

Education Development Tendencies in the Region (Based on Bashkortostan Republic Materials)

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Abstract—Human development has a direct impact on the economic well-being and competitiveness of a country. Among the positive trends, it should be noted that over the period from 2010 to 2017 in the Republic of Bashkortostan, the number of pupils of preschool educational organizations increased by 41%, the number of teachers in them increased by 12%, the proportion of teachers with higher professional education increased from 43% to 58 %. However, in the region, there is a decrease in the prestige of working in schools (a decrease in the number of teachers was 19% with an increase in the number of students by 6%); in-state educational organizations implementing programs for training mid-level specialists, the number of teachers decreased by 14%, with a general decrease in the number of students by 2% and admission by 3%. A decrease in the number of universities by 33% was accompanied by a decrease in the number of students by 35% and a decrease in the number of faculty by 33%. A decrease in interest in scientific activity is accompanied by a reduction in the number of graduate students by 44%, and a decrease in admission to graduate school by 61% and a fourfold reduction in the number of defense of dissertations after graduation. The demographic decline and the decline in the prestige of higher education deteriorate human resources. There is no migration increase, a significant part of the migration loss is made up by migrants with higher education, the population of the republic is aging, and the number of able-bodied people is decreasing. The unemployment rate is falling, however, the proportion of unemployed with higher education is growing. Certain measures for the development of human capital in the region are taken by the state. Budget expenditures on education in the Republic of Bashkortostan and Russia as a whole increase, national projects, and federal programs are launched to develop regions, attract highly qualified specialists (teachers, doctors, especially in rural areas) and increase investment attractiveness. The results of these measures can be evaluated in the future, in the medium and long term.

Keywords—education, educational services, tertiary education, human potential, educational migration.

I. INTRODUCTION

The well-being and competitiveness of any country in the long term depends on investments in the development of the human potential of the population. However, many specific factors influence human potential, some of which have not yet been identified, and some are difficult to predict. An additional difficulty in the purposeful work on the development of human potential is imposed by the “delayed” results in time. Measures that are traditional for the development of human capital (investment in education, social and cultural spheres) give results only after a considerable period. It is also worth noting that the level of

human potential within one country can significantly differ in different regions, this is especially true for countries with a large territory and low population density. For Russia, the issue of developing the human potential of the regions is quite acute, since most of the financial and human capital is concentrated in the capital and several million-plus cities. The difference in the dynamics of socio-economic indicators affecting human potential in the regions can be significant. So, for example, since 2010 in the Republic of Bashkortostan there has been an annual migration decrease in educational (training) migration, while in the neighboring region, the Republic of Tatarstan, a significant migration increase has been observed over the same period. To understand the reason for the difference in the pace of development of the human potential of the regions, it is necessary to analyze the dynamics of some socio-economic indicators in the field of education, migration and the development of the labor market.

II. LITERATURE REVIEW

The impact of education on the development of human capital is a relevant subject of research in different countries of the world. Depending on the characteristics of a particular country, various aspects of the influence of the level of education on the success of further life strategies of youth are studied. Thus, Indian scientists are concerned about the problems of “empowering women in access to human and physical capital.” The authors of the study note that “the likelihood of completion of primary education in the first generation leads to improved access to bank accounts, lower fertility, and the impact of education on the second generation is manifested in the use of more time on health and material wealth control”. Thus, Indian scientists concluded that “there is a significant and lasting effect of empowerment among educated women” [1]. Many studies are devoted to the effectiveness of modern technologies in education and the impact of these technologies on people's future lives. In a study by Turkish scholars on the impact of the use of communication technologies in teaching, it is noted that “the training program with technological support used in the experimental group is more effective in increasing student achievement and maintaining learning compared to a study group application that is not supported by communication technology and where teaching was teacher-oriented - a direct expression method” [2]. A study by other Turkish scholars notes that “mobile learning, science education, science education, and e-learning were the most frequently used keywords in articles over the past six years” [3]. Many researchers also study the aspect of social involvement and the role of emotions in the educational process. According to Belgian scholars, “in digital learning, educational support

consists of two factors: information support and process management.” At the same time, they established that “leadership of the process positively determines social participation, and information support is negatively associated with social participation” [4]. In the work of Australian scholars, “the educational well-being of every child is related to educational performance and achievement; since there is a direct link between cognition and emotions” [5]. According to American scientists, “the inclusion of visual methods and representations in research opens up opportunities for a deeper understanding of how people perceive higher education institutions.” [6] It’s also worth noting the work on the impact of education on social inequality. Vietnamese scientists have come to the conclusion that “basic education is most beneficial for the rural poor and ethnic minorities in improving their living standards. “At the same time, scientists note, “remittances usually improve rural welfare but not reduce inequality; public policies should provide easier access to education for the rural poor and to support the self-employed to increase and stabilize incomes.” [7]. In this case, according to Downes, P. (2019), “the transition in the education system will become a concept that helps mask informal systems nye difficulties” [8]. Japanese scientists, studying the phenomenon of "mass education", using multi-level modeling, came to the conclusion that "regional differences in cultural capital of people associated with socioeconomic status, partly explain the gap in relations not only between people but also between neighbors; there is a collapse of mass education in society and a differentiation mechanism based on socio-economic inequality between neighbors" [9]. We also note that, according to German scientists, “teaching financial literacy among adolescents is important, as they come into contact with money, financial products and services earlier and earlier” [10]. The issues of the impact of education on the development of the human potential of the regions are also relevant for Russia. In this regard, the authors analyzed the development trends of the educational services market, as well as educational and labor migration at the regional level based on data from the Republic of Bashkortostan.

III. RESULTS

To study the development trends of educational services in the region, we will conduct a comprehensive analysis of the state of the level of preschool and school education, as well as the level of secondary vocational and higher education. Since any Russian region cannot develop in isolation, the socio-economic well-being of a region has a direct impact on the influx of migrants, as well as their children's choice of educational institutions. Therefore, the study of labor and educational migration, in our opinion, is important in analyzing the state and studying the processes of transformation of educational services, as well as the formation of human capital.

A. *Preschool education*

Between 2010 and 2017, the number of preschool educational institutions in the Republic of Bashkortostan decreased by 38.4%, while the number of pupils in such institutions increased by 41.2% over the same period, and the number of places in preschool educational institutions increased by 43, four%. The increase in the number of places in preschool educational institutions with a simultaneous decrease in their number is a consequence of state policy in the field of reorganization of educational institutions and the optimization of their activities. The number of pupils per 100

places at the end of 2017 compared with 2010 is still more than 100 people per place, and this indicator has not changed for the indicated period (115 people per 100 places in 2017 compared to 117 people per 100 places in 2010) and in the Republic of Bashkortostan it is the largest throughout the Volga Federal District.

Note that an increase in the number of nominal places in preschool institutions is achieved, inter alia, by increasing the allowable number of groups. Between 2010 and 2017, the provision of children aged 1-6 years with places in preschool educational institutions (per 1,000 children has seats) increased by 21.8%, and the coverage of children with preschool educational organizations, as a percentage of the number of children of the corresponding age for that the same period increased by 19.9%. Despite the observed positive dynamics in increasing the number of places, in the region, there is still an acute shortage of places in preschool educational institutions, and the number of pupils in most kindergartens is higher than the design capacity.

The problem of the shortage of places in the kindergartens of the region is planned to be solved by 2025 due to the construction of new state kindergartens, as well as through the program for issuing certificates for the right to study in a private kindergarten at the expense of budget funds in the framework of the national project "Demography". If we talk about the number of teachers in preschool institutions, then from 2010 to 2017, it grew by 11.9%, while the number of teachers with higher professional education increased 43.1% to 58.4%, and the number of teachers secondary vocational education decreased from 52.9% to 41.3%. Thus, we are seeing a slow but consistent increase in the quality of the teaching staff of preschool educational organizations in the region. Preschool education is not only the basis for the socialization of children but also affects the possibility of full-time work of parents. The more accessible pre-school education, the easier it is for parents to combine their parental functions with work.

B. *Schooling (basic general education)*

The number of full-time educational institutions for the period from 2010 to 2017 decreased by 25%, and this was mainly due to regular schools, since the number of gymnasiums did not change over the indicated period (82 gymnasiums), and the number of lyceums increased from 50 to 59. The number of students in general education organizations over the indicated period increased by 5.5%, we note that the number of students in private schools increased significantly (an increase of 44.6%).

In the region, there has been a steady decrease in the enrollment of students in the 10th grade as a percentage of the total number of students who have completed primary school. In 2010, this indicator amounted to 57%, and in 2017 - 48.5% (in absolute terms - 26332 people in 2010 compared to 19329 people in 2017). The number of teachers of general educational organizations for the indicated period decreased by 19.1%, while the proportion of teachers with higher education increased (from 84% to 91.3%) and the proportion of teachers with secondary vocational education decreased (from 15.3% to 8.1 %). Thus, a tendency towards an increase in the quality of the teaching staff in high school, similar to preschool education, is observed.

The quality of school education is directly related to the possibility of residents of the region receiving secondary

vocational and higher professional education. The competitiveness of young people in the region depends on how high-quality schooling is in entering secondary vocational and higher educational institutions.

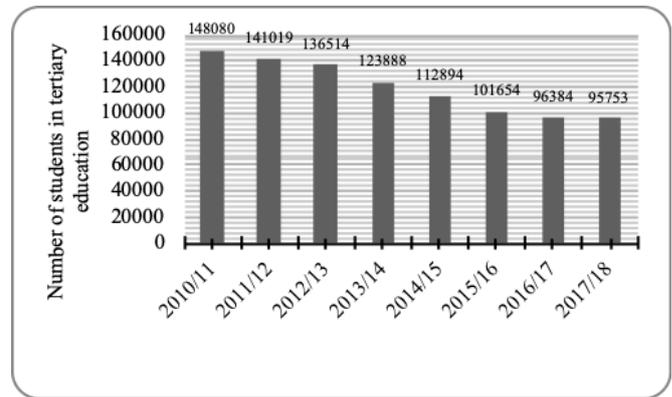
C. Non-University Level Higher Education

The decrease in the percentage of schoolchildren who decide to continue schooling and enter the 10th grade described above is to some extent due to the growing popularity of secondary vocational education against the backdrop of the complication of the Unified State Examination, a reduction in budget places in higher education institutions, and a regular increase in the cost of higher education on a contractual basis and reducing the purchasing power of the population. In 2017, the Republic of Bashkortostan ranked second in the Volga Federal District in the number of students of state entities engaged in educational programs of secondary vocational education per 10 thousand people. Moreover, the majority of university students study at the expense of the regional (76%) and federal budgets (4%), and the share of education under contracts for the provision of paid educational services is only 20%. The growing popularity of secondary vocational education is also confirmed by a significant increase in the competitive situation at admission. So from 2011 to 2017, the number of applications for admission per one place in state educational organizations implementing programs for training mid-level specialists increased by 58.8%. It is worth noting that despite the increase in the number of applicants, the provision of dormitories for students of secondary vocational education practically corresponds to existing needs. In 2017, the number of students in need of a hostel exceeds the number of residents by 1.3% (22.9 against 22.6 thousand people). The provision of students with hostels for the period from 2010 to 2017 increased by 8.2% and in 2017 amounted to 98.5% of the number of people in need of hostels.

An analysis of the number and quality of teaching staff showed that from 2010 to 2017, the total number of teaching staff of state educational institutions implementing training programs for middle managers decreased by 25.9%, while the share of employees with higher education decreased by 24.9%, and the share of candidates of sciences increased by 21.2%. Thus, for the indicated period in the Republic of Bashkortostan, a decrease in the number and a slight increase in the quality of the teaching staff of organizations involved in the training of mid-level specialists were recorded.

D. Tertiary education

In the Republic of Bashkortostan for 2018, there are 10 independent higher education organizations (of which 2 are private) and 22 branches of independent higher education organizations. It is worth noting that since 2010 the number of independent universities has decreased by 33.3%, and the number of branches has decreased by 47.6%. The number of representatives of state organizations of higher education decreased by 35% (Figure 1).



(The official website of the Federal State Statistics Service for the Republic of Bashkortostan. Retrieved from <https://bashstat.eks.ru>, 2019) [11]

Fig. 1. The number of students in state educational institutions of higher education in 2010-2017 in the Republic of Bashkortostan (at the beginning of the school year, people).

Such a significant decrease in the number of students of higher education is most often associated with the demographic decline of the nineties, when, under the influence of socio-economic conditions, the birth rate decreased for several years. However, it should be noted that the decrease in the real demand for higher education was also affected by other factors, for example, a decrease in the quality of higher education, an increase in the cost of contract training, a decrease in the purchasing power of the population, global changes in the labor market and knowledge market, the emergence of new professions and the rise of alternatives to the classical education of ways to gain knowledge and skills. If we talk about a decrease in demand for higher education specifically in the Republic of Bashkortostan, it is also worth noting the significant influence of such a factor as the educational migration of young people to the country's leading universities (in the cities of Moscow, St. Petersburg and some others).

It is also worth noting that in the higher education market, paid tuition on a contractual basis prevails. In 2017, approximately 60% of the total admission to universities in the region were students studying under contracts for the provision of paid educational services, 40% were students studying at the expense of the federal budget. The number of applications filed for 1st place in the organization of higher education in the region reached its maximum in 2014 (4.8 applications for one place), after which there was a decline to 4.2 (2015), 4.5 (2016) and 4.6 (2017). In general, over the past decade, competition for places in universities in the region has more than doubled (two applications for a place in 2007 compared to 4.6 applications in 2017). A systematic decrease in the number of students with a simultaneous increase in the competitive situation indicates an actual decrease in the number of places in higher educational institutions.

Unlike secondary vocational education, where all students in need are provided with places in dormitories, the opposite situation is observed in higher education. The number of students in state higher education institutions in need of hostels from 2010 to 2017 increased by 7.5% and amounted to 28.8 thousand people, while only 26.3 thousand of them actually live in hostels. The shortage of places for accommodation for students in need of a dormitory has remained at the same level since 2010 (for the period 2010 to 2017 this indicator grew by 0.6%), which indicates insufficient attention to this problem from higher education

institutions and management region. The availability of places in dormitories and the infrastructure of student campuses as a whole is an important element in a comfortable life and can have a significant impact on the influx (and outflow) of educational migrants.

The total number of faculty of state educational institutions of higher education from 2010 to 2017 decreased by 33%, which is logical given the decline in the number of students of higher educational institutions described above, however, the decrease in the number of employees with a scientific degree and academic rank causes concern. During this period, the number of employees of state higher educational institutions of the Republic of Bashkortostan with a doctoral degree not only did not increase but also decreased by 8%, the number of teachers with a Ph.D. fell by 21%, the number of employees with a professorship decreased by 12.4%, the number of teachers with the academic title of associate professor decreased by 19.4%. There is also a decrease in interest in scientific activity, which is expressed in a sharp decrease in the number of graduate students and admission to graduate school. The number of graduate students from 2010 to 2017 decreased by 44.4%, while admission to graduate school for the same period decreased by 60.5%. At the same time, there is an increase in the number of graduate students who are foreign citizens, so the number of foreign graduate students has increased almost 8 times since 2010 (95 people in 2017 compared to 12 people in 2010). The admission of foreign citizens to graduate school has also increased significantly.

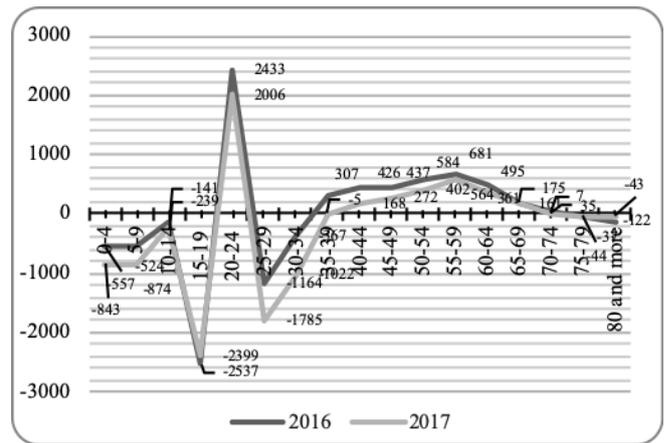
According to the census of 2010, in the Republic of Bashkortostan per 1000 people aged 15 and over 63.2% have vocational education (32% of them have secondary vocational education, 17.2% have higher education (including postgraduate education), 9, 3% - primary vocational education and 3.9 - incomplete higher education), 34.4% have a general education (of which 16.4% have a general secondary (complete) education, 11.5% have a general basic education and 6, 5% - general primary education), 0.6% do not even have primary general education, and 1.8% did not indicate the level of education.

IV. DISCUSSIONS

Despite the active state policy to increase the level of education and interest in science, in the Republic of Bashkortostan there is a decrease in the number of students of higher educational institutions, the low quality of admission to universities (compared with other regions), a decrease in the enrollment of students in the 10th grade, the growing popularity of secondary vocational education, the shortage of places in dormitories for university students, the increasing quality of the teaching staff in preschool, general and secondary vocational education with simultaneous Reductions of its quality in higher education and the decline in interest in science. Most of the above trends hurt the development of the human potential of the region, are subject to additional study and require the adoption of operational-tactical and strategic measures by the state.

In the context of the development of the human potential of the region, it is also necessary to consider the influence of the above trends on educational (training) migration. Speaking about intra-regional migration, we note that due to the significant lag in infrastructure in the field of education in rural areas of the region (lack of training centers and cadet

schools, problems with creating conditions for unimpeded access for disabled people, lack of water supply and sanitation in many rural educational institutions, low number of schools with in-depth study of specific subjects, gymnasium and lyceum classes, etc.), rural residents are forced to migrate to cities in order to provide their children with pits the best level of education. At the same time, the backlog of the rural education system makes the countryside unattractive for the teachers themselves, which leads to an acute shortage of teaching staff in rural educational institutions. If we talk about rural residents receiving secondary vocational and higher education, according to statistics, it is precisely at the age of 15-19 years (the age of admission to secondary vocational and higher educational institutions) that the largest outflow of rural residents to the cities of the republic is observed (Figure 2).



The official website of the Federal State Statistics Service for the Republic of Bashkortostan. Retrieved from <https://bashstat.gks.ru>, 2019 [11]

Fig. 2. Migration growth (decrease) in the population by age groups for 2016 and 2017 in the Republic of Bashkortostan (intra-regional migration, people).

It should be noted that after receiving an education in the city, many rural residents return to the village (aged 20-24 years), but this surge in the next age interval is replaced by outflow, i.e. educated young people who returned to the village after a short period of time again left for the city and never returned. This trend in the region is repeated from year to year, negatively affects the development of the human potential of rural areas, leads to its concentration in regional centers and leakage to other regions and even countries.

Speaking of interregional migration, we note that between 2012 and 2017, the migration growth of the population in the Republic of Bashkortostan was recorded only in 2013, and in the remaining years the migration decline of the population of the region was recorded. At the same time, in 2017, 13.5% of migrants left the republic for education (16.4 thousand people), i.e. preferred to receive educational services in other regions or countries. A significant part of these migrants, as a rule, remains in the receiving regions of education and will no longer return to the Republic of Bashkortostan. Since 2008, more than 10 thousand people leave the republic every year in connection with their studies, and this number grew until 2015 (32 thousand who left due to their studies), after which the number of those leaving went into decline and almost equal to 2017 2011 level. The annual departure of so many talented young people who are ready to compete for places in universities with Moscow, St. Petersburg and Kazan schoolchildren is a big loss for the human potential of the

region and it is necessary to take measures not only to reduce the migration outflow through education (due to the increase in the quality of their own educational institutions and development of labor market prospects), but also taking urgent measures to increase the rate of return of talented youth to their native region.

The presence in the region of jobs corresponding to the high level of training of specialists trained in the best universities of the country, the presence in the region of representative offices and branches of large federal and international companies, the development of the infrastructure of the scientific industry, the close relationship of private business and universities, the development of not only fundamental, but also applied science, as well as many other factors associated with the migration attractiveness of the region for highly educated migrants, have a significant impact on the development of ie the human potential of the republic.

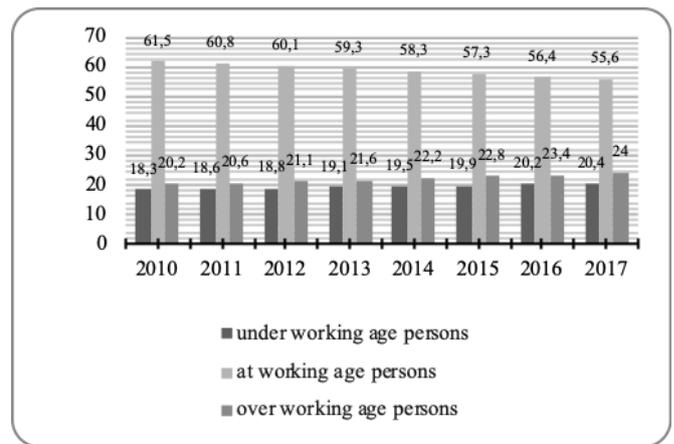
Speaking about educational migration, it is worth noting that the Republic of Bashkortostan annually receives several thousand educational migrants from other regions of Russia, the CIS countries and some other foreign countries. So in 2017, 11.3% of the total flow of migrants who arrived in the republic were young people who came to receive education (13 thousand people). But despite this, since 2008, we have been seeing an annual decline in educational migration in the region.

For the development of the human potential of the region, it is important to understand not only the number of arrivals/departures, but also their level of education. In 2017, 28.96 thousand people with higher education left the republic (91.7% of them are of working age), while there were 2.2 thousand fewer migrants with higher education. In general, the largest migration loss is shown by the group of migrants with higher education, and the largest migration growth is shown by the group of migrants with secondary general (complete) education. Thus, the largest number of people with higher education leave the Republic of Bashkortostan for Moscow, Moscow Region, St. Petersburg, Leningrad Region, Krasnodar Territory, the Republic of Tatarstan, Tyumen and Chelyabinsk Regions. Moreover, it was recorded that residents of the border regions of the republic, when choosing a place to move, often prefer migration to neighboring regions (the Republic of Tatarstan, Chelyabinsk Region, etc.), rather than changing their place of residence within their region.

Even though the region's expenditures on education in absolute terms increased, their share in the expenditures of the consolidated budget of the Republic of Bashkortostan for social and cultural events in 2017 remained at the level of 2010. If we talk about the expenses of the consolidated budget of the Russian Federation, then the share of education expenses from all expenditure items for the specified period of time showed a significant increase (more than 20%), however, it is worth noting that an increase in financing of the educational sector is a necessary but not sufficient condition for increasing quality educational services. Also, the development of the human potential of the region is possible only if there are projects in the region in which this potential can be realized; otherwise, even a high quality of education will not be able to prevent the migration loss of the most educated part of the population.

According to official statistics, the region's population is aging, the number of working-age people is decreasing every

year. So for the period from 2010 to 2017, the population of working age decreased by 5.9%, and the population older than working-age increased by 3.8% (Figure 3).



The official website of the Federal State Statistics Service for the Republic of Bashkortostan. Retrieved from <https://bashstat.gks.ru>, 2019 [11]

Fig. 3. Dynamics of the age composition of the population for 2010-2017. in the Republic of Bashkortostan (at the end of the year, as a percentage of the total).

Life expectancy at birth in the Republic of Bashkortostan in 2017 is 71.73 years, while on average in Russia this indicator is 72.7 years, and in the neighboring region (Republic of Tatarstan) - 74.2 years. A similar lag of the republic from the national average is observed both in the amount of average per capita cash income per month (28473.1 rubles in the republic versus 31477.4 rubles in Russia) and in the amount of the average amount of the granted pensions (12766.6 rubles in the republic versus 13323.1 rubles in Russia).

The number of officially registered unemployed in the region for the period from 2010 to 2017 decreased by 47.7%, however, despite this positive trend, more and more people with higher education have difficulty finding work, so in 2017 people with higher education amounted to 18.9% of the total number of unemployed (in 2010 this indicator was 11.9%), and another 54% of the unemployed are people with secondary specialized education. The described situation is presumably caused not only by changes in the labor market but also by the quality of educational services provided in the region.

V. CONCLUSION

The development of the human potential of the region is a complex strategic task, the solution of which is subject to the influence of many specific factors. For the most part, measures to develop the region's human potential can only be aimed at obtaining long-term results (reforming the education system, developing infrastructure projects, government programs to support entrepreneurship, attract specialized specialists to regions and rural areas, etc.). In this regard, the development of human potential reaches its greatest results in countries and regions with stable developed economies during periods of prolonged absence of socio-economic shocks. Economic crises, changes in political regimes, default, and other socio-economic shocks have a devastating effect on human development programs. It is also worth considering that programs for the development of human potential should be developed individually for each region since even within the framework of one federal district, there is a significant

difference between neighboring regions in the dynamics of indicators affecting human potential. One of the main ways to develop human potential is to invest in the educational sector of the region to improve the quality of educational services and, as a result, increase the competitiveness of graduates in the labor market, however, allocating funds for this is not enough. Given the analysis of the situation in the Republic of Bashkortostan, in order to develop the human potential of the region, it is necessary to plan and take measures to reduce the outflow of the population to other regions as part of educational migration, to reduce the outflow of the most educated part of the population within the framework of labor migration, and to increase the influx of educated labor migrants from more developed regions and European countries, increasing the rate of return of young people who left the region as part of study migration.

The above measures involve strengthening the relationship between private business and educational organizations, competition between universities for the most qualified labor resources (faculty), attracting the best domestic and foreign experts to the region's educational sector, opening unique training programs in regional universities (for example, systems engineering programs at Ural Federal University, Sverdlovsk Region), development of unique projects in the region (for example, Innopolis, Republic of Tatarstan), attraction of large federal and international companies to the region, state support and close cooperation of the educational sector with local leading companies (for example, 2GIS in the Novosibirsk region), state support for small and medium enterprises, development of the scientific and educational infrastructure of the region. The Republic of Bashkortostan at the moment has many prerequisites for the development of human potential, as well as the closest possible both in time and geographical location, an example of the largely successful implementation of the program for the development of the neighboring region - the Republic of Tatarstan. For many indicators directly or indirectly affecting the development of the region's human potential over the period of 2010-2017, negative dynamics are observed, however, increasing funding for the educational sector, the development of national projects and the focus of state policy on improving the quality of educational services and the quality of life in the regions as a whole make it possible to put forward the assumption that the measures taken in the long term will lead to positive consequences. However, the factors

affecting the development of the region's human potential are still not fully understood and are subject to additional research; their influence must be predicted and taken into account in state policy.

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