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CYCLIC FLUCTUATIONS OF THE RUSSIAN AND FOREIGN LABOUR MARKET INDICATORS: IN SEARCH FOR NON-STANDARD REACTIONS

Abstract. The article presents the results of a comparative analysis of the dynamics of trend-cycles of macroeconomic indicators of the Russian and foreign labor markets for the period from the I quarter 2003 to the IV quarter 2015. The work analyzes fluctuations in the trend-cycles of the following indicators: the level of participation in the workforce (level of EAP), the level of employment and unemployment measured by the ILO methodology. As foreign labor markets, 25 OECD countries are taken. Correlation coefficients between all the labor markets examined for these indicators were estimated. In addition, fluctuations in trend-cycles of indicators are ranked according to the degree of sensitivity to the crisis phenomena of 2008. It is established that the Russian labor market was not characterized by non-standard reactions in comparison with foreign labor markets, including in response to the crisis events of 2008. In this regard, the hypothesis of a “special model” of the Russian labor market has not been confirmed.

Keywords: Russian labor market; cyclic reactions; macro indicators of labor markets; cross-country analysis

JEL CODES: E32, J21, J64, O57

1. Introduction

In the economic theory of labor, there are two types of adjustments of the labor market: the “exit” mechanism and the “voice” mechanism. The first mechanism assumes that if the working conditions deteriorate, workers will react by leaving the company in order to find a preferred place of work in the labor market. The second mechanism implies that employees face high costs of dismissal, as a result, they are reluctant to become unemployed and seek for a dialogue with the employer.

Researchers of the Center for Labor Studies of the Higher School of Economics [Gimpelson, Kapelyushnikov, 2007] characterize the adjustment of

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the Russian labor market through the operation of the «voice» mechanism. They believe that the adjustment is of a non-standard nature: rapid reaction of wages, but a weak and gradual reaction of unemployment to negative shocks. More traditional model of the labor market reaction involves significant fluctuations in the unemployment rate, therefore, the type of adjustment of the Russian labor market is called a «special model». This approach has become a recognized standard for the study of the functioning of the labor market in Russia.

Within the research cycle, Gurvich E. T. and Vakulenko E. S. [Vakulenko, Gurvich, 2015] came to the conclusion that Russian market mechanisms are consistent with the reactions that foreign labor markets demonstrate/ This can be viewed as criticism of the «special model». Therefore, the «exit» mechanism of adjustment can be regarded typical for the Russian labor market.

The choice in favor of the model which is more typical for the Russian labor market — affects the choice of State policy measures on the labor market. Under the first mechanism, active State policy in the labor market means promotion of employment and corresponding information for the participants of labor relations. With the second mechanism, the policy focuses on monitoring compliance and improving working conditions for workers.

In view of the foregoing, it is important to conduct the following empirical assessment: whether the dynamics of indicators of the Russian labor market within the framework of the passage of cycles corresponds to traditional patterns or whether it has a special model that assumes special patterns of movement of indicators within the cycle.

One way to carry out this assessment is to conduct an inter-country analysis of cyclical fluctuations in the indicators of the Russian and foreign labor markets.

Cyclic fluctuations in labor markets have a long history of study by foreign researchers. In the 1980s a number of articles discussed the process of negotiations between an employee and an employer at the micro level, which influenced of the labor market parameters at the macro level. A breakthrough in this area of research is the article of Christopher Pissarides [Pissarides, 1985], which establishes the relationship between fluctuations in unemployment, vacancy rates and real wages, caused by their reaction to positive and negative shocks. The article shows that in the labor market, shocks affect primarily parameters at the micro level (the costs of the vacancy, the relative negotiating power of an employee), which form cyclical fluctuations at the macro level. This article, published in 1985, generated a series of studies dealing with the analysis of the dynamic labor market; some of them conducted inter-country analysis. For example, in the paper of Ming Zhang [Zhang, 2008], the indicators of Canada and the USA are compared for the quarterly data for 1962–2003; in the paper of Malgorzata Skibinska [Skibinska, 2015] — indicators of the countries of Central and Eastern Europe with the countries of the Euro zone based on quarterly data for 1997–2013.

2. Research Methodology

The comparative analysis was performed by the author using international data presented at the OECD Statistics [OECD Statistics...]. OECD Statistics includes databases on countries of the Organization for Economic Cooperation and Development (OECD) and selected economies outside the OECD. Three indicators were analyzed:

- The level of economic activity of the population (level of participation in the workforce, EAP),
- employment level,
- unemployment rate measured by the ILO methodology.

The time series was selected from 2003 to 2015. All indicators were considered with the exception of the seasonal component. In the OECD database, such indicators for foreign countries are available. Rosstat does not produce data with the exception of the seasonal component, so data on the Russian labor market were calculated. Primary data are taken from Rosstat collections [The Social and Economic Situation of Russia...]. All calculations for the removal of the seasonal factor and random fluctuations were made using the X-12ARIMA-SEATS and X-13ARIMA-SEATS applications included in EViews 8.0.

Value without a seasonal factor and without a random component will be called a trend-cycle in this work [Glossary of statistical terms..., 2005]. In fact, the trend-cycle is the product of the trend component multiplied to the cyclical component of the labor market indicator. In order to analyze dynamic labor markets, the parameter of the trend-cycle speed will be used, which is the growth rate of the labor market macro-indicator growth cycle. The change in speed will show the strength of the macro-indicator reaction, a strong change in speed will demonstrate the impact of crisis phenomena in the economy.

The analysis of the specificity of the Russian labor market will be carried out mainly through two tools — the evaluation of the correlation coefficients and the evaluation of the reaction force in response to the crisis events of 2008. The author's empirical estimates in Excel format are an attachment to this article.

In the comparative analysis of correlations, the author was guided by the following approach:

- High correlation — if the correlation coefficient is over 70%;
- Moderate correlation — if the correlation coefficient is from 40 to 70%;
- Weak correlation — if the correlation coefficient is from 20% to 40%;
- Insignificant correlation — if the correlation coefficient is below 20%.

It seems that the weaker the correlation, the higher is the specificity of the trend-cycle speed of the macro-indicator of this market there. At the same time, the higher the correlation — the more synchronous are the fluctuations of the domestic labor market with foreign labor markets and the less specific is its reaction.

The reaction of the labor market indicator to the crisis of 2008 was estimated as the median of the macro-indicator cycle-trend speed in the period from Q3 2008 to Q2 2009. These reactions were sorted into 5 groups, there was a strong, moderate, weak, very weak and acyclic reaction to the crisis. The purpose of the ranking was to identify the most typical reaction to the crisis, as well as to study countries that are knocked out of the general series. The range of values varied for each indicator, as the volume of indicators varies, for example, the ranges of a strong reaction of the unemployment rate and the level of economic activity of the population differ significantly.

It is necessary to pay attention to the existing differences in the collection and provision of data by Russian and foreign statistical services. Until 2016 Rosstat and OECD used different age groups to determine the workforce (previously the parameter was called economically active population, EAP). Rosstat defined the boundaries of EAP from 15 to 72 years (currently the upper age limit is excluded). OECD statistics are provided for groups of people from 15 to 64 years, from 15 to 74 years, and over 15 years. For comparability we used data for the age group from 15 to 74 years. In total, the analysis uses data from 25 OECD countries.

In addition, OECD consolidates statistics from the statistical services of individual countries. Each country uses its own methodology to conduct a population survey on employment issues that have a common approach, but the details are different. Thus, the survey characteristics, such as the standard error in estimating the unemployment rate, the confidence probability and the proportion of the surveyed in the total population, differ, which affects the final results that are extrapolated throughout the country. Also, the accuracy of the time is influenced by the preparation of the report with the survey results. For example, in the USA it is 2 weeks, which is oriented on the stock market where decision-making depends *inter alia* on updated forecasts of the Bureau of Labor Statistics. In Russia the report takes 5 weeks; it is aimed to provide updated data for making decisions on the implementation and corrections of the employment policy measures (respectively, in the USA, the confidence probability is 90%, in Russia — 95%). In conclusion of this section it is worth noting that the comparative analysis of employment surveys methodologies used by the statistical services in different countries needs further research.

3. Empirical estimates

3.1. Unemployment rates by ILO methodology

The dynamics of the unemployment rate varied before and after the crisis in 2008. Prior to the 3rd quarter of 2008, the unemployment rate was declining by an average of 1.8% in OECD countries and 1.5% in Russia. From the 4th quarter of 2008 to the 4th quarter of 2015, the unemployment rate was growing on average

by 0.1% in OECD countries and falling by 1.4% in Russia. At the same time, during the peak of the crisis, from the 3rd quarter of 2008 to the 2nd quarter of 2009, the average unemployment rate grew by 9.6% in OECD countries and by 10.6% in Russia.

The principal difference between unemployment rates is their dynamics in the post-crisis period — in OECD countries it continued to increase in response to the crisis, while in Russia it declined. It can be assumed that the different cyclic behavior of the indicator is caused by the different reaction of labor markets in OECD countries and in Russia to the shock of 2008.

The results of the comparative analysis demonstrate an insignificant correlation between the unemployment rate dynamics in Russia and 7 OECD countries. Weak correlation is observed between Russia and 5 OECD countries, moderate — with 13 countries, while there is no high correlation between Russia and any OECD country (the highest correlation is observed with the USA labor market: 67%).

Also, the statistics of the Russian Federation have a moderate correlation with averaged data for OECD countries (57% — taking into account the crisis countries). The general directions of the velocity curves coincide: first slowing down before 2008, then a sharp increase in speed in 2008–2009, and then a slowdown. This suggests that, in general, the cyclical behavior of the unemployment rate in both OECD countries and in Russia can be characterized as normal from the economic theory standpoint: in the period of growth unemployment decreases, during the crisis it increases, during the recovery period — decreases and tends to pre-crisis values. The graphic illustration is presented in Figure 1.

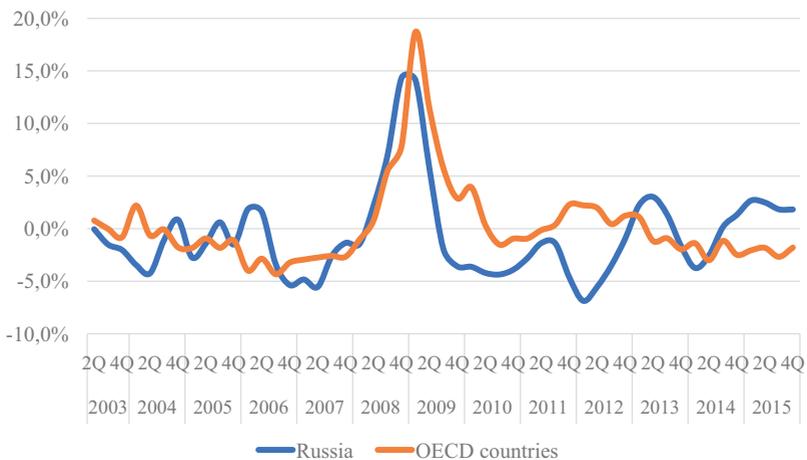


Figure 1. Unemployment rates in OECD countries and in the Russian Federation according to the ILO methodology. 2003–2015, quarterly data. Data from OECD Statistics and author's calculations based on Rosstat data.

However, in the post-crisis period, the rate of unemployment in OECD countries was growing by about 0.1%, while in Russia it was decreasing by about -1.4%. In Russia, there was a significant increase in the rate of unemployment in 2014–2015 relative to the average speed of this indicator in OECD countries.

Further in the analysis, the countries were ranked by a degree of the reaction to the crisis (or by increase in speed of unemployment rate changes during the crisis). The results are shown in Table 1. There was no acyclic reaction to the crisis of 2008 by the indicator.

Table 1. Countries ranked by the speed of unemployment rate changes in the period from the 3d quarter of 2008 to the 2nd quarter of 2009. Author's calculations

Type of reaction	Value range of the indicator	Number of countries	List of countries
Strong reaction to the crisis	$> 15\%$	6	Denmark, Estonia, Iceland, Ireland, Latvia, Spain
Moderate reaction to the crisis	$7\% < x < 15\%$	7	Austria, Czech Republic, Slovenia, Sweden, United Kingdom, United States, Russia
Weak reaction to the crisis	$4\% < x < 7\%$	10	Belgium, Finland, France, Hungary, Israel, Japan, Netherlands, Norway, Portugal, Slovakia
Very weak reaction to the crisis	$0\% < x < 4\%$	3	Greece, Italy, Poland

It should be noted that the reaction in countries such as Greece and Slovakia was initially relatively weak, and the main increase in the rate of unemployment was after 2009.

3.2. Employment rate

The dynamics of the employment rate varied before and after the crisis in 2008. Prior to the 3rd quarter of 2008, the employment rate was growing on average by 0.3% in OECD countries and by 0.5% in Russia. From the 3rd quarter of 2008 to the 4th quarter of 2015, the employment rate was growing by 0.2% in Russia, while in the OECD countries it did not change ($\approx 0.0\%$). At the same time, in the peak of the crisis — between the 3rd quarter of 2008 and the 2nd quarter of 2009 — the employment rate was decreasing by 0.9% on average in the OECD countries and by 0.7% in Russia.

The main difference in the dynamics of the employment rate was in the post-crisis period - in OECD countries it was declining in response to the crisis, while in Russia it initially declined, and then grew. As a result, by the fourth quarter

of 2015, the gap reached 4.7 percentage points - the average unemployment rate in OECD countries was 60.7%, in Russia — 65.4%.

As in the case of the unemployment rate, the different cyclical behavior of the employment rate in the OECD countries and in Russia was due to the different reaction of the labor market to the shock of 2008. The results of the analysis of the cyclic behavior of the employment rate are presented below.

There is an insignificant correlation between the employment rate in Russia and 10 OECD countries. Weak correlation is observed with 13 countries, moderate — with 2 countries (the largest one with the USA).

The trend-cycle of the employment rate in the Russian Federation has a moderate correlation with the averaged data for the OECD countries (43% — taking into account the crisis countries). The velocity curves move synchronously — first an insignificant increase in speed until 2008, then a sharp decrease in speed in 2008–2009, then a slight increase in speed.

The cyclical behavior of the employment rate in OECD countries and in Russia can be characterized as synchronized, and normal from the economic theory standpoint: in the period of growth employment grows, during the crisis it decreases, during the recovery period it grows and seeks to achieve its pre-crisis values. Graphically the fluctuations are presented in Figure 2.

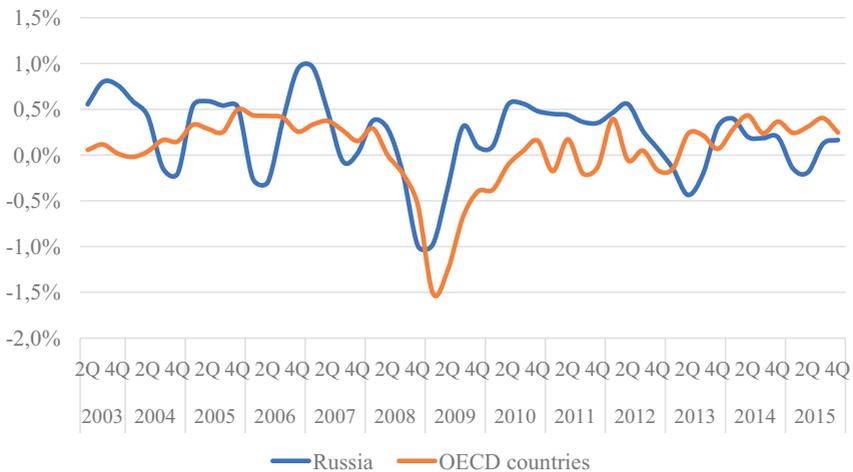


Figure 2. Employment rates in OECD countries and in Russia. 2003-2012, quarterly data. Data from OECD Statistics and author's calculations based on Rosstat data.

As in case of the unemployment rate, in the post-crisis period the speed is different: in OECD countries it is about 0.0%, and in Russia about +0.2%. Thus, the speed of changes of employment rate was higher in Russia than in the OECD countries.

In addition, all 25 countries were ranked by the degree of the response of the employment rate to the crisis (i.e., by increase in the speed of employment rate during the crisis). The results are shown in Table 2. In terms of this indicator there was no strong reaction to the 2008 crisis.

Table 2. Countries ranked by the speed of employment rate changes in the period from the 3rd quarter of 2008 to the 2nd quarter of 2009 Author's calculations

Type of reaction	Value range of the indicator	Number of countries	List of countries
Moderate reaction to the crisis	$-3\% < x < -2\%$	2	Estonia, Latvia
Weak reaction to the crisis	$-2\% < x < -1\%$	4	Iceland, Ireland, Spain, United States
Very weak reaction to the crisis	$-1\% < x < 0\%$	18	Austria, Belgium, Czech Republic, Denmark, Finland, France, Greece, Hungary, Israel, Italy, Japan, Norway, Portugal, Slovakia, Slovenia, Sweden, United Kingdom, Russia
Acyclic reaction to the crisis	$> 0\%$	2	Netherlands, Poland

Countries such as Estonia, Latvia, Iceland, Ireland and Spain reacted sharply both in terms of unemployment and employment levels. Therefore, these labor markets are the most sensitive to negative shocks in the labor market. This also can be a result of the employment policy in these countries.

3.3. The level of participation in the workforce (EAP level)

The dynamics of the “EAP level” indicator varied before and after the crisis in 2008. Prior to the 3rd quarter of 2008, the employment rate was growing on average by 0.3% in OECD countries and by 0.5% in Russia. From the 4th quarter of 2008 to the 4th quarter of 2015, the unemployment rate was growing on average by 0.1% in OECD countries and decreasing by 1.4% in Russia. At the same time, in the peak of the crisis — between the 3rd quarter of 2008 and the 2nd quarter of 2009, the employment rate was declining by 0.9% on average in the OECD countries and by 0.7% in Russia.

The difference between the dynamics of the EAP level in the post-crisis period was that in the OECD countries the decline in the EAP level was on average longer than in Russia, and lasted until 2012. At the same time, EAP level in the Russian Federation is higher than in OECD countries, which is due, *inter alia*, to a sample of countries which includes Hungary, Greece and Italy. With

their exception, the EAP level in OECD countries can be said to “catch up” with the EAP level in the Russian Federation in the period up to the 3d quarter of 2008.

Considering the cyclical behavior of the EAP rate, it can be noted that, as in the case of the unemployment rate and the employment rate, the differences between the OECD countries and Russia are caused by the different reaction of the labor markets to the negative shock of 2008.

There is an insignificant correlation between the EAP rates in Russia and 23 OECD countries. Weak correlation is observed only with 2 countries (with Denmark and with Spain). Most likely, the lack of correlation is caused by the low sensitivity of the EAP rate to shocks. At the same time, the trend-cycle of the EAP rate in the Russian Federation has an insignificant correlation with the averaged data for OECD countries (14% — even without Greece, Hungary and Italy).

Examination of the sinusoid gives an explanation for the low correlation. The motion of the velocity curves is not synchronous: the data sinusoids in Russia have large amplitudes and a lower frequency; OECD data, on the contrary, have smaller amplitudes and a higher frequency. In general, the cyclic behavior of the EAP rates in OECD countries and in Russia in response to a negative shock can be characterized as normal from the economic theory standpoint: in the crisis period — a tendency to decrease, during the recovery period — a tendency to increase (the fluctuations are presented in Figure 3).

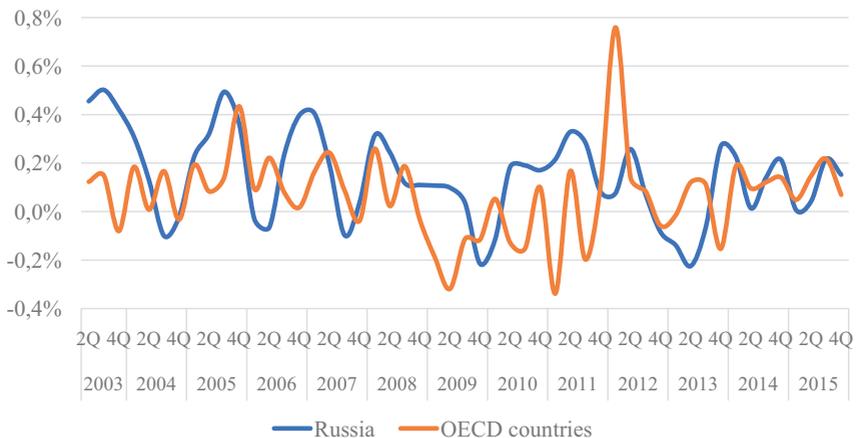


Figure 3. EAP rates in OECD countries and in the Russian Federation in 2003-2015, quarterly data. Data from OECD Statistics and author’s calculations based on Rosstat data.

All 25 countries were ranked by the degree of response of the EAP rate to the crisis (or by increase in the speed of EAP rates change during the crisis).

The results are shown in Table 3. In terms of this indicator there was no strong reaction to the 2008 crisis.

Table 3. Countries ranked by the speed of the EAP rate changes in the period from the 3rd quarter of 2008 to the 2nd quarter of 2009 Author's calculations

Type of reaction	Value range of the indicator	Number of countries	List of countries
Moderate reaction to the crisis	$-0.66\% < x < -1\%$	1	Iceland
Weak reaction to the crisis	$-0.33\% < x < -0.66\%$	3	Ireland, Norway, Finland
Very weak reaction to the crisis	$0\% < x < -0.33\%$	11	Denmark, Estonia, Hungary, Italy, Japan, Latvia, Portugal, Slovakia, Sweden, United Kingdom, United States
Acyclic reaction to the crisis	$> 0\%$	11	Austria, Belgium, Czech Republic, France, Greece, Israel, Netherlands, Poland, Slovenia, Spain, Russia

Countries such as Iceland and Ireland noticeably reacted to the crisis by all the indicators reviewed, which means that they are very sensitive to negative shocks.

4. Conclusions

1. "Pre-crisis" speed of labor market rates in Russia are comparable with the labor market rates of developed and developing countries. An important difference is in the post-crisis trends. The labor market in Russia was characterized by a slightly positive rate, while the labor markets of developed and developing countries — by a slightly negative rate. In other words, after the crisis, the Russian labor market seek to its pre-crisis values, while the average values in foreign labor markets characterized the worsened the state of labor markets.

2. During the global financial crisis, the reaction of labor markets corresponds to the economic logic: negative dynamics of employment rate and positive dynamics of unemployment rate. The degree of reaction is different: in some countries the labor market has sharply shifted into a phase of recession, in other cases it reacted moderately. These differences indicate the varieties in employment policies in the recession phase. The reaction of the Russian labor market belongs to the middle group of countries, without significant deviations in one direction or another.

3. The reaction of the EAP rate was diverse, in half of OECD countries it was growing during the crisis. It can be assumed that this indicator is not as sensitive to shocks as unemployment and employment rates.

In this analysis, situation in particular OECD countries were not so important; the idea was to analyze whether the reaction of the indicators of the Russian labor market was typical or not. In general, we can conclude that the reaction was not atypical, on the contrary, even with a strong change in approaches to ranking, Russia's labor market did not significantly differ from other countries in terms of responding to the 2008 crisis events.

Thus, we have additionally contributed to arguments of critics of the "Russian particular model". If the speeds were significantly different, one could speak of a non-standard mechanism for the functioning of the Russian labor market. But the mechanisms of functioning of the Russian labor market do not show significant deviations from the group of foreign countries in the period 2003–2015 and are consistent with the reactions that foreign labor markets demonstrate on the whole.

On the other hand, considerable differences observed in the EAP's reaction to the shock of 2008 between the labor markets of Russia and OECD countries, do not enable making a firm conclusion on complete absence of substandard reactions of the Russian labor market.

In conclusion, it is important to note that nonstandard deviations were observed in a number of Western countries, for example, in the relatively strong reactions of Iceland, Ireland, and Spain. It is worth noting the similarity between the Russian Federation and the United States in fluctuations of two labor markets indicators. These phenomena definitely call for further research and development of models of cyclical reactions of these labor markets in order to identify the factors of their dynamics.

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