

New Paradigm of Formation of Human Resources of Digital Economy & Impact of Migration upon National Labor Markets

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Abstract—This paper analyzes current changes at the labor market that are due to challenges of the fourth industrial revolution and knowledge economy; it indicates specific requirements towards specialists' knowledge and competences to make them competitive at the present-day labor market. The paper also analyzes data collected by the United Nations and other international institutions that indicate the degree of development of the human capital in particular countries and regions, paying special attention to workforce migration as one of the main factors that influence national labor markets.

Keywords—human resources, human capital, labor market, labor resources, migration, knowledge economy, fourth industrial revolution.

I. INTRODUCTION

Researchers interpret the current stage of the fourth industrial revolution as the epoch of knowledge economy [1], whose main factor is the intellectual constituent of human capital [2]. The present-day reality is that the degree of human impact upon environment is in direct proportion to the depth of human knowledge and ability to apply that knowledge in practice [3]. Knowledge economy is based on a high diffusion of cutting-edge knowledge and a fast obsolescence of root knowledge, as well as on individuals' ability to flexible adaptation [4]. According to research findings, new technologies change requirements towards skills radically [5]. At the world level, the profit rate from education is approximately 9 % per annum; it remains high despite a considerable increase in supply of qualified workforce. The profit rate for higher and secondary professional education is almost 15 % per annum [6]. It confirms the fact that so-called "coding jobs" will fully be robotized with the next decade.

II. METHODS

To achieve the set goal, we have applied empiric methods of expertise, statistic induction, analysis of dispersion by using quantitative tools (percentage, average values, etc.). The set of tools and methods of our research includes the principles of the system functional approach to analyzing phenomena (those principles have been developed by Russian and foreign researchers), as well as particular methods of economic developments: economic statistic groups (structural, illustrative, typological ones), software forecasting methods and calculation analytical developments, graphical interpretations, etc.

Assessment of the main tendencies of development of human resources of the digital economy has been executed by analyzing particular statistic characteristics, by applying

punctual and interval assessment and methods of mathematical statistics (a dispersion analysis). Based on analyzing the selected statistic characteristics of development of human resources of the digital economy and prospects of the impact that migration exerts upon the national labor markets, we have developed our suggestions related to legal regulation and transformation of national educational systems.

III. RESULTS

The latest findings confirm that over 2.6 million traditional jobs will be robotized in 2019 [7]. According to the World Development Report 2019, the percentage of jobs that may be lost owing to automation varies from 2 to 61 % depending on a particular country.

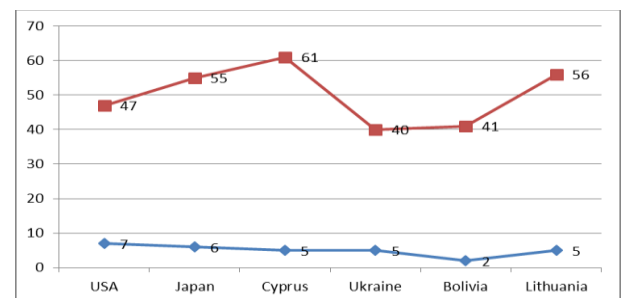


Fig. 1. Forecast of Percentage of Jobs Susceptible to Automation (%) in Particular Countries [6]. Note: this chart presents the maximal and minimal assessments of the percentage of jobs susceptible to automation in those countries for which at least two forecasts have been provided. A job is regarded as a susceptible one if the probability of its automation exceeds 0.7.

This circumstance causes a deep concern, since the traditional root knowledge that formed the basic work competencies will not be demanded at the labor market [8]. The development prospects of "economy without traditional jobs" sets the issue of governmental and individual stimulation to obtain cutting-edge knowledge and competencies [9]. In the current reality, the maximal dividends are provided by general cognitive and social behavioral skills (e.g. critical thinking, control and identification of emotions, teambuilding, etc.), which cannot be reproduced by robots. One could fully agree with present-day researchers who state that those skills are formed mostly by the system of higher education [10].

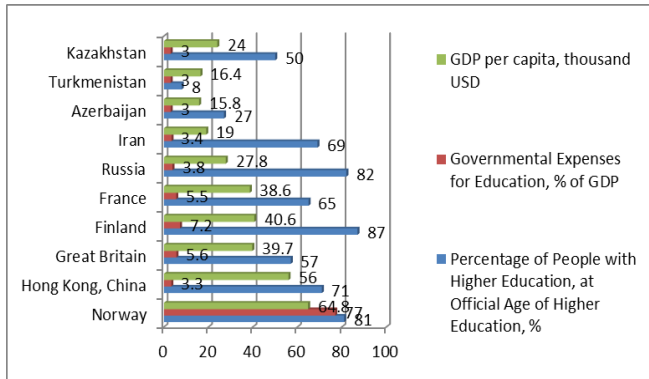


Fig. 2. Percentage of People with Higher Education Compared with Governmental Expenses for Education in 2017 & GDP per Capita [11]

Based on available data, one could conclude that no distinct correlation between the level of education and the per capita gross domestic product can be determined at the initial stage of the fourth industrial revolution. At the same time, one could state that the living standard is lower in countries where the level of education is low.

G. Becker [12] and T. Schutz [13], who developed the theory of human capital, considered that the capitals of health, education, culture, possession of economically valuable information, and migration form its structure.

At that, all the types of capitals, except for the migration one, expand intensively, which requires a considerable supply of resources, with the inverse effect temporarily postponed [14].

The extensive way to reproduce the human capital is faster and less costly; it assumes that one could increase concentration of labor resources by stimulating migration. Migration is able to both increase the value of the national human capital and reduce it significantly [15].

New realities of the digital world set entirely new requirements towards distribution of labor resources [16]. That is why the government must administer the migration processes, which influence the modern world more and more profoundly.

According to the United Nations, migration involved over 258 million people in 2017. The following regions supplied international migrants that year: 106 million people were born in Asia, 61 million – in Europe, 38 million – in Latin America and at the Caribbean Sea, 36 million – in Africa, 4 million – in North America, and 2 million – in Oceania. By 2017, the share of migrants had increased from 22.8 to 3.4 % of the world population [17]. One should remark that in 2017, the total sum of remittance all over the world made up 596 billion USD, of which 450 billion are transferred to the developing countries. At that, migrants’ remittance exceeds official financial aid for development three times (but that is only 15 % of their incomes). Yet, one should not believe that migration exerts a positive influence upon countries that supply migrants. Over 85 % of migrants’ incomes are invested in economies of those countries where migrants actually reside. Statistic data of international migration confirm that over half of all the international migrants reside in 10 countries and areas, whereas 67 % of them reside in 20 countries.

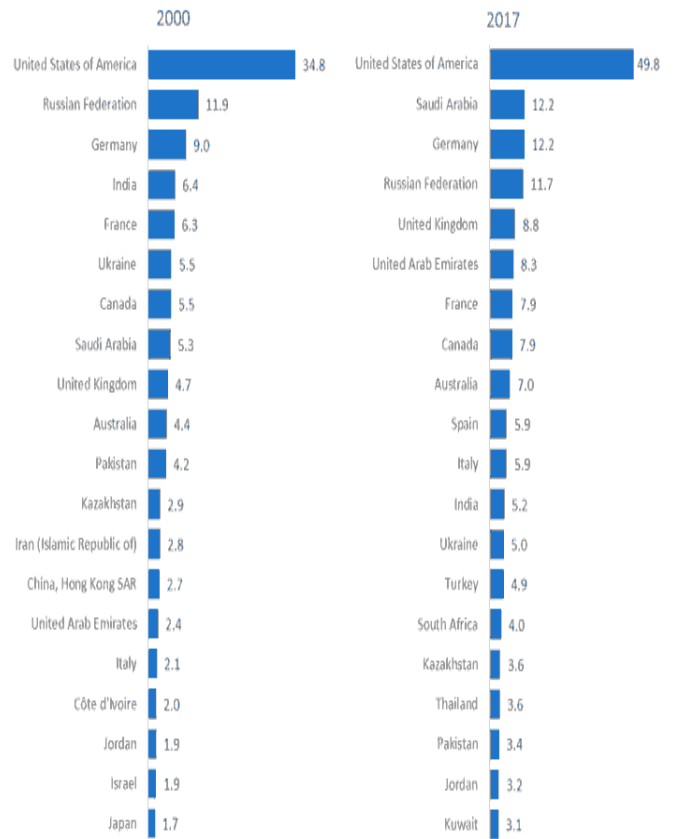


Fig. 3. Ranking Position Changes of Countries – Leaders of Migration Processes in 2000 and 2017 [17].

The migration flow is upward, i.e. it moves from societies with a lower living standard to richer countries. The USA is the leader among those countries that are attractive for migrants; migration to this country has risen by over 43 % over the past decade. Even though Russia has moved from the second to the fourth position among the most attractive countries for migrants, the total number of migrants to this country has hardly changed. The European countries have been increasingly attractive for migrants. The Arabic monarchies of the Persian Gulf play an essential role in the global distribution of migration flows. Saudi Arabia, the largest country of the region, has demonstrated a sharp increase in the number of migrants to this country – 2.3 times. Sheikhs of the countries of the Persian Gulf are deeply concerned about legal regulation of migrants’ labor behavior, since many migrants are refugees who reduce the national value of human capital by undermining demands for high competences with their religious fanaticism.

IV. DISCUSSION

One of the main reasons for the current “isolation” of the national educational systems from the migration realities is that legal authorities regard migrants as temporary residents, which makes no sense to invest in their education. This approach is not only wrong; actually, it is dangerous under conditions of the total globalization and digitalization of economy. Migrants’ low competencies restrain the development of the national labor markets, since migrants are usually engaged in unqualified and low-qualified jobs that are not demanded by the natives owing to a low level of technical and technological support that those jobs offer. As for employers, they are not interested in investing in

modernization of those jobs while there is a sufficient number of potential employees (mainly migrants) at the national labor markets. Negative attitude towards migrants who do those jobs forms the society's negative and discriminatory treatment towards them. Migrants become outcasts; they become cruel and ruthless; frequently they realize themselves by violating the law. That is why it is especially important to provide all the migrants with an opportunity to obtain education (first and foremost, from the humanitarian viewpoint, since it is education that acts as a tool to integrate a migrant in the society that is new for them).

According to the UNESCO, under 1 % of migrants have a higher education (disregarding goal-oriented educational migration). Modern researchers insist on implementation of a multicultural approach towards education, which helps students obtain knowledge of not only other cultures, but also structural barriers in the host country that contribute to inequality. In 1980s, only two countries (Australia and Canada) applied the multicultural approach; now over 2/3 of the world's countries apply it (including practically all the countries with a high level of income) [17]. Encouraging multiculturalism, contributing to peace and economic development, education can resist radicalization and extremism. Limiting migrants' access to secondary and higher education increases a knowledge gap, which affects several successive generations and restrains the development of national high-tech markets.

Digital economy requires that present-day employees have basic skills of handling IT data. According to the latest data, copying and attaching files to emails are the only skills that over 1/3 of respondents in countries with a moderate level of income apply; the same rate for countries with a high level of income is 58 to 70 % [6]. France is a good example of a possible solution to this problem; its citizens can assess their digital skills, identify their strengths and weaknesses, and obtain recommendations related to free training resources without paying any money.

One of the key tasks of modern policy, under the present-day conditions of digital economy, is to "equalize" migrants' average competencies with the natives' ones by making education more accessible for migrants, which corresponds to international obligations to adapt migrants and refugees to their new environment in the host countries.

V. CONCLUSION

1. Under conditions of digital economy, the paradigm of education undergoes substantial changes, shifting the emphasis from the root knowledge towards general cognitive and social behavioral skills;

2. The official educational policy ought to aim at implementation of multicultural educational standards and development of IT skills;

3. Uncontrolled flows of migrants, which are "isolated" from the present-day national educational systems, pose humanitarian, economic, and terroristic threats;

4. Migrants' low competencies restrain the development of high-tech jobs significantly;

5. The official educational policy ought to become more open to sustain development of migrants' competencies, thereby contributing to an increased value of the national human capital in the host countries.

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