatch is sometimes defined as a vertical mismatch (Desjardins, Rubenson 2011).

are considered to be particularly important for task performance but which are also difficult to acquire (Manpower 2013, 2015; World Bank, OECD 2012a).

In the SHC project carried out in Poland, a different approach was adopted. For research purposes, the used skills classification covered 12 of the most important skills, knowledge and attitudes essential for performing tasks at different positions (more details in: Strzebońska, Dobrzyńska 2011). Employers were asked about their requirements concerning each of those 12 skills levels individually for any specific vacancy/vacant job position. In a parallel study, candidates seeking a position were asked about their self-assessment of the same 12 skills.³ In both questionnaires – for employers and employees – similar 5-point scales were applied. However, the scales were adapted to the different contexts in which employers and job seekers were operating – i.e. employers were asked to estimate how a given skill is important for performing a task at the job position they were recruiting for, whereas employees and job seekers were asked about their self-assessment of a given skill. There are two possible limitations of this approach: use of subjective opinions of employers and candidates' self-assessment of skills, as well as the use of only generic skills definitions. Nevertheless, the findings from the five-year study proved highly accurate and useful, which allowed for the presentation of strategies to deal with the skills mismatch problem.

Skills shortages and skills mismatch in Poland

To present one of the main problems of the Polish labour market, it is necessary to start with a general description of the condition of that market from the demand perspective of the employers. Based on five years of SHC research,⁴ it was apparent that Polish employers'

recruitment needs were relatively stable throughout the period of 2010–2014. On average, only 16% of firms and institutions were looking for employees (Kocór, Strzebońska, Dawid-Sawicka 2015). To put it in a broader international context, this finding can be compared with employment needs in other countries (developed and developing ones) over the same time period, e.g. in the USA, 15% employers were looking for workers, 8% in Germany, 4% in Spain, and a significantly higher demand was witnessed only in rapidly developing countries like India, where 41% of employers declared that they were searching for employees (Manpower 2014). Apparently, a relatively low demand for workforce is not an exclusive problem of the Polish labour market.

The demand for employees is also influenced by the general sectoral structure of the Polish economy. The three most needed occupational categories were skilled workers (particularly construction workers), operators and assemblers (mostly drivers), professionals and professional associates (doctors and nurses, economy and management professionals, IT professionals) and sale and service workers (sellers, hairdressers and cooks) (Kocór, Strzebońska, Dawid-Sawicka 2015). Comparing this demand with the capabilities of the labour market, i.e. people seeking employment in those professions, employee shortages were visible in two sectors over the time period concerned: professionals, and skilled workers and operators. At the same time, the number of available unskilled workers, and sales and service workers, exceeded employers' demand for those professions (Czarnik, Kocór 2015).

Information about the imbalances in demand and supply of job positions is an important characteristic of the labour market and shows potential problems, but does not indicate skills shortages. To draw such a conclusion, it is necessary to include additional information

of Poles, students and pupils, training firms and organisations. In this paper, all the analyses are based on data from employers and adult population of Poles. The sample sizes of employers were: $n_{2010}=15\ 841$, $n_{2011}=16\ 159$, $n_{2012}=16\ 000$, $n_{2013}=16\ 005$, $n_{2014}=16\ 013$. And, in the case of adult Poles' population: $n_{2010}=17\ 904$, $n_{2011}=17\ 782$, $n_{2012}=17\ 600$, $n_{2013}=17\ 600$, $n_{2014}=17\ 674$.

³ Similar approaches are used in the O*NET research conducted by the U.S. Department of Labor, Employment Training Administration and, in the case of skills, profile models used by research and HR consultancy companies.

⁴ During the period of 2010–2014, five rounds of research were conducted, including employers, adult population

on the sources of recruitment difficulties. According to the findings from the employer survey, 75% of respondents who were looking for employees experienced problems in finding appropriate people for the job. The scale of requirement difficulties of Polish employers is even bigger than that in other countries. According to a Manpower study (2014), globally 36% of employers face similar problems with finding appropriate candidates. When employers were investigated in-depth on the main reasons of recruitment difficulties, they pointed out the lack of necessary skills for the job position they offered. Table 1 presents opinions of employers stating they had problems finding candidates with the necessary skills (the ISCO08 classification of occupations is used).

Employers looking for workforce experienced difficulties in finding employees in the same occupation groups consistently throughout the entire study period from 2010 to 2014, namely: skilled workers (including operators and assemblers), professionals and associate professionals (particularly: physics, mathematics and technical professionals, health professionals, information and communication technology

specialists, business and administration professionals and associate professionals related to the relevant fields), and sales and services workers. The significant lack of people with the required skills in these occupations needs to be investigated to find out what kind of skills employers need for these particular jobs. It can be detailed by aggregating employers' opinions about the skills level that was wanted for any position within those job categories (during the survey, the employers were asked to rate how important a specific skill is for the position they were recruiting for). In general, as shown in Table 2, regardless of the job position, three categories of skills were most important: interpersonal (defined as cooperation with the group, good communication and interpersonal skills), self-organising (related to self-organising capabilities, initiative and decision-taking and resistance to stress) and availability. In the case of more specialised positions (professionals and associates), those skills were perceived as more important. Another observation was the visible division of skills requirements with regard to white-collar and blue-collar categories of employees. Candidates with rigorous intellectual positions

Table 1. Skills shortages as percentages of employers who had requirement difficulties because of the lack of sufficient skills

Occupation	2010	2011	2012	2013	2014
Managers	3%	3%	4%	2%	6%
Professionals	27%	18%	19%	20%	21%
Technicians and associate professionals	19%	16%	18%	15%	17%
Clerical support workers	6%	5%	3%	5%	6%
Service and sales workers	20%	27%	24%	19%	18%
Crafts and related trades workers	25%	35%	39%	35%	35%
Plant and machine operators and assemblers	11%	12%	9%	13%	9%
Elementary occupations	4%	2%	2%	7%	7%
Employers declaring requirement problems*	80%	78%	76%	75%	75%
N	660	572	966	870	999

* Percentage of those employers who searched for employees.

Source: SHC – Employer Study 2010–2014.

Table 2. Skills expectations declared by employers for candidates for specific job positions (5-point scales, where 0 stands for “skill is not needed for this job” and 4 – “skill is very important for this job”)

Skills	Professionals	Associate professionals	Service and sales workers	Crafts and related trades workers	Operators and assemblers	Overall
Interpersonal	3.11	3.12	3.06	2.23	2.43	2.75
Self-organising	3.06	3.08	2.58	2.32	2.32	2.64
Availability	2.52	2.45	2.41	2.25	2.72	2.43
Language	2.92	2.76	2.52	1.7	1.9	2.35
Cognitive	2.71	2.56	1.76	1.44	1.36	1.92
Physical	1.22	1.44	1.9	2.43	2.41	1.91
Computer	2.72	2.57	1.48	0.72	0.69	1.58
Mathematical	1.64	2.11	1.57	1.33	1.24	1.56
Managerial	1.18	1.11	1.07	0.97	0.71	1.05
Technical	0.58	0.72	0.42	1.62	1.73	1
Office	1.44	1.68	0.87	0.26	0.29	0.9
Artistic	1.18	0.78	1.09	0.72	0.22	0.79
N	2230	1578	2325	3231	1555	10919

Source: SHC – Employer Study 2010–2014.

are expected to have higher levels of language, cognitive and computer skills (with the exception of sales and service workers). In the case of physical workers, more attention is paid to physical fitness and, to a certain extent, technical skills.

In the approach used in the SHC project, both the employers and the working-age respondents, including the unemployed, were asked questions regarding the 12-skills set. In the analysis presented below, the responses of only inactive job seekers were included, i.e. people who were not employed and were looking for a job in a given occupation, offering their skills on labour market. Employers were asked about the level of skills expected from candidates for specific positions, and the job-seekers were asked to self-assess their competences. Because both groups defined the individual skills in an identical manner, and almost identical formats for the response scales were used, it is possible to compare the skills

profiles for specific positions with the skills profiles of the people applying for a given type of work. Such comparison can be done in several ways, each of them underscoring a different aspect of the “mismatch” (for details see: Czarnik, Kocór 2015). This paper presents double centred results (in the occupational categories and skills), which take into account both the importance of a given skill in a given occupation, versus other skills, and also its importance in a given occupation as compared to other occupations. In this calculation, the zero value denotes the average level of self-assessment/requirements, for all skills and occupations analysed together. The results of such balances are used as indicators of skills mismatch, and the data are presented in Table 3.

The doubly centred data show a clear polarisation of white-collar and blue-collar occupations in terms of physical fitness and computer skills. In white-collar occupations, physical fitness is

Table 3. Balance of skills as difference between self-assessment and requirements (data centred with respect to occupational categories and skills)

	Interpersonal	Self-organising	Availability	Language	Cognitive	Physical	Computer	Mathematical	Managerial	Technical	Office	Artistic	Total
Professionals	-0.25	-0.13	-0.16	-0.12	0.55	-0.27	-0.31	0.17	0.03	0.26	0.20	0.03	0.00
Associate professionals	-0.22	-0.14	-0.04	-0.06	0.48	-0.32	-0.28	-0.15	0.28	0.33	-0.19	0.29	0.00
Clerical support workers	-0.29	-0.06	0.21	-0.14	0.50	0.05	-0.36	-0.13	-0.07	0.32	-0.40	0.39	0.00
Service and sales workers	-0.26	0.05	-0.07	-0.11	-0.05	0.16	0.19	0.04	0.11	-0.03	0.15	-0.18	0.00
Crafts and related trades workers	0.32	0.07	0.11	0.29	-0.52	0.15	0.26	-0.05	-0.15	-0.31	0.04	-0.19	0.00
Operators and assemblers	0.06	0.10	-0.35	0.15	-0.52	0.26	0.47	-0.01	-0.22	0.01	-0.01	0.05	0.00
Elementary occupations	0.21	0.02	-0.17	0.24	-0.80	0.15	0.48	0.11	0.02	-0.19	0.00	-0.06	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: SHC – Population Study 2010–2014 and SHC – Employer Study 2010–2014.

less necessary than other skills. It is also relatively less necessary than in other occupations – hence, there is a clear surplus of physical fitness in these occupations. The issue with computer skills is just the reverse – they are relatively important compared to other skills for white-collar occupations, as well as more necessary than in different types of occupations – hence their shortage. According to the same rule, but in reverse, there is a shortage of physical fitness and surplus of computer skills in the case of blue-collar occupations. It is possible to observe, in the case of white-collar occupations (including trade and services), a special deficiency of interpersonal skills, and also (not including trade and services) – a deficiency of self-organisational competences. On the other hand, white-collar occupations display a relative surplus of self-assessment regarding managerial skills. The balance of cognitive skills is positive only in the categories of professionals and associate professionals, and of office skills –

only among associate professionals and clerical employees. In the case of professionals, the surplus of cognitive skills juxtaposed with the need for such skills declared by employers searching for candidates in those occupations, may be profitable in the labour market.

An analysis of skills mismatches showed that the structure of employers' demand for skills in various occupations roughly matches the structure of skills self-assessment of people seeking work in particular occupations. Usually, job-seekers rate their skills above the level of requirements typical for the given occupations. Irrespective of the occupation, the employers underscore their demand for interpersonal and self-organisational skills – and here the largest mismatch compared with job seekers can be seen. Potential problems are revealed especially in those areas where employers have a demand for specific occupations. Particular attention is devoted to specific skills – on one hand, computer

and cognitive skills in the case of professionals, technicians and associate professionals; and on the other hand, physical fitness in the case of blue-collar occupations.

Summarising this brief presentation of the research conducted in period 2010–2014, it should be stated that, despite quite a stable situation on the Polish labour market, three main problems affecting employers in Poland should be pointed out:

Skills shortage

Information collected on the demand for specific employees and their availability on the labour market shows that, on the one hand, there is a lack of qualified white-collar and blue-collar workers (professionals and middle-level staff and skilled workers, operators and assemblers) and, on the other hand, there is a surplus of unskilled blue-collar and white-collar workers in case of salespeople and office workers. The sectoral structure of the Polish economy – with the growing share of services sector and a stable industrial sector – requires that workers be secured in these categories in which the employers indicate deficiencies. For employers, ensuring proper staff for current needs may be an impulse for development and therefore may consequently contribute to the improvement of the situation of the Polish economy.

Difficulties with finding appropriate staff

Significant recruitment difficulties reported by employers do not result from the existing shortage of employees in the most sought-after professions. Lack of people applying for various jobs was rarely mentioned by employers. However, they frequently complained about the deficiencies of candidates for work, and their lack of the relevant skills, experience and motivation to work.

Skills mismatch

Employers have quite specific skills requirements on the general level. Actually, in spite

of the profession, in addition to specific skills necessary to perform tasks – employers consider self-organisational and interpersonal skills as the most useful. These are commonly missing – in the opinions of the employers themselves, and in their requirements and self-assessment of job seekers. What is more, employers, when asked about the need to the skills development of the employed, also pointed to the need to develop the three most important categories of skills.

Public policies in the field of skills mismatch

Before making recommendations for effective public policies likely to cope with skills mismatch in the labour market, it is necessary to briefly outline the existing solutions in that regard. Due to the consequences of skills mismatch, there are numerous strategies and public policies to deal with this problem. As an interpretation of the different approaches used for reducing skills mismatch, it is recommended to adopt the OECD document *Better Skills, Better Jobs, Better Lives. A Strategic Approach to Skills Policies* (2012a). According to these guidelines, action should be taken in three broad aspects, which will be now developed and briefly discussed.

Developing relevant skills

Such activities can be most effective when it comes to reduction of the skills mismatch. They should be focused on the following areas:

1. Encouraging and facilitating lifelong learning

First of all, it is necessary to determine the changes of the labour market demand for skills to be able to plan skills development in advance. It is especially important in the changing economic environment, which makes the specialist competences increasingly important. When planning skills development activities, it should be noted that they do not have to be publicly funded. Employers may be equally interested in investing in human capital. However, a positive climate

should be created, allowing individuals to participate in lifelong learning, e.g. by showing why it is beneficial to employers, employees and society. The role of the government is to create adequate financial incentives (e.g. tax credits) allowing for skills development of employers and individuals.

2. Facilitating migration of people with relevant skills

In many cases, the way to reduce the skills mismatch is employment of suitably qualified foreigners. While offering higher education opportunities for people from abroad, it is recommended to consider what will happen to them after they finish their education and how to encourage and facilitate their stay in the country they studied in. On the other hand, people who prefer to return to the country of origin should be assisted in their plans. They facilitate the transfer of skills which may, in the future, result in the provision of additional workers; not without significance is the fact that they often maintain business relations with the country of graduation.

3. Promotion of international skills development policies

Employers today more and more often operate in a global labour market and have to use skills resources of other countries. That is why programmes improving international skills are worth considering.

Activating unexploited skills resources

Such actions are less effective in reducing the skills mismatch than development of respective competences. Often, however, by activating the existing skills resources (e.g. of the elderly, inactive people), a good result can be obtained without incurring such high costs. In this respect, two areas should be thoroughly considered:

1. Encouraging people to offer their competences on the labour market

To be able at all to take any action, we must first determine the categories of individuals who have relevant skills and can re-enter the labour

market (e.g. women working as housewives, people with disabilities). Then, a system of appropriate incentives can be scheduled to allow the return of such people onto the labour market. For example, the introduction of flexible forms of employment may be an alternative to costly maternity welfare systems. In addition to economic incentives, it is important to ensure that non-economic barriers barring entry/re-entry to the labour market are removed.

2. Maintaining people with skills on the labour market

Older people – despite lower levels of certain competences (mainly physical ones) – are still valuable employees, often with higher skills than young people, due to their experience. Therefore, they should work as active employees as long as possible. For this purpose, it is necessary to extend the retirement age, reducing early retirement and the existing financial encouragements. Other solutions are also worth considering, e.g. financial (additional bonuses) and additional training that allows maintaining productivity of older employees. Another negative phenomenon in this field is brain drain, which causes the outflow of highly qualified workers (drainage can occur in an international and national context – from less developed regions to urban centres). For this purpose, in addition to financial incentives, it is possible to improve the operating conditions or use incentives to stay or introduce mandatory internships for higher education graduates.

Putting skills resources into effective use

This set of proposed actions concerns the employers themselves and their actions providing employees with skills better tailored to their needs. However, in the whole range of the strategies involved, these happen to be rated as relatively less effective in reducing the problem of skills mismatch. Skills mismatch cannot be reduced without a proper diagnosis of skills demand by employers, which is particularly important for SMEs. These tasks can include: promoting a greater involvement of employers in the development of competencies, greater job flexibility,

encouragement of innovation development and aid in better alignment of business strategies with the development of competencies.

The solutions proposed by the OECD are both universal and practical. What is more – they take into consideration the complex perspective of skills mismatches and try to use all possible means to solve them (see the box below). They are a set of recommendations for different labour market users – both employers and employees (active or potential), the authorities at different levels (from the local to the central) and supporting institutions and labour market environment institutions (educational system, training institutions, various NGOs, trade unions). Therefore, even if some of these solutions do not find reference to the results of the HSC, it is worth having them in mind.

Recommendations for designing skills mismatch countermeasure public policy

Based on the SHC results, it is worth formulating some recommendations for both policy makers who can influence the labour market, employers operating on this market and ordinary working people, but also those trying to find a job. Due to the nature of the problems identified above, these recommendations should be divided into three groups, focusing on those related to the skills mismatch, which, as has been proved, is a real problem of the Polish labour market.

Skills mismatch identified on the Polish labour market based on the SHC data is related to two general categories of skills – professional, i.e. specific for each position, and generic (also called soft), which are required in every job. Dealing with the problem of insufficient professional skills requires, above all, the recognition of missing skills in each job and then drawing attention to these skills both during formal and non-formal education. Improved training of professional skills cannot do without the involvement of the employers themselves, who should help to design curricula and training plans to ensure the achievement of professional skills most suited to their needs. Positive examples of business cooperation with universities are projects jointly

implemented under the Operational Programme Innovative Economy or funded by National Centre for Research and Development. However, at high school level, these examples of cooperation with entrepreneurs include VET centres operating within the education system, with the aim of establishing of such cooperation. These types of solutions should be continued in the future and an extension of the cooperation should be considered, using developed good practices in this area (see the box below).

Good practices in business-education cooperation

Within the framework of the project “Business for Education” a list of best practices was compiled in the form of activities that can be carried out between business and the education sector, aimed to increase the skills of students. These activities can be divided into two categories.

1. At universities

Employers – with the consent and sometimes encouragement from the higher education institutions – may be engaged in: consultation of curricula and methods of evaluating learning outcomes; running courses; sponsoring of courses and other university activities related to skills training; collaboration with academic career offices; R&D cooperation; supporting students as part of their scientific work.

2. In enterprises

Undertaking activities in enterprises is definitely easier for employers. Skills can be developed via such activities as: internships, training programmes, competitions and scholarships, cooperation with schools in recruitment.

Business for Education, PARP 2014

In the case of generic skills mismatch – mainly self-organisational and interpersonal skills – providing employees and job applicants with these skills is not easy. This is due to the fact that such skills are difficult to develop during the processes of learning (formal or not) and require a greater emphasis on e.g. project teaching methods and developing problem-solving skills through teamwork. For this purpose, it is necessary

to develop suitable materials for teachers and support them and train their teaching techniques in this regard. In addition, it is necessary to assess the extent to which soft skills are recognised as part of the school curriculum (skills such as: cooperation in teams, communication, self-organisation, initiative, self-reliance, but also punctuality) and, after the evaluation of results, possibly modify these programmes to improve education in this field.

As a final recommendation related to skills mismatch formulated on the basis of the results of the SHC study, we should refer to strategies designed to deal with this problem, briefly discussed in the previous chapter. Most of the conclusions agree with these recommendations. However, reducing skills mismatches and, as result, improving the situation of the labour market, requires broader systemic solutions – as in the model proposed by the OECD and WEF. Issues such as dissemination of lifelong learning, activating certain categories of people excluded from the labour market, prolonging the activity of the elderly or facilitating young people's entering into this market are all very important and they are discussed in the other chapters of this paper.

It is necessary, however, to highlight one of the proposed strategies for skills development – supporting high-level skills and innovation. In Poland, there is still plenty to do in that regard, to escape from the trap experienced by Portugal or Greece, where the development of infrastructure was not accompanied by the development of highly innovative sectors of the market. The sectoral structure of the Polish economy is visibly dominated by services and industry, but lacks companies concentrating on high technologies, the most rapid development being experienced by companies providing subcontracting services, often for international actors. In the short term, it is beneficial for the Polish economy and society, but in the long run it can impair our country's standing in the global system and lead to stagnation.

It should be clear that it is impossible to perfectly match the labour supply and demand. However, taking into account the declarations of employers, the Polish labour market clearly lacks skilled white-collar workers (specialists)

and blue-collar workers (labourers, operators and assemblers). In the case of specialists, it is a serious problem due to the cost and time needed for education – especially if one takes into account jobs in which there is a lack of specialists – medical doctors and IT specialists. When it comes to medical doctors, Poland has the smallest rate of medical practitioners per 1000 inhabitants of all EU countries (OECD 2012b). In addition, due to ageing and frequent migrations related to this occupational category (according to the data of the Supreme Chamber of Physicians and Dentists, the average age of consultants and dentists is more than 54 years), their number is decreasing. The unfavourable situation in the health care sector is partly responsible for this. Therefore, any actions taken should include both the system of training for this profession, as well as healthcare reform so that an improved situation of the sector could be an incentive for more young people to train in this field. Otherwise, a further collapse of the healthcare system is a threat, and soon the only chance will be to bring physicians and medical personnel from the developing countries, and train candidates from such countries.

When it comes to IT professionals, a greater demand for such specialists is partly caused by increased demand for such jobs. While some IT specialists decide to migrate due to better financial conditions offered in the Western countries, their relatively good salary at home does not cause a significant outflow in this category of professionals as is the case with medical doctors. Having the anticipated development of the IT sector in mind, the conditions for high-level education of professionals in this field must be created, and it is important to take adequate preparatory measures also at lower levels of the education system.

As regards the situation of women on the labour market, it is worth mentioning how employers' preferences influence their employment. Gender is very often a vital determinant in the recruitment process, but in most cases this mechanism is unrelated to prejudice. In the case of physical work positions, men are more likely to be employed, while the gender of candidates is rather irrelevant for jobs that require mental work. Therefore, a positive signal for all women is that improved

skills and good education can guarantee them a good job.

As regards the shortage of skilled workers, operators and assemblers, unfortunately there is no simple solution. Enrolment rates for vocational schools and technical schools in mid-2000 increased, as compared to the beginning of the systemic transition, but the System of Education Information (SIO) data show that the number of young people choosing such schools (vocational and technical schools) remains at a fairly constant level (approximately 14% and 30% of young people aged 16–18 years). Shortages of skilled workers are mainly associated with the brain drain of such workers by Western European markets, where commercial prospects are much more favourable than at home. Therefore, increasing the supply of workers in these occupations will cause a risk that any activities in this field will train workers for employers outside Poland. Tapping the potential in the form of a considerable surplus of unskilled workers seems a less risky solution. Further training and providing unskilled workers with the skills necessary to work at more demanding positions would be less time-consuming and costly, but there is always a risk that such people, after gaining experience and qualifications, will decide to emigrate due to better salaries. It should be noted that such training programmes should be carried out with greater involvement on the part of employers, which could further reduce the required measures and also provide such employees with the skills most required in the labour market.

Employment growth in Poland and the declarations of employers in this regard point to a slowly growing trend, comparable to the other EU countries. Nevertheless, it is necessary to consider the contribution to higher employment and economic growth. For employers, the reasons for limiting the growth of employment are often fiscal and legal solutions: excessive economic regulation, excessive fiscal stringency and non-wage labour costs. These difficulties affect mainly smaller employers, the prevalent type of business entities. Therefore, it is reasonable to say that easing these restrictions would contribute significantly to the development of SMEs, enterprises that

are very important for the overall economy. In light of the alarming figures about the increasing number of Polish entrepreneurs moving their business abroad, it is absolutely necessary to take such urgent steps as simplification of law and simplification of taxes for employers.

Conclusions

The results describing the problems of the Polish labour market presented in this paper show that the two important issues in this market from the human capital perspective were: lack of employees in certain occupations and skills mismatch. A detailed comparison of the Polish data with international data helps to draw the conclusion that this is not exclusively a Polish problem but one that is more global in nature (Australian Jobs 2017; CEDEFOP 2015b; Daniels 2007, Manpower 2013, 2015; UKCES 2016). These conclusions make it apparent that employers in many countries all over the world experience difficulties with the shortage of employees in two general categories: skilled workers and professionals. One of the main reasons for such a shortage is the lack of required skills. The same data shows that skills shortages and skills mismatches are mostly due to lack of specific occupational skills as well as more general, self-organising and interpersonal skills. The findings from Poland and from other countries make it evident that the problems presented in this paper have been felt at least for the last decade. Despite many efforts and public policies developed to deal with such issues, the problems still continue to persist.

In addition to unemployment rates, skills mismatch may affect different aspects of the labour market. However, the goal of this paper is not to discuss all those aspects in detail, but rather to show a general picture of skills mismatch in Poland, start a more systematic debate on this problem, including all the labour market stakeholders. Thus, the paper is part of a broader research and public policy approach identifying problems of modern labour markets from the human capital perspective. The presented findings refer to the specific situation of Central and

Eastern Europe, e.g. progressive socio-economic transformation, convergence towards the developed countries and integration with the structures of the European Union. Some of the discussed issues are a direct consequence of these processes. Nevertheless, the proposed solutions may be worth considering when planning public actions aimed at improving the labour market situation in other countries.

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Niedobory kompetencyjne i niedopasowania na polskim rynku pracy a rekomendacje dla polityki publicznej

Badania w różnych krajach pokazują, że jednym z ważniejszych problemów dotyczących rynku pracy są w ostatnim czasie niedopasowanie i niedobory kompetencyjne. Autor przedstawia w pierwszej kolejności dane dotyczące niedopasowania polskiego rynku pracy w latach 2010–2014. Przy czym w analizach wykorzystano unikatowe podejście łączące informacje o wymaganiach pracodawców i kompetencjach dostępnych na rynku pracy, odnosząc się przy tym do większej liczby kompetencji niż w innych badaniach. Na podstawie przedstawionych wyników w drugiej części artykułu przedstawione zostały rekomendacje dotyczące zaprojektowania polityk publicznych w celu radzenia sobie z niedopasowaniami na rynku pracy.

Słowa kluczowe: niedobory kompetencyjne, niedopasowanie kompetencyjne, rynek pracy, polityki publiczne