

Assessing Imbalance between Labor Quality and Needs of the Labor Market of Ukraine: Educational Challenges

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Abstract

The purpose of the study is to assess the imbalance between the quality of labor and the needs of the national labor market and harmonize the supply of the national education system to meet the demands of social production. The analysis of actual (statistical) data is carried out; the method of expert survey is used to identify imbalances between labor and education markets. The needs of the national labor market for experts with digital and creative skills are substantiated. The authors focused on the problem of imbalance in the market of educational services and demand for labor with appropriate skills in the labor market of Ukraine. According to the results of the analysis, it has been found that the domestic labor market is characterized, on the one hand, by excessive qualification of the labor force, which is manifested in the excess of the educational level of employees over the demand for such specialists. This is reflected in the lack of decent jobs in the national labor market. On the other hand, the national labor market is characterized by a shortage of employees with digital skills. Expert assessments of specialists in labor, education and digital economy have revealed a lack of focus of all education levels on the formation of digital and creative skills in the actual and potential labour force. Approaches to the study of imbalances in national labor markets and educational services have been further developed. The main trends in labor skills formation and demand for them among employers in the national labor market in the context of digitalization have been identified. Compared with previous studies, the research contains the results of an expert survey. The obtained results serve as a research basis for the development of strategic decisions in the field of markets balancing and education in the context of digitalization of the economy.

Keywords: skills mismatch; labor market imbalances; digital skills; creative skills; market of educational services, labor force

1. Introduction

Ukraine's current economy is in the process of transition to digital form, which leads to the formation of new requirements for human capital. The speed of introduction of the latest technologies in business and production processes of enterprises exacerbates the imbalance between the existing skills of the labour force and the needs of employers. Therefore, the development of strategic directions for balancing the needs of labor markets with the quality of training is an extremely important issue to ensure the recovery and further economic growth of Ukraine. This need becomes especially acute in the context of digitalization of the economy, which is accompanied by accelerated outdated of skills and the formation of demand for the new ones, not yet mastered by employees. The national system of formal education has an inertial nature, which leads to an increased imbalance between the relevance of educational services and the needs of the labor market.

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This guideline requires an assessment of the mismatch between the professional skills developed within the formal education system and the need of employers, and presupposes the accelerated development of the ways to reduce such a gap and their implementation.

A significant number of research papers by both foreign and domestic specialists are devoted to the issues of skills mismatch. The most relevant for the topic of our research are the ones devoted to the imbalance between supply and demand. Thus, the issues of excess education and excess skilling of the labor force that are not in demand in the labor market are covered by Sloane P., Mavromaras K. (2020), Kupets O. (2015), Sam Vichet (2017). The research paper by Flisi S. et al. (2017) is devoted to the assessment of excess skills and their impact on the economic development of developing countries.

Many publications analyse the shortcomings of the current evaluation methods and the development of new approaches. Pellizzari M., Fichen A. (2017) propose an approach to assessing skills mismatch based on OECD data. The assessment of skills mismatch is based on the procedure for determining the requirements for jobs according to the information of employees. The publication by Chłoń-Domińczak A., Żurawski A. (2017) offers a method for measuring skills mismatch with an emphasis on industry differences. Albiol-Sánchez J. et al. (2020) investigate the influence of employment status and its change (employee, self-employed, unemployed) on the respondent's subjective assessment of the inconsistency of his/her skills. Tănaşcu, C.-I. et al. (2020) offer the results of a survey of university graduates on their communication skills.

The problem of skills mismatch has not been widely covered in domestic studies. Among the insufficient number of publications that touch upon certain aspects of labor force skills mismatch, we should mention the works by Marshavin Yu (2014), Lysogor L. (2016), Ilyich L., Sarioglu V. (2019).

Thanks to the successful partnership, the International Labor Organization has prepared reports relating Ukraine "Jobs and skills mismatch in the informal economy" (ILO 2017), "Skills and jobs mismatches in low- and middle-income countries" (ILO 2019).

According to the ILO reports, Ukraine is one of the countries with excess education and skilled labor. In this context, the urgent task is to conduct an assessment of the needs to overcome labor force skills mismatch, which is formed in the system of national education, to the requirements of employers. It is in the field of education that the foundations for the formation of potential gaps between the markets for educational services and the labor market are formed in the long run.

Despite the significant number of research papers on the imbalance between supply and demand, there is still a lack of domestic research to address the issues related to the mismatch of professional skills and educational services to the needs of Ukraine's labor market.

The purpose of the study is to assess the imbalance between the quality of labor and the needs of the national labor market and harmonize the supply of the national education system to meet the demands of social production.

2. Methodology

The non-compliance assessment is based on a combination of factual (statistical) data in the labor and education markets of Ukraine and the results of expert assessments

(which are representative and balanced for the representatives of each field of social and labor relations: employees, employers and public authorities).

3. Data Collection

108 experts have been involved in the expert survey. The uniqueness of the survey lies in the fact that it involves employees, employers and representatives of state executive authorities as expert representatives of the main Parties to social and labor relations (hereinafter – the Parties to the SLR). This allowed ensuring the representativeness and balance of the representation of the main Parties to the SLR, reducing the subjectivity of assessments. By types of economic activity, the survey involved representatives of IT industry – the field which is the basis for the digitalization of the economy; manufacturing as a more sustainable field, which is at the stage of introducing digital technologies in production and management processes; education – where professional skills are formed; science – where innovative solutions are formed. The expert survey was conducted from November 2019 to March 2020. The representativeness of the sample survey has an error of 9%, which is acceptable for small samples.

3.1 Ukraine's position in international reports

The competitiveness of the national economy is determined by the qualitative and quantitative parameters of human capital. It is human capital that acts as a driver of innovative development of the national economy. The environment of formation and development of qualitative characteristics of human capital is the education system. Because of the inertia, slowness and bureaucracy of the latter with a simultaneous reduction in the half-life of knowledge, there is a constant increase in the gap between professional skills acquired in this area and the need for them in the labor market.

This discrepancy is manifested in excess skills or education, or, on the contrary, insufficient skills or education. The data of the International Labor Organization reports “Jobs and skills mismatch in the informal economy” (ILO 2017), “Skills and jobs mismatches in low- and middle-income countries” (ILO 2019) show the tendency of the countries with low or below average levels of economic development to the predominance of excess education and skills. In particular, Ukraine is characterized by the following indicators: qualification compliance is 72%, excess qualification – 24.1%, insufficient qualification – 3.8% (ILO 2017). These data measure skills mismatch in the informal sector, for the formal sector these indicators have a correlation of 0.68 (ILO 2019).

These figures indicate the lack of a sufficient number of jobs in the country, which require a high level of qualification and provide decent working conditions. In the context of globalization, this state of affairs contributes to the outflow of highly professional human capital from the country.

Regarding the compliance of the educational level of employees with the needs of employers in the labor market, Ukraine is characterized by an extremely high value of excess education (42%) and low – insufficient education (4%); with the average values of these indicators in the countries of the above-mentioned ILO study, 36% and 12%, respectively (ILO 2017). Such assessments lead to the conclusion that the educational level of employees far exceeds the need for a significant number of the activities performed.

On the one hand, this is the evidence, of inefficient use of financial resources of the state and low efficiency of public investment in the development of personal human capital, and on the other hand, indirect contribution to the outflow of educated and qualified human capital out of the country.

At the end of 2018, the number of valid residence permits issued to citizens of Ukraine in the EU-28 was 1.2 million (Eurostat 2019). According to the results of the annual survey of the Institute of Sociology of the National Academy of Sciences of Ukraine, the share of respondents' affirmative answers about the experience of temporary work abroad from 2012 to 2018 increased from 13.7% to 27.8%. There was also an increase from 5.3% to 16.4% in the share of those who intend to go to work abroad in the near future (Institute of Sociology of the National Academy of Sciences of Ukraine 2019)

A serious challenge for the national labor market is the significant gap between the education system and the needs of business in the development and implementation of educational products that form the relevant skills of users of educational services. This imbalance is exacerbated during the dynamic processes of digitalization of the economy.

3.2 The results of the expert survey

To assess the skills gaps in the transition of the national economy to digital form, an expert survey was conducted. The timing of the study has some specifics: from November 2019 to February 2020, the survey was conducted in stable conditions, and March 2020 was characterized by significant quarantine restrictions and uncertainty, reduced economic activity due to the COVID-19 pandemic. This led to radical changes in the domestic labor market, the transition to remote forms of employment and education, a sharp increase in demand for the use of digital technologies, the actualization of demand for digital skills.

The results of the expert survey showed the mismatch of skills and knowledge to the needs of the labor market provided by the formal education system. Almost half of the respondents (47.2%) noted such a discrepancy, which indicates the low efficiency of investment in education and is found in the national labor market in the absence of employees with a simultaneous surplus of specialists with humanitarian higher education. Differences in the assessments of experts depending on their field of activity attract attention. The range of fluctuations in expert estimates is from 58% to 36%. ***The inconsistency of skills and knowledge provided by the domestic education system with the needs of the modern labor market*** is considered a significant threat primarily to IT professionals (58%), entrepreneurs and industrialists (52%), educators (45%), scientists engaged in research activity (43%), significantly lower scores were found in the executive branch (36%).

The situation in the field of education does not improve the quality of the labor force. Thus, during the years of independence, the number of colleges has halved, resulting in a shortage of lower and middle level specialists. The number of university students is 6 times higher than the number of college students (State Statistics Service of Ukraine 2020). An important problem is the inconsistency of educational curriculum with the needs of the labor market, as well as the outdated material and technical facilities of universities. All this leads to the devaluation of domestic higher education, due to which the number of entrants who prefer foreign free education is growing from year to year.

These findings are confirmed by the share of the unemployed after graduation in the structure of the jobless, which ranged from 18.1% to 9.4% in Ukraine from 2010 to 2019. The lowest values of this indicator were in 2018 and 2019 and make up to 9.8% and 9.4%, respectively (State Statistics Service of Ukraine 2020).

Digitalization, in particular, has become a new challenge for the national economy and education. On the one hand, the rapid introduction of digital technologies into business and production processes exacerbates the mismatch of existing skills of employees to business needs. On the other hand, the pace and efficiency of the introduction of digital technologies in business processes is due to the availability of the labor force with appropriate digital skills. The acceleration of the digitalization of the national economy is facilitated by the impact of the COVID-19 pandemic on business processes, in particular, the need to digitize some processes and transfer some employees to remote employment. The discrepancy in skills due to the introduction of digital technologies should be investigated in several planes simultaneously. First, it should be done in the field of accelerated outdateding of professional skills through the introduction of digital technologies in business and production processes. Under the conditions of digitalization of the economy, the outdateding of skills is accelerating, but such a gap is being eliminated through the introduction of appropriate training programs in the short term. In this area, it is advisable to develop cooperation between business and institutions of higher and professional education.

The second plane is the one of labor shortages with appropriate digital skills. Professionals with digital skills are gaining benefit in the job market. Instead, the rest of the workforce, i.e. professionals who had been competitive until recently but failed to acquire digital competencies and skills, are joining the ranks of precarious workers. The basis for the formation of digital skills is the education system. The latter should not only form such skills vertically from primary to higher education, but also ensure their relevance to business needs. The long period of investment in human capital and the delayed effect of their payback should be emphasized. This leads to the formation and deepening of the imbalance between the labor and education markets, which has a long-term and negative impact on the formation of qualitative characteristics of existing and potential labor force. This plane is of interest for our study.

The level of digital skills proficiency of the labour force depends on the level of economic development. For developed countries, the share of labor that has basic digital skills is 65%, for the least developed – 46%, standard – 49% and 29%, respectively, advanced 6% and 4% (ITU 2018).

In Europe, 42% of citizens do not have basic digital skills, about 37% of the workforce – farmers, bank employees, and industrial workers – have sufficient digital skills, despite the growing need for such skills in all workplaces. At the same time, 64% of large enterprises and 56% of small and medium-sized enterprises that recruited ICT specialists in 2018 state that these vacancies were difficult to fill (ITU 2020).

The survey used the International Telecommunication Union classification of digital skills into basic, intermediate and advanced. To clarify the need of the national labor market for specialists with basic digital skills, respondents were asked: “Do you agree with the statement that the lack of basic digital skills is a significant barrier for getting a decent job in the national labor market?” The majority of respondents to the authors’ survey (89.8%)

agreed with this statement. This assessment is due to the rapid introduction of digital technologies in business and production processes, which requires a minimum of digital literacy in all positions (jobs) from contractor to manager.

To study the demand for specialists with basic digital skills on the labor market, respondents were asked the following question: **“What part of the labor force in Ukraine needs to have basic digital skills to carry out professional activities?”** The majority of respondents, 92.6%, believe that basic digital skills are mandatory for more than 60% of the workforce. Regarding intermediate digital skills, respondents’ responses were evenly distributed at 26.9% among the 80% labor force: 60% and 40%. According to 16.7% of experts, intermediate digital skills are necessary for the entire labor force. Only 2.7% of experts believe that digital standard skills are needed by 20% of the labor force. Expert assessment of the need to have basic and intermediate digital skills is shown in Figure1.

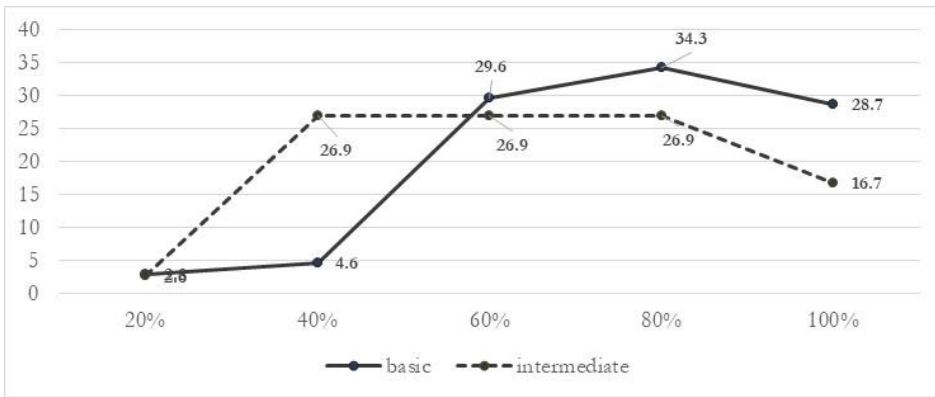


Figure 1. Quantitative assessment of the needs of basic and intermediate digital skills for professional activities, in percentage

Source: developed by the authors

Experts were asked to assess extra benefits for a person with advanced digital skills on the labor market. The results are shown in Table 1.

Table 1. Expert assessment of the benefits for people with advanced digital skills, in percentage

Advantage	Answer options				
	Yes	Rather yes than no	Difficult to say	Rather no than yes	No
Ensures increased income (salary)	49.1	39.8	6.5	4.6	–
Provides competitive advantages in the labor market	60.2	34.3	5.5	–	–
Gives the opportunity to work on a flexible work schedule	38.9	36.1	21.3	2.8	0.9
Gives the opportunity to work remotely	49.1	41.7	6.5	2.7	–
Increases employee mobility	59.3	32.4	7.4	0.9	–
Reduces the risk of job loss	25.9	37.1	29.6	5.6	1.8
Does not provide any benefits	0.9	0.9	16.7	14.8	66.7

Source: developed by the authors

The vast majority of experts believe that advanced digital skills give benefits in the labor market, which is amplified by their small number.

The demand for professionals who have advanced digital skills is an indicator and motivator for the development of this level of knowledge and skills. It is due to the needs and interests of the individual to practical implementation of these skills.

Digital skills development programs should be an important area at all levels of the education system. Therefore, it is extremely important to assess the level of students' digital skills formation within the formal education system.

The answers of experts to the question ***“Does the national education system provide a sufficient level of digital skills to students?”*** were distributed unevenly by levels of education. This is because of the significant stratification of educational institutions in our country, in particular the provision of computer equipment, especially between rural and urban schools. Uneven access to the Internet and mobile communications of rural and urban population should also be noted. Experts' opinions on the acquisition of digital skills in the formal education system is shown in Figure 2.

According to experts, no level of the national education system provides complete development of digital skills, as evidenced by the small number of “yes” answers, which ranges from 6.5% in primary and secondary education to 11.1% in vocational and 13.9% in higher education.

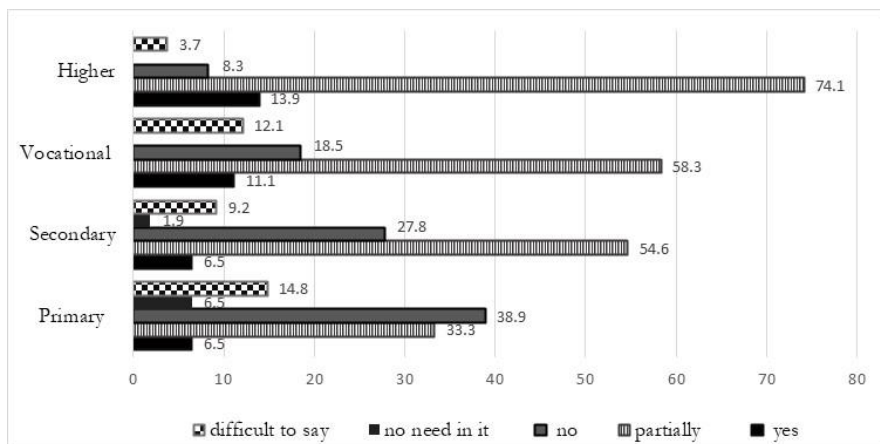


Figure 2. Assessment of acquiring digital skills in the national education system, in percentage

Source: developed by the authors

The lowest expert assessments for providing digital skills education are in primary school, in particular, only 6.5% of respondents gave a positive assessment, “partially” – 33.3%. Together, these estimates are only 39.8% against 38.9% of respondents who gave a negative characterization.

Regarding secondary school, more than half of the respondents (54.6%) believe that digital skills development is provided partially at this level, and almost a third of experts (27.7%) do not agree with this.

In vocational education, 58.3% of experts consider digital skills training to be implemented partially, and only 18.5% deny it. The experts assessed the sphere of higher education most

positively, in particular, 88.0% of experts answered that digital skills are mastered by students with different degrees of proficiency (high level – 13.9%, partially – 74.1%).

The generalization of the results shows that, in general, the national system of formal education ensures the formation of digital skills only partially. The main drawback is a gap between education technologies and the pace of digital technology.

From the standpoint of competitiveness, efficiency and speed of achieving development goals, creativity is the most attractive potential. However, if you do not teach and do not acquire creative skills, you cannot expect success in digital development. The focus of the formal education system on the formation of creative skills is low. The main condition for both digital and human development is creative skills acquisition. Creative human potential is a driver of economic growth and ensures the competitiveness of the national economy. The priority in the field of human capital development is the formation of creative skills in the system of national education. The expert survey made it possible to assess **the focus of formal education on the formation of students' creative skills**. Experts were asked to rate it on a scale from 1 to 7, where 1 is not focused at all, 7 is completely focused. The results are shown in Figure 3.

Experts' assessments have shown that the formal education system ensures the formation of creative skills only partially. Experts distinguished the most positive result in the formation of creative skills in primary school (54.7%), and with the increase in the level of education, the activity of acquiring creative skills has a steady downward trend. In secondary schools, half of the respondents (50.0%) believe that children have the opportunity to learn and acquire creative skills. Less than half of the respondents (42.6%) rated the opportunities to acquire these skills in vocational education, and the lowest level of creative skills formation was in higher education (26.9%), which is almost twice lower than in primary and secondary schools.

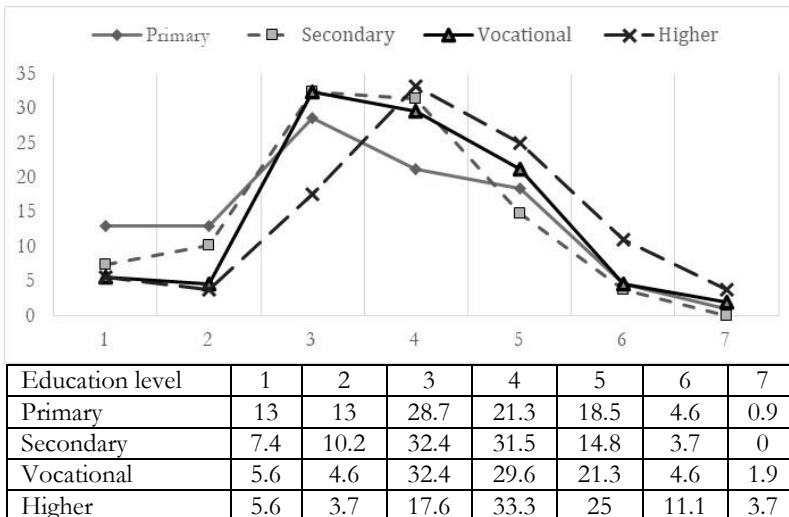


Figure 3. Assessment of the focus of Ukraine's formal education system on the formation of students' creative skills, in percentage

Source: developed by the authors

In general, expert assessments show an imbalance between the skills that are formed in the framework of formal education and the needs of the labor market. This confirms skills mismatch, including digital and creative, to modern business needs. At the same time, in professional activities, the greatest efficiency will be shown in the use of various skills that allow performing professional duties better.

4. Conclusions

The results of the study confirmed the hypothesis of the existence of excess education and excess qualification of employees in Ukraine. The imbalance between the markets for educational services and the labor market leads to low efficiency of investment in education and is exacerbated by the outflow of labor outside the country.

The expert survey allowed diagnosing the state of the domestic labor market and the market of educational services, identifying the presence of a significant imbalance between them. Almost half of the respondents agree that domestic formal education system does not develop the skills that are in demand in business in a proper way. The identified condition requires the search for tools to overcome such imbalances, which should be the subject of further research.

In general, there are contradictory trends in the formation of labor skills in Ukraine. On the one hand, the labor force has excess skills and excess education that are not in demand in the national labor market. This motivates the growth of external labor migration, the outflow of qualified personnel out of Ukraine, the loss of human potential. On the other hand, the digitalization of economy creates unsatisfied demand for digital and creative skills of the labor force, which necessitates renewed approaches to reforming the national education system at all levels, aimed at transforming the market of educational services, digitalization of the economy and society in Ukraine.

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