Artículo de investigación

Identification of long range growth poles as a key instrument of the federal policy of Russia's regional territories

Identificación de los polos de crecimiento a largo plazo como un instrumento clave de la política federal de los territorios regionales de Rusia

Identificação de pólos de crescimento a longo prazo como um instrumento fundamental da política federal dos territórios regionais da Rússia

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Abstract

In the current economic situation, in the time of limited resources and opportunities, as well as the number and severity of unresolved social and economic problems, the possibility of using the theory of "growth poles" is increasingly important. Determination of the most promising sectors of development of regions, levels of development of industries contribute to improving the effectiveness of strategic planning of the region, as well as the specific focus of investment activities within the region. Due to the limited budgetary funds in the region, it is necessary to identify unstable industries in the region, as well as the development prospects characteristic of the Belgorod Region, for the implementation of support and regulation. The main results are presented in the given article: the concept of "growth poles" for the region is characterized, and the algorithm for determining promising growth poles is considered using the example of the Belgorod region, the main promising sectors are identified, as well as the level of development of each of the sectors at present.

Keywords: GRP, volume index, profitability, structural elasticity, conservative component of

Resumen

En la situación económica actual, en el tiempo de recursos y oportunidades limitados, así como en el número y la gravedad de los problemas sociales y económicos no resueltos, la posibilidad de utilizar la teoría de los "polos de crecimiento" es cada vez más importante. La determinación de los sectores más prometedores del desarrollo de las regiones, los niveles de desarrollo de las industrias contribuyen a mejorar la efectividad de la planificación estratégica de la región, así como el enfoque específico de las actividades de inversión dentro de la región. Debido a los limitados fondos presupuestarios en la región, es necesario identificar industrias inestables en la región, así como las perspectivas de desarrollo características de la Región de Belgorod, para la implementación del apoyo y la regulación. Los principales resultados se presentan en el artículo dado: el concepto de "polos de crecimiento" para la región se caracteriza, y el algoritmo para determinar los polos de crecimiento prometedores se considera utilizando el ejemplo de la región de Belgorod, los principales sectores prometedores también se identifican. Como el nivel de desarrollo de cada uno de los sectores en la actualidad.

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growth rate, reconstructive component of growth rate, structural elasticity of production, phases of economic development, "growth pole".

Palabras claves: PRFV, índice de volumen, rentabilidad, elasticidad estructural, componente conservador de tasa de crecimiento, componente reconstructivo de tasa de crecimiento, elasticidad estructural de producción, fases del desarrollo económico, "polo de crecimiento".

Resumo

Na actual situação económica, em vez de recursos e oportunidades limitadas, bem como o número ea gravidade dos problemas sociais e econômicos não resolvidas, a possibilidade de utilizar a teoria dos "pólos de crescimento" é cada vez mais importante. A determinação dos setores mais promissores de regiões em desenvolvimento, os níveis de desenvolvimento das indústrias de contribuir para melhorar a eficácia do planeamento estratégico na região, bem como o foco específico de atividades de investimento na região. Devido aos limitados recursos orçamentários na região, é necessário identificar indústrias instáveis na região, bem como as perspectivas de desenvolvimento características da Região de Belgorod, para a implementação de apoio e regulamentação. Os principais resultados são apresentados no artigo como: o conceito de "pólos de crescimento" para a região é caracterizada, eo algoritmo para determinar os pólos de crescimento promissor é considerado usando o exemplo da região de Belgorod, os principais setores promissores também eles identificam Como o nível de desenvolvimento de cada um dos setores no presente.

Palavras-chave: GRP, índice de volume, rentabilidade, elasticidade estrutural, componente conservador da taxa de crescimento, componente reconstrutivo da taxa de crescimento, elasticidade estrutural da produção, fases de desenvolvimento econômico, "pólo de crescimento".

Introduction

In the context of the policy of import substitution in the Russian Federation, as well as in accordance with the "Concept of the Strategy for the Socio-Economic Development of Regions of the Russian Federation", the development of support-frame productions within the regions was of particular relevance. The definition of "growth poles", "growth drivers" is a primary task in this strategy.

"Growth poles" ("points of economic growth") are agglomerations of enterprises and industries that are geographically concentrated and are distinguished by intensive innovation processes.

The ancestor of the concept of "growth poles" is the famous French economist Francois Perroux, at the heart of his teaching there is the idea of unevenness in the development of economic subjects. As a result, there are both dominant and subordinate economic units (both industry and spatial). According to academician A.G. Granberg, growth poles and development axes form the spatial framework of the economic growth of a large region or a country as a whole (Granberg, 2000).

Due to the differences between the growth poles, economic growth spreads unevenly throughout the territory, so that the national economy "appears to us as an assembly (combination) of ensembles relatively active and relatively passive (Stryabkova, 2018).

The theory of «poles», or «growth points», especially its spatial aspects, was developed in the works of the French economist P. Potier. His main idea was that not only the "growth poles", but also the territories located between them, receive additional impulses of development due to the improvement of infrastructure, the increase in traffic, the spread of innovation.

One of the methodological foundations of a regional, including industrial, development is the theory of polarized development. Its authors, F. Perroux and J. Boudeville, argued the advantages of concentrating the production of propulsion

industries in several centers, which can give a considerable economic effect (Perroux, 1971).

The theory of cluster management of the economy and production was developed by M. Porter, who identified the clusters as new objects of state policy to improve national competitiveness (Porter, 1998; Porter, 2003).
The cluster approach in the implementation of regional industrial policy is on a par with the concepts of "growth poles", territorial production complexes, "new cities", technopolises, etc.

The relevance of the topic is due to the fact that the formation and maintenance of the effective functioning of "points of growth" is increasingly being established as one of the key instruments of the federal policy of regional development, as well as the development of individual territories within the constituent entities of the Russian Federation.

Methods

In the course of the study, data from the Federal State Statistics Service (Rosstat) and the Territorial Body of the Federal State Statistics Service in the Belgorod Region were used. The main methods used in writing the work are: comparative, monitoring, the theory of growth poles, historical and political science, the method of constructing scenarios.

Results

The determination of perspective points of growth poles can be based on the analysis of the following criteria:

1. Determination of the share (significance) of the type of activity within the region - share in the structure of the GRP;
2. Consideration of the industry's ability to grow dynamically (analysis of volume indices);
3. Analysis of the competitiveness of the industry with the help of return on sales.

According to statistics, the main branches of production that make up the GRP of the Belgorod Region are (data for 2017):

- industry (34.9%);

- agriculture (18.5%);

- trade (15.3%);

- construction (7.9%);

Consider in table. 1 indices of the physical volume of branches of production of the Belgorod region.

Table 1. Analysis of physical volume indices of the Belgorod region industries (Federal state statistics service)

	2014	2015	2016	2017
Mining industry	101.1	102	102	130.8
Manufacturing industry	104.5	108	109.2	99.8
Agriculture	105	104.1	106.5	100.2
Construction	87	102.6	89.5	96.3
Retail trade	107.6	93.5	101.7	102.8
Wholesale trade	132	105.9	97.5	102

According to the presented data, it can be concluded that the industries that demonstrate a constant growth over the period under review are: the mining industry and agriculture. For a more accurate analysis of industries, it is necessary to determine the competitiveness of industries using the table. 2

Table 2. Analysis of profitability of the Belgorod region industries, %

	2014	2015	2016	2017
Mining industry	85.3	68.1	86.7	120.3
Manufacturing industry	8	9.1	10.1	9.4
Agriculture	38.5	33.1	18.4	21.9
Construction	2.8	3.8	-0.2	1.7
Retail trade	2.8	-0.3	2.2	2.3
Wholesale trade	1.4	1.8	1.6	-0.3

According to the table, it can be concluded that for the period under review, from 2014 to 2017, the activities that do not have indicators of negative profitability are: mining, manufacturing, agriculture and wholesale trade. The dynamics of growth of profitability, as well as the highest values of indicators shows mining industry and agriculture.

There is a second algorithm for determining promising growth poles based on the study of structural changes, the analysis of which is important for monitoring economic development.

Dedov L.A. applied the concept of structural elasticity of release (Dedov, 1998):

$$E = \frac{n_1}{n_2}, \qquad (1)$$

where:

n1 - conservative (inertial) component of the growth rate;
n2 - reconstructive (structural) component.

The conservative component of the growth rate n1 is determined by the formula:

$$n_1 = \frac{(Q_1 - Q_0)}{Q_0} \times 100\% \qquad (2)$$

where:

Q0 – regional output in the base year;
Q1 – the volume of the region in the year under study.

To determine the conservative components of growth, it is necessary to consider the volume of production of the main types of activities in the region. Data for calculation are given in table. 3

Table 3. Production volumes by main activities of the Belgorod region, mln. Rub
(Territorial body of the Federal state statistics service of the Belgorod region)

Index	2014	2015	2016	2017
Mining industry	84222.7	80960.6	88929.9	116280
Manufacturing industry	470245.3	343650.4	603881.4	602872.8
Agriculture	188217.3	220692.1	228355.2	230291.7
Construction	63342.7	76726.1	70984.8	73540.3
Retail trade	52626.8	58402.2	60603.2	85155.8
Wholesale trade	190502.2	230656	198004.3	207264.8

According to the table, it can be concluded that during the analyzed period, the indicators of all industries, except manufacturing, show a tendency to increase. Production volumes of the mining industry increased from 84222.7 to 116280 million rubles (an increase of 38.1%, in real terms - 32057.3 million rubles). The value of production in agriculture, which in 2014 amounted to 1,88217.3 million rubles for the analyzed period increased by 28.2% (42074.4 million rubles) and in 2017 amounted to 230,291.7 million rubles. For the period 2014-2017, the value of the indicator of wholesale trade increased by 16762.6 million rubles (by 8.8%) and in 2017 amounted to 207264.8 million

rubles. Retail trade is also showing an upward trend - the figure increased from 52,626.8 million rubles in 2014 to 8, 5155.8 million rubles in 2017.

The calculation of the conservative component of the growth rate is given in table. four.

According to the table we can say that for the period under review, given the growth in the value of the indicator, the productivity of the mining industry, as well as retail trade, is growing. The manufacturing industry is showing a slower growth trend, as well as agriculture, construction and wholesale.

Table 4. Calculation of the conservative component of the growth rate (Pavlov, 2013)

	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade
2014-2015	-3.9	15.6	17.3	21.1	10.9	21.1
2015-2016	9.8	11.1	3.5	-74.8	3.8	-14.2
2016-2017	30.8	-0.2	0.84	3.6	40.5	4.7

The reconstructive component of the growth rate n2 is determined by the formula (Granberg, 2000):

$$n_2 = \frac{(W_1 - W_0)}{W_0} \times 100\% \qquad (3)$$

where:

$$W = \frac{V_{release\ region}}{V_{release\ of\ all\ regions}} \qquad (4)$$

Dynamics of production volumes of all regions of the Russian Federation is given in table 5.

Table 5. Production volumes by main activities of the Russian Federation, mln. rubles.

Index	2014	2015	2016	2017
Mining industry	969097.8	1125942	11730498	13974660
Manufacturing industry	29661252	35090428	36132486	38789015
Agriculture	4319100	5164900	5506700	5654000
Construction	6125200	7010400	7204200	7545900
Retail trade	26356237.3	27526793.2	28305594.6	29813334.4
Wholesale trade	51343900	56732500	61667200	70495000

The dynamics of the indicator W is given in table 6.

Table 6. Dynamics of the indicator W for the Belgorod region

W	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade
2014	0.087	0.016	0.044	0.01	0.002	0.0037
2015	0.072	0.01	0.043	0.011	0.00212	0.0041
2016	0.007	0.017	0.041	0.01	0.00214	0.0032
2017	0.008	0.016	0.04	0.0097	0.0029	0.0029

The main indicator of economic development in the region is the GRP, which is the central economic indicator at the regional level, used to determine the pace of development of production, cyclical fluctuations in business activity. The study of structural cycles is advisable when solving the problem of the element formation of the growth pole or economic core (Moskovkin & Sizyoongo, 2015).

The reconstructive component of the n2 growth rate is given in table 7.

Table 7. Calculation of the reconstructive component of the growth rate n_2

	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade

2014-2015	-17.2	-37.5	-2.3	10	6	10.8
2015-2016	81.5	70	-4.7	-9.1	0.9	-22
2016-2017	14.3	-5.9	-75.6	-3	35.5	9.4

To determine the structural elasticity, we define a generalized component of the growth rate (Rn), which is a combination of conservative and reconstructive components. The dynamics of the indicator Rn is given in table 8.

Table 8. Dynamics of Rn indicator for Belgorod region

N	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade
2015	-21.1	-21.9	15	31.1	16.9	31.9
2016	91.3	81.1	-1.2	-84.9	4.7	-36.2
2017	45.1	-6.1	-74.8	0.6	18.5	14.1

Knowing the values of indicators n1 and n2, we determine the value of the elasticity index for the regions of the region in the table. 9.

Table 9. Dynamics of structural elasticity of enterprises output of the Belgorod region

E	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade
2015	0.2	-0.4	-7.5	2.1	1.8	2
2016	0.1	0.2	-0.7	8.2	4.2	0.6
2017	2.2	0.03	-0.01	-1.2	-1.8	0.5

According to the table, it can be said that the largest value of the indicator of structural elasticity of output in the wholesale trade and the mining industry, while growth values are abrupt in wholesale trade in the value of the indicator decreased by 1.5 points in 2017, and in the mining industry increased in 2017 by 2 paragraph (Vladyka, 2018).

Pavlov K.V. determines the following possible phases of development on the basis of Dedov L.A. work (Kozieva, 2015; Dedov, 1998):

1. Structural elasticity is positive: the growth of the traditional output structure complements the growth of structural changes.
2. If the carrier frame of the economic structure is subject to transformations, which are initially quite moderate due to the inertia of economic

processes, growth on a traditional basis slows down (n1 <0) while maintaining growth based on structural changes (n2> 0), and this happens , that Rn = n1 + n2> 0, so the release is growing. Then E> is 1 (Vertakova & Nekipelov, 2017).

3. The cardinal transformation of the traditional structure of output causes a decline on its basis,

which ceases to be compensated by the simultaneous growth on the basis of the reconstructive component. There are Rn<0 and E <-1. Here we have the situation of non-compensating replacement.

4. In the fourth phase, the above factors are most pronounced, which is why there is a general deep decline in production: E ≤-1 and Rn ≤ 0.

Detailed phase analysis is presented in table 10.

Table 10. Phases of economic development

	n_1	n_2	E	R_n	Phase characteristic
Phase 1	>0	>0	>0	>0	Complementary development
Phase 2	<0	>0	>-1	>0	Compensating substitution
Phase 3	<0	<0	<-1	<0	Non-compensating substitution
Phase 4	<0	<0	≤-1	≤-1	Deep decline in production
Phase 3a	>0	<0	<0	<0	Weak non-compensating replacement
Phase 5	<0	<0	>0	<0	Structural failure
Phase 6	>0	<0	<0	>0	Development by Giffen's Law

On the basis of table 10, as well as a set of calculated indicators, we define the phase of

economic development of the main branches of the Belgorod region in the table 11.

Table11. Phases of the Belgorod region main branches economic development

	Mining industry	Manufacturing industry	Agriculture	Construction	Retail trade	Wholesale trade
2015	5	3a	6	1	1	1
2016	1	1	3a	5	1	5
2017	1	5	3a	6	6	1

The most dynamically developing areas can be called wholesale trade and the mining industry

with the characteristic phase transition 1 → 1 and 4 → 1, respectively, which can be called

promising points of the growth pole of the Belgorod region.

The development of agriculture in accordance with the law of Giffen is associated with the production in the industry, as well as in construction and retail trade, essential goods (food, housing), the rise in prices of which will provoke an increase in product consumption. The transition of agriculture to phase 3a is associated with the growth of import substitution in the country and the region, respectively.

Discussion

Belgorod region belongs to the regions with developed agricultural production. Belgorod Agrocomplex is developing dynamically, steadily increasing production volumes.

The region is the first for harvesting crops in the Central Federal District and second in the country after the Krasnodar Territory.

In 2017, the gross harvest of early grain crops amounted to 3,584.8 thousand tons with an average yield of 44.8 dt/ha.

In 2017, farmers produced 1332.9 thousand tons of meat, of which 687.6 thousand tons of pork and 623.7 thousand tons of poultry meat, eggs – 1662.1 million, milk gave 593.6 thousand tons.
The success of the Belgorod region in agriculture is based on a combination of the work of agricultural holdings and the implementation of unique regional programs.

Belgorod region occupies leading places in the National Rating of the investment climate in the regions of Russia. Its main competitive advantages: political stability and high standard of living of the population, wealth of natural resources and environmental safety. In addition, the region has a high concentration of qualified personnel, developed financial and engineering infrastructure.
The general list of investment projects of the agro-industrial complex with the implementation period until 2020 includes 75 promising projects with a total value of about 100 billion rubles, and it is planned to open at least 8 thousand jobs. Most of them are at the implementation stage. The main sectors of investment in the region are:

- production and processing of meat and milk;
- greenhouse vegetable growing and gardening;
- Selection in seed production;
- production of biological additives, veterinary drugs;
- aquaculture.

Thus, agriculture is one of the steadily developing branches of production in the Belgorod Region. The pace of production of the main types of agricultural products demonstrates a steady growth trend, providing products not only for their own region, but also for the country as a whole. The dynamic development of agriculture in the region has a positive effect on the implementation of measures for the import substitution of the Russian Federation and the region separately.

Conclusion

Thus, summarizing the above data, we can draw the following conclusions: import substitution policy, unstable situation in the country and the world - these factors imply the development of an effective production strategy within the regions. A clear definition of the main promising sectors of the regions, i.e. "Growth poles" areas. As part of the work, two methodologies were considered for calculating the main growth poles of the Belgorod region: the first approach is based on determining the competitiveness of industries, the second approach is characterized by determining the structural elasticity of production in the region. In the framework of the methods used, we came to a general conclusion: wholesale trade and the mining industry with a characteristic phase transition $1 \rightarrow 1$ and $4 \rightarrow 1$, respectively, which can be called promising points of the growth pole Be The development of agriculture in accordance with the law of Giffen is associated with the production in the industry, as well as in construction and retail trade, essential goods (products, housing), the rise in prices which provokes an increase in consumption of products. The transition of agriculture to phase 3a is associated with the growth of import substitution in the country and the region, respectively.

We emphasize that the Belgorod region is an area with a developed agricultural potential. The correct policy of local government in the field of investment in the AIC affects the high level of development of regional agriculture. In conclusion, it should be noted that the development of agriculture in the Belgorod region contributes to the increase of the region's investment attractiveness and the high level of development of the region within the country. A

highly developed branch of the agro-industrial complex contributes to an increase in the level of import substitution, as well as an increase in the socio-economic level of the region, as well as the country as a whole (Perroux, 1961).

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