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DEVELOPMENT OF INDUSTRIAL REGIONS**

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Abstract

The article raises issues of the effect of negative migration trends in industrial regions on the potential threat in the positions of the economic and social sustainability in the region. The research focuses on the most demanded workforce in the labor market – on higher-education graduates of those regions. Migration losses of graduates negatively affect the socio-economic condition of the region, since this category of the population represents the economic and demographic potential of the territory. On the other hand, the working-age population implements active migration behavior due to the presence of certain adverse factors characterizing the instability of the region, namely, certain difficulties in getting a job in their specialty in their region, lack of decent wages, and problems of quality of life. The analytical data presented in the article are based on the study "Migration behavior of youth within the framework of regional security and sustainable development" conducted in the autumn of 2019. The study was based on a comparison of two industrial regions – Omsk and Sverdlovsk regions, which are located in different federal districts. The study made it possible to identify and compare the reasons for the migration behavior of graduates of the Omsk and Sverdlovsk regions, who have a common nature – the lack of more commitment and loyalty of young people to their place of residence and training. Based on the results, brief recommendations are given to regional authorities, on whose migration policy the migration activity of graduates depends.

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1. Introduction

Currently, ensuring territorial security is becoming an important issue in the formation of sustainable development of industrial regions. One of the aspects affecting the management of regional security is the increase in migration outflows, which pose a threat and form a system of challenges to the dynamic and sustainable development of regions.

Industrial regions are more sensitive to migration negative dynamics, as their labor market becomes tense and begins to focus on labor drawn from other regions, including foreign migrants. If we add to this the problems of declining fertility and accelerated aging of the population, then the threat of regional sustainability increases. Compensating for the aging of the workforce through immigration policies will improve the internal demographic situation. But at the same time, this policy can only temporarily postpone the effects of an aging population, since more and more immigrants will be needed to maintain economic growth (Gokova & Kiseleva, 2018; Nestorowicz & Anacka, 2019). This, in turn, will significantly affect the sustainability of the regions. Therefore, the positive dynamics and sustainability of regional socio-economic processes should be based on the high quality of labor resources, their professional expectations and migration needs. Issues of the system of values and motives for the behavior of the able-bodied population, their professional attitudes and socio-economic activity were repeatedly raised in the works of Abel (2018); Bonjour and Chauvin (2018); Burzyński (2018); Haas and Fokkema (2011); Heckert (2015); Mulder (2018); Nestorowicz & Anacka (2019); Rybakovsky (2011), Rybakovsky (2017), etc.

2. Problem Statement

In this regard, it is noteworthy that a separate direction of negative migration processes of industrial regions is formed by the younger generation, especially university graduates as the most active social group in terms of migration behavior (Heckert, 2015). Graduates of universities are the main human and labor capital, having a competitive position, ensuring socio-economic security, and sustainable development of the territory. This indicates that migration losses of university graduates negatively affect the socio-economic state of the region. The migration behavior of young people determines the image of the region, characterizes the social, economic, demographic, and innovative potential of the territory. The trajectories of sustainable economic and social development in the regions are also influenced by digital technologies, which are more accessible to the development and application in the professional activities of the younger generation.

This means the formation and implementation of digital learning and development programs, as well as the need to build priorities – from basic information and communication infrastructure to coordinated policies in this area and projects to support the widespread introduction of digital technologies (Frey & Osborne, 2017). The development of the digital economy is unevenly carried out in different regions of the Russian Federation; therefore, graduates after graduation seek stable professional employment, comfortable and secure living in more developed large cities. In this context, it is important to focus on a new format for adapting the quality and quantity of the region's workforce to the future state of the digital economy. Problematic aspects of the impact of digitalization of the economy on the

transformation of the labor market due to technological complication, the disappearance of a number of traditional professions, and the emergence of new professions were raised in research of Arntz, Bringsjord, Brynjolfsson, Frey, Govindarajulu, Gregory, Gunning, Koznova, Mitchell, Osborne, Zierahn. Thus, the formed problem field allows you to indicate research issues and the goal.

3. Research Questions

Population mobility, particularly of the younger generation, creates a non-equilibrium environment for the functioning of regional labor markets and complicates the development processes of the regional economy.

3.1. Migration trends of graduates

Migration trends are more common among graduates, as they belong to the more mobile category of the population, and they also have a high degree of adaptation in various conditions. According to Rybakovsky, migration activity is higher almost everywhere among young people than among the population of older ages, although it has less migration experience (Rybakovsky, 2019; Rybakovsky, 2017). The mobility and choice of the life path of young people is also set by the level of development of the digital economy. The migration needs of young people are mainly focused on economic factors, such as the adequacy and quality of the existing production and social infrastructure in the regions, the level of employment, the availability of training jobs and the possibility of rapid employment, the desired level of income and the possibility of implementing their entrepreneurial initiative (Bonjour & Chauvin, 2018; Haas & Fokkema, 2011). But an important set of social and environmental criteria is also important: a low level of criminal risk, social protection and human rights, accessibility to housing and further education, environmental cleanliness of the territory and climatic factors, the possibility of increasing their social status, including through professional development.

3.2. The migration behavior of university graduates

The migration behavior of university graduates is determined by individual professional guidelines, personal attitudes, and values, the state of protection of the vital personal, public, and administrative interests from internal and external threats to the socio-economic order. This is because behavior is more individualized, depending on the conditions of socialization and the personal characteristics of each person (Rybakovsky, 2011; Zaslavskaya, 2004). An important point is the quality of life, the conditions for organizing the environment, which becomes a significant criterion when choosing a place of residence, and applying labor efforts. On the one hand, young people make high demands on the socio-economic security of the territory for living and carrying out their professional activities. Behind this is the achievement and maintenance of the proper quality of life in the territory, a low level of social tension in the community (Abel, 2018; Rybakovsky & Kozhevnikova, 2019). Modern youth can assess the competitiveness of market processes in the region, the effectiveness of public management, and its ability to balance the interests of power and the community. On the other hand, with a high migration outflow of the able-bodied population due to the low quality of life in the region, there is

a threat to the sustainability of the territory, affecting its social and economic security. Processes of civic engagement and trust in the authorities become a problem. In other words, each outflow of university graduates creates a challenge to the sustainable development of the region and complicates the preservation of the required standard of living for the next generation of young specialists.

3.3. Digital trends

Digital trends, along with the spread of information technologies, are changing the labor market and the ownership of graduates of digital skills universities is becoming critical in employment. In particular, there is a growing demand for specialists with "digital dexterity" that is the ability and desire to use new technologies to improve business results (Mulder, 2018). Of course, an important aspect in this vein is the level of digitalization of the workplace and the digital competence of the employer himself, which is characteristic at the moment for large cities. At the same time, the perception of the content and capabilities of the digital economy by the graduates themselves is ambiguous. It is ambiguous from the authorities. The policy of digitalization of the economy and society should be ensured based on joint measures and constant communications of government bodies, business, scientific, educational and expert communities. This is due to the integrated approach to managing the labor potential of the younger generation in the context of digitalization of the economy to ensure the sustainable development of the territories.

4. Purpose of the Study

The study aims to assess the impact of the outflow of university graduates and their active migration behavior, which develops under the influence of regional conditions, life factors and subjective professional expectations in the labor market, on the formation of a threat to the sustainable development of industrial regions.

Two industrial entities of the Russian Federation were taken as empirical objects: Omsk and Sverdlovsk regions, characterized by the existing educational infrastructure, which meets the needs of regional industrial industries, but the regions have level differences in socio-economic development. A comparative study of the two regions was conducted in October-November 2019.

5. Research Methods

As research methods, we were using data on migration statistics and a survey of graduates of universities in the Omsk and Sverdlovsk regions.

Graduates of Omsk State Transport University, Omsk State University named after Dostoevsky, Omsk State Technical University, Omsk State Pedagogical University, Siberian Automobile and Road University, Omsk State Medical University, Omsk State Agrarian University named after Stolypin.

Respondents in Yekaterinburg (Sverdlovsk region) were graduates of higher educational institutions of the Ural Federal University named after Yeltsin, Ural State Medical University, Ural State Economic University, Ural State Law University, Ural State Pedagogical University, Ural State University of Transport.

6. Findings

Omsk and Sverdlovsk regions belong to the old-industrial subjects of the Russian Federation, while the Omsk region is located in the Siberian Federal District, the Sverdlovsk Region – in the Ural Federal District. Both regions have different degrees of sustainable development. Omsk and Sverdlovsk regions are differentiated by indicators of living standards, the labor market, the social sphere, and migration processes. Statistics show that the Omsk region is gradually becoming a relegation region. The migration balance is negative (at the end of 2018: -12 102 people; at the end of 2019: -12 109 people); Sverdlovsk region, having an outflow of 1300 people at the end of 2018, shows a confident migration growth of 6335 people at the end of 2019 (Table 01).

Table 1. Population data for the Omsk and Sverdlovsk regions for 2017-2019 (people)

Population data	Omsk region	Sverdlovsk region
The total population, by 01.01.2018	1 960 081	4 325 256
Among them: young people aged 20-29	249 179	516 803
The total population, by 01.01.2019	1 944 195	4 315 699
Among them: young people aged 20-29	232 257	481 467
The total population, by 01.01.2020	1 926 665	4 310 681
Among them: young people aged 20-29	215 964	452 687
A migratory net balance, 2017	-9 853	- 300
A migratory net balance, 2018	-12 102	- 1 300
A migratory net balance, 2019	-12 109	6 335

Drafted by the author using (The population of the Sverdlovsk region, 2020).

Despite the general numerical advantage of the population in the Sverdlovsk region compared to the Omsk region, regional labor markets equally show a high sensitivity to the presence of young workers. So, for example, as of January 1, 2020 the number of able-bodied population of the Omsk region amounted to 1,070,619 people, of which youth aged 20-29 years - 20.2% (215,964 people) (Distribution of the population of the Omsk region, 2019).

About the same situation is in the Sverdlovsk region. For a similar period, the able-bodied population consisted of 2,375,450 people including 19.1% (452,687 people) represented young people aged 20-29 years (The population of the Sverdlovsk region, 2020). But at the same time, we record the negative dynamics of the share of young specialists aged 20-29 years in the subject composition of the regional labor markets of Omsk (22.9%; 21.8%; 20.2%) and the Sverdlovsk region (21.8%; 20.6; 19.1%) (Table 02).

Table 2. Indicators of the population of working age in the Omsk and Sverdlovsk regions

Indicators of the population	Omsk region	Sverdlovsk region
Total population of working age people by 01.01.2018, people	1 087 582	2 367 093
Number of young people of working age by 01.01.2018, (20-29 years old), people.	249 179	516 803
Share of youth in the total working age population by 01.01.2018, %	22,9	21,8
Total population of working age people by 01.01.2019, people	1 063 608	2 337 774
Total population of working age people by 01.01.2019, (20-29 years), people	232 257	481 467
Share of youth in the total working age population by 01.01.2019, %	21,8	20,6
Total population of working age people by 01.01.2020, people	1 070 619	2 375 450
Number of young people of working age by 01.01.2020, (20-29 years old), people	215 964	452 687
Share of youth in the total working age population by 01.01.2020, %	20,2	19,1

Drafted by the author using (The population of the Sverdlovsk region, 2020).

Migration decline concerns primarily the young population aged 20-29. One of the factors contributing to this negative trend is the possibility of employing graduates. At the same time, the levels of employment and unemployment in the Omsk and Sverdlovsk regions have a significant differentiation (Table 03).

Table 3. The state of the labor market of the Omsk and Sverdlovsk regions at the end of 2018

Labor market indicators	Omsk region	Sverdlovsk region
Employment rate, place out of 83 constituent entities of the Russian Federation (ranked in descending order)	37	44
Employment rate, %	59.6	57.8
Unemployment rate, place out of 83 constituent entities of the Russian Federation (ranked in increasing order)	63	43
Unemployment rate, %	6.7	4.4
Unemployment rate, thousand pers.	69	103
Number of unemployed persons of age 20-29 years old, %	26.7	27.8

Drafted by the authors using (Regions of Russia, 2019).

The level of training also affects the expectations and employment prospects of graduates (Table 04).

Table 4. Data on the levels of training of graduates of universities of Omsk and Sverdlovsk regions in 2017-2019

Labor market indicators	Omsk region	Sverdlovsk region
Graduation of bachelors, undergraduates, specialists in 2017, thousand people	16.3	25.0
Graduation of bachelors, undergraduates, specialists in 2018, thousand people	15.9	28.0
Studied under bachelor's, master's, and specialist's programs in the 2017-2018 academic year, thousand people	80.5	124.9
Studied under bachelor's, master's, and specialist's programs in the 2018-2019 academic year, thousand people	78.8	119.9

Drafted by the authors using (Appendix to the collection "Regions of Russia. Socio-economic indicators", 2019).

This simulates the graduates of the university to the search for the best living conditions and the application of labor efforts, which at the same time leads to the outflow of highly qualified personnel and contributes to a decrease in the level of socio-economic protection of the territory (Burzyński, 2018). The outflow of young specialists also negatively affects the socio-economic situation of industrial regions, namely, it leads to a decrease in the quality of intellectual potential, to a change in the structure of employment and demographic structure of the population, an increase in unemployment and problems of the reproduction of labor resources.

As noted above, the nature of the migration activity of young people is based on the positive or negative impact of migration trends on the sustainable development of the region. A survey of university youth in the Omsk and Sverdlovsk regions showed the conscious desire of graduates to find themselves in the labor market with adequate wages. Attention also deserved the possibility of employment as soon as possible after completing basic vocational education. The results of the study also reflected the opinion of respondents about the place of residence, requirements for quality of life, and their impact on the causes of migration in case of non-compliance with the needs of graduates.

Interregional migration geography has been maintained in both regions for considerable time. Almost half of migration outflows to other regions of Russia (45%) are due to a change in place of work. Regions of preferred departure for graduates of Omsk and Sverdlovsk regions are equally Moscow, St. Petersburg, Krasnodar Territory, Tyumen Region. At the same time, the regional center of the Sverdlovsk region – the city of Yekaterinburg – is considered by Omsk graduates as an attractive new place of residence and the application of labor efforts (6th place out of 15 in the ranking of places to move). At the same time, Omsk is not included in a similar list among Sverdlovsk students. International migration has some differences: graduates of the Omsk region choose the USA, Germany, Poland and Canada to move; Sverdlovsk – USA, Germany, Czech Republic and Italy.

At the same time, it is worth noting that the divergence of opinions of university graduates from two regions in assessing their place of residence after completing their studies. If the predominant number of interviewed students of the Omsk region wants to change the city/settlement after graduation – 54.2% of respondents (of which 5.4% are going to leave for the settlement where they come from), then 46% of

respondents of the Sverdlovsk region expressed a desire to stay in the city where the university is located. The patriots of the Omsk region showed only 30% of Omsk. Such migration behavioral differentiation is associated with the level of socio-economic development of regional centers – Omsk and Yekaterinburg.

The reasons for the move of youth representatives are large that in larger cities they see more prospects for their professional growth and personal development. This is facilitated, according to respondents, by a more developed infrastructure (transport, social, etc.), the rapid development of digital technologies, a huge income gap in such cities.

A key factor in the success of the digitalization of the economy and society is the availability of highly qualified personnel in a sufficient amount and appropriate jobs, as well as a system for training specialists with certain competencies for the development and implementation of digital technologies (Brynjolfsson & Collis, 2019). Unfortunately, the survey showed that university graduates still have a general distant idea of the digital economy. The term "digital economy" is considered through "conducting economic transactions through computers", "an economy in which there are no routine processes since they are automated", "electronic business", "turnover of goods and services on the Internet", etc. But at the same time, more than 70% of respondents to universities in the Omsk and Sverdlovsk regions note the demand for their specialty in the labor market in the digital economy.

Despite the presence in the survey of respondents of non-economic and non-informational areas of training, almost everything in the question of industries that will primarily affect digitalization was called information technology, economics, and finance and marketing communications. The development of the digital economy in their regions was estimated by both groups of respondents very closely: 43.8% of Omsk and 51.3% of Sverdlovsk residents said yes to digital development.

But at the same time, graduates of any specialty are aware that they will need additional training to work in digital realities (Table 05).

Table 5. What knowledge will you need for the successful job placement in the digital economy? (% to the interviewed people)

Options	Omsk region	Sverdlovsk region
Knowledge of computer technologies	59.8	56.7
Economic and managerial knowledge	19.8	19.6
legal knowledge	1.2	3.2
communication knowledge	7.7	5.2
foreign language skills	10.4	12.1
Other	1.1	3.2

Respondents showed a clear understanding that the concept itself of the received profession is currently being transformed. This is due to the requirements for the composition of competencies that an employee who has received training in a certain profession or specialty must have. The set of competencies is no longer fixed, static. Competency profiles become volatile, they are modified after technological and organizational changes, turned into "dynamic portfolios". Of course, modern graduates are familiar with the most common digital technologies, so 95% of respondents regularly use their computer and Internet skills in practice, and another 5% use them periodically. The competencies of ICT

data collection and processing are regularly shown by 48 percent of graduates and from time to time by 33 percent. Concerning advanced digital skills, at least those interviewed had heard about many technologies, but the range of their practical use was still very limited and therefore required additional training.

7. Conclusion

Consequently, databases of regional statistics and the study reveal an incremental negative migration trend in the region which deals specifically with the younger generation. Graduates themselves saw the danger of such a phenomenon. They assessed the impact of active migration behavior on the socio-economic security of the region. Respondents noted by an absolute majority the fact that the acceleration of migration outflows will lead to changes in the demographic structure of the population, namely, a decrease in the rate of population growth and obsolescence of the population. As a result, in the future, this will lead to a change in the structure of employment in the labor market, a decrease in the share of highly professional specialists, a decrease in the possibility of functioning and development of a number of sectors of the region. As a result, it is necessary for the regional economy to attract labor migrants (including foreign migrants), who are most often of low qualifications, in order to make up for the loss of the working-age population. This can, in turn, affect the deterioration of working conditions and wages in the region. This contributes to the situation of migration imbalance in relation to the labor potential of the region, forms a non-equilibrium environment of the regional labor market, posing a threat to the stability of the region and affecting its socio-economic security.

These negative forecasts require urgent intervention by regional authorities and the adjustment of social, youth, demographic, and migration policies of the Omsk region, and should be ensured by synchronizing and coordinating the actions of authorities with various socio-economic institutions and actors to eliminate the current regional migration situation in the youth environment in order to ensure the sustainable development of the Omsk region.

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