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Macroeconomic and structural properties of the Russian labor market: A cross-country comparison

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What We Knew and What We Thought We Knew by 2014?

- Just few studies on macroeconomic properties of the Russian labour market have been published by 2014.

- Despite this there was broad belief in the concept of 'Russian labour market model' based on observation by Layard, Richter (1995) and later developed by Gimpelson and Kapelyushnikov (2000, 2003, 2013, and other).

- It stated that the salient feature of Russian labour market (RLM) is the 'special' adjustment pattern to adverse shocks: mainly through wages, with almost intact employment.

Weak points of the RLM standard concept

- The 'concept' has only narrative wording, with no exact economic specification. In fact it has no exact verifiable form, and this means it is rather a raw observation than a finding or even a research hypothesis.

- The 'concept' is presented in macroeconomic terms (adjustment patterns), but is based only on separate observations, with no macro model and econometric analysis behind it.

- The model refers to observations in the periods of severe crises, when labour markets in most countries deviate from their typical performance (we had abundance of examples in 2008-2009). No analysis comprising crises and 'normal' periods is available.

- It looks like the authors assume that Russian-style adjustment is rather 'abnormal' than 'normal', but no backing to this view is given (and the negative view itself is rather implicit than explicit).

General approach in this paper

- We present series of basic macroeconomic models revealing the properties of the Russian labor market.

- We pick specifications for which estimates have been published for samples of countries or panels.

- The parameters we obtained for Russia are compared to estimates for other countries taken from publications with identical specifications.

- Systematic comparisons reveal similarities and disparities in the macroeconomic adjustment mechanisms.

1. Okun's law (OL)
(Gurvich, Vakulenko, 2015)

We consider a few specifications of the basic Okun's model:

$$u_t - u_{t-1} = a + b*g_t \qquad (1)$$

where u – unemployment rate, g – GDP growth rate.

Short-run relationship:

- basic model;
- with additional lag of GDP growth rate;
- with asymmetry to growth and fall of GDP.

Long-run relationship:

- VECM;
- TAR, MTAR (model with asymmetry adjustment to LR).

Specification of Okun's law

- In case of Russia (Vakulenko, Gurvich, 2015a) causality goes **from production to unemployment**, which means that A. Okun's law in Russia is a manifestation of the *demand for labor changes.*

Okun's model: Short run relationship

Variable / statistics	(1) Basic model	(2) With difference of log GDP	(3) 1 and 2 lags of log GDP change	(4) Asymmetry
GDP growth, %	−0,103*** (0,030)			
$\Delta \ln GDP_t$		−0,103*** (0,025)		
$\Delta \ln BB\Pi_t > 0$				−0,056 (0,051)
$\Delta \ln BB\Pi_t < 0$				−0,141*** (0,043)
$\Delta \ln BB\Pi_{t-1}$			−0,079*** (0,026)	
$\Delta \ln BB\Pi_{t-2}$			−0,074*** (0,026)	
Constant	0,05 (0,05)	0,06 (0,05)	0,09* (0,05)	−0,01 (0,08)
Adj. R^2	0,18	0,18	0,31	0,18
DW	1,5	1,5	1,57	1,58
JB (X^2, p-value)	14,87 (0,00)	14,29 (0,00)	7,41 (0,02)	7,74 (0,02)
BG (F, p-value)	2,21 (0,12)	2,16 (0,12)	1,75 (0,18)	1,52 (0,22)
ARCH (F, p-value)	2,59 (0,11)	2,8 (0,11)	0,03 (0,86)	4,39 (0,04)
AIC	0,93	0,93	0,76	0,94
BIC	0,99	0,99	0,85	1,04

Cross-country comparison of Okun's coefficients (model 1, quarterly data)

Country	Coefficient b	Source	Time span
Spain	–0,40	Jardin, Gaetan, 2012	1984–2009
USA	–0,29	Ball et al., 2013	1948Q2–2011Q4
Great Britain	–0,24	Jardin, Gaetan, 2012	1984–2009
France	–0,22	Jardin, Gaetan, 2012	1984–2009
Czech Republic	–0,21	D'Apice, 2014	1994–2013
Germany	–0,17	D'Apice, 2014	1994–2013
	–0,13	Jardin, Gaetan, 2012	1984–2009
Hungary	–0,15	D'Apice, 2014	1994–2013
Switzerland	–0,14	Jardin, Gaetan, 2012	1984–2009
Brazil	–0,12	Tombolo, 2014	1980Q1– 2013Q3
Russia	***–0,10***	***Our estimates***	***1995Q1–2013Q3***
Netherlands	–0,10	Jardin, Gaetan, 2012	1984–2009
Italy	–0,06	Jardin, Gaetan, 2012	1984–2009

Okun's model: Long run relationship. VECM model

Variable	Explained variables			
	unemployment		labor	
	1995–2014	1999–2008	1995–2014	1999–2008
GDP	−0,081	−0,073	0,16	0,18
	(0,013)	(0,044)	(0,010)	(0,005)
Constant	0,82	0,62	2,76	2,57

Note: all coefficients are significant at the 1% significance level. GDP and employment in logarithms.

		Explained variables			
		Δ unemployment		Δ labor	
		(1)	(2)	(3)	(4)
	Explanatory variables	1995–2014	1999–2008	1995–2014	1999–2008
	Cointegration ratio (e_{t-1})	−0,097***	−0,007	−0,25***	−0,98***
		(0,03)	(0,02)	(0,07)	(0,28)
$\Delta \ln BB\Pi_{t-1}$		−0,075***	0,035	0,04	−0,15
		(0,027)	(0,090)	(0,05)	(0,15)
$\Delta \ln BB\Pi_{t-2}$		−0,065***	−0,135***	0,19***	0,16**
		(0,020)	(0,042)	(0,05)	(0,08)
$\Delta \ln BB\Pi_{t-3}$		0,037	0,068	−0,14***	−0,21***
		(0,033)	0,052	(0,06)	(0,09)
$\Delta \ln BB\Pi_{t-4}$		−0,036	−0,012	0,11***	0,05
		(0,032)	(0,046)	(0,03)	(0,08)
Adj R^2		0,40	0,24	0,39	0,12
JB (p-value)		3,93 (0,14)	5,91 (0,05)	2,76 (0,25)	1,09 (0,58)

Conclusions

- OL in Russia holds both in the short and in the long run, and is robust in the LR (the variables are cointegrated).

- The reaction of unemployment to the output dynamics is asymmetric: effect of a <u>slow-down</u> is much <u>stronger</u> than that of an <u>acceleration</u>,

- Okun's coefficient for Russia is lower than for most developed countries and comparable to those for emerging markets.

- The Russian labor market does not differ much from the labor markets of other developing countries in terms of employment reaction to production shocks.

2. Estimates of the model (Blanchard, Katz, 1999) for Russia (Gurvich, Vakulenko, 2015)

Model VECM:

$\ln(w_t) = 7{,}74 + 0{,}59 \ln(z_t) - 0{,}14 \ln(u_t)$ (2)

w_t – real wage, z_t – labor productivity; u_t – unemployment rate in t.

All coefficients are significant.

Estimated elasticity of the long-term relationship between labor productivity and wages

	Country	Source	Time span	Elasticity
1	Malaysia	Goh, Wong (2010)	1970-2005	1,223
2	Great Britain	Pascalau (2007)	1960-2005	1,13
3	Sweden	Pascalau (2007)	1960-2005	0,787
4	Spain	Pascalau (2007)	1960-2005	0,745
5	Russia	Gurvich, Vakulenko (2015)	1995-2013	0,59-0,72
6	South Africa	Wakeford (2004)	1990-2002	0,58
7	Germany	Pascalau (2007)	1960-2005	0,454
8	USA	Pascalau (2007)	1960-2005	0,099
9	Japan	Pascalau (2007)	1960-2005	0,014
10	The panel, which includes 13 countries of the euro area	ECB (2012)	1995-2011	0,605
11	The panel, which includes 19 "emerging markets"	Klein (2012)	1996–2009	0,48*

*Примечание: * Коэффициент коинтеграционного соотношения, не включающего безработицу.*

Cross-country comparison

- Russia occupies a median position among countries by the wage/productivity elasticity value. The relationship is fairly pronounced (unlike the US and Japan), and at the same time it is within reasonable and safe limits, remaining substantially below unit (which compares favorably with Great Britain and South Africa). Panel regressions by groups of countries give values close to our estimates of elasticity for Russia.

- Comparative analysis does not support the hypothesis that Russian labor market stands out by an acute wage reaction to labor productivity shocks.

3. Measuring wage flexibility by unemployment rate (Gurvich, Vakulenko, 2016)

- We consider three different models for the change in real wages to the level of unemployment to obtain more reliable conclusions:

- **Model 1. van Poeck, Veiner (2007).**

- **Model 2. Arpaia, Pichelmann (2007).**

- **Model 3. Huber (2004). Regions.**
  - Models differ in lags structure and in a set of control variables.

Model 1. Cross-country comparisons

Country	Semi-elasticity of real wages by unemployment rate	Country	Semi-elasticity of real wages by unemployment rate
Slovakia	0.06 (insignificant)	Poland	-0.35
Spain	-0.18	Denmark	-0.38
France	-0.28	Germany	-0.42
Portugal	-0.29 (insignificant)	Czech Republic	-0.48
Great Britain	-0.29	Netherlands	-0.51
Belgium	-0.3	Hungary	-0.81
Italy	-0.31	*Russia*	*-0.93*

Model 2. Cross-country comparisons

Country	Semi-elasticity of real wages by unemployment rate
Ireland	0.07
Greece	-0.08
Spain	-0.16
Luxemburg	-0.18
France	-0.22
Netherlands	-0.25
Finland	-0.39
Italy	-0.65
Belgium	-0.71
Germany	-0.73
Portugal	-0.97
Austria	-1.17
Russia	*-1.22*

The coefficient of wage flexibility in Russia is β = -1.22, which is higher than in all other countries.

Model 3. Cross-country comparisons

| Variables/countries	Romania	Bulgaria	Central and East. Europe	Poland	Czech Repub.	EU	Russia	Hungary	Estonia
year	1992-1998	1995-1998	1992-1998	1992-1998	1992-1998	1989-1995	2002-2010	1992-1997	1995-1998
National unemployment rate	0.0792***	0.0857***	0.0031	-0.0084***	-0.0189***	-0.0262***	-0.0330***	-0.0342***	-0.1384***
	(0.0037)	(0.0297)	(0.018)	(0.0022)	(0.0017)	(0.0031)	(0.0043)	(0.0094)	(0.0834)
Unemployment rate	0.0039	-0.0538**	-0.0037	-0.0011	-0.0028*	0.0006	0.0010	-0.0022	0.0951
	(0.0025)	(0.0216)	(0.0047)	(0.0022)	(0.0016)	(0.0010)	(0.0018)	(0.0030)	(0.0341)
Unemployment rate (t-1)	-0.0109***	0.1300***	0.0080	0.0017*	0.0011	0.0062	0.0073***	0.0002	-0.0981**
	(0.0017)	(0.0131)	(0.0110)	(0.0011)	(0.0014)	(0.0043)	(0.0017)	(0.0028)	(0.0341)
+ control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2	0.79	0.81	0.18	0.40	0.71	0.68	0.38	0.90	0.68
Number of observations	246	84	1257	294	518	388	702	100	15

General conclusions

- The results of three different models evidence that Russia has quite **high wage flexibility** by unemployment as compared to both advanced and transition countries.

- This is consistent with the Layard's hypothesis (supported later by Gimpelson, Kapeliushnikov et al.) that adjustment to shocks in the Russian labor market is going via wages rather than via employment, but presents this vague hypothesis in exact economic terms.

- High wage flexibility implies weak distortions in the Russian labor market. This means that **<u>Russian adjustment pattern is rather a 'norm', than a 'deviation'</u>**.

Practical applications:
the growing share of wages in GDP

- Russia is one of few countries where the share of wages in GDP has growing trend (in some others – like Brazil it is also growing but at much lower pace).

- The estimated model (2) (Gurvich, Vakulenko, 2015) provides an explanation: within the previous model of extensive growth, economic growth was accompanied by increasing labor demand and hence falling unemployment. This contributed substantially to marked additional wage growth due to high elasticity of real wages by unemployment.

- Over 1996 – 2013 an increase in labor productivity and a decrease in unemployment made almost equal contribution to the growth of real wages. Thus, the channel of reducing unemployment doubled the growth of real wages. Two sources of wage growth (increasing labor productivity and falling unemployment rate) taken together raised wage growth to a rate exceeding that of productivity.

Calculated wages as a percent of GDP (%)

Legend: Russia, Brazil, Poland, USA, Eurozone
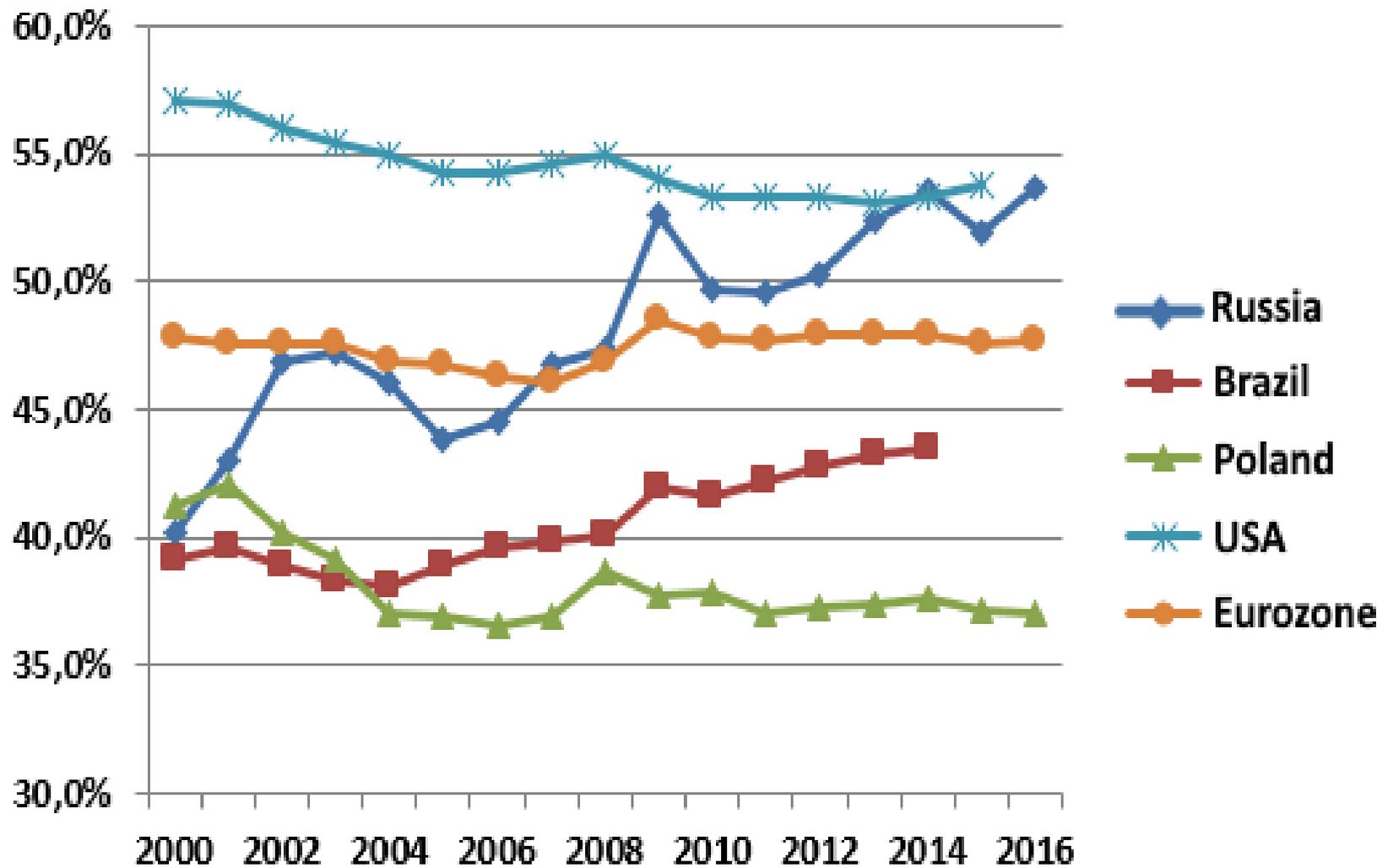
Territorial mobility of employees

- Russia's population has **relatively low spatial mobility** (Bell et al., 2015, OECD, 2011).

- From 2002 to 2010, registered internal migrants made up only **1.4%** of the population in Russia.

- By comparison, from 2000 to 2006, this indicator averaged **13.7% in the U.S.**, **14.6% in Canada, and 4.6% in Japan.**

- **One of the reason:** significant reduction in interregional differentiation of per capita income, wages, and unemployment (Guriev and Vakulenko, 2015), i.e. due to the poorer incentives for migration.

Variation between Russian regions in real wages, unemployment, and GRP per capita.

Variation by GRP and wages declined during the 2000s. For the unemployment rate, interregional variations fluctuate considerably between years, having no pronounced trend.

Interregional variation

- Interregional variation within Russia is higher than in other countries, however, it has been reduced in recent years. At the same time, the intensity of migration in Russia is lower than in other countries of comparable size, and remains rather stable.

Interregional variation and migration

- The main reason behind the reduction in interregional differentiation of average per capita income in Russia according to Guriev, Vakulenko (2012) is **higher mobility of capital**, which has increased due to the development of the financial sector and real estate market.

- The role of migration in reducing interregional differences within Russia is reviewed in Vakulenko (2016): internal migration within Russia affects per capita income and wages in the **short run** (an outflow of migrants from a given region leads to growth in wages and per capita income), the effect of migration is low and, as a result, it makes **no relevant contribution to reducing interregional differentiation.**

The key macroeconomic feature of the Russian labor market

- **High flexibility**,
    - Declining NAIRU level (Sanjani, 2017),
    - High elasticity of real wages to unemployment rate,
    - Rapid return to full employment after adverse external shocks.

General conclusions

1. The Russian labor market is established and mature. Most standard interrelations are valid both in the short- and long-run, have expected sign and causality direction.

2. The strength of most interrelations in the Russian labor market is typical for emerging markets.

3. Major rigidities in the RLM are by far weaker as compared to other countries.

4. As a result Russian labor market is effective from the macroeconomic viewpoint.

General conclusion (2)

5. An important implication is that there are no serious grounds for using fiscal or monetary stimulus.

6. No signs of "non-standard" mechanisms have been found in the RLM (such as "Efficiency wages") .

7. The Russian population is less spatial mobile than in other countries of comparable size.

Institutional pre-requisites for high flexibility of real wages

- Weak role of trade unions (OECD, 2011).
- The minor distorting effect of some key labor market institutions (minimum wages, unemployment benefits) and weak compliance of labor law.
- A significant (more than one-third) share of premiums and other payments in the wage structure (Gimpelson, Kapelyushnikov, 2011).
- Relatively high inflation, which, if necessary, reduces the real value of wages without changing its nominal size.
- Low labor migration in Russia (Guriev, Vakulenko, 2012).
- A big role of state and quasi-public companies (Poeck, Veiner, 2007), operating under soft budget constraints.

But institutions do not arise exogenously, they are endogenously form

Our hypothesis: the labor market in Russia, unlike commodity markets, <u>avoided excessive regulation</u> due to the lack of large potential sources of "all kinds of rents" on it. Hence nobody is interested in the labor market control (unlike control of goods markets).

Therefore, there is no distortion of market mechanisms -> <u>high efficiency is demonstrated</u>.

Russian labor market model

- RLM has a high macro-economic efficiency, explained with low level of rigidities as compared to most other countries.

- This means that the main feature of the RLM is its NORMALITY (lack of distortions).

- At the same time RLM has serious structural problems (such as low employee mobility, the significant size of the shadow sector, etc.).

Problems in the labor market in Russia

- Declining labor supply,
- Increasing labor share in GDP.

The neglect of these problems can become a major impediment for **economic growth** if urgent steps based on the earlier and forthcoming research findings are not enacted.

Literature

Gurvich E., Vakulenko E. Macroeconomic and structural properties of the Russian labor market: A cross-country comparison // *Russian Journal of Economics*. 2017. Vol. 3. No. 4. P. 411-424.

More comprehensive analysis can be found in a book (in Russian):

«Механизмы российского рынка труда» (под ред. Е.Т.Гурвича и Е.С.Вакуленко, 2016).

Free access at the Economic Expert Group web-site:

http://www.eeg.ru/files/lib/2017/monografiarinkatruda.pdf

Thank you for your attention!

Hours Worked per Employed
(OECD Employment Outlook, 2011)

	2007	2009	% change
Germany	1430	1390	**-2,8%**
Japan	1785	1714	**-4,0%**
Korea	2306	2232	**-3,2%**
Russia	2000	1973	**-1,4%**
OECD weighted average	1773	1741	**-1,8%**

OECD Employment Outlook, 2011

Estimated model (2) specifications (real wages as a dependent variable)

Variables	Specification			
	1	2	3	4
Labor productivity	0.59	0.59	0.73	0.72
	(0.17)	(0.10)	(0.15)	(0.16)
Unemployment rate	-0.14	-0.12	-0.12	-0.07
	(0.03)	(0.01)	(0.02)	(0.02)
Constant	7.74	7.51	7.07	6.93