

# The relationship of employment, economic growth and economic structure (The example of Russia)

## La relación de empleo, crecimiento económico y estructura económica (El ejemplo de Rusia)

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#### ABSTRACT:

Labor is one of the main factors of production. Economic growth and social development depend on the full use of it and the quality of the workforce. The article discusses the direct and inverse links of employment and productivity with economic development, changes in the structure of the economy (on the example of the Russian economy). The authors revealed the fact of insufficiently effective use of labor resources in Russia and offered measures to improve employment and increase productivity.

**Keywords:** economic growth; employment; unemployment; economic policy; structural policy

#### RESUMEN:

El trabajo es uno de los principales factores de producción. El crecimiento económico y el desarrollo social dependen de su pleno uso y de la calidad de la fuerza laboral. El artículo discute los vínculos directos e inversos del empleo y la productividad con el desarrollo económico, los cambios en la estructura de la economía (en el ejemplo de la economía rusa). Los autores revelaron el hecho de un uso insuficientemente efectivo de los recursos laborales en Rusia y ofrecieron medidas para mejorar el empleo y aumentar la productividad.

**Palabras clave:** crecimiento económico; empleo; desempleo; política económica; política estructural

## 1. Introduction

Employment is one of the main macroeconomic indicators that characterize the efficiency of the economy (Abraham and Sasikumar, (2018); Afonso et al. , (2018) Fedchenko et al (2018); Keynes, (1997; Pshenichnikova, (2017; Robertson, (1985); Romanyuk, (2018); Rusanovskiy and Markov, (2018). In addition, the problem of employment is of great social importance. Not only the pace of economic development, but also the social well-being of the population depends on the level of employment Polozhentseva, (2016). In this regard, employment policy is an important part of economic policy; it is associated

with structural and investment policies, income policies, personnel policy, etc.

Employment must be effective. At the macrolevel of the economic system, the goal is to efficiently distribute labor resources by industry and activity, which ensures high productivity of the national economy. At the micro level of the economic system, the number of employees and the number of jobs in each enterprise should be balanced. From a social point of view, effective employment involves a combination of high production results with fair wages, satisfaction of personal preferences of workers, due to their characteristics and desires.

An integral qualitative economic indicator of employment efficiency is labor productivity. This indicator characterizes the ratio of costs and results of labor. Labor productivity at the micro level is measured by the number of products produced by an employee per unit of working time (hour, month, year, etc.), or the amount of time spent on producing a unit of production. At the macro level, productivity is estimated as the ratio of gross product and the number of people employed in the economy.

The implementation of economic policies aimed at accelerating the socio-economic development of the country requires greater attention to the problem of employment. We see its increase as an extensive factor of economic growth. The increase in labor productivity is an intensive factor in economic growth.

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## **2. Methodology**

The development of public employment programs involves the use of economic and legal instruments Golovina et al. (2017); Seleznev et al. 2016; Vertakova, (2016). Economic instruments include the creation of new jobs, increasing the economic interest of employers in flexible working conditions, encouraging labor migration, increasing the level of personnel training, etc. Legal instruments include improving legislation and institutions that effectively regulate the labor market.

There are active and passive employment policies. An active employment policy is aimed at combating unemployment. Passive employment policy is designed to mitigate the negative effects of unemployment. The priorities of active policy are preventive measures to preserve jobs, vocational training and retraining of personnel, organization of public works and temporary employment, development of flexible forms of employment, job quotas, support for small businesses, exemption of socially important and socially responsible companies for a certain period from taxation, etc. Passive employment policies include the payment of unemployment benefits, the provision of job placement services for the unemployed through the state employment service, etc.

The growth of labor productivity is stimulated through measures of structural, innovative, industrial, regional, educational and other directions of state policy. The factors of increasing labor productivity include the improvement of technology and technology, the modernization of the structure and organization of production, the rational allocation of productive forces (at the macro level) and the rational use of existing equipment (at the micro level), improvement of the organization of labor, professional development of workers, improvement of labor discipline, improvement of the system wages, improving working conditions and safety, etc.

We believe that labor productivity and labor efficiency are closely linked with the volume of GDP production. It is estimated that in the European Union countries differences in labor productivity by 90% are due to differences in the quality and quantity of human capital (MTSNO, 2015). Italian researchers consider the features of the impact of technological progress and investment in capital on labor productivity. An analysis of these indicators across EU countries for the period 1993–2007 shows that differences in the development of countries are mainly due to the expansion of the borders of the Eurozone and the increasing differentiation of countries in terms of technological progress (Filippetti and Peyrache, 2013).

National statistics, as well as international think tanks (the World Bank, the International Monetary Fund, organizations of the UN system, etc.) show that at present many developing countries are not using their potential for economic growth. One of the

reasons is the ineffective employment policy. This is typical for Russia. The economic structure determines the structure of employment, which affects the level of economic development. There is an inverse relationship; the structure of employment is also able to influence the structure of the economic system. In developing economies, along with the transformation of the structure of the economic system, there are also shifts in the structure of employment, and structural transformation of employment affects the change in the structure of the economy.

The change in the structure of employment is also influenced by the movement of labor, which occurs under the influence of the following factors:

1. Demographic characteristics. These are indicators such as fertility, mortality, migration. The age and gender composition of the workforce indicates its quality: a high percentage of the elderly population leads to low mobility, and a high proportion of young people suggest higher costs for education and training.
2. Social features. At each stage of development in society, certain conditions of work are formed. Social sphere influences the level of education, health care, development of the service sector, etc.
3. Psychological features. In the economic sphere, labor is considered as a means of material support for a person's life, the main sphere of life activity. Individuals make decisions about the choice of a profession, the adoption of working conditions or the workforce. Social psychology determines the positive or negative attitude of men and women to certain professions, etc.
4. Economic factors associated with changes in labor demand. This includes the relationship between individual types of labor, changes in the requirements for the qualifications of the workforce, etc.

Thus, the effect of employment on the development of the economic system can be characterized both by the direct influence of one's own structure and by indirect influence through structural characteristics. Changes in the structure of the economy are often associated with the transition to new technologies, which is facilitated by the introduction of innovations. The leading role in the creation of innovations belongs to the human factor, and as a result, the innovative labor force becomes the main factor of structural changes. Consequently, development requires concentration of resources in knowledge-intensive industries, reproduction of highly skilled labor, financial investments in research and development and education, etc. (Vertakova et al (2013)).

The growth of labor productivity and the progressive modernization of the structure of employment, which makes it possible to reproduce in enough workers required by the economy, provide the basis for the economy to emerge from crisis situations and launch mechanisms for economic growth. Such measures as a combination of production efficiency and employment, investment and innovation support for enterprises, the creation of new jobs, allow modernizing the structure of the economy and expanding the sphere of effective employment.

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### **3. Results**

The considered approaches in our study were used on the example of the Russian economy. The employment situation in Russia is controversial. Table 1 presents data on the number of employed and unemployed in Russia during the transition from a socialist to a market economy. The workforce has undergone little change since 1992. The number of unemployed showed fewer stable dynamics. The employment rate is quite low. Officially registered unemployment is negligible.

A significant problem of the Russian economy is low labor productivity and its sluggish dynamics (Table 2). For the years 2000-2010 average labor productivity in Russia rose from 18% of the US level to 26%. By industry, labor productivity in Russia of the US level is: 33% in the steel industry, 31% in retail, 23% in banking, 21% in residential construction, 15% in power generation (Council of Federation, 2016).

Employment indicators in Russia (for the population aged 15-72 years, thousand people) (Rosstat, 2018)

| <b>Indicator</b>                      | <b>1992</b> | <b>2000</b> | <b>2005</b> | <b>2010</b> | <b>2012</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Workforce - all                       | 75060       | 72770       | 73581       | 75478       | 75676       | 75428       | 76588       | 76636       |
| employed                              | 71171       | 65070       | 68339       | 69934       | 71545       | 71539       | 72324       | 72393       |
| unemployed                            | 3889        | 7700        | 5242        | 5544        | 4131        | 3889        | 4264        | 4243        |
| Level of labor force participation, % | 70.7        | 65.5        | 66.0        | 67.7        | 68.7        | 68.9        | 69.1        | 69.5        |
| Employment rate, %                    | 67.1        | 58.5        | 61.3        | 62.7        | 64.9        | 65.3        | 65.3        | 65.7        |
| Unemployment rate, %                  | 5.2         | 10.6        | 7.1         | 7.3         | 5.5         | 5.2         | 5.6         | 5.5         |

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**Table 2**  
Labor productivity growth for 1991-2012  
(Council of Federation, 2016)

| <b>Country</b> | <b>Growth rate</b> |
|----------------|--------------------|
| China          | 6.80               |
| Great Britain  | 1.49               |
| USA            | 1.44               |
| Russia         | 1.29               |

Labor productivity characterizes the efficiency of the use of labor resources. Being an indicator of the development of the economic system and a major factor in raising the standard of living, labor productivity in Russia remains low. The constraining factors for increasing this indicator are the poor state of fixed capital, production organization and the quality of workers. Labor productivity is also not growing due to the deindustrialization of the Russian economy (Bodrunov and Plotnikov, 2017). The level of training of qualified labor, especially engineering and technical personnel remains inadequate.

Labor productivity in developed and rapidly developing countries depends to a large extent on scientific, technological and innovative development. This is their difference from Russia. The main factors that influence the growth of labor productivity in most cases are technological innovations and continuous professional development of workers. At the same time, simultaneously with the growth of labor productivity, an increase in the level of pay is observed.

To assess the impact of the labor factor on economic growth in Russia, we used the Cobb-Douglas model. The Cobb-Douglas model is a neoclassical two-factor model of the production function, which reveals the effect of labor (L) and capital (K) on production. This function has the form:

$$Y = AK^{\alpha}L^{\beta},$$

where Y is the GDP; A - production factor; K - capital; L - work;  
 $\alpha, \beta$  - coefficients of elasticity of the volume of production at the capital and labor.

To build the production function, official statistics of Rosstat and the World Bank were used in terms of GDP, the value of fixed assets and the number of people employed in Russia for the period 1991-2015 (Table 3).

**Table 3**  
The volume of GDP, capital and employment in Russia

| <b>Year</b> | <b>Y (thousand \$)</b> | <b>K (thousand \$)</b> | <b>L (number of employed, thousand)</b> |
|-------------|------------------------|------------------------|---|
| 1991        | 517963000              | 187851852              | 66679                                   |
| 1992        | 460291000              | 159322034              | 70992                                   |
| 1993        | 435084000              | 117503805              | 68490                                   |
| 1994        | 395077000              | 100892684              | 64698                                   |
| 1995        | 395531000              | 100620224              | 63925                                   |
| 1996        | 391720000              | 92711097               | 63014                                   |
| 1997        | 404927000              | 88988764               | 60309                                   |
| 1998        | 270953000              | 40546110               | 58617                                   |
| 1999        | 195906000              | 29053615               | 62902                                   |
| 2000        | 259708000              | 48549591               | 64973                                   |
| 2001        | 306603000              | 67298594               | 64896                                   |
| 2002        | 345110000              | 69196609               | 66579                                   |
| 2003        | 430348000              | 89766063               | 67659                                   |
| 2004        | 591017000              | 123530024              | 68842                                   |
| 2005        | 764017000              | 153395511              | 69937                                   |
| 2006        | 989931000              | 209584054              | 70219                                   |
| 2007        | 1299710000             | 314067582              | 72018                                   |
| 2008        | 1660840000             | 423536086              | 72250                                   |
| 2009        | 1222640000             | 231402251              | 70553                                   |
| 2010        | 1524920000             | 344860682              | 70950                                   |
| 2011        | 2031770000             | 469060645              | 71954                                   |
|             |                        |                        |   |

|      |            |           |       |
|------|------------|-----------|-------|
| 2012 | 2170140000 | 497856160 | 72686 |
| 2013 | 2230630000 | 471351958 | 72360 |
| 2014 | 2063660000 | 458974020 | 72391 |
| 2015 | 1365870000 | 305592683 | 71911 |
| 2016 | 1325160000 | 291234524 | 71851 |

Using the method of least squares, the coefficients of the Cobb-Douglas equation were searched. The result is:

$$\begin{aligned}
 A &= 0.988, \\
 a &= 0.886, \\
 b &= 0.246, \\
 (R^2 &= 0.945).
 \end{aligned}$$

The production function of Cobb-Douglas for the Russian economy is:

$$Y = 0.988 K^{0.886} L^{0.246}.$$

Technological coefficient  $A$  (0.988) is close to unity. It reflects the level of technological performance and has virtually no effect on GDP. The sum of the exponents  $a$  and  $\beta$  is greater than one and is equal to 1.132. This means that in the period 1991-2015 in Russia there was an increasing return on the expansion of production: output grew faster than the average increase in capital and labor.

Consequently, the production function describes a growing economy.  $a > \beta$ , it can be concluded that Russia's GDP growth is labor-saving (intensive). The increase in GDP is carried out at the expense of capital growth, that is, at the expense of increasing production efficiency and qualitative changes in production processes. The increase in production efficiency, in turn, occurs partly based on scientific and technological progress, especially in high-tech industries, partly due to the functioning of the basic sector of the economy (to a greater extent - the mining industry).

The labor-saving type of economic growth implies that the new technology is pushing labor out of production. The growth in output is faster than the change in the number of employees. However, here we must consider the existing restrictions on the growth of the labor force in the Russian economy, primarily the demographic problem and the aging of the population. This is reflected in the disproportionality of different age groups. Some countries, including developed ones, such as the USA, actively attract labor from abroad, which contributes to the growth of national production. So, for the period 2000-2011, the number of people employed in the American economy increased by 6 million people. (World Bank, 2018). In Germany, during this period, the number of employed increased by 3.1 million people, in Italy - by 1.7 million people, in the UK - by 1.3 million people, in Canada - by 2.0 million people, in France - by 2.5 million people.

In Russia, during the period under study, the increase in GDP by 2.6 times was carried out more due to capital, which grew 1.6 times. However, the average and marginal efficiency of capital is lower than that of labor, which is associated with the saturation of the economy with productive assets. But in general, according to the production function, the dependence of GDP on the applied capital is more substantial, since the amount of labor at the beginning and end of the period remained almost unchanged. However, the average and marginal productivity of labor is higher than that of capital, which indicates the effectiveness of the use of labor.

Like many other problems facing the Russian state, active regulation of the labor market must be carried out at the federal, regional and local levels. Active regulation should rely on an incentive system for enterprises, such as tax and credit incentives. All this can

guarantee the creation of new jobs and the preservation of existing ones. Public-private investment (partnership) is the main measure of creating demand for labor. The growth of investment activity and the creation of a favorable climate are not only a guarantee of job creation, but also a modifier of the employment structure. The restructuring of the economy, the structure of employment and the level of unemployment depend on the increase in investment activity.

Increasing labor productivity can be the foundation of economic growth. Since the 2000s, labor productivity in Russia has grown at a rate of about 6% per year, providing 2/3 of GDP growth. This happened mainly due to the available capacity. Over the next 10 years, labor productivity grew 1.7 times (McKinsey, 2009). Another part of the increase in per capita GDP was mainly due to an increase in the number of people employed by immigrants. Low growth rates of labor productivity restrain the development of the Russian economy.

The dynamics of the labor productivity index of Russia in 2010-2015, coupled with the consistently low level of labor productivity, is a dangerous phenomenon in terms of economic growth and the formation of a competitive economic system. The possibility of ensuring stable social development of the country, raising the level and quality of life of the population is also being questioned. It is important to note that in countries that surpass Russia in labor productivity, wages are significantly higher (after taxes). The correlation in relative wages and labor productivity shows a positive relationship: in countries with high wages and productivity, the correlation coefficient is 0.65, while in countries with lower rates it is barely 0.3 (Council of Federation, 2016).

Without the stimulating function of wages, increasing productivity is very difficult. In Russia, compared to developed countries, a lower proportion of wages in GDP. The share of wages of employees in GDP and its change to a certain extent reflects the level of labor valuation, inequality and its growth. The Gini coefficient exceeds in Russia (according to official data) 42. For example, in the USSR in 1989 it was equal to 23.8. Officially, about 15-20% of the Russian population is below the poverty line, which is about 40 million people. Moreover, the working population is also classified as poor.

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## **4. Conclusions**

Considering the peculiarities of Russia, it is necessary to create a new concept of structural policy, in which the issues of labor market regulation should play a significant role. The restoration of industrial production, the development of agriculture, the renewal of existing enterprises' funds, financial support for businesses in line with development priorities, elimination of wage deformation, excessive inequality and poverty are measures that trigger economic growth, as well as increase employment and productivity. Among the priorities of this structural policy are the following:

1. To stimulate the growth of competition by eliminating administrative barriers and increasing innovation activity.
2. Implement an integrated approach to the development of territories. Regions of Russia are developing asymmetrically. Imbalances in the level of economic activity and the standard of living attract most workers to the Center, while the Periphery is rotting, there is high unemployment.
3. Implement programs to support the reproduction of the workforce in general and by sector, based on strategically defined ratios between sectors of the economy.
4. Introduce measures to maintain the working-age population. First, it is necessary to ensure that social needs for health and cultural development are met. A physically and psychologically healthy population can not only increase labor productivity, but also promote innovative development. Ensuring the needs of the population in housing, quality nutrition.
5. To modernize the system of vocational education and retraining.

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