AISSEC Associazione Italiana per lo Studio dei Sistemi Economici Comparati
XXth Scientific Conference
RISE AND DECLINE OF ECONOMIES: A COMPARATIVE PERSPECTIVE

The economic dynamics of the Russian regions: An analysis of the trajectories resulting from the application of the statis methodology

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Collegio Carlo Alberto -Torino
October 4-5, 2018

Outline

The aim
Method: STATIS Analysis
Dataset: Variables, Regions and Time Span
Result:
    The Compromise phase
        1. variables
        2. Regions
    The Trajectories
Preliminary conclusions

The aim

Structural change has a strong and spatially asymmetric impact on the local labour market

Russia is a bright example of a country with a very diversified economic development in different territories

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The aim of this presentation is to analyse the regional imbalance of Russia (2005-2013) and its dynamics, applying a dynamic multivariate factorial analysis method (STATIS)

- The STATIS method enables the Russian regions to be ‘read’ on the basis of factors that sum up their main socio-economic characteristics, to group them into homogeneous clusters, and to examine their temporal dynamics.
- It can therefore be used to estimate whether structural features favour the formation of clusters of regions and whether these display a tendency to converge either to a common structure or instead to a multiplicity of socio-economic structures.

Method: Statis analysis

- Statis is a dynamic multivariate method (Escoufier, 1985) which allows to investigate complex phenomena shaped in three-way dimensions: cases (regions) *i*, variables *j*, time *t*.

$$_tX_{ij}$$

- The analysis moves through three phases: **interstructure, compromise and infrastructure**
- The output from the **interstructure** phase describes the structure of the *T* temporal matrices in a vectorial space smaller than T. In our case this is reduced to two dimensions but still maintains a good similarity to the initial representation.
- The **compromise** phase consists in the estimation of a synthesis matrix which yields a representation, in the two-dimensional space identified, of the characteristic indicators and of the average positions of the regions in the time-span analysed (2005-2013).
- The result of the **intrastructure** phase is a representation of the trajectories followed by the individual regions along the factorial axes highlighting certain characteristics of the regional dynamic.

Variables (J)

Variables used in the STATIS analysis

N	Proxy	Variable	Measure	Acr.
1	Regional Economic performance indicator	Per capita Gross Domestic Product	GDP per capita in price 2005 Correct for the consumer'Purchasing Powe	GDP
2	Agglomeration factors	Urban density	Share of Urban Population	URB
3	Labour Supply	total activity rate	Active popiulation/population aged over 15	ACR
4	Labour demand	employment rate	employed/population aged over 15	EMR
5	Gap between Labour and Supply	Unemployment rate	Unemployed/Active population	UNR
6	Indicator of the demographic pressure	Share of population below 15 years	Population below 15 years/Population	YOU
7	Productive structure of the regional economy	percentage employment in agriculture	employed in agriculture/ total employed	AGR
8		percentage employment in industry	employed in industry/total employed	MAN
9		percentage employment in traditional services	employed in retail trade, hotels and non-market services /total employed	TRA
10	Human Capital indicator	Share people with high education	Population with tertiary education/population 15-64 aged	SHE

Regions (i) and time span (t)

- Regional entities in Russia are 85 (due the data avalability our analysis is based on 75 of them)
- These groups of federal subjects are also divided into twelve macro regions — sharing the following characteristics:
  - Relatively similar economic conditions;
  - Similar climatic, ecological, and geological conditions;
  - Overall similar living conditions of the population.

(1) Central Black Earth, (2) Central, (3) East Siberian, (4) Far Eastern, (5) Kaliningrad, (6) North Caucasus, (7) Northern, (8) Northwestern, (9) Ural, (10) Volga, (11) Volga-Vyatka, (12) West Siberian

- Years: 2005-2013

Economic regions of Russia

Results: Factors

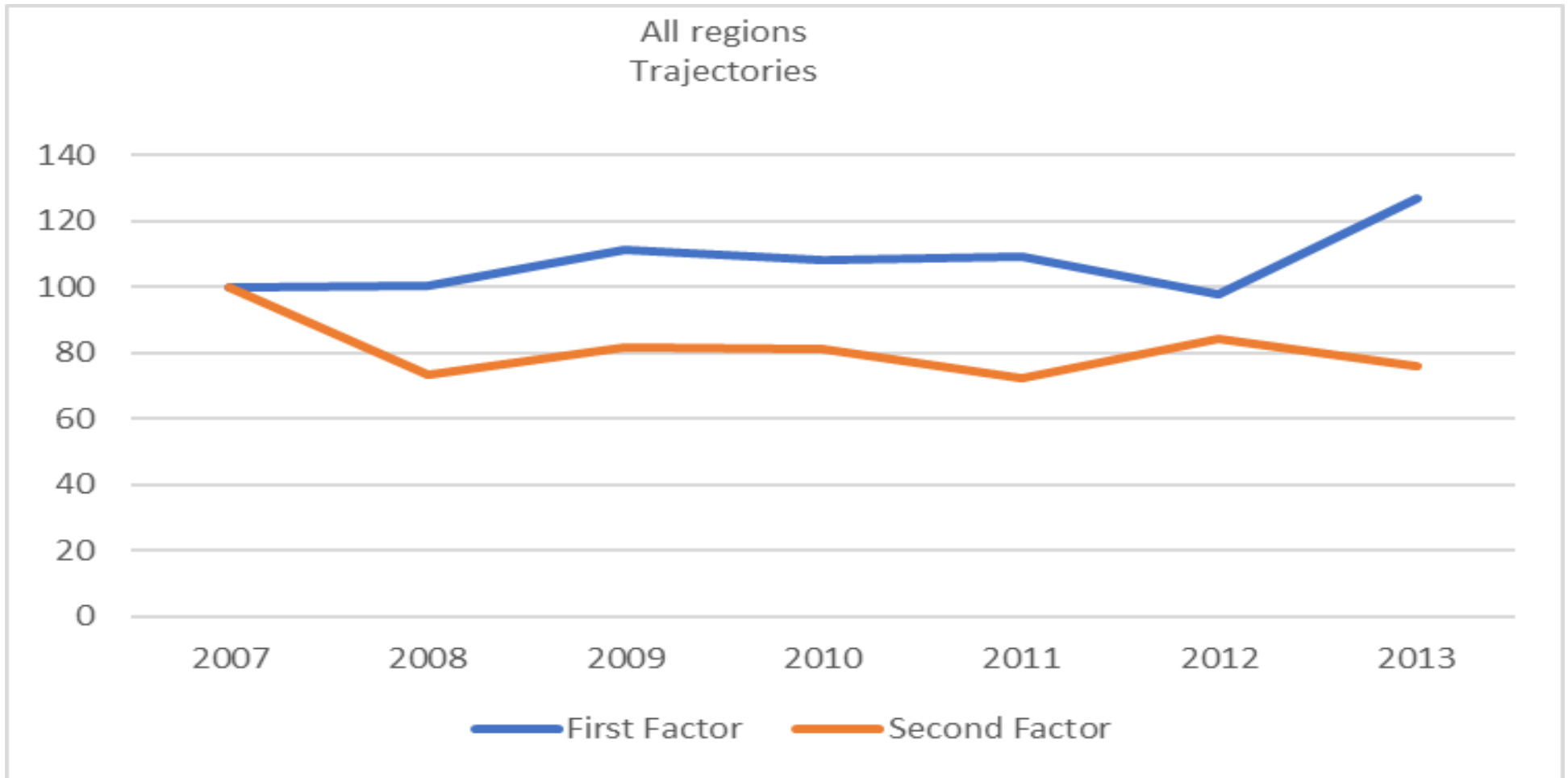
Table 3. Eigenvalues and inertia percentages of the factorial axes

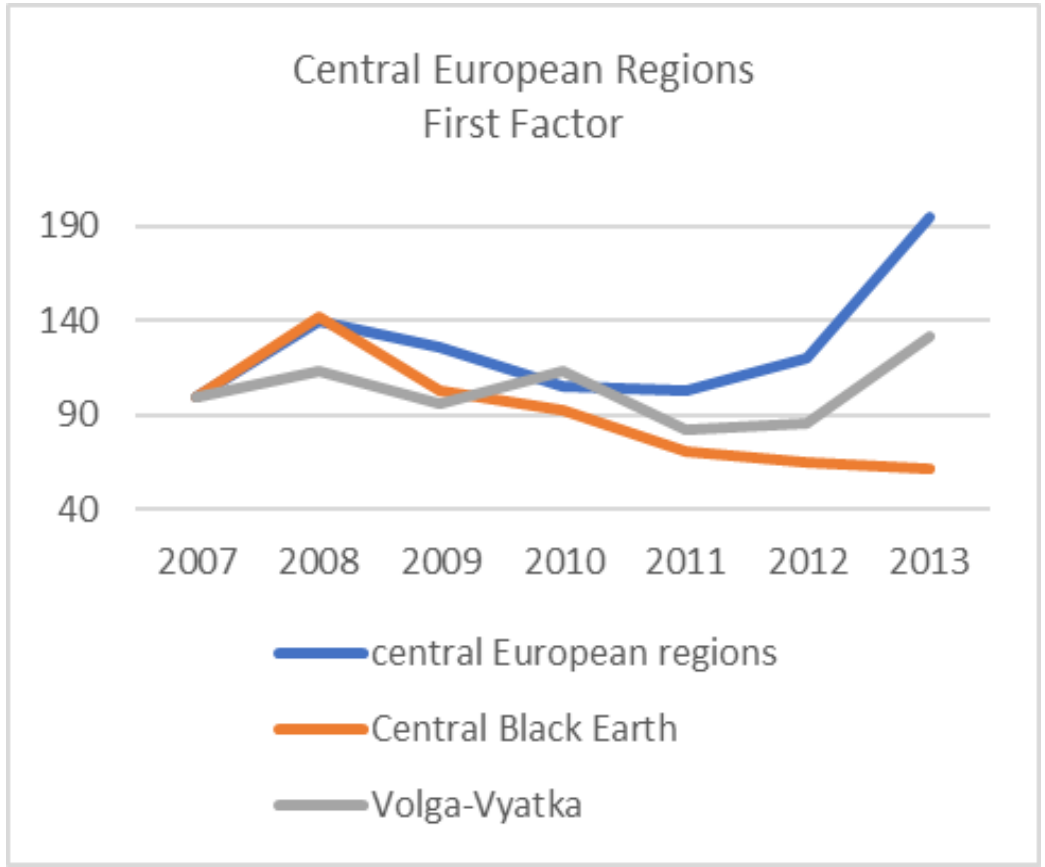
Axis	Eigenvalue	Variance explained	Cumulated variance explained
1	4.16198	40.62	40.62
2	2.12571	20.75	61.37
3	.941978	9.19	70.56

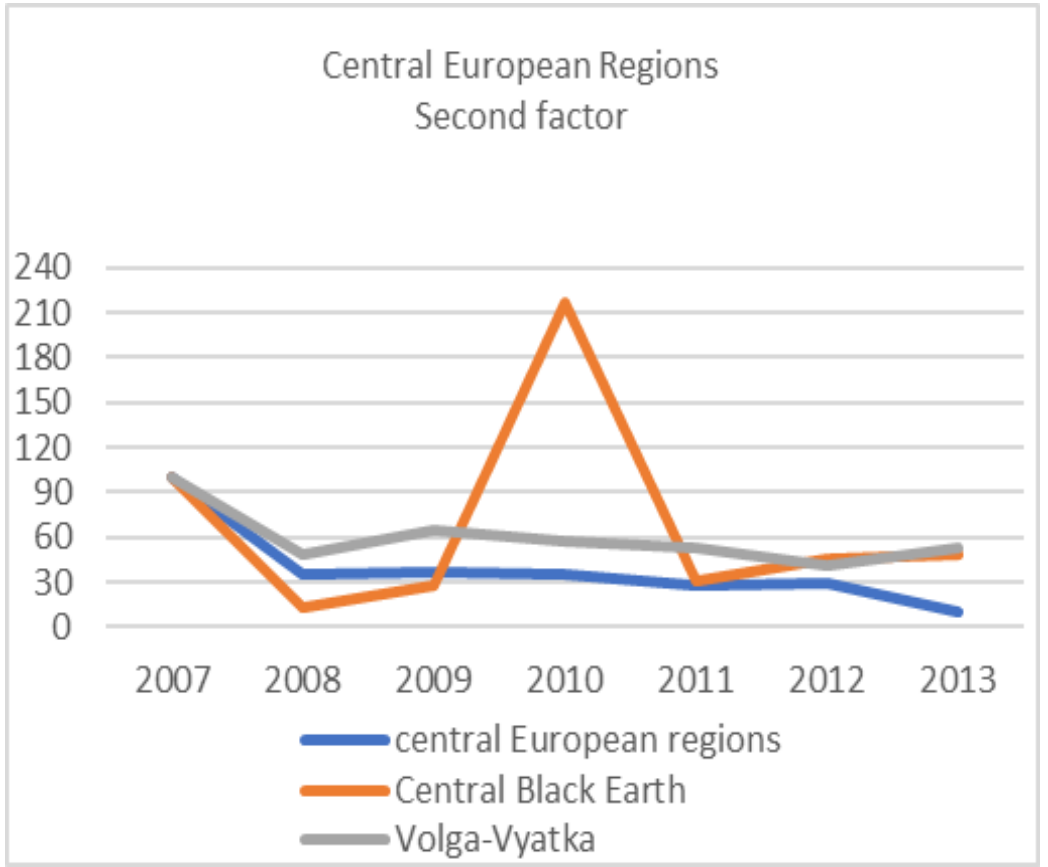
Source: Our calculations on Russian data collected from official database (provided by Federal State Statistics Service)

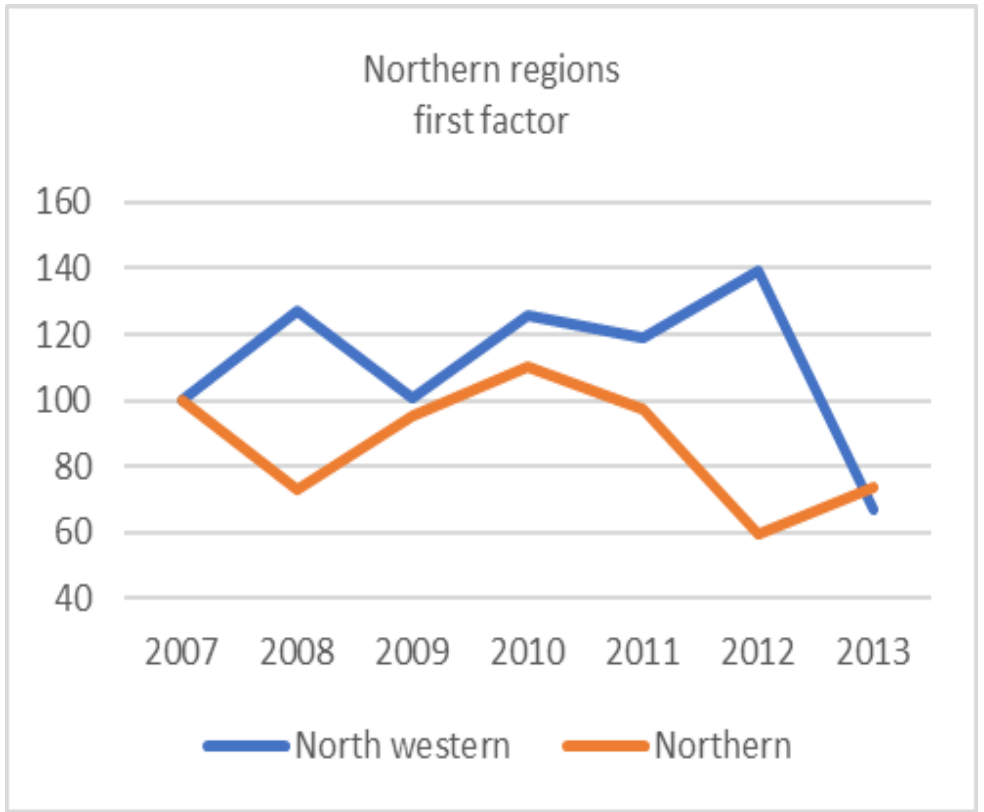
The intrastructure phase: the trajectories

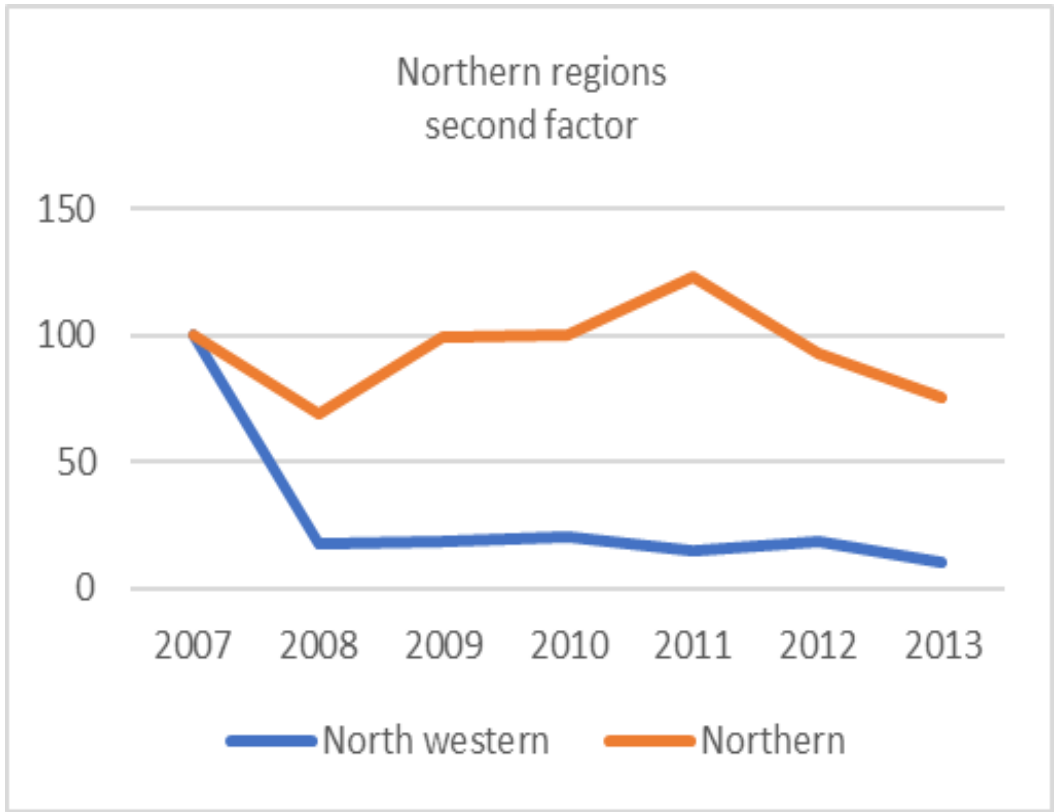
- A result of the intrastructure analysis concerns the **temporal trajectories** followed by individual regions along the factorial axes highlighting certain characteristics of the regional dynamic.

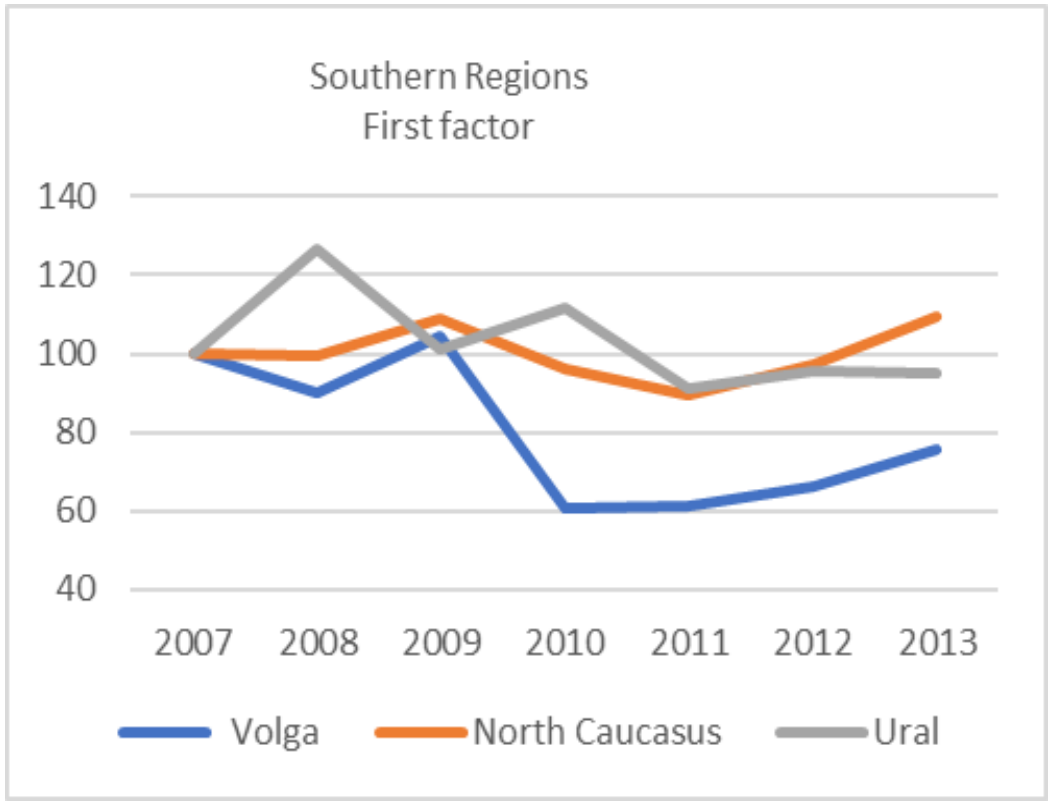

All regions
Trajectories
140
120
100
80
60
40
20
0
2007
2008
2009
2010
2011
2012
2013
First Factor
Second Factor

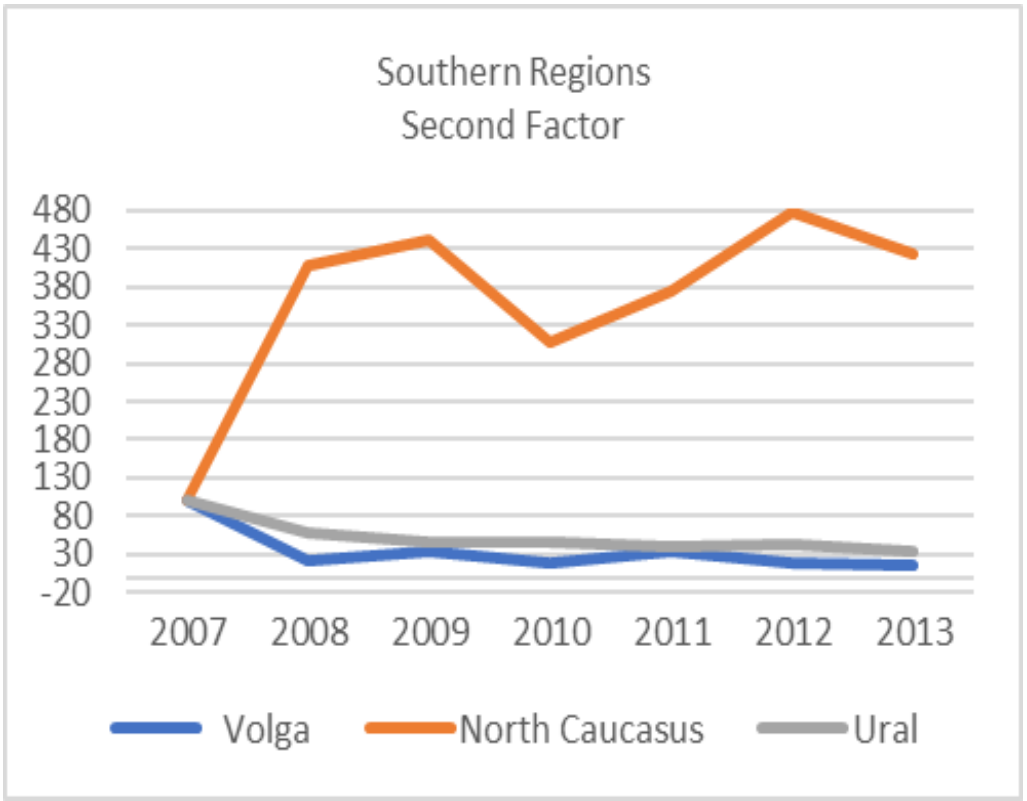

Central European Regions
First Factor
190
140
90
40
2007
2008
2009
2010
2011
2012
2013
central European regions
Central Black Earth
Volga-Vyatka

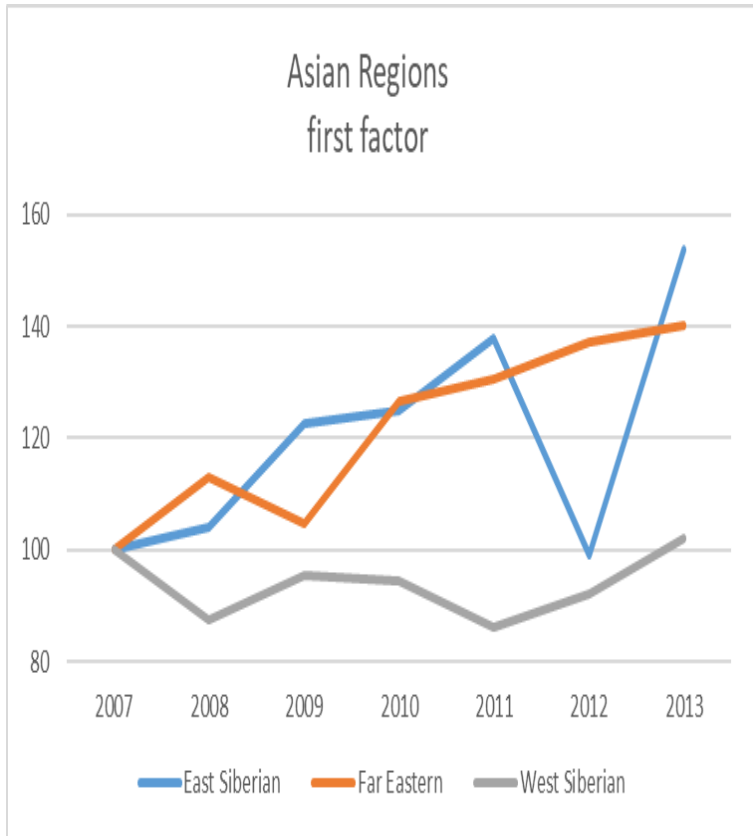

Central European Regions
Second factor
240
210
180
150
120
90
60
30
0
2007
2008
2009
2010
2011
2012
2013
central European regions
Central Black Earth
Volga-Vyatka

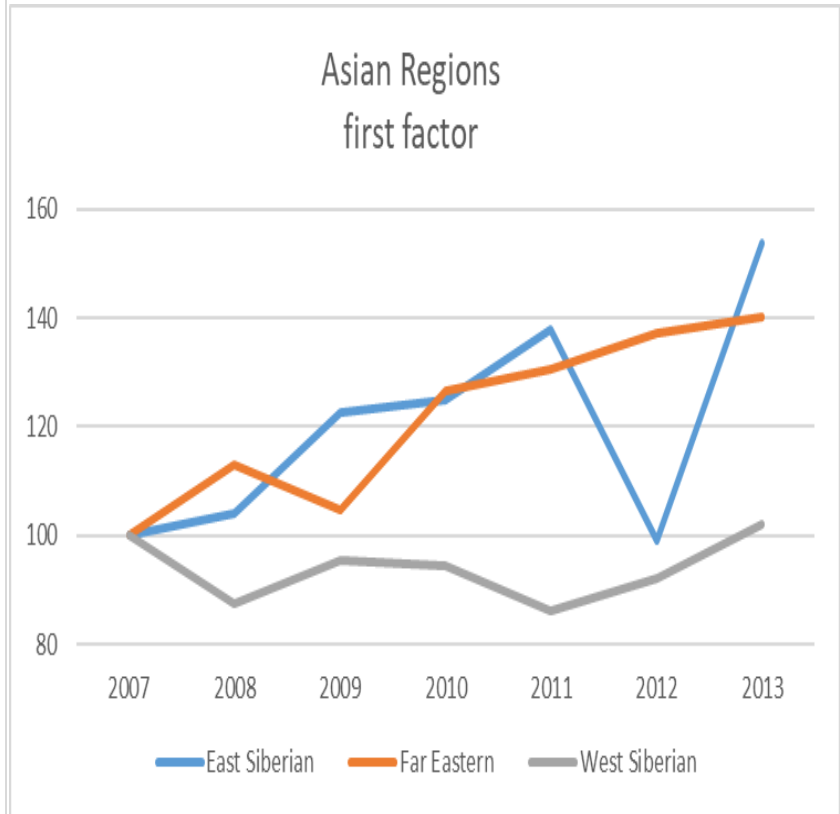

Northern regions
first factor
160
140
120
100
80
60
40
2007
2008
2009
2010
2011
2012
2013
North western
Northern


Northern regions
second factor
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
North western
Northern


Southern Regions
First factor
140
120
100
80
60
40
2007
2008
2009
2010
2011
2012
2013
Volga
North Caucasus
Ural


Southern Regions
Second Factor
480
430
380
330
280
230
180
130
80
30
-20
2007
2008
2009
2010
2011
2012
2013
Volga
North Caucasus
Ural


Asian Regions
first factor
160
140
120
100
80
2007
2008
2009
2010
2011
2012
2013
East Siberian
Far Eastern
West Siberian


Asian Regions
first factor
160
140
120
100
80
2007
2008
2009
2010
2011
2012
2013
East Siberian
Far Eastern
West Siberian

Summary conclusions

- The results of the analysis confirm the thesis of those who contend the Russian regions have a diversified reality influenced by structural phenomena concerning labour market characteristics, sectoral composition, and localization factors.
- This makes it unlikely that integration processes – although accelerated by the enlargement of markets and their greater efficiency – will give rise to the hope for levelling economic development in the near future.
- The main reason for regional differences still seems to be the composition and structure of the labour market and industry.
- To be noted in particular, is the marked contrast between the Central and Northern European regions, characterized by more flexible labour markets, and high employment rates, and the Siberian and Southern East regions characterised by high rates of structural unemployment.
- The dynamic analysis has shown not so much convergence as slow change in the structural characteristics that differentiate the regions, where localization factors and sectoral composition will probably be more influential in the future. Moreover, the peripheral regions seem to be more markedly characterized by structural differences than are core regions.