# Regional Aspect of the Dynamics of Wages and Labor Productivity in Russia

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*Abstract*—**The national economy of Russia is characterized by a high level of differentiation of labor productivity and wages. During the period under review, 2000–2017, there is no significant reduction of the gap in the average wage level. Leading regions are the entities of the Russian Federation specializing in mining. The same group of territories also includes regions located in difficult climatic conditions. The geographical factor determines the high state-regulated wage level. Low-wage regions are territories whose specialization is determined by social sectors. The absence of highly effective types of economic activity determines the unattractiveness of territories in terms of labor. Low wages form negative trends in regional labor markets, reduce the demand for education, and do not stimulate the growth of investments in new technologies. And in general it leads to low labor efficiency, low labor productivity.**

*Keywords—labor, employment, labor productivity, wages, region.*

## I. INTRODUCTION

The existing sectoral structure of the national economy of Russia has identified significant regional imbalances in the country's development. Regions whose economic well-being is determined by export-oriented or high-value-added economic activities attract migrant workers. Such migrants are not only foreign citizens, but also Russians. The "east-west" and "north-south" interregional migration flows are one of the factors that reduce the competitiveness of the territory. The situation in regional markets is complicated by the demographic trends that have been formed.

The current period of the country's economic development is conditioned by serious errors made both in the management systems at the macro and micro levels, and in the formation of the scientific paradigm of the country's socio-economic development. R.M. Nureev and S.A. Simakovsky point to the obvious limitations of the export-oriented development of the country, with a basis on raw materials. Further, the authors note that the traditional sources of competitiveness of the Russian economy, i.e. the low cost of labor and the availability of raw materials have been lost. [1]. Did the low cost of labor really play a significant role in the formation and development of the modern national economy? Or was it low wages that predetermined more negative consequences for the socio-economic development of Russia?

More fair, and this should also become an obvious fact, it should be considered that the weakness and weakness of the system for protecting the rights of workers, the absence of strong trade union movements, which is an integral element of the formed labor market, has led to a paradoxical phenomenon in the labor market in the national economy. In Russia there are so called "working poor people". People with jobs cannot provide the level of income necessary for living. Moreover, the value of the poverty level is determined by the state, and not by a person, which can lead to an underestimation of this value.

During the formation of a market economy in Russia, enormous changes took place in the labor market. The depreciation of human capital accumulated during the Soviet period occurred due to the fact that the business offered employees the simplest jobs with low wages. In the future, the situation on the labor market is aggravated by the fact that a constant desire to circumvent tax legislation and reduce costs for employees inclines the business to transfer part of wages to the "gray zone". And if during the initial period workers are forced to accept such an unusual situation, for fear of losing any place of work, then in the future this system of relations becomes habitual and ordinary. The government's attempts to convince the employee of the attractiveness and prospects of obtaining the full amount of wages, the creation of models, primarily pension savings, based on the "white wage", are practically unsuccessful.

For its part, the state sector still cannot provide an adequate level of wages. The low level of wages in the so-called public sector determines the unattractiveness of jobs in sectors and sectors such as preschool and school education, secondary vocational and higher education. And if the alternative to the demand for teachers and educators can be only the supplementary education sector, then trained personnel for the healthcare sector will go to the private sector, which is inaccessible to a significant part of the population due to low incomes of citizens, and which is not represented at all in rural areas. The situation is even more complicated in the sectors of culture, physical education and sports. There are no alternative market segments for workers in this sphere to generate additional income. In general, in social sectors, in addition to the shortage of personnel, such a phenomenon as the aging of personnel is observed.

## II. LITERATURE REVIEW

The labor market has inherent significant features. As in any resource market, supply and demand determine the volume, quality and price of a resource in a system of market relations. The specificity of the labor market lies in the fact that the carrier of the resource — the person — determines all the parameters of labor. A significant role in the formation of labor resources is played by the state. Researchers at the

Institute of the USA and Canada of the Russian Academy of Sciences note that an important and closely related to the concept of labor resources is an understanding of the essence of human capital [2]. If in economic theory, human capital was originally understood as a combination of knowledge and skills of workers, then modern extended interpretations relate the state of health of workers, their personal characteristics, level of culture, and discipline to human capital [2].

In their work, Russian economists at the Higher School of Economics National Research University determine that the cost of generating human capital is an investment, since it involves returning it to the students themselves, their families, or employers [3]. R.I. Kapelyushnikov divides all types of acquired skills into three main groups [4]:

*1)* fundamental knowledge, literacy (including general cognitive skills);

*2)* general professional skills regarding the technology used, which can be used in different companies;

*3)* special professional skills that are acquired as a result of passing specialized training programs at the workplace and are applicable in a particular company.

Adherents of the school of "human capital" are based on the postulate that the growth of the scale of human capital is reflected in the growth of wages. Critics of this approach are based on the assumption that differences in labor costs (remuneration) are wrongly explained by differences in the cost of human capital. According to J. Stiglitz, the cost of education does not directly lead to an increase in the cost of human capital, but acts as a signaling mechanism for entrepreneurs. In an effort to obtain a more qualified workforce business increases wages [2].

Economists of the Russian Academy of National Economy and Public Administration under the President of the Russian Federation T.A. Klyachko and E.A. Semionova, when developing a methodology for assessing the contribution of education to the socio-economic development of Russian regions, is based on the employees' ability to create a certain income that corresponds to their level of education. The minimum value added that employees with a certain level of education is able to create is determined by the sum of their salary with accruals received by them during the year [5]. According to the results of T.A. Klyachko and E.A. Semion analysis, the higher education system makes the greatest contribution to the socio-economic development of the Russian Federation relative to the other considered levels of the education system. At the same time, the contribution of higher education in Russia steadily grew in the period 2005–2016 in contrast to the contribution of the remaining levels of the education system [5].

Economists of the Ural Federal University N.R. Kelchevskaya and E.V. Shirinkina note that in modern studies, the definition of the effectiveness of the use of human capital is linked to an assessment of the impact of qualitative indicators on its value [6]. At the same time, monetary valuation cannot give a correct idea of the influence of both quantitative and qualitative factors on the indicator of the effectiveness of the use of human capital. The authors substantiate their approach to assessing the processes of formation and development of human capital in the context of digitalization of the national economy by the fact that new qualitative determinants will be required from employees in the process of forming human capital [6].

Academician A.G. Aganbegyan notes that Russia can be proud of the high cost of its human capital. According to the World Bank estimates, in terms of the cost of human capital, Russia is only one and a half times inferior to the USA and is on a par with many developed countries. This is due to the high level of education in Russia, which today ranks 20-30th in international rankings from 150-200 countries of the world, while it occupies 45-50th place in economic rankings and 65- in social development index 70th place, in terms of life expectancy, especially healthy - 90-100th place [7].

Aganbegyan A.G. points to the need to use the achieved advantage in the education and knowledge of Russian workers, pulling up their skills, competencies, skills to this level and placing more and more emphasis on the priority of the human factor in social and economic development. At the same time, he notes the particular complexity of the formed state model. In the Russian state policy, the stereotypical view of a person solely as a social object prevails, the costs of which are designed to support his existence. It is necessary to proceed to the formation of a model based on the understanding that a person is the main productive force and investment in it is not just a social need, but the most effective and most cost-effective action that ensures sustainable economic development. Moreover, in Russia, according to Academician A.G. Aganbegyan, a gap has formed between the relatively high level of knowledge of the employed and the low efficiency of the use of human capital of Russians [7].

## III. RESEARCH METHODOLOGY

So, we will be based on the assumption that it is the cost of human capital that is the platform on which the system of relations in the labor market is built and the cost of labor is formed - wages. Businesses, entrepreneurs should be interested in attracting labor, which has a high level of characteristics of human capital in its expanded sense. Such workers should be paid high wages. And, therefore, the high cost of labor resources should determine their effective use, which should be reflected in indicators of labor productivity.

The paper analyzes the correspondence of the dynamics of wages and labor productivity. The object of the study are the regions - entities of the Russian Federation. The values of labor productivity at the level of the constituent entity of the Russian Federation are compared with the average wage of workers in the region. The values of indicators are compared and the constituent entities of the Russian Federation are grouped in relation to the values of indicators for the economy as a whole, i.e. comparison with the average Russian level. The data source is the official website of Rosstat.

Labor productivity at the level of the national economy as a whole was calculated as the ratio of gross value added to the economy as a whole in basic prices to the number of employees in the economy as a whole. Gross value added by the economy as a whole at basic prices is the sum of the value of the gross regional product by constituent entities of the Russian Federation. The number of employed by the economy as a whole is the total number of employed at the age of 15–72 years by entities of the Russian Federation. The methodology for calculating labor productivity in the economy as a whole is based on the definition of the labor productivity indicator of the International Labour

Organization (ILO). According to ILO, labor productivity is the total volume of production (measured in units of gross domestic product, GDP) produced per unit of labor (number of employees) over a certain period of time [8]. The work does not use the GDP indicator, but "gross added the cost of the economy as a whole at basic prices" since the goal of the work is to assess the regional differentiation of labor productivity and the effectiveness of involving labor resources in the production process. Since the indicator "gross regional product" is calculated at the regional level (subject of the Russian Federation) as gross value added at basic prices for the subject of the Russian Federation, the proposed approach is logical. Moreover, the specificity of calculating the indicators "gross regional product" and "gross regional product by constituent entities of the Russian Federation" at basic prices makes it possible to level the influence of taxes in cost indicators and take into account the role of government subsidies that stimulate economic activity.

The constituent entities of the Russian Federation are grouped according to two indicators: labor productivity and average monthly nominal accrued wages of workers for a full range of organizations in the economy as a whole and for the constituent entities of the Russian Federation. The first group will include regions whose both indicators are higher than the average Russian values. The second group includes regions where labor productivity is lower than the average Russian value, and the average monthly accrued wage is higher. The third group will include constituent entities of the Russian Federation, in which labor productivity is higher than the average Russian value, and the average wage is lower. The fourth group includes all other regions, which are characterized by both the level of labor productivity and the level of average wages below the average Russian level.

The temporal aspect of the analysis is based on the availability of statistical information. So the data on the indicators "the number of employed people aged 15-72 years by constituent entities of the Russian Federation" and "average monthly nominal payroll of workers for a full range of organizations in the whole economy for the constituent entities of the Russian Federation" are presented in Russian statistics only since 2000. The choice the years 2005 and 2010 for analysis are determined only by equal time intervals. Moreover, 2010 is the year after the crisis period of 2008–2009. The research objectives did not include the study of changes in the efficiency of social production during the crisis. The choice of non-crisis periods of development provides more reliable information from this point of view, since it allows us to state the inefficiency of social production even in more prosperous periods of the country's socio-economic development. It is from this point of view that a significant decrease in production efficiency in 2015 as a result of external shocks to the Russian economy is obvious and is not considered in the work. The assessment for 2017 allows us to characterize the possibilities of adapting the national economy in new foreign economic realities.

To assess the variation of the indicators "labor productivity" and "average monthly accrued wages" the following indicators are used: maximum value, minimum value, range of values of the series, median value. The median value will allow you to more accurately determine the typical value with a significant scope, since the series have significant deviations from the average Russian values. The relationship between the indicators was assessed by the correlation coefficient of the ranks of C. Spearman and the correlation coefficient of the ranks of M. Kendall.

## IV. RESULTS

The grouping of the constituent entities of the Russian Federation according to the results of comparing the indicators "labor productivity" and "average wage" with average Russian values in 2000 is as follows (regions are listed in descending order of the average wage):

*a)* the preview group "labor productivity is higher than the target in the Russian Federation as a whole the average monthly accrued wages in the subject of the Russian Federation is higher than the average for the economy as a whole" included 15 regions: the Tyumen region, the Chukotka Autonomous Region, the Republic of Sakha (Yakutia), the Kamchatka Territory, Magadan Region, Murmansk Region, Sakhalin Region, Komi Republic, Krasnoyarsk Territory, Moscow, Khbarovsky Krai, Arkhangelsk Oblast, Vologda Oblast, Tomsk Oblast, Perm Krai;

*b)* the second group, "labor productivity less than the rest of the Russian Federation as a whole — the average monthly accrued salary in the subject of the Russian Federation is higher than the average value for the economy as a whole" included 8 regions: the Irkutsk Region, the Republic of Karelia, St. Petersburg, the Kemerovo Region, Primorsky Territory, Sverdlovsk region, Moscow region, Amur region;

*c)* the third group "higher than average labor productivity in the Russian Federation as a whole — average monthly accrued wages in the constituent entity of the Russian Federation below the average value for the economy as a whole" includes 2 regions: Samara Region, Republic of Tatarstan;

*d)* the third group "labor productivity less than the wage for the whole of the Russian Federation the average monthly accrued wages in the subject of the Russian Federation below the average for the economy as a whole" includes 53 regions.

The grouping of the constituent entities of the Russian Federation according to the results of comparing the indicators "labor productivity" and "average wage" with average Russian values in 2005 is as follows:

*a)* the preview group "labor productivity is higher than the target in the Russian Federation as a whole - the average monthly accrued wage in the subject of the Russian Federation is higher than the average for the economy as a whole" included 10 regions: Chukotka Autonomous Okrug, Tyumen Region, Sakhalin Region, Magadan Region, Moscow, Republic of Sakha (Yakutia), Murmansk Region, Komi Republic, Krasnoyarsk Territory, Tomsk Region;

*b)* the second group, "labor productivity below the target for the Russian Federation as a whole - the average monthly accrued wages in the subject of the Russian Federation is higher than the average for the economy as a whole," included 12 regions: Kamchatka Territory, Khabarovsk Territory, St. Petersburg, Arkhangelsk Region, Moscow Region Amur Region, Irkutsk Region, Primorsky Territory, Republic of Karelia, Sverdlovsk Region, Kemerovo Region, Leningrad Region;

*c)* the third group "labor productivity is higher than the target for the Russian Federation as a whole - the average monthly accrued wage in the subject of the Russian Federation is lower than the average for the economy as a whole" includes 2 regions: the Republic of Tatarstan, Lipetsk Region;

*d)* the third group, "labor productivity below the target for the Russian Federation as a whole - the average monthly accrued wages in the subject of the Russian Federation below the average for the economy as a whole" includes 53 regions.

The grouping of the constituent entities of the Russian Federation according to the results of comparing the indicators "labor productivity" and "average wage" with average Russian values in 2010 is as follows:

*a)* the preview group "labor productivity is higher than the target for the Russian Federation as a whole - the average monthly accrued wages in the subject of the Russian Federation is higher than the average for the economy as a whole" included 12 regions: Chukotka Autonomous Okrug, Moscow, Tyumen Region, Magadan Region, Sakhalin Region Kamchatka Territory, the Republic of Sakha (Yakutia), St. Petersburg, the Republic of Komi, Krasnoyarsk Territory, Arkhangelsk Region, Tomsk Region;

*b)* the second group, "labor productivity below the target for the Russian Federation as a whole — average monthly accrued wages in the subject of the Russian Federation is higher than the average for the economy as a whole" included 5 regions: Murmansk Region, Moscow Region, Khabarovsk Territory, Primorsky Territory, Amur Region;

*c)* the third group "labor productivity is higher than the target in the Russian Federation as a whole - the average monthly accrued wage in the subject of the Russian Federation is lower than the average for the economy as a whole" includes 1 region - Belgorod region;

*d)* the third group, "labor productivity below the target for the Russian Federation as a whole - the average monthly accrued wages in the subject of the Russian Federation below the average for the economy as a whole," includes 62 regions.

The grouping of the constituent entities of the Russian Federation according to the results of comparing the indicators "labor productivity" and "average wage" with the average Russian values in 2017 is as follows:

*a)* the first group "labor productivity is higher than the target in the Russian Federation as a whole - the average monthly accrued wage in the subject of the Russian Federation is higher than the average for the economy as a whole" included 13 regions: Chukotka Autonomous Okrug, Magadan Region, Moscow, Akhalinskaya Oblast, Kamchatka Territory, Tyumen Oblast, Republic of Sakha (Yakutia), St. Petersburg, Murmansk Oblast, Komi Republic, Arkhangelsk Oblast, Krasnoyarsk Territory, Leningrad Oblast;

*b)* the second group, "labor productivity below the target for the Russian Federation as a whole — the average monthly accrued wages in the subject of the Russian Federation is higher than the average for the economy as a whole" included 2 regions: Moscow Region, Khabarovsk Territory;

*c)* the third group "labor productivity is higher than the target in the Russian Federation as a whole - the average monthly accrued salary in the subject of the Russian Federation is lower than the average for the economy as a whole" includes 3 regions - Irkutsk Oblast, Sverdlovsk Oblast, Republic of Tatarstan;

*d)* the fourth group, "labor productivity below the target for the Russian Federation as a whole - the average monthly accrued wages in the subject of the Russian Federation below the average for the economy as a whole," included 64 regions.

The group of leading regions in terms of labor productivity and average wages can be divided into two subgroups. The first conditional subgroup is the regions of the Far East, high added value per worker (labor productivity), provided with a low level of employment and high regulated labor costs. For example, the gross regional product (GRP) in 2017 in the Chukotka Autonomous Okrug amounted to 68,729.0 million rubles, the GRP in the Jewish Autonomous Region - 52,640.9 million rubles. Since the number of people employed in the autonomous region is 44.15 thousand people. (or 2.5 times) more, the absolute difference in labor productivity per worker is 1,617,588.48 rubles. The second condition for leadership in the regions is specialization in the types of economic activities associated with mining.

Traditionally, including throughout the entire period under review, this group includes the subject of the Russian Federation, which does not specialize in mining, - Moscow. The uniqueness of Moscow lies in the formation of a significant amount of aggregate demand, which determines the specialization of the region in the form of economic activity "wholesale and retail trade; repair of motor vehicles and motorcycles. " Only Moscow specializes in the form of economic activity "financial and insurance activities". Three constituent entities of the Russian Federation from the first group have rather close values of the coefficients of specialization by the type of economic activity "professional, scientific, and technical activity" - these are St. Petersburg, Moscow Region, and Nizhny Novgorod Region.

It was the concentration of types of economic activity with high added value based on the use of human capital that allowed St. Petersburg to move to the first group of leader regions by 2010, in 2000 and 2005 this subject of the Russian Federation was in the second group. Moreover, this region in 2017 has lower labor productivity per worker (42 964.85 rubles) than the resource region - Krasnoyarsk Territory, but a higher average wage (12 623.00 rubles). This fact may indicate that non-resource-based types of economic activity operate in competitive markets and compete for resources, including labor, paying higher wages.

The second group of regions is quite interesting. By 2017, only two regions remained in this group: Moscow Region and Khabarovsk Territory. This means that the imbalance between the rank of the region in terms of labor productivity and the rank of average monthly wages has almost leveled out. However, in this group there are regions diametrically opposite in terms of industry specialization and geography. Almost the same level of labor productivity, the difference in favor of the Khabarovsk Territory is only 10272.67 rubles. It does not allow workers in the Territory to receive higher wages. In the Moscow region, wages are higher by 4,371.00 rubles. State regulation of remuneration in the northern and eastern territories does not lead to a significant attractiveness

of the application of labor in the regions of the North, Siberia and the Far East.

Table 1 shows the results of calculating the correlation coefficient of ranks C. Spearman and the correlation coefficient of M. Kendall's ranks, which allow one to assess the one- or multidirectional changes in labor productivity and wages in the region.

TABLE I.        THE DYNAMICS OF THE RELATIONSHIP BETWEEN THE INDICATORS "LABOR PRODUCTIVITY" AND "AVERAGE MONTHLY ACCRUED WAGES"

|  | Years | | | |
|---|---|---|---|---|
|  | *2000* | *2005* | *2010* | *2017* |
|  | 0.92 | 0.89 | 0.91 | 0.87 |
|  | 0.75 | 0.71 | 0.74 | 0.7 |

The Spearman rank correlation coefficient has a positive value at all time points, quite close to 1. If we compare the dynamics of the coefficient with the dynamics of the number of regions of the second group, the conclusion is unequivocal: the average wage also increases with increasing labor productivity. This process can be called a rather favorable phenomenon of the formation of decent remuneration for labor. If we evaluate economic growth by 2005, then it is accompanied by an acceleration of wage growth, which can be assessed as compensation to the employed for the period of the 90s. In the period 2000-2005 in the national economy as a whole, labor productivity grew 2.98 times, and the average monthly accrued wage 3.85 times. The decrease in the coefficient in 2017 is due to a significant discrepancy in the ranks of labor productivity and wages. A particularly large difference in rank is observed for the regions of the Far East, Siberia and the North. Practically all regions of the Far East, with the exception of the Sakhalin Oblast, have sectoral specialization in the types of economic activities "state administration and ensuring military security; social security", "education","activities in the field of health and social services". This fact does not mean that these constituent entities of the Russian Federation are national centers of education, health care and public administration. The GRP of these territories is formed due to the sectors of the social sphere in particular, in which the state regulates wages, determining the level and dynamics of labor costs, the level of value added in the region and, therefore, labor productivity.

The discrepancy between the values of Kandell and the coefficient of Spearman is determined by the method of calculating the indicators. Kandall coefficient gives a more rigorous assessment of the ratio of ranks. So, a significant discrepancy in the ranks of the regions is observed precisely in the largest fourth group of regions with the level of productivity and wages below the average Russian value. And if the regions of the Far East have a higher rank in average wages and lower in labor productivity, then for the regions of the West and the South of Russia the situation is the opposite. A significant part of these territories also specializes in social sectors, but due to the specifics of the targets for raising wages to the level of average wages in the region, people employed in these sectors fall into a specific trap. The low level of economic development in the region determines low wages in the social sectors in which the territory specializes, and low labor productivity.

In general, an important conclusion can be drawn: the relationship between labor productivity in the region and

average monthly accrued wages is direct and stable. But such constancy in the difference in levels of labor productivity and wages is not in favor of the employed. For a large number of regions, the rank of productivity does not coincide with the rank of wages. Throughout the entire time period under consideration, Kendall coefficient varies insignificantly, the minimum value is observed in 2017, which indicates a greater spread of ranks due to a slowdown in wage growth.

Especially paradoxical and unfair should be considered the presence of regions in the third group that have a high level of labor productivity and low wages. The Samara region was present in the group in 2000 and moved to the fourth group in 2005. The situation is similar in the Lipetsk region and the Belgorod region. For the Belgorod region, there is a fairly close to the average Russian level of labor productivity, but a significant gap in the level of wages. The Republic of Tatarstan is present in three of the four observed time points in this group. In 2017, the Republic specializes in the types of economic activities "agriculture, forestry, hunting, fishing and fish farming", "mining", "construction", "hotels and catering establishments". Being a resource territory, the Republic of Tatarstan has a high level of employment in social sectors, but due to geography it does not have a high salary in the social sphere, and, as a result, a high average salary.

In general, the Russian national economy is characterized by a very high level of differentiation of labor productivity and wages. Characteristics of variation in terms of "labor productivity" are shown in table 2.

TABLE II.        THE DYNAMICS OF VARIATION POINTERS IN TERMS OF LABOR PRODUCTIVITY, THOUSAND RUBLES

| Indicators of variation | Years | | | |
|---|---|---|---|---|
|  | *2000* | *2005* | *2010* | *2017* |
| The value of the indicator for the Russian Federation as a whole (average Russian) | 88.422 | 263.896 | 538.907 | 1035.552 |
| Minimum | 29.596 | 79.888 | 192.682 | 304.582 |
| Maximum | 377.108 | 1304.222 | 1872. | 3686.873 |
| Scope | 347.513 | 1224.334 | 1680.150 | 3382.291 |
| Mediana | 59.307 | 169.140 | 365.508 | 739.807 |

For the period under review, the average Russian value of labor productivity increased 11.71 times, the minimum value increased 10.29 times, the maximum – 9.78 times; and the range of the row is 9.73 times. There was a slight reduction in the differentiation of regions in terms of labor productivity due to faster growth of the lowest values. But this growth in labor productivity is not enough to characterize the situation as prosperous. It should not be considered that there is a leveling of territories due to the improvement of the economic situation in complex regions. The fourth group of the territories with a low level of labor productivity and low wages is quite large in terms of the number of territories. Moreover, the ratio of the median value of labor productivity to the average Russian value in 2005 was 67.07%, in 2017 – 71.44%. The number of regions in the group in 2005 was 53, in 2017 – 64.

Consider the differentiation of the constituent entities of the Russian Federation by the indicator "average monthly accrued wages". The characteristics of the variation in the indicator "average monthly accrued wages of employees" are shown in table 3.

TABLE III.             DYNAMICS OF VARIATION POINTERS IN
TERMS OF THE INDICATOR "AVERAGE MONTHLY ACCRUED
WAGES"

| Indicators of variation | Years | | | |
|---|---|---|---|---|
| | *2000* | *2005* | *2010* | *2017* |
| The value of the indicator for the Russian Federation as a whole (average Russian) | 2223.4 | 8554.9 | 20952.2 | 39167.0 |
| Minimum | 878.7 | 3659.8 | 10243.5 | 21941.0 |
| Maximum | 6706.8 | 23314.4 | 46865.7 | 91995.0 |
| Scope | 5828.1 | 19654.6 | 36622.2 | 70054.0 |
| Mediana | 1742.0 | 3659.8 | 16328.6 | 29675.0 |

The average Russian value of the average wage increased 17.62 times, the minimum value increased 24.97 times, the maximum – 13.72 times, and the size of the series - 12.02 times. Due to the significant influence of the state on the level of wages in the social sectors, there is an increase in the minimum values of wages. Similar efforts of the state "did not shift" the median value of wages to the average Russian value. The share of median wages in the average Russian value in 2005 was 75.35%, in 2017 – 75.77%.

## V.   CONCLUSIONS

An assessment of the dynamics of regional differentiation of labor productivity and average wages allows us to draw the following conclusion: the reduction in the differentiation of the constituent entities of the Russian Federation in terms of the efficiency of use of labor resources is due to a slowdown in economic growth in the leading regions. The increase in average wages for regions with complex economic development is due to government policy, the financial resources of which are insufficient to ensure the equalization of citizens' incomes.

Academician A.G. Aganbegyan notes that in the next 10-15 years, the problems of the number of labor resources will be aggravated. A possible solution to the problem of reducing the number of labor resources is to increase labor productivity, which should be based on stimulating labor activity, raising wages, and leveling ultra-high economic inequality in the incomes of Russians [9].

Unfortunately, the Russian economy continues to be under the illusion that the low cost of labor enables businesses to be competitive and survive in times of crisis. The consequences of a low level of wages are very significant: the solvent demand of the domestic market is restrained, a steady shortage of personnel is formed in industries with low wages, a mismatch in the qualification level of employed people with

fulfilled labor functions. The opinion that a low wage level corresponds to a low level of labor productivity is not may be an argument to restrain wage growth.

One should listen to the opinion of a number of researchers that labor shortages and rising wages, in fact, are some of the factors that can stimulate firms to invest more in capital goods and new technologies [10]. The low level of wages does not stimulate business to invest using old technologies, delaying even the period of modernization as much as possible, without considering innovations in crisis conditions in general. This stable paradigm leads to inefficient use of labor resources, does not stimulate citizens to improve their skills through quality education, which can lead to a reduction in human capital in the country and aggravation of regional differentiation in the future, while maintaining negative migration trends within the country.

## REFERENCES

[1]  R.M. Nureev andS.A. Simakovsky, "Comparativeanalysisofinnovationactivityof Russianregions,"TerraEconomicus, Vol. 15, No. 1, pp.130-147, 2017. (in russ.)

[2]  V. B.Supyan, S.Babich, A.Korneev, L.Lebedeva, N.Minakova, O.Ovchinnikov, M.Portnoj, A. Rej, and N.Sudakova,Ensuring Socio-Economic Security at the Beginning of the 21st Century: US Experience. Mosccow: Ves mir, 2017. (in russ.)

[3]  I. Korshunov, O. Gaponova, and N. Gaponova, "Adult Training and Education in the Context of Economic Development of Regions," Economyof Region, Vol. 15, No. 1, pp. 107-120, 2019. (in russ.) https://doi.org/10.17059/2019-1-9

[4]  R. Kapelyushnikov, Economic essays: Methodology, institutions, human capital. Moscow: National Research UniversityHigher School of Economics, 2016. (in russ.)

[5]  T. L. Klyachko andE. A.Semionova, "The contribution of education to the socio-economic development of the Russian regions," Economy of Region, Vol. 14, No. 3, pp. 791-805, 2018. (in russ.) https://doi.org/10.17059/2018-3-8

[6]  N. Kelchevskaya and E. Shirinkina, "Regional Determinants of Effective Use of Human Capital in the Digital Economy," Economy of Region, Vol. 15, No. 2, pp. 465-482, 2019. (in russ.) https://doi.org/10.17059/2019-2-12

[7]  A. Aganbegyan, "Investments in fixed assets and human capital: Two interconnected drivers of socioeconomic growth,"Studies on Russian Economic Development,Vo. 28, No.4, pp. 361-363, 2017.https://doi.org/10.1134/S1075700717040025

[8]  "Indicator description: Labour productivity," Official website of International Labour Organisation. https://ilostat.ilo.org/resources/methods/description-labour-productivity/

[9]  A. G. Aganbegyan,"On immediate actions to reinvigorate social and economic growth,"Studies on Russian Economic Development,  Vol 30, No.1,pp. 1-9, 2019.https://doi.org/10.1134/S1075700719010027

[10]  A. Parisotto and N. Ray, "Rethinking macroeconomic policies for full employment and inclusive growth: Some elements," Employment: Working Paper, No. 238, 2017.