Growth in Russian regions: different patterns for poor, middle and rich groups

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Growth, convergence, Russian regional data

Benchmark: Barro and Sala-i-Martin (1992) approach

Article	Time period	Main results
Gluschenko (2012)		Russian regions are characterized with increased diversity and do not converge to the unique equilibrium path
Berkowitz and DeJong (2005)	1993-2000	Did not reveal convergence
Solanko (2008)	1992-2005	Initially poor regions had no clear trend of convergence or divergence, while initially rich regions demonstrated convergence
Guriev and Vakulenko (2012)	1995-2010	There was no convergence in the 1990s, and the situation changed dramatically in the 2000s: poor Russian regions grew out of the poverty traps, mobility of labour and capital, which led to a convergence among Russian regions

Growth, convergence, Russian regional data

Article	Time period	Main results
Buccellato (2007)	1999-2004	The spatial component appears to be non-negligible and, consequently, conventional convergence estimates suffer a bias due to spatial dependence across observations
Lugovoy et al, (2007)	1998-2004	The growth of a particular Russian region depends on the growth of other Russian regions
Kolomak (2011)	1992-2005	Russian regions were found to be heterogeneous, and positive externalities were observed in the western regions, whereas negative externalities were observed in the eastern regions.
Kholodilin et al, (2012)	1996-2006	It was a strong regional convergence among high-income regions located near other high-income regions
Ivanova (2017)	1996-2013	A positive influence for neighboring regions in the economic growth.

Main feature of this research

N.Zubarevich and E. Gorina (2015) suggested a more appropriate division of regions into 5 groups by condition of their budgets

To facilitate the technical side of research,

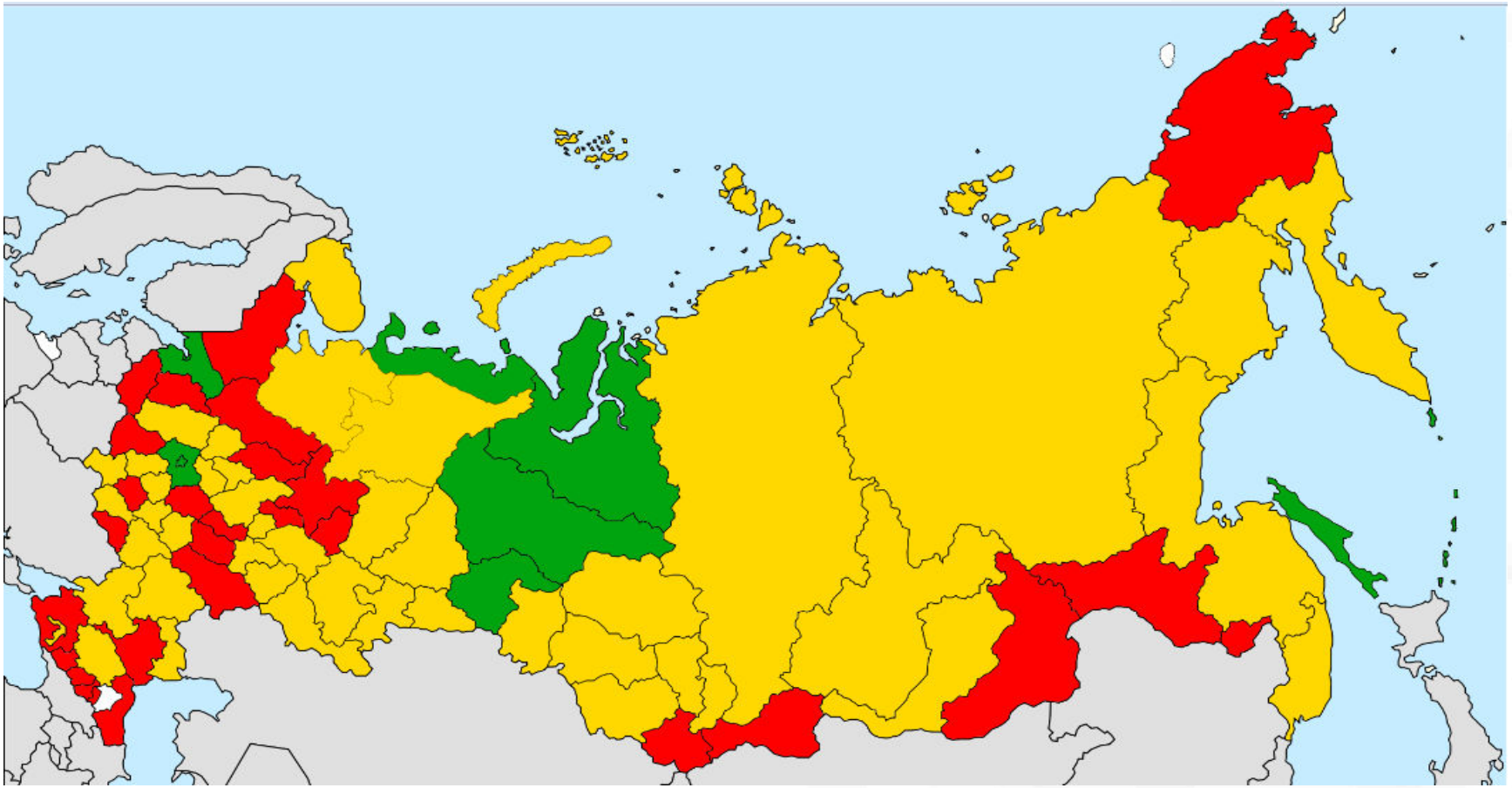
regions with sufficient transfers from the federal center and "default" regions were aggregated into the "poor" regions group,

the “middle” and “more responsible” regions were aggregated into “middle regions”,

and the “rich” regions remain the same group.

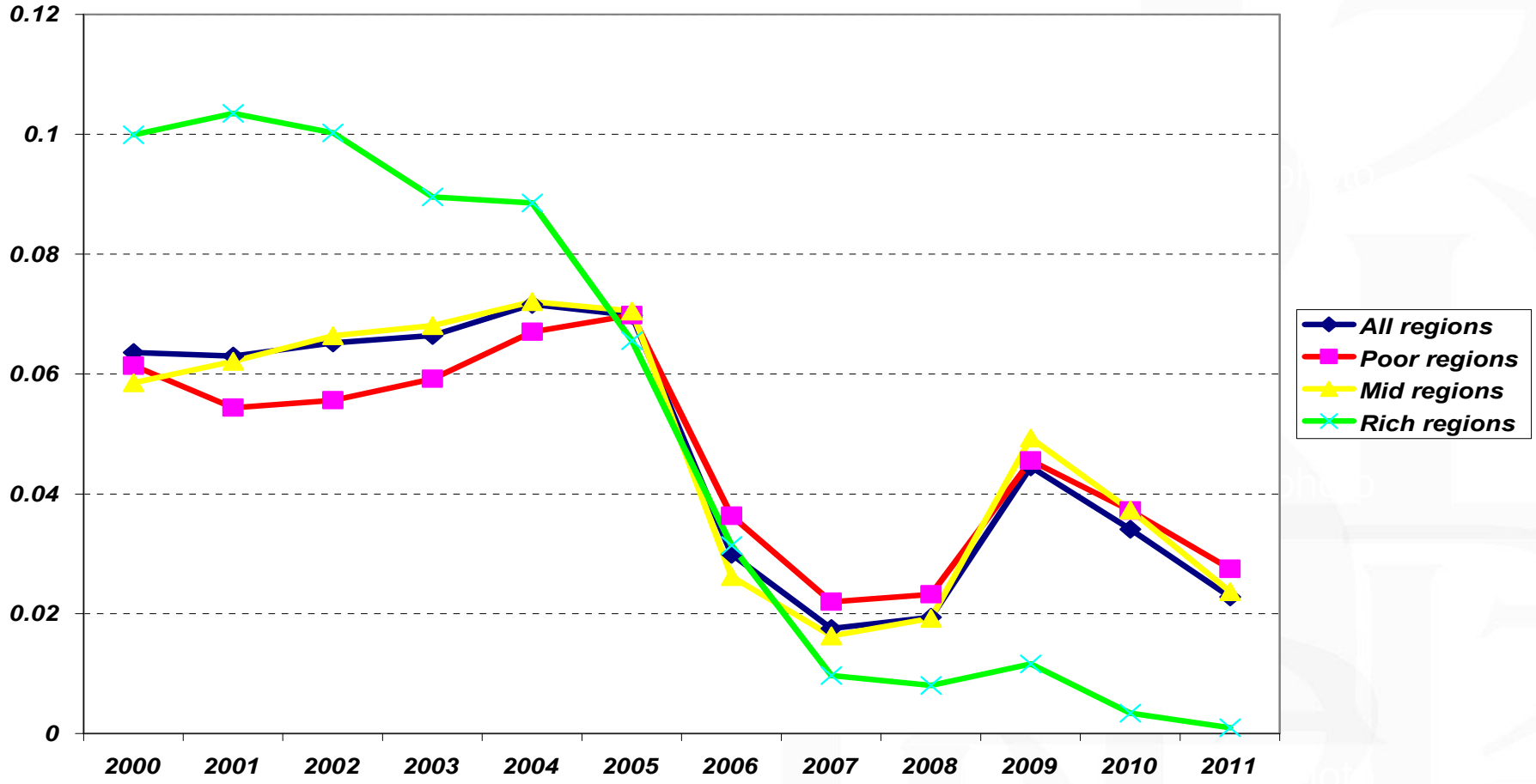
Bufetova A. (2017) 5 groups of regions

Map of Russia



Poor, medium and rich regions are colored red, yellow and green correspondingly

Average (over 3 years) growth for the different groups of regions



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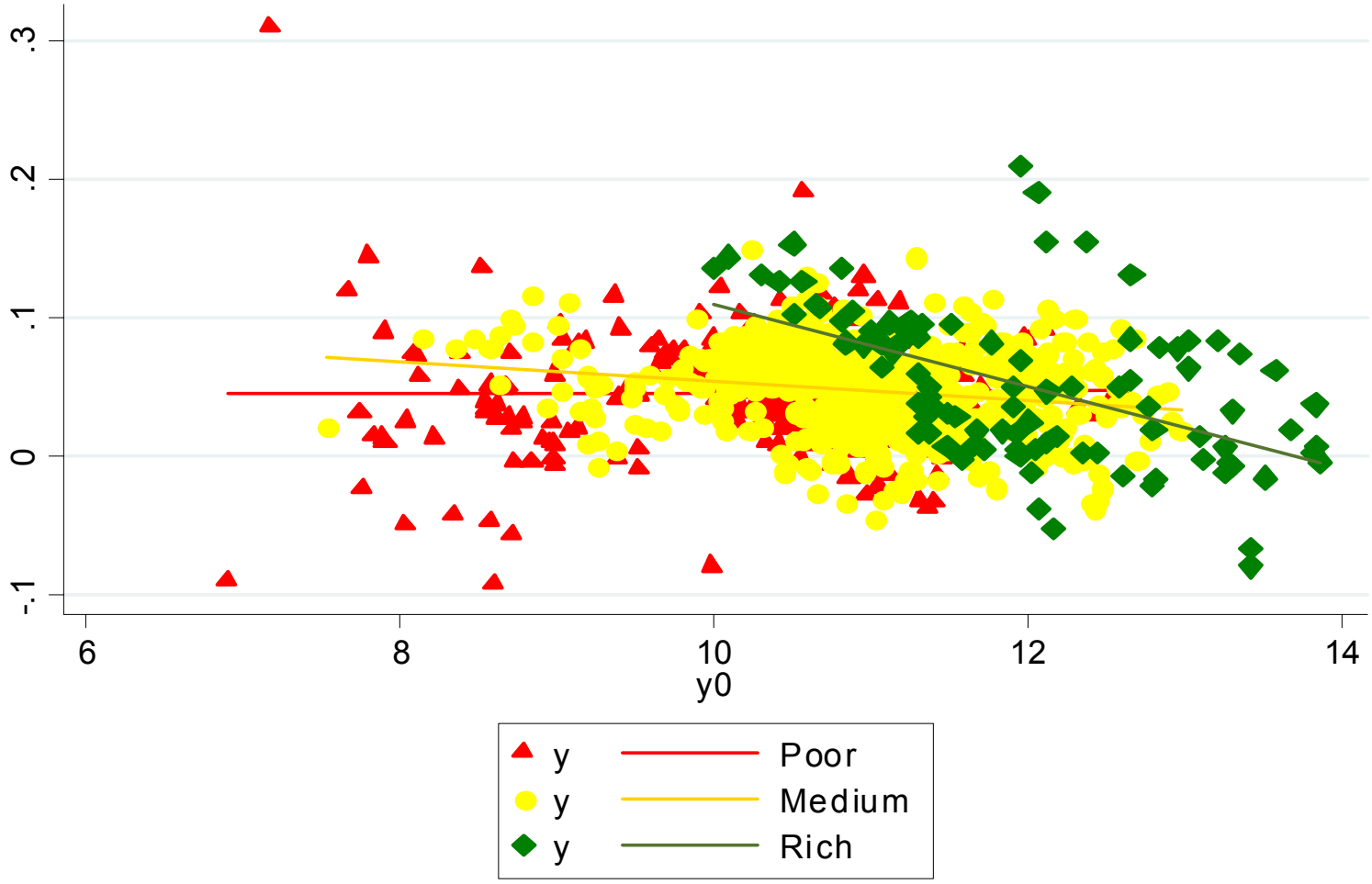

Main Hypotheses

- **H1: The growth rate of poor, medium and rich regions varies**

- **H2: Factors affecting economic growth in poor, medium and rich regions are different**

- **H3: The growth of Russian regions is not only affected by their internal factors, but also by the situation in other Russian regions.**

Independent Variables

Explanatory variables	Previous articles
=< 7 variables	Barro and Sala-i-Martin, 2004 Doppelhofer, Miller (2004), Bayesian Averaging of Classical Estimates approach
Urban share as a measure of urbanization	Spence et al., 2008; Turok & McGranahan, 2013; Chen et al., 2014; Castells-Quintana, 2017
Investments are a key growth factor in the neoclassical growth theory	Solow, 1956 +
The proportion of the population with higher education in the labour force as a measure of human capital	The alternative indicator is the number of students or University The proportion of the population with higher education in the labour force as a measure of human capital graduates per 1000 inhabitants Solanko (2008), Kolomak

Independent Variables

Explanatory variables	Previous articles
Ratio of exports and imports to the GRP of the region as an indicator of the openness of the region for trade	Harrison, 1996; Sachs et al., 1995; Yanikkaya, 2003; Waiczarg & Welch, 2008; Huchet-Bourdon, et al., 2011
The density of highways as an indicator of the infrastructure quality	EBRD noted Turkey's progress in the development of high-speed road construction, which increase the mobility of the workforce
RA Expert index of investment risk as a measure of sub-national institutions quality	Leonard et al. (2016), Alexeev and Chernyavskiy (2015)

Model

$$\frac{1}{T}\ln\frac{Y_{i(t+T)}}{Y_{it}} = \beta^{p}\begin{pmatrix}\ln Y_{ip}\\0\\0\end{pmatrix}_t + \beta^{m}\begin{pmatrix}0\\\ln Y_{im}\\0\end{pmatrix}_t + \beta^{r}\begin{pmatrix}0\\0\\\ln Y_{ir}\end{pmatrix}_t +$$

$$+\rho^{p}\begin{pmatrix}W\ln Y_{ip}\\0\\0\end{pmatrix}_t + \rho^{m}\begin{pmatrix}0\\W\ln Y_{im}\\0\end{pmatrix}_t + \rho^{r}\begin{pmatrix}0\\0\\W\ln Y_{ir}\end{pmatrix}_t +$$

$$+\begin{pmatrix}X_{ip}\\0\\0\end{pmatrix}_t\theta^{p} + \begin{pmatrix}0\\X_{im}\\0\end{pmatrix}_t\theta^{m} + \begin{pmatrix}0\\0\\X_{ir}\end{pmatrix}_t\theta^{r} + \alpha_i + c_t + \begin{pmatrix}\varepsilon_{ip}\\\varepsilon_{im}\\\varepsilon_{ir}\end{pmatrix}_t$$

Results of estimation

Variables	Coefficient	Variables	Coefficient	Variables	Coefficient
urbanshare	-0.00132	riskp	0.00306	y0p	-0.0042
highed	0.014	riskm	0.0202***	y0m	-0.0069**
open	0.00032	riskr	-0.084***	y0r	-0.0183***
inv_gdpp	-0.1346***	roadp	0.0001**	widy0p	0.0049
inv_gdpm	-0.0298	roadm	-0.00004	widy0m	-0.0059
inv_gdpr	0.074***	roadr	-0.00002	widy0r	-0.0618***
		_cons	0.106594	Time Effects	Yes

Conclusions 1

- All the hypotheses received empirical confirmation.
- Convergence or divergence has not been revealed for poor regions.
- There are convergence only for the middle and rich regions, and the speed of convergence for rich regions is sufficiently higher.
- The situation in neighboring regions affected only growth in rich regions. The better the situation in neighboring regions, the more slowly growing rich regions.
- Share of urban population does not influence economic growth.
- Investments stimulate economic growth only in rich regions, but for the poor regions they have the opposite effect.
- The share of a higher educated labour force does not affect the growth rate.

Conclusions 2

- High density of highways stimulates growth only in poor regions
- The level of economic risk affects the growth rate in accordance with expectations only in the rich regions, and, the lower the risk, the higher the growth. In the medium regions we have opposite effect.
- Openness of the region to exports and imports does not affect the growth rate.

Policy implications

- According to the results obtained, unfortunately, investments in poor regions are not effective.
- In order to stimulate economic growth in poor regions, it is necessary to develop transport infrastructure in them.

Thank you!

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