YOUTH UNEMPLOYMENT IN RUSSIA: MODELS OF INTERREGIONAL DIFFERENTIATION

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ABSTRACT
The paper presents a statistical assessment of interregional differences in youth unemployment in Russia. The unemployment rate was decomposed into fundamental and cyclical components, which was essential for deeper understanding of the specificity of the youth labour market. We made a typology of the regions of RF according to similar trends of youth unemployment and an empirical analysis of the rates, dynamics and factors of unemployment among the young people aged 15–19 and 20–29 years for 77 regions of Russia between 2005 and 2013. We also analyzed the response of the regional rates of youth unemployment to crises. For analyzing the regional parameters of youth unemployment, we employed economical-statistical methods. We identified the interregional differences in the youth labor market and the nature of their changes in the time of economic crisis. The statistical database for this study was the Rosstat data posted on the official website of the Federal State Statistics Service. We found that in the time of crisis the interregional differences in unemployment rates decreased and in the period of recovery growth, they increased. The interregional differentiation was on the rise because some individual regions used new points of growth. The study was conducted at the Institute of Agrarian Problems of RAS with the financial support from the Russian Scientific Foundation (RSF), project # 14-18-02801.
KEYWORDS: *youth unemployment, modeling, typology, interregional differences, economic crisis.*

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Introduction

1. Statement of the problem and research tasks

In any country, young people are the most vulnerable part of the labour market, especially in the time of economic crisis. In Russia, at a general rate of unemployment of 5.6 % (2013), the youth unemployment rate was 26.1 % in the group 15–19 years and 18.6 % in the group 20–29 years of age. The risks of growing

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youth unemployment associated with the slowdown of the economic growth in Russia persist. Particular attention should be paid to considerable interregional differences on the youth labour market in Russia, when the youth unemployment rate varies from 2.6 % in Moscow to 78.3 % in Ingushetia. The Russian labour market and its youth segment are highly heterogeneous. The considerable interregional differences decrease the efficiency of applying universal tools and methods of regulating the labour market.

The aim of this study - to model and analyze the interregional differences on the youth labour market using unemployment rates. The task is to develop such models of youth unemployment that would take into account, firstly, the age characteristics, secondly, the interregional differentiation of the youth labour market, and thirdly, the dynamic changes in the unemployment rate in the times of crises and recovery growth.

We plan to:

- Estimate the actual and natural youth unemployment rate;
- Make a cluster analysis and a typology of regional labour markets according to the rate and dynamics of youth unemployment in Russia;
- Analyze the behavioral reactions of the regional rates of youth unemployment on the economic crisis;
- Estimate the sigma-convergence of the regions of RF by the rate of youth unemployment.

The research methods include economic and statistical modeling techniques (cluster analysis, regression equations and ARIMA), and economic models, including that of the natural rate of unemployment and the Phillips curve. In the fundamental work (Blanchard, Katz, 1992) it is argued that in the long run the labour markets adapt so as to reach equilibrium. This means that if we exclude the conjuncture factors from the analysis, the regional labour markets would converge in terms of unemployment. In the Russian conditions, the estimation of the regional NAIRU for youth is a new task.

The contemporary studies of unemployment in the periods of instability include methods of assessing the inequality in statics – differentiation and dynamics – convergence. In the first case, the most widely used are the entropy measures of inequality (OECD traditionally uses the T-measure of the Theil index as the main measure of inequality in terms of unemployment, see eg.: OECD Employment Outlook 2005, 2014), and in the second case, – the models of sigma- and beta-convergence (eg. Huber, 2007; Bayer, Juessen, 2006; Tyrowicz, Wojcik, 2009). At the same time, the assessment of inequality in unemployment in Russian regions is insufficiently covered in the works of economists. The methods applied in Western literature are adapted for the purposes of the study.

The object of our study is the youth labour market and the interregional differences in the unemployment rate. The total sample includes 77 regions of Russia. The Nenets, Chukchi, Yamalo-Nenets and Khanti-Mansi Autonomous Districts were not included in the analysis because of the low number of the unemployed; the Chechen Republic and Ingushetia – because of the lack of data on some age categories for certain periods. The data we used is for 2005–2013.

The initial statistics include: economically active, economically inactive, employed and unemployed population by age in per cent of the total (Economically Active, 2014); the number of resident population by age on January 1 of each year (The Regions of Russia, 2013; The Number of Population of Russia, 2013); the rates of unemployment, economic activity and employment of the total population (Labour and Employment, 2013). The estimated statistics include: age unemployment rates among the economically active population by corresponding ages; the non-accelerating inflation rate of youth unemployment (NAIRU).

Observations of unemployment in developed countries indicate significant fluctuations of unemployment around the average level, which can be considered constant at certain time intervals (Korovkin et al., 2004: 515). The task of identifying the stable parameters of interregional unemployment inequality requires finding a stable reference point. In this sense, paramount is the characteristics of the structural and the frictional unemployment (Kolesnikova 2013: 104) summing up to non-accelerating inflation rate of unemployment.

The non-accelerating inflation rate of unemployment is the rate derived from the Walrasian system of general equilibrium equations, provided that it incorporates the current structural characteristics of the markets

for labor and goods, including market imperfections, stochastic fluctuations of supply and demand, the costs of collecting information about vacant jobs and labor available supply, the costs of labor mobility, and etc. (Kazakova et al., 2009: 129). It is projected that in the course of this study we will investigate the actual and natural rates of youth unemployment, the degree of interregional differences in the youth labour market in the time of both crisis and economic growth, as well as the specificity of behavioral responses of the regional labour markets to the crisis and the recovery growth.

1.1. Assessing the actual and non-accelerating inflation rate of youth unemployment (NAIRU) and analyzing their dynamics

The youth labor market is affected by both internal factors and external shocks and crises, the most recent of which is the global financial crisis of 2008–2009. Trends of regional unemployment rates on the youth labor market are advisable to investigate in two aspects: first, from the standpoint of unemployment dynamics, and second, in terms of interregional unemployment inequality fluctuations. In the framework of one-dimensional technique, the unemployment rate is decomposed into a determinate trend and a random component (Pichelmann, 1997). The trend is interpreted as an "equilibrium rate of unemployment", and the random component – as a "cyclical" unemployment curve. We can only derive estimates of NAIRU (Espinosa-Vega, 1997: 8–21), if the trend is uncorrelated with the inflation rate.

Basing ourselves on the concept (Mitchell, 2008) of non-accelerating inflation rate of unemployment, we transform the youth unemployment benchmarks into more stable ones by removing the casual fluctuations (noise). Deriving the NAIRU for the regions of Russia by individual age groups is an independent and very important task. Taking into consideration the results of the earlier studies of the efficiency of the methods of smoothing and filtering, to identify the non-accelerating inflation rate of youth unemployment here we use the method of adaptive filtering by Hodrick-Prescott (Richardson, 2000; Korovkin, 2006: 489).

The results of our calculations show that the regional NAIRU trends that have been identified with the use of the Hodrick-Prescott filter meet our research tasks, as they do not correlate with the regional consumer price indices and are stable.

For instance, in average Russian measurements, the comparison of the NAIRU and the actual rate of youth unemployment by the age groups for the analyzed period (2005–2013) is presented in Figure 1.

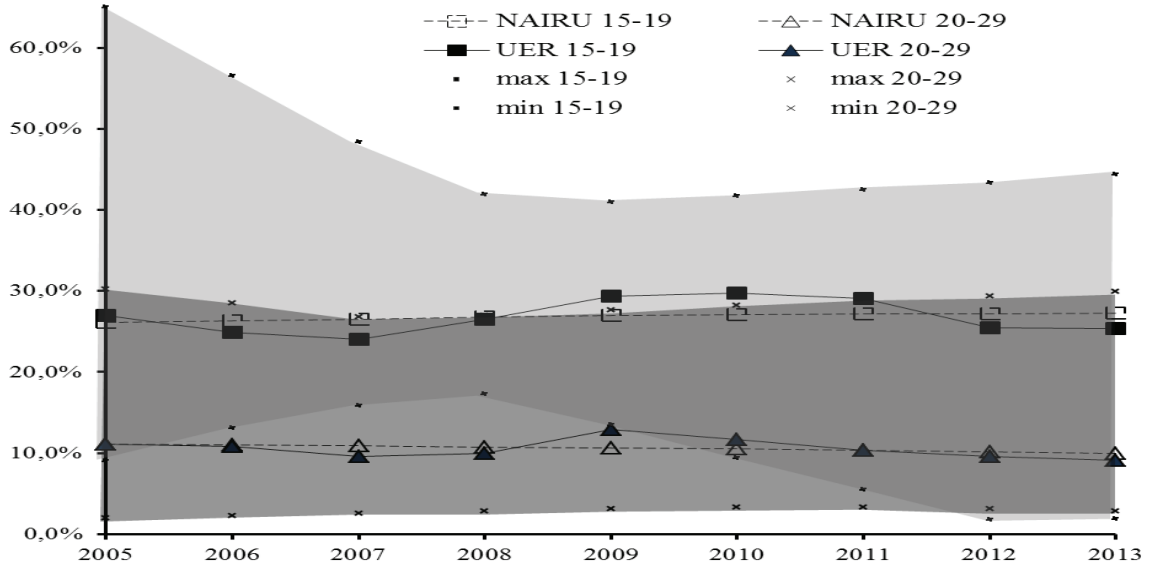

Fig. 1. The average Russian NAIRU and actual unemployment rate among the economically active population for 2005–2013 (where UER is the actual unemployment rate; the regional NAIRU extremes are also shown)

The non-accelerating inflation rate of unemployment for the 15–19-age group tends to increase (line NAIRU 15–19). At the same time, the regional maximums (line max 15–19) and minimums (line min 15–19) in the crisis time of 2008–2009 tend to draw near to the natural Russian average rate. After the crisis, the situation on the youth labour market in the leading regions would improve at a higher pace. This is demonstrated by the declining min 15–19 curve and the horizontally tilting max 15–19 line. For the young people aged 20–29 years the non-accelerating inflation rate of unemployment tends to decrease, while the extremes are stable over time (Figure 1).

In order to measure the structural shifts in youth unemployment, so as not to distort their real scope because of mutual offsetting of the regional specificities in the all-Russian figures, we made a cluster analysis to form three groups of regions. The clustering by k-means is based on taking into account the regional variation of the unemployment rates among the population aged 15–19 and 20–29 years, and the pace of their change over the years (2005–2013). The composition of the clusters is presented in Table 1.

The first cluster includes the regions of Russia with the unfavorable situation on the youth labour market and high unemployment. The third cluster is comprised of the regions with the favorable situation on the labour market and low unemployment. The second cluster embraces the regions where the labour market parameters are close to the Russian averages.

Table 1. Distribution of Russian regions by clusters based on differences in the rates and dynamics of youth unemployment

Regions of Cluster 1	Regions of Cluster 2	Regions of Cluster 3
Jewish Autonomous District, Trans-Baikal Krai, Kabardino-Balkar Republic, Karachay-Cherkess Republic, Kurgan Oblast, the Republic of Altai, the Republic of Buryatia, the Republic of Dagestan, the Republic of Kalmykia, the Republic of Tyva	Altai Krai, Amursk Oblast, Astrakhan Oblast, Bryansk Oblast, Volgograd Oblast, Voronezh Oblast, Irkutsk Oblast, Kaliningrad Oblast, Kemerovo Oblast, Krasnodar Krai, Krasnoyarsk Krai, Kursk Oblast, Lipetsk Oblast, Novosibirsk Oblast, Omsk Oblast, Orenburg Oblast, Oryol Oblast, Penza Oblast, Perm Krai, Primorski Krai, the Republic of Adygeya, the Republic of Bashkortostan, the Republic of Komi, the Republic of Mari El, the Republic of Mordovia, the Republic of Saha (Yakutia), the Republic of North Osetia-Alania, the Republic of Tatarstan, the Republic of Khakassia, Rostov Oblast, Ryazan Oblast, Saratov Oblast, Sakhalin Oblast, Smolensk Oblast, Tambov Oblast, Tomsk Oblast, Ulyanovsk Oblast, Chuvash Republic	Arkhangelsk Oblast, Belgorod Oblast, Vladimir Oblast, Vologda Oblast, Moscow, St. Petersburg, Ivanovo Oblast, Kaluga Oblast, Kamchatka Krai, Kirov Oblast, Kostroma Oblast, Leningrad Oblast, Magadan Oblast, Moscow Oblast, Murmansk Oblast, Nizhniy Novgorod Oblast, Novgorod Oblast, Pskov Oblast, the Republic of Karelia, Samara Oblast, Sverdlovsk Oblast, Stavropol Krai, Tver Oblast, Tula Oblast, Tyumen Oblast, Udmurt Republic, Khabarovsk Krai, Chelyabinsk Oblast, Yaroslavl Oblast

The non-accelerating inflation rate of unemployment in Russia in general and in the three clusters changes in different direction between 2005 and 2013. For instance, in the regions of the second and third clusters the NAIRU decreases, while in the regions with high unemployment among the population aged 15–19 years it is on the noticeable rise (Figure 2). All the three clusters experience a sharp increase in actual unemployment (EUR) in 2009–2010.

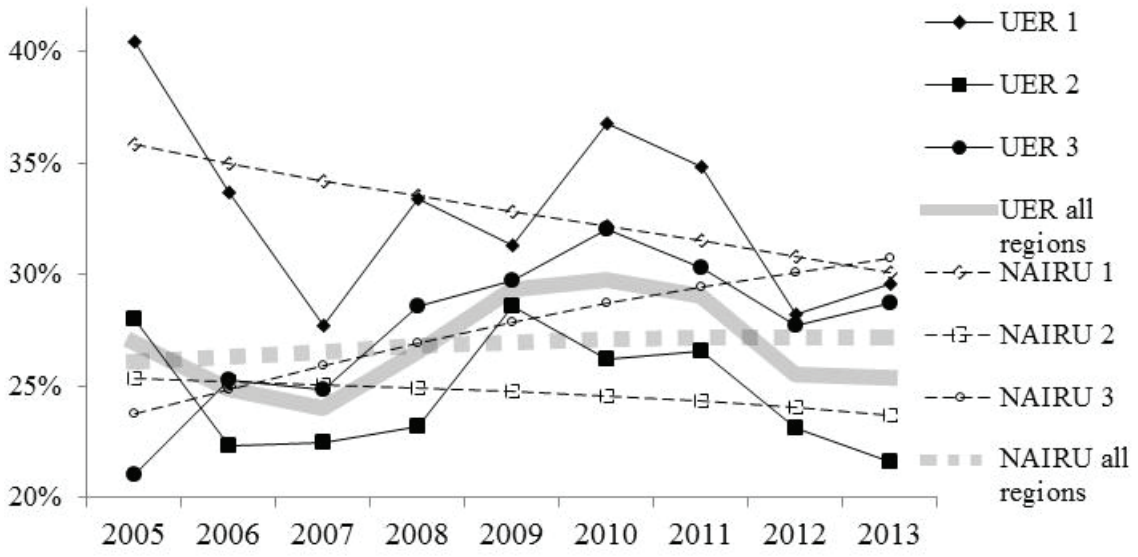

Figure 2. Parameters of the actual and the non-accelerating inflation rates of youth unemployment for the 15–19-aged in clusters (1–3) and Russia as a whole (all regions)

The trend of the non-accelerating inflation rate of youth unemployment in Russia is on a level close to the steady-state value of 25–26%, which is largely a contribution from the growth of the NAIRU in the regions belonging to the 3rd cluster. The unfavorable regions of cluster 1 in the long run converge to the Russian average NAIRU, while cluster 2 demonstrates further isolation, consistently reducing the natural threshold of younger youth unemployment.

For the young people aged 20–29 years the fluctuations of unemployment in the time of crisis are not that strong, but more harmonized between the clusters (Figure 3).

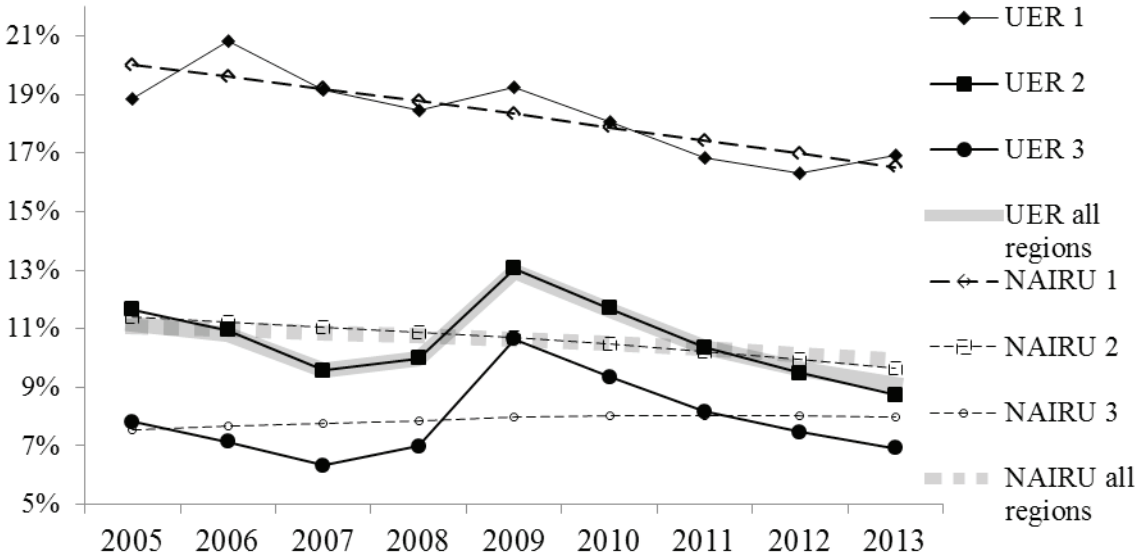

Figure 3. Parameters of the actual and the non-accelerating inflation rates of youth unemployment for the 15–19-aged in clusters (1–3) and Russia as a whole (all regions)

The young people of 20–29 years, in contrast to the group of those aged 15–19 years, show a steady unemployment-decreasing trend. Among the clusters, the best unemployment rates are observed in cluster 3, but there is a trend for its NAIRU to increase. The regions belonging to clusters 2 and 3, given their opposite

trends, converge in terms of the NAIRU, while the unemployment rate in cluster 1 reduces slower than in its 15–19-age group.

Of greatest interest is the analysis of the response of the regional rates of youth unemployment to crises. To characterize the empirical values of unemployment, besides identifying the NAIRU, we need to identify the possible lags in the response to external disturbances and measure the duration of such responses leading to the transfer of the effects to older ages. We evaluated the autocorrelations in the dynamics of youth unemployment for each age group and analyzed the non-trend components of the time series according to the age groups to find out the degree of the impact of the economic crisis. In addition to that, we estimated the sigma-convergence of the regions of Russia in terms of youth unemployment.

2. Results of the study

2.1. Analyzing the autocorrelations in the dynamics of youth unemployment

One of the methods of decomposing the time series is models of auto regression and moving average, which appear especially useful for describing and forecasting the processes exhibiting homogenous fluctuations around the average value. However, these models are only suitable for stationary series, the mean, the variance and the autocorrelation of which are stable over time.

Identification of the models of time series of youth unemployment is thus reduced to the methods of smoothing, fitting and autocorrelation. The economic sense of our statistical operations is in comparing the non-accelerating inflation rate of unemployment (the long-term trend), as well as the component complementing it up to the actually observed levels. This component includes fluctuations caused by cyclical shifts, economic shocks and "white noise".

The autocorrelation functions were constructed by using the package Statistica 10, the module "Analysis of distributed lags", for each of the time series of the actual youth unemployment by clusters of the regions of Russia.

Analysis of distributed lags is a special method of evaluating the lagging dependence between the series (Package Statsoft). According to the existing data, it makes sense to test the lags of no more than three years, depending on the model specification. This interval meets the research tasks, as in five years the youth of the younger age group completely transits to the older age group of young people (a half of this transition period is 2.5 years), and the turning (crisis) period falls on the middle of the investigated time series.

We have tested the autocorrelations in each time series of the unemployed youth by clusters separately for 15–19 and 20–29 years, and then evaluated the distributed lags upon the transition of the youth from the younger to the older age group. The autocorrelations of youth unemployment in the investigated groups of regions are insignificant. The autocorrelation function for the regions of the 3rd cluster in the 15–19-age group has the shape of a "plume", i.e. it transits from positive correlations with attenuation to the negative correlation, growing with the length of the lag. This means that in the regions of the 3rd cluster the population's response to shocks tends to rapidly attenuate, and the more time, the more the rise of unemployment in the current year will lead to its reduction in subsequent years.

In general, the absence of autocorrelations indicates that the interregional differences in the rate and dynamics of youth unemployment are a result of macroeconomic processes rather than a consequence of persistent being in the status of the unemployed, which would have led to a transition of the unemployed to older ages.

The distributed lags for youth unemployment in Russia are calculated by using an independent (affecting) component "Unemployment in the age of 15–19 years" and a dependent component "Youth unemployment in the 20–29-age group".

The model of dependence of youth unemployment in the age of 20–29 years on the unemployment among the young people aged 15–19 years with the lag from 0 to 3 years is tested in Table 2.

Table 2. Parameters of the model of auto regression with a distributed lag*

Model	Lag, years	Regression coefficient	Standard deviation	t	P
With lag 1	0	0,47654	0,16082	2,963	0,02518
	1	-0,08415	0,15964	-0,527	0,61702
With lag 2	0	0,50760	0,15625	3,249	0,03142
	1	0,03226	0,24894	0,129	0,90314
	2	-0,15315	0,14565	-1,052	0,35236
With lag 3	0	0,32599	0,16263	2,004	0,18290
	1	0,45060	0,29102	1,548	0,26164
	2	-0,73890	0,33146	-2,229	0,15559
	3	0,35024	0,20520	1,707	0,22997

** All multiple coefficients of determination are higher than 0.98 and significant by the Fisher test*

According to the model specifications, youth unemployment among the 15–19 aged does not produce any deferred impact on the unemployment rate for the 20–29-aged people. Consequently, there is practically no transition of youth to the destructive state of prolonged unemployment, and no growth of social tension occurs because of personal replacement of the unemployed of the related age.

The high determination in the model with lag 0 is due to the similar response of unemployment in these age groups to external challenges. The relationship between these two groups in each current year is characterized by a significant regression coefficient of 0.477, which means an almost 50 % coincidence of the regions' "response" to changes in youth unemployment in these two age groups.

Another approach to analyzing the lag component is to calculate the polynomial lags Almon (Schmidt, 1974: 679–681) and alpha coefficients.

Table 3. Parameters of the Almon model with lags from 0 to 3 years for the independent variable "Unemployment in the age of 15–19 years" and the dependent variable "Unemployment in the age of 20–29 years" by Russian regions between 2005 and 2013

Model	Lag, years	Alpha coefficient	Standard deviation	t	p
With a lag of up to 2 years	0	0,55825	0,10918	5,11314	0,01448
	1	-0,78525	0,27419	-2,86393	0,06437
	2	0,20439	0,09125	2,23981	0,11098
With a lag of up to 3 years	0	0,55825	0,109180	5,11314	0,03619
	1	-0,02261	0,09520	-0,23747	0,83440
	2	-0,19468	0,09228	-2,10973	0,16936
	3	0,04202	0,11744	0,35784	0,75470

The coefficient of determination is 99.75 %, but like with the aforementioned method, the lag components are insignificant, which proves that unemployment in the two age groups forms independently, but changes in response to external influence jointly and concertedly.

2.2. Analysing the non-trend components of youth unemployment and evaluating the impact of crisis

The cyclical component – a product of the global financial crisis, among other – is derived by subtracting the NAIRU from the actual rates of youth unemployment for each cluster and Russia as a whole for each age group (Figures 4 and 5).

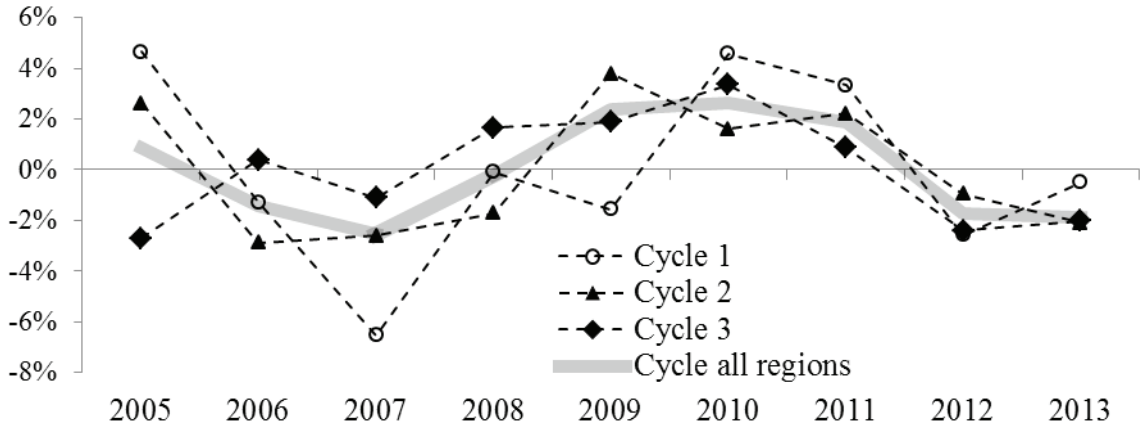

Figure 4. Cyclical fluctuations of youth unemployment (15–19 years) in the clusters of Russian regions

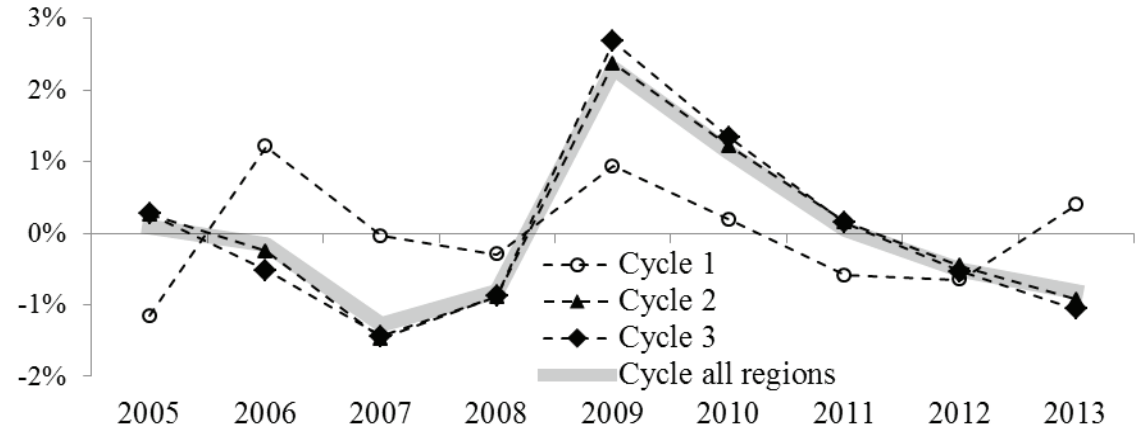

Figure 5. Cyclical fluctuations of youth unemployment (20–29 years) in the clusters of Russian regions

Comparing the two charts, we see that the consequences of the crisis are more protracted for youth unemployment in the age of 15–19 years and offset only by 2012. The regions of clusters 2 and 3 responded to the crisis in a similar way, and the unstable economy in the regions of cluster 3 enabled to postpone the negative effects for 2010, after which the situation quite quickly returned to low unemployment. The regions of cluster 1 experienced the recession later than the rest, but the increase in unemployment among the young people of 15–19 years of age was the highest. The crisis has produced an indirect impact on the youth labour market of the regions of Russia: when the situation in more favorable regions got worse, the migrant workers preferred to return to their "native" depressed regions.

For the group of the 20–29-aged people, in contrast, the crisis peaked in 2009, but quickly enough the situation started to change for the better. The least affected by the economic shock were the unemployment fluctuations in depressed regions, where the high fractions of unemployed youth just did not "notice" any additional external pressure. This means that unemployment in the regions of cluster 1 is associated with the general economic situation in the area rather than economic shocks.

2.3. Evaluating the sigma-convergence of Russian regions in terms of youth unemployment

After identifying the trend of youth unemployment in the regions of Russia, let us analyze the prospects for fluctuations of its regional proportions. Trends for indicators of differentiation are usually studied with the use of such categories as "convergence" and "divergence".

According to the convergence hypothesis, if at the initial moment of time the economy of a region (country) is farther from stable equilibrium, its growth rates will be higher than that of the economy that is closer

to equilibrium (Drobishevski, 2005: 33). For interregional youth unemployment differentiation, this means that we test the hypothesis that regions with high unemployment rates converge to some normal (natural) unemployment rate. This rate cannot be close to zero due to objective reasons. It is therefore important to set a reference point and check whether the vector of the inequality dynamics corresponds to the reduction of unemployment, which in the end can cause the differentiation to reduce. We use the NAIRU as our reference point.

Before testing the hypothesis of sigma-convergence, we need to know if the form of distribution of the regions by youth unemployment satisfies unimodality, which, according to the D. Quah criterion (Quah, 1992), will indicate the presence of an absolute σ-convergence. We previously evaluated the distribution of unemployment among individual age groups by Russian regions and showed that its form corresponds to the normal or lognormal law and is unimodal.

The dynamics of the interregional differences is most clearly described by using the T- and L- measures of the Theil index (Figure 6). The lower volatility and levels of the L-measure compared to the T-measure suggest a smaller contribution of the regions with low youth unemployment to the resulting inequality, while the unfavorable regions, although they are fewer in RF, produce a stronger influence on the interregional differentiation.

Figure 6. Parameters of the sigma-convergence of Russian regions in terms of youth unemployment (15–19 and 20–29 years of age)

Analyzing the changes in the regional youth unemployment rates, we can arrive at the following conclusions:

- For the 15–19-age group, the convergence of the regions was observed up to 2009, and then the inequality was on the steady rise;
- For the 20–29-age group, the convergence was only observed between 2007 and 2009, while the other years of the period saw a divergence, which, according to the rates (the curve's angle), was noticeably higher than that for the 15–19-age group. This can be a token of a higher economic activity of the young people aged 20–29 years.

Thus, the convergence in the crisis years meant that the regions were converging to a higher unemployment rate. The divergence of the regional youth unemployment rates depicts the different rates of the recovery growth in the regions of Russia, as well as the unequal efficiency of the employment policies.

Conclusion

The regional inequality in terms of youth unemployment is considerable, which should be taken into account when developing regional youth employment programs. By making our cluster analysis of the re-

gions, we managed to identify the typical trends of youth unemployment and differentiate its consequences. The crisis of 2008–2009 caused the youth unemployment rate to rapidly grow while reducing the interregional differentiation on the labour market. The increase in youth unemployment in Russia was more noticeable in favorable regions and less noticeable in outsider regions, which can be seen in the divergence parameters after 2009. The group of favorable regions was more prompt in overcoming the consequences of the crisis, while the cluster of unfavorable regions, although small in the number, produces a stronger impact on the interregional differences on the youth labour market. The young people's response to the crisis is similar in the two age groups, but not interlinked, which is to say that youth unemployment has low personal duration, since the population adapts to the new labour market conditions. If in the time of crisis the interregional differences in unemployment rates would decrease, then in the period of recovery growth they would increase. The interregional differentiation was on the rise because some individual regions used new points of growth and "forged ahead". Furthermore, the regions adapted their population to the labour market requirements with different degrees of efficiency. There, where the economy is diversified, the region is more resistant to economic recession and its youth employment is more stable. In highly specialized regions in the time of crisis the youth unemployment rate, including that of the structural one, grows.

Our results and conclusions are subject to further discussion. We found that the interregional differences on the Russian labour market and its youth segment are mostly a result of the regions' economic features and their specific reaction to economic shocks. We also found that after the crisis, the situation on the youth labor market in the regions of Russia where the economies were stronger would improve at a higher place. In the regions with continuously high unemployment, the reaction of the youth labour market to economic shocks would fade away faster. Another finding is that the response of the regional unemployment rates to crisis differs in duration. The lags of response of the regional labour markets to external disturbances are also different for the different types of regions.

We found out that youth unemployment in the age groups of 15–19 and 20–29 years arises relatively independently. However, at the same time, it changes concordantly when shocks occur. Youth unemployment in the age of 15–19 years produces no pending effects on the unemployment rate among the 20–29-aged. The negative consequences of the global financial crisis (2008–2009) turned more durable for the youth aged 15–19 years. The high rate of unemployment among the 15–19 olds only dropped by 2012. The unemployment rate among the 20–29-aged people peaked in 2009, being on a steady decline from then on. The unemployment fluctuations were affected by the crisis the least in the regions with weak economies and persistently high unemployment. This means that the unemployment rate in the regions of cluster 1 largely depends on the social-economic situation inside the region.

The conclusion that interregional differences in unemployment rates shrink in the time of economic crisis and increase in the time of recovery growth is subject to further discussion. We found that the convergence in the crisis years meant that the regions were converging to a higher unemployment rate. The divergence of the regional youth unemployment rates depicts the different rates of the recovery growth in the regions of Russia, as well as the unequal efficiency of the employment policies.

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JAUNIMO BEDARBYSTĖ RUSIJOJE: TARPREGIONINĖS DEFIRENCIJACIJOS MODELIS

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Santrauka

Straipsnyje pateikiamas statistinis tarpregioninių jaunimo bedarbystės Rusijoje skirtumų vertinimas. Jaunimo bedarbystės lygis išskaidytas į pagrindinius ir ciklinius komponentus, kurie būtini siekiant geriau suprasti jaunimo darbo rinkos ypatumus. Remdamiesi jaunimo bedarbystės dinamika, parengėme RF regionų tipologiją: analizuotos 15–19 ir 20–29 metų jaunimo amžiaus grupes, vertintas 2005–2013 metų laikotarpis. Analizuoti 77-ių Rusijos regionų duomenys. Nagrinėta ir regioninė jaunimo bedarbystė, įvertinant ekonominės krizės pasekmes. Jaunimo bedarbystės regioniniai parametrai analizuoti taikant ekonominius-statistinius metodus. Nustatyti tarpregioniniai jaunimo darbo rinkos skirtumai ir pokyčiai ekonominės krizės metu. Šio tyrimo statistinė duomenų bazė – *Rosstat* duomenys, paskelbti oficialioje Rusijos Federalinės valstybinės

statistikos tarnybos svetainėje. Nustatėme, kad per krizę tarpregioniniai jaunimo bedarbystės skirtumai sumažėjo, o krizei pasibaigus vėl padidėjo. Taip nutiko dėl to, kad sparčiau besivystančiuose regionuose krizės metu nuosmukis buvo jaučiamas labiau, bet po krizės šie regionai rado būdų, kaip pagerinti ekonominę situaciją regione. Taigi tarpregioninė diferenciacija pakito, nes kai kurie regionai išnaudoja naujas ekonominio augimo galimybes, į veiklą įtraukdami ir jaunimą. Tyrimas atliktas Agrarinių problemų institute, gavus finansinę paramą iš Rusijos mokslų fondo (RMF) projektui Nr. 14-08-02801.

PAGRINDINIAI ŽODŽIAI: *jaunimo nedarbas, modeliavimas, tipologija, regionų skirtumai, ekonominė krizė.*

JEL KLASIFIKACIJA: C51, E24, J64