

## **AGGLOMERATION ECONOMICS IN REGIONS: THE CASE IN THE RUSSIAN INDUSTRY**

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### **Abstract**

The paper deals with the issues of economic activity location in the Russian regions, that is influenced not only by factors "first nature" - the presence of minerals, fertile land, favorable geographic position, but also factors of a "second nature", in particular, the agglomeration effects and the economy of scale. Analysis of geographic concentration and regional specialization reflects the general trend of the location of industrial production, investment and human resources, provides the necessary information basis for a balanced economic policy.

**Keywords:** New Economic Geography, Regional Economics, Location Theory, the Geographic Concentration of Economic Activity, Regions of Russia

**JEL classification:** R11, R12

### **1. Introduction**

The research of tendencies of the spatial location, arising and developing processes of concentration and industrial agglomeration and changes of territorial specialization allows implementing the regional policy purposefully. It is important to realize what conditions shall be created for attraction of new productions; what population size will be in the future and due to what its change will occur; whether submission of aid grant will obtain proper effect or not; what transportation directions shall be primarily developed. Currently allocation theories have failed: factors of the "first nature" don't explain the efficiency of development of some type of economic activities and their clustering in certain regions. Due to improvement of the existing scientific provisions in this sphere such mainstreams in science as new economic geography, new and newest trade theory have appeared, the prerequisites for their association into a unified doctrine are created. Theoretic provisions in the regions of various countries are tested continuously. The empirical analysis on the basis of the Russia's regions allowed to demonstrate a certain specifics and to reveal some contradiction in the provisions of the existing theories of the allocation.

### **2. Development of allocation theories**

Modern economic science considers the provisions of allocation theories in two main directions: from the perspective of a new economic geography (in terms of study and explanation of economics concentration in certain regions) and from the perspective of a new trade theory (explanation of the provisions of cross-border regions under certain trade conditions). The validity check of the theoretical provisions in the regional economics of the countries of the world will allow to introduce new aspects to development of this field of knowledge, to serve not only as a subject for additional studies, but as a basis for review and supplement of the allocation theories.

The relevant objective, to solution of which the modern research in the sphere of the regional economics is oriented is to create a unified theory explaining the process of spatial concentration and spread of the population, human resources, other factors of production and population welfare (Ottaviano et al., 2003). In 2008, an American economist, Paul Krugman, was awarded the Nobel Memorial Prize in Economic Sciences for his attempt to unite theories of allocation and trade. At that, relevance of the study in this sphere grows.

Let us underline the place and role of the national (including the Soviet) science in development of this field of knowledge. It is known that the classics in allocation theory are A. Weber, J. Thünen, A. Lösch, W. Christaller, D. North, A. Marshall, W. Isard and other

foreign researchers. However this direction was developed to the best advantage and also among Russian scientists in the 60s-70s of the 20th century. Among them: V.S. Nemchinov, A.Ye. Probst, N.N. Nekrasov, A.G. Granberg, Yu.A. Shatalin, I.G. Shilin, A.G. Aganbeguan, A.T. Khrushyov, N.T. Agafonov, P.Ya. Baklanov, M.K. Bandman, etc. Interpretation complexity of the results of their studies in the modern conditions lies in the fact that they were drawn up for planned economy. But it should be noted that a range of the best practices of the soviet authors anticipated foreign studies, and separate conclusions remained relevant to this day.

This Paper we will not enumerate the modern Russian researchers who are involved in development of allocation theory, for fear for disregarding anyone. Such review shall be a subject of a separate publication. Here we can refer to a remarkable work "Evolution of scientific views to allocation theory" (authors Ye.G. Animitsa, P.Ye. Animitsa, O.Yu. Denisova) and agree with the authors on the fact that further studies of our scientists in the field of allocation, development of relations of spatial economic and social systems, study of localization and functioning of economic activity of separate territories considering the practices of new economic geography will allow to make a significant contribution to regional economics (Animitsa et al., 2014).

### **3. Concentration, agglomeration, specialization: issues of terminology**

Allocation of economic activity in a region is defined by level of concentration, agglomeration and *specialization*. If the latter shall be exactly considered relatively to the region and evaluate the degree of dominance of any type of economic activity (or its uniform distribution), then the difference between concentration and agglomeration is not so evident in the research literature. Let us begin with definition of concentration.

*Concentration* shall be defined in relation to a type of economic activity, sector, subsector, industrial group, etc., and means the degree of clustering or sparseness of manufacturing within a certain territory. It is necessary to differ absolute and relative concentration. Industrial sector is *absolutely concentrated*, if several countries, regardless of their sizes, account for significant proportions in total volume of this production (Midelfart-Knavik et al., 2000). Industrial sector is *relatively concentrated*, if any one type of activity differs from those which are in average the most common in the industrial output in the countries. Neoclassical theory usually deals with relative concentration, new economic geography – with absolute one, new trade theory provides both types (Haaland et al., 1999).

We consider that concentration reflects distribution of certain types of economic activity over geographical space, while *agglomeration* is indicative of practicality of allocation of widely different types of activity within common territory. For example, metallurgy of ferrous and non-ferrous metals in the Sverdlovsk Region is concentration, and clustering of companies of various production branches in the Belgorod Region is agglomeration. Both concentration and agglomeration may take place in one and the same region, but agglomeration is more common process, as it concerns several industrial cross-sections. We consider that the statement "agglomeration process is follow-up concentration of economic activity in a region (city)" is justifiable, but this is not to say that concentration is agglomeration process.

### **4. Agglomeration and its types**

In view of the fact that among economists and geographers the term "agglomeration" is associated rather with urban agglomerations (a certain type of settlement system consisting of several cities), we offer to dwell upon this scientific concept. "Agglomeration - the clustering of economic activity, created and sustained by some sort of circular logic-occurs at many levels, from the local shopping districts that serve surrounding residential areas within cities to specialized economic regions like Silicon Valley (or the City of London) that serve the world market as a whole" (Fujita et al., 1999, p.1).

The term *agglomeration* was firstly introduced by Alfred Weber in 1905 to designate occurring mutual attraction between companies located within one territory. Now, economic literature provides a clear cut distinction between two types of agglomeration (depending on occurring externalities) – location of companies of one-type activity and different activities within one territory.

In the first case it is accepted to mention *localization economics*. Here we have endogenous effects due to specialization (allocation externalities) and exogenous sources of supplementary benefit. A. Marshall was a pioneer in this research field. He demonstrated that interaction between companies within one territory leads to development of productivity of all production factors. Such agglomeration is empirically assessed by concentration indices.

In the second case, when companies of different types of economic activity prefer to locate within one territory, it is accepted to speak of *urbanization economics*. It is just a place where the term crosses "urban" agglomeration which is more accepted in Russian economic geography. Companies' benefits are increased due to clustering of economic activity and related to variety. Basic principle of economic mechanism of agglomeration process in the region consists in the fact that at production of various consumption and intermediate goods three groups of the factors are of certain importance: increasing outputs (at the level of a separate company), transportation costs and labor migration as well as consumers, respectively.

### 5. Study methodology

To analyze allocation of certain types of economic activity in the regions we may use a conventional localization index:

$$LQ = \frac{\frac{E_{ij}}{E_i}}{\frac{E_j}{E}} = \frac{\frac{E_{ij}}{E_j}}{\frac{E_i}{E}}, \quad (1)$$

where  $LQ$  – location quotient;  
 $E_{ij}$  – number of people involved in economic sector  $j$  in region  $i$ ;  
 $E_i$  – total number of people involved in region  $i$ ;  
 $E_j$  – number of people involved in economic sector  $j$ ;  
 $E$  – total number of people involved in country  
 $j$  – economic sector;  
 $i$  – region.

The location quotient shows to what extent concentration of a certain type of economic activity exceeds the national average. That is, the location quotient defines the region relative to particular characteristics of manufacturing. Calculation of the quotient may be carried out not only by number of people involved in the economic sector, but also by production volume and cost of capital funds.

This quotient has a good application-oriented purpose and widely used in terms of development and implementation of regional economic policy. Earlier in the paper (Rastvortseva et al., 2013) we suggested and tested the procedure with the application of location quotient allowing to reveal a potential cluster in a region. For example, five economical clusters were empirically revealed in the Belgorod Region: agroindustrial, extracting, metallurgy industry, machine and equipment industry and construction engineering.

One more methodical tool of analysis of economic activity location is *Herfindahl–Hirschman Index (HHI)*. The *Herfindahl–Hirschman Index* may also be used for assessment of geographic concentration ( $HHI_j^C$ ), and for regional specialization ( $HHI_i^S$ ):

$$HHI_j^C = \sum_{i=1}^n \left( \frac{E_{ij}}{E_j} \right)^2, \quad (3)$$

$$HHI_i^S = \sum_{j=1}^m \left( \frac{E_{ij}}{E_i} \right)^2, \quad (4)$$

The Herfindahl–Hirschman Index is an *absolute measure of concentration or specialization*. The Herfindahl Index increases with growth of the degree of concentration or specialization achieving the upper limit 1 when industry  $j$  is concentrated in one region or region  $i$  is specialized only in one industry. The main disadvantage of the HHI is sensitivity of its lower limit to number of observations: the lowest level of concentration is  $1/n$  (when all regions have equal shares in industry  $j$ ), and the lowest specialization  $1/m$  (when all types of economic activity have equal share in region  $i$ ). As an absolute measure this index has one more important disadvantage: regions large by the index due to their high proportion influence significantly on changes in concentration / specialization (the index is shifted to the side of large regions). The concentration degree of economic activity on the regions shall be assessed by the Gini index ( $G$ ).

The *Krugman Dissimilarity Index (KDI)* is a *relative measure of concentration or specialization*. The Krugman Index give an estimation by separate sectors of economy ( $KDI_j^C$ ) and specialization by regions ( $KDI_i^S$ ):

$$KDI_j^C = \sum_{i=1}^n \left| \frac{E_{ij}}{E_j} - \frac{E_i}{E} \right|, \quad (6)$$

$$KDI_i^S = \sum_{j=1}^m \left| \frac{E_{ij}}{E_i} - \frac{E_j}{E} \right|. \quad (7)$$

The Krugman relative index of specialization / concentration is used for comparison of one region/ economic sector at large. The index value varies within 0 (identical territorial / sectoral structures) to 2 (absolutely heterogeneous structures).

The concentration indices  $CR_3$ ,  $CR_4$ ,  $CR_5$  shows what proportion of people involved in industrial sector is concentrated in three, four or five regions largest by this index:

$$CR_{3j} = \sum_{i=1}^3 \frac{E_{ij}}{E_j}, \quad (8)$$

$$CR_{4j} = \sum_{i=1}^4 \frac{E_{ij}}{E_j}, \quad (9)$$

$$CR_{5j} = \sum_{i=1}^5 \frac{E_{ij}}{E_j}. \quad (10)$$

## **6. Results of analysis of agglomeration processes in regions**

Analysis of the HHI dynamics shows that the Russia's regions have the largest degree of concentration by index of fixed capital expenditures. Till 1999 the concentration index had been increased in a sustained way up to 0.0486, then till 2010 it decreased to 0.029 and further it did not exceed 0.0345 (2013).

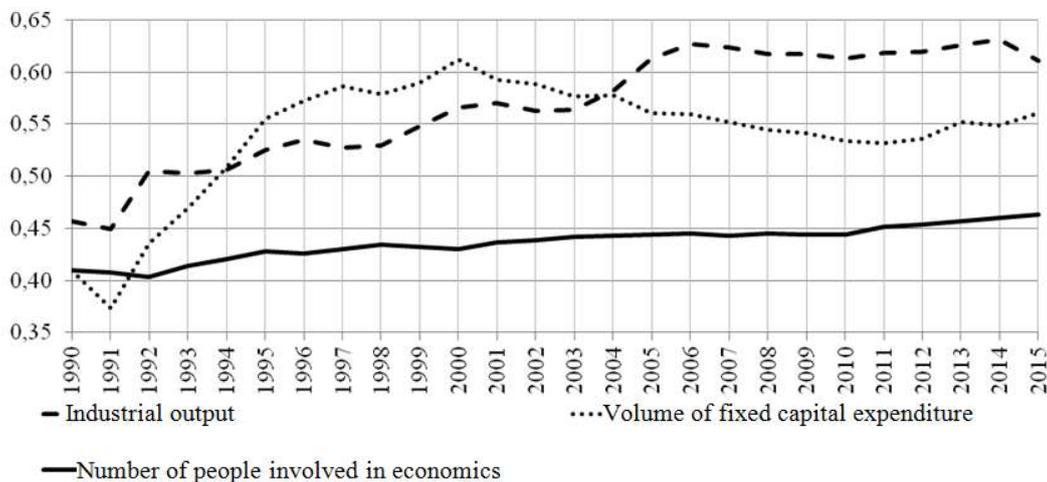
The minimum concentration index but with stable growth trend takes place by the number of people involved in economics. We consider that in connection with significant sizes of the country territory the Russia's population is not marked by high mobility. However even low mobility leads to gradual increase of concentration of human resources in separate regions and consequently to growth of socio-economic inequality. An exception is 2013 – the HHI decreased from 0.0266 to 0.0239 units.

High degree of concentration the regions have by the industrial output index. It is more sensitive to effect of the globalization factors: till 2006 the degree of its concentration in the Russia's regions had stable trend to growth, then smoothly decreased till 2010. The HHI

varies within the period under analysis (from minimum value 0.0234 in 1991 to maximum 0.0439 in 2013).

Let us consider the dynamics of the Gini index by the same indices (Fig. 1).

**Figure 1: Inequality dynamics of the Russian regions in 1990-2015, Gini Index**



Source: realised by author

The inequality dynamics of the Russian regions by socioeconomic indices has the similar pattern as concentration. The Gini Index by the number of people involved in economics almost completely re-peats the trajectories of the Herfindahl–Hirschman Index, has steady growth, its significance is behind the indices of industrial production and investments. It may be noted that some decrease of the degree of concentration of people involved in economics in 2013 had no effect on positive growth dynamics of inequality of the regions by the index.

High degree of concentration of fixed capital expenditures in 1999 led to maximum level of the interregional inequality in 2000. At large the dynamics trajectories of the indices are similar, but the Gini Index variation amplitude is less prominent.

Similar conclusions may also be made on terms of concentration and inequality of the Russian re-gions by the industrial production index. We may make a conclusion that concentration of economic resources and industrial production enhance the interregional inequality.

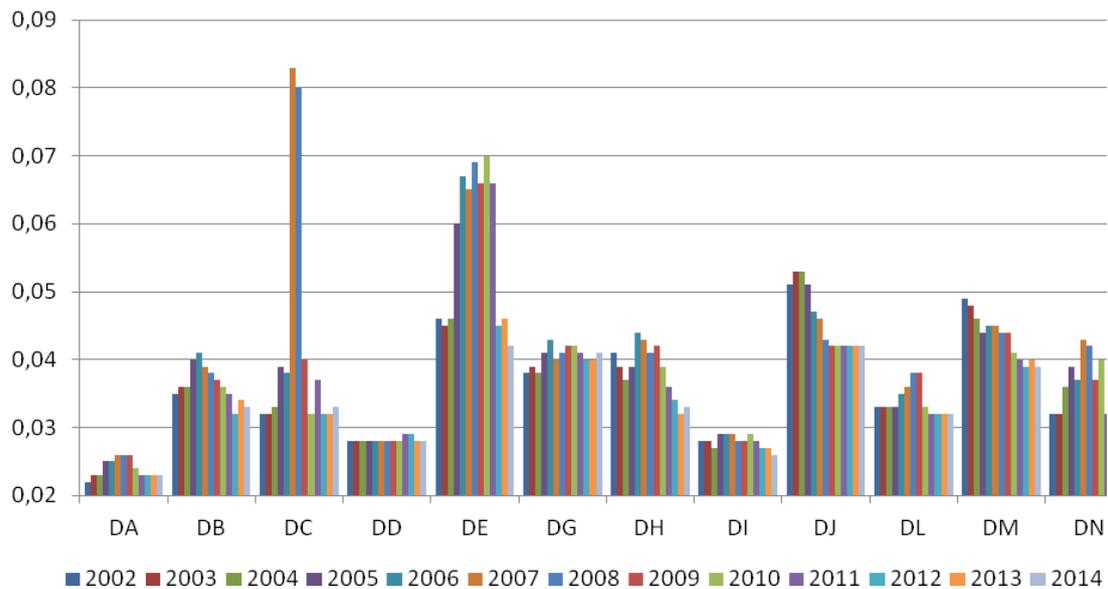
Let us consider the processes of concentration of economic activity in the industrial sector to some detail. To this end we may estimate the dynamics of the region share in the number of people involved in manufacturing industry. For the period from 2002 to 2014 total reduction in the number by 28.23 %; increase of the proportion took place in 38 regions (by all means due to decrease in other regions). We may especially mark the Moscow (its share increased by 1.37 %), Novosibirsk (0.48 %) Regions, the Republic of Tatarstan (0.47 %), Belgorod (0.45 %), Chelyabinsk (0.44 %), Kaluga (0.42 %), Kaliningrad (0.38 %), Omsk (0.30 %), Sverdlovsk (0.29 %), Leningrad (0.28 %), Rostov (0.28 %) Regions. Total share of 11 enumerated regions involved in manufacturing industry is in-creased by 5.16 %, and we may speak of development of the processes of industrial production con-centration, and if a regional share is increased immediately by several economic sectors, also of ag-glomeration presence.

The economic theory provisions indicate the fact that concentration of economic activity increases total efficiency of resources utilization, leads to supplementary benefits and has positive influence on economic development at large. But we shall also understand that concentration growth leads to growth of interregional inequality, firstly by economic and then by social indices. The regions which become less attractive for human, investments and other resources, for development of industrial pro-duction (and auxiliary types of activity), become receiver. The arising expenditures to support such territories decreases incomes obtained by concentration of economic activity in leading regions. That is why we consider that at large high degree of concentration of economic activity in separate regions cannot have positive influence on development of the national economy and social sphere. Taking into account the Russia's immense territory and presence of interregional differentiation by social and eco-

conomic indices, it is necessary to monitor origin and development of agglomeration processes which may enhance the existing imbalances.

It is important to realize which types of economic activity have specific features for concentration within separate territories and which ones have development prospects in any region. The tendency to concentration is mainly attributable to two factors: possibility of extra profit due to the effect of scale and vicinity to the resources (natural resources, highly skilled human resources, etc.). We suggest to consider these types of activity in terms of manufacturing industry. To this end, we shall calculate dynamics of absolute (the Herfindahl–Hirschman Index – Fig. 2) and relative (the Krugman Index – Fig. 3) indices of geographic concentration (by number of people involved in manufacturing sectors).

**Figure 2: Dynamics of geographic concentration of manufacturing by activity types in the Russian regions within 2002-2014, the Herfindahl–Hirschman Index**

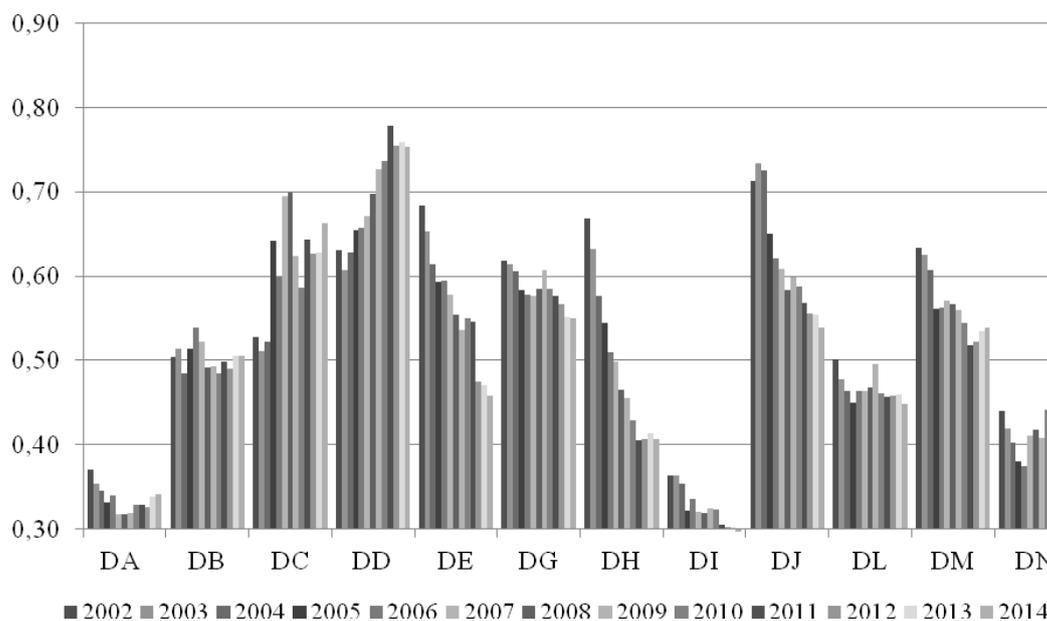


- DA – production of food, including drinks and tobacco;
- DB – textile and garment production;
- DC – production of leather, articles of leather and footwear;
- DD – wood and articles of wood;
- DE – cellulose and paper production, publishing and printing activity;
- DG – chemical industry;
- DH – production of rubber and plastic articles;
- DI – production of other nonmetal mineral products;
- DJ – metallurgical production and manufacture of finished metal articles;
- DL – production of electrical equipment, electronic and optical equipment;
- DM – production of transportation means and equipment;
- DN – other types of production.

Source: realised by author

The Herfindahl–Hirschman Index estimates absolute concentration of certain types of manufacturing industry. Traditionally, paper mills, publishing and printing companies, metallurgy, production of transport means and equipment have a tendency to concentrate within separate territories. Food-manufacturing industry, wood processing and production of wood items, production of non-metallic mineral commodities are uniformly distributed over the regions. Similar conclusions may also be made for relative concentration index – the Krugman variety index.

**Figure 3: Dynamics of geographic concentration of manufacturing by activity types in the Russian regions within 2002-2014, the Krugman variety index**



DA – production of food, including drinks and tobacco;  
 DB – textile and garment production;  
 DC – production of leather, articles of leather and footwear;  
 DD – wood and articles of wood;  
 DE – cellulose and paper production, publishing and printing activity;  
 DG – chemical industry;  
 DH – production of rubber and plastic articles;  
 DI – production of other nonmetal mineral products;  
 DJ – metallurgical production and manufacture of finished metal articles;  
 DL – production of electrical equipment, electronic and optical equipment;  
 DM – production of transportation means and equipment;  
 DN – other types of production.

Source: realised by author

Geographic concentration of the human resources in production of food products is not high – the Herfindahl–Hirschman Index is 0.022-0.026 units, the Krugman Index – 0.32-0.37 units. The remarkable thing is that at large in Russia the number of people involved in this sector is continuously reduced. Concentration growth occurs due to rise of four leading regions in the last few years: the Krasnodar Territory and Moscow Region (their shares in total number of people involved in the sector is 6 % each), Moscow (about 5 %) and the Belgorod Region (3-3.5 %). Totally in four regions (CR4) almost 20 % of employees of food production are involved.

Absolute concentration in textile and garment manufacture is reduced. The Herfindahl–Hirschman Index had maximum value (0.041) in 2006, minimum (0.032) – in 2012. The Krugman Index varies within 0.48-0.54. It is worth mentioning that 30% of employee of textile and garment manufacture are concentrated in five regions (CR5). The leaders in this sector are the Ivanovo Region (its share is decreased) and the Moscow Region (its share is increased). The share of Moscow is increased; among the leading regions participation of Saint Petersburg, the Rostov and Vladimir Regions is decreased.

Absolute concentration of manufacture of leather, leather goods and footwear is not high. An exception is period 2007-2008, when the Herfindahl–Hirschman Index was increased up to 0.08-0.083. This occurred due to significant growth of number of people involved in the sector in Moscow. The leaders in this sector are Moscow (appr. 6 %) and the Moscow Region (5-6 %, the share is decreasing). Production is expanded in Saint Petersburg, the Kirov and Chelyabinsk Regions. About 27% of all number of people involved in production are accounted for the share of five regions. In 11 regions this economic sector is not present at

all. Due to this at low absolute concentration (the Herfindahl–Hirschman Index is 0.042 on average) high interregional heterogeneity (the Krugman Index – 0.51-0.70) is observed.

The maximum degree of heterogeneity (at moderate concentration) in industry takes place in wood processing and in production of wood items (the Krugman Index – 0.61-0.78, the Herfindahl–Hirschman Index – 0.028). About 25 % of this economic sector are accounted for five regions over the last years. Among the regions with great number of employed people we may mention the Krasnoyarsk and Perm Territories, Kirov, Irkutsk, the Vologda Regions.

In pulp and paper production, publishing and printing activities a tendency of the Krugman Index decreased is observed: in 2002 it was 0.68 unit, and in 2014 – 0.44 units. The degree of concentration is maximum high: on average for the period under analysis – 0.056. At that, more than a quarter of employees is concentrated in Moscow, Moscow Regions and in Saint Petersburg; about 33 % are accounted for five regions.

High concentration is observed in chemical production: the Krugman Index varies from 0.52 unit to 0.62 units, the Herfindahl–Hirschman Index – 0.038-0.043. Over 35% of all number of people involved in the production sector are accounted for the share of five regions. The Republic of Tatarstan takes the first place by the number of employees in chemical production (over 8 %), this share is permanently increased over the last years. The significant scopes of activity are observed in the Perm Territory, Moscow Region, Republic of Bashkortostan – over 7 %, the Samara Region and Moscow – about 5 %.

Obvious tendency in industry dispersion is observed in production of rubber and plastic products. The Krugman Index is decreased from 0.67 unit in 2002 to 0.41 unit in 2014, the Herfindahl–Hirschman Index – from 0.044 in 2006 to 0.033 in 2014. About 30 % of the employees in the sector operate in five regions: the Moscow Region (appr. 10 %), Republic of Tatarstan (6-7 %), in Moscow (appr. 5 %), Nizhny Novgorod Region (over 4 %) and Saint Petersburg. In 2013 the Republic of Bashkortostan is crowned the leading five – over 3 %.

The lowest level of geographic concentration within the period under analysis takes place in production of the other non-metallic mineral products – the Krugman Index is 0.30-0.34 unit, the Herfindahl–Hirschman Index – 0.26-0.29 unit. The share of five large regions in the index varies about 25 %. The Moscow, Chelyabinsk Regions, Moscow and the Krasnodar Territory may be related to their number.

In metallurgical production, on the contrary, it is necessary to mention high degree of concentration but at its constant decrease. In this economic sector over 26 % of employees operate only in three regions of the country: the Sverdlovsk, Chelyabinsk and Moscow Regions. Over 34 % of all employees involved in metallurgy are for the share of five regions (with the Kemerovo and Nizhny Novgorod Region).

Low geographic concentration of production of electrical equipment, electronic and optical equipment shall be estimated positively. In five regions of the country about 30 % of the sector is involved. Saint Petersburg (over 8 %), Moscow (about 7 %), the Moscow (over 5 %), Sverdlovsk (about 5 %) and Nizhny Novgorod Regions, and in 2014 – Republic of Tatarstan – almost 4 % are related to this number.

Total number of the employees in production of transport means and equipment is decreased. This economic sector may be described as highly concentrated with decreasing level of heterogeneity. The Herfindahl–Hirschman Index is decreased from 0.049 to 0.039, the Krugman Index – from 0.52 unit to 0.63 unit for the period under analysis. In the last few years the enhancement of the leading regions occurs: The share of the first five territories is increased up to 33.4 %, at that only in the Samara Region, in the Republic of Tatarstan and Nizhny Novgorod region about 25 % of human resources of this industry sector.

The "Other productions" sector has an average degree of concentration, the number of people involved here is gradually reduced.

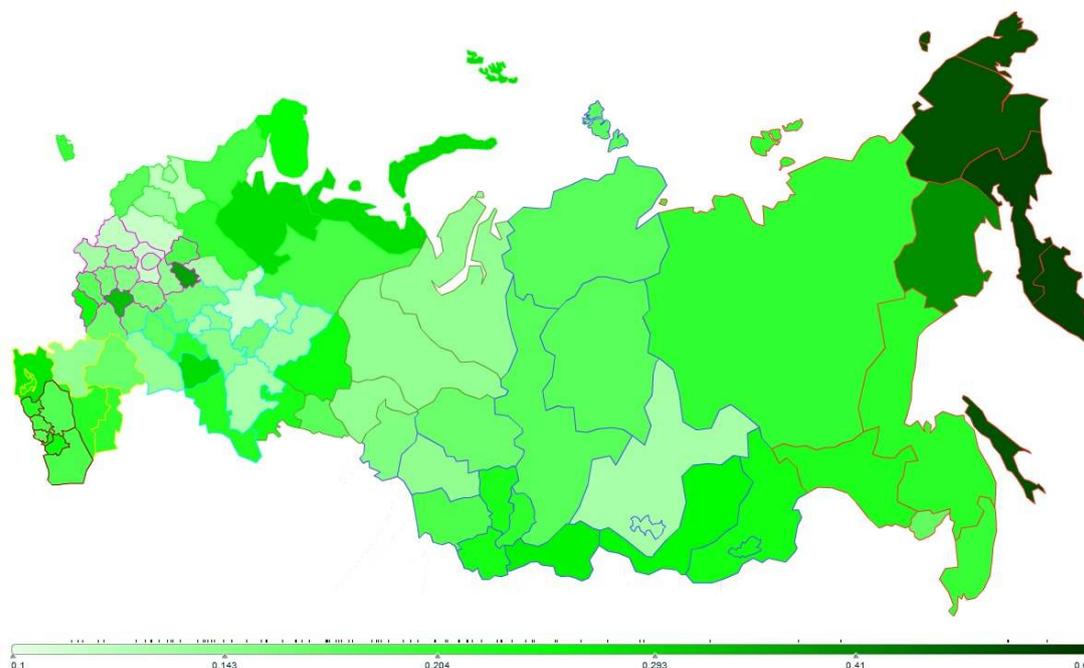
At large the geographic concentration of the number of people involved in the processing industry is decreased (from 0.044 on average by sectors B in 2007 to 0.034 in 2014) is reduced and the degree of heterogeneity (from 0.55 units in 2002 to 0.49 units in 2012-2014). Combination of this tendency with increase by the industrial production volume index (Fig. 1) is indicative of differences in the efficiency level: in the leading regions the number of employees is reduced at retention or growth of production volume.

We may see that the significant share of people involved in many sectors of processing industry is accounted for the Moscow Region, Moscow and Saint Petersburg, Nizhny

Novgorod Region, Republic of Tatarstan, Krasnodar Territory and Perm Territory, Sverdlovsk Region. This is not surprising as the major part of the economically active population is involving these regions.

Let us analyze the dynamics of specialization of manufacturing in the Russian regions within 2002-2014 as per the Herfindahl–Hirschman Index. The results of the analysis are given in Figure 4.

**Figure 4: An average value of the Herfindahl–Hirschman Specialization Index for the processing industry by the Russian regions within 2002-2014**



Source: realised by author

Within the period under analysis the specialization index by the sectors of processing industry varies from 0.106 in the Tver Region (2006) up to 0.696 in the Kamchatka Territory (2013). The average value by the regions is 0.193-0.207. The Kamchatka Territory, Chukotka Autonomous District, Sakhalin, Magadan, Ivanovo and Lipetsk Regions may be related to the regions with the highest specialization level. The Kirov, Moscow, Tver, Leningrad, Smolensk Regions, Moscow, Chuvash Republic and Bashkortostan, Kostroma, Irkutsk Regions and other differ by low level of specialization. Please note that in the enumerated regions of the Far East the high value of the index is achieved due to significant share of the employees, in food production (DA), in the Ivanovo Region – textile and garment production (DB), in Lipetsk Region – production of metallurgy and finished metal products (DJ). From 2002 to 2014 28-32 territories may be related to the number of the regions with the specialization level in the processing industry over average and 47-51 territories to the level below average.

For deeper study specialization of the regions earlier we have already provided the analysis (Rastvortseva et al., 2012) of interaction of its level with the indices of social and economic development: Gross Regional Product per capita batch, labor efficiency, average monthly rated gross payroll, level of unemployment. The Russian Regions were divided into three groups – with low level of specialization, the extracting regions with high level of specialization, regions with high level of specialization and absent extracting sector. It was determined that the regions providing development of its economy due to extracting production "may allow" niche specialization in any industry sector. In the rest cases the deep specialization of the Russian regions is not efficient (Rastvortseva et al., 2012).

The analysis of the Krugman specialization heterogeneity index showed that the Arkhangelsk Region and Nenets Autonomous District, Komi, Republic of Tuva, Samara

Region, Karelia, some Cau-casus republics, the Altai Territory, the Jewish Autonomous Region, the Belgorod Region in addition to the mentioned ones differ from the Russian average level.

## **7. Conclusion**

Development of allocation theory acquires special relevance at present. New factors effecting the geographic concentration of economic activity and regional specialization, such as agglomeration effect from location of production within one territory and increasing output. The degree of dominance of any type of economic activity in the region is estimated by the specialization indices, clustering or sparseness of certain type of activity or resource is determined by concentration. The situation when concentration in the region is observed by several types of economic activity is called agglomeration.

To analyze tendencies of allocation of economic activity in the regions the indices of localization, concentration and specialization of Herfindahl–Hirschman and Krugman, Gini Index, CR3, CR4, CR5. In the course of the study we revealed high concentration of investments and manufacturing in the Russian regions, stable tendency of increase of the index by the human resources. This situation will lead to increase of interregional inequality. In the processing industry reduction of employment occurred in 2002-2014, by almost a quarter. Tendency to concentration is determined in pulp and paper production, publishing and printing activities, metallurgy, production of transport means and equipment. The Kamchatka Territory, Chukotka Autonomous District, Sakhalin, Magadan, Ivanovo and Lipetsk Regions may be related to the regions with the high specialization level.

The obtained results can be used in the scientific studies for analysis of allocation of economic activity, assessment of development of agglomeration processed as recommendations at economic policy in the regions.

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