

Management of the Development of Regional Clusters

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Abstract: The study describes the target-oriented approach to solving problems of strategic management of regional development with the release of the cluster structures. Details of the features of the different clusters at the regional level are considered. The recommendations on the development of specific clusters are given.

Key words: Regional development, cluster, entrepreneurship, cluster structures, cluster

INTRODUCTION

Problems of increasing the efficiency of the national economy and development of the strategy of development of the domestic economy are currently not losing its relevance. The Russian Federation will enter into the next stage of reform which relate mainly to the regions. Working out methodically sound long-term strategy of development of the regional economic system is one of the most important challenges facing the scientific community.

One of the key issues of strategic management of regional development is a search for effective methods of transformation of its architecture in terms of the asymmetry of technological and economic potential which prevents increasing the competitiveness of the regional economy and quality of life (Porter, 1998; Liow and Chai, 2015).

Among the main directions of development of the region which can ensure the growth of its economic competitiveness, special attention should be given to use of the cluster approach to the restructuring of regional economies (Tsaregorodtsev, 2014; Klochko *et al.*, 2016).

The main advantage of clustering in the analysis of the dynamics of economic development of the region lies in the fact that this approach allows a comprehensive, system, review the situation in the group of related companies which belong to different branches (Sadovin *et al.*, 2015).

The economic cluster as a form of sustainable and reproducing interdependent economic relations, based on synergies, should ideally form spontaneously under the influence of market processes. To optimize cluster

formation and development processes is important clear statement of priorities and directions of state regulatory impact, the basis of which can be called public-private partnership (Biryukova, 2015). In this case, the functions of the state should focus on implementing long-term infrastructure and non-commercial socially important projects.

Studying the works of contemporary scholars in this field we can conclude that at the moment a unified and universal method of allocation of regional clusters (including support) has not yet developed because their formation and selection is highly dependent on the characteristics of a particular region (Kulalaeva *et al.*, 2016). The competitiveness of the regions in the individual sectors of the economy are very different and very often a low level of productivity and hence the competitiveness of the real economy is largely determined by climate, resource and geographical factors (Sabirov, 2014). Therefore, solving more efficient use of scarce resources in this case becomes even more relevant.

MATERIALS AND METHODS

The most important condition for economic operation of the system is the possibility of transportation of raw materials and manufactured products. Recently in Russia the conditions of work of the logistics cluster substantially changed. In November 2015 a system "Platon" of charging per ton trucks, hoisting capacity over 12 tons came into effect. This state measure has caused a wave of public discontent, especially truckers. Let's consider the objectives pursued by this measure and compare the "Platon" system with the same systems used in Europe.

Historically, the transition to a market economy and the development of private enterprise industry transportation truck went out of control and the state as the sphere rolled services decades ago. With the abolition of licensing in July 2005 this activity became engaged thousands of individuals. As a we had black and gray scheme of taxation, poor quality of services, lack of understanding of the value of service.

Lack of transportation control from the state does not allow to reliably estimating the traffic flows in the Russian regions. At the same time, the budgets of the state and regions receive less significant part of the funds.

The system of “Plato” can be an effective basis for the creation of such a control center and to solve problems related to not only raise funds in the budget and the creation of road transport infrastructure but also the management of traffic, logistics regions.

As reported on the official website of the system, “Platon” provides for the collection, processing, storage and transmission in automatic mode of vehicle movement data, having a resolution of a maximum mass exceeding 12 tons and applies to all roads of general use of federal value. Briefly the principle of the system “Platon” can be described as follows. A special equipment is installed in the vehicle on-board charger “object collection system board which is a technical device capable of using technologies GLONASS/GPS satellite navigation to determine the path of the vehicle on the public roads of federal significance. Using the device is convenient because if funds are available on the personal account of the vehicle owner, payment and withdraw funds from the account in the account can be carried out automatically on the basis of data received from the on-board device.”

RESULTS AND DISCUSSION

Currently in Europe there is European Directive 2006/38/EC “On the levy on heavy goods vehicles for the use of transport infrastructure” which entered into force in June 2006. This directive regulates the following rights of EU countries:

- The right of EU Member States to levy charges on the entire national road network. The new directive lays down rules for tolls on vehicles whose weight exceeds 3.5 tons, throughout the TEN-R network. On all other vehicles weighing <3.5 tons of tolls on roads outside the TEN-R network can be charged in accordance with the rules of the agreement
- The right of EU member states to introduce “user fees” to fight congestion and pollution in excess of the weighted average
- The right of EU member states to decide how to use the proceeds from the collection of fees
- The right of EU member states to vary fees on the basis of the day of week, time of day, classes emission “Euro” or PM/NOx emissions c 2010

Currently in the EU member countries have different fee collection system for trucks travel on the main road network (Table 1).

As it can be seen from Table 1, charging system in Russia is much easier than in the EU countries. It does not take into account the class of vehicle emission, the number of axles. The fee is taken from only large weight (>12 tons). There’s no dividing of roads on the type and time of day. We can assume that the system of “Platon” in the future will be complicated. Perhaps the different charges will be made on various types of roads as highways are actively being built.

At the moment, European truckers experiencing inconveniences while driving to neighboring European countries. “In the Czech Republic, Germany, Austria no one integrated system there is no on-board unit to a truck could drive in all these countries and pay”. Thus, the charging system is working towards a unified operational performance, versatile devices that support satellite signals in any part of the continent. This would simplify the operation of trucks, whose routes go beyond one state but also cheaper to manufacture and operation of the equipment.

Table 1: Some characteristics of charging systems for the use of transport infrastructure in Europe and Russia

| State | Type of the system | Vehicle | Net | Differentiation |
|----------------|--------------------|---|--|--|
| Austria | Per km | >3.5 tons (temporary vignette for vehicles <3.5 tons) | Highways and some roads | In general: Class vehicles (axis) Optional: Type of road (mountain areas) time (day/night) |
| Germany | Per km | >12 tons | Highways | Vehicle class (axles), emissions (Euro class) |
| Switzerland | Road toll | >3.5 tons | All roads of the country | The maximum weight of the vehicle and the emission class |
| Italy | Per km | All vehicle | Part of the highway network (5,600 km) | Vehicle class (axles) |
| Czech Republic | Road toll | >3.5 tons | Motorways, highways (740 km) | Axis, the emissions class (EURO 0-EURO 3+), day/night |
| Russia | Per km | >12 tons | Federal roads (50 000 km) | |

Table 2: The fee collected and the length of roads

| Criteria | Russia | Germany | France | Czech Republic | Austria |
|------------------------------|--|----------------------|------------------------|----------------------|----------------------|
| Fee per 1 km | 1.5293 rub./km (Planon) | From 14-29 eurocents | From 11-15.5 eurocents | From 10-20 eurocents | From 15-37 eurocents |
| Length of roads/ highways | >50 thous. km Fed +520 thousand. km of regional | 12917 km | 11882 km | 16583 km | 1719 km |

Table 3: The volume of foreign trade in the Volga Federal District (VFD) and the Republic of Mari El in the 2010-2015

| Years | Type of operation | Volga FD | | Mari El | |
|-------|-------------------|----------|----------------------------|---------|----------------------------|
| | | mln USD | In % to the Russian figure | mln USD | In % to the Russian figure |
| 2010 | Export | 34229.20 | 8.62 | 428.60 | 0.11 |
| | Import | 7453.20 | 3.26 | 66.60 | 0.03 |
| 2011 | Turnover | 41682.40 | 6.66 | 495.20 | 0.08 |
| | Export | 58240.10 | 11.30 | 350.00 | 0.07 |
| | Import | 14340.50 | 4.70 | 77.50 | 0.03 |
| 2012 | Turnover | 72580.60 | 8.84 | 427.50 | 0.05 |
| | Export | 59156.00 | 11.30 | 619.60 | 0.12 |
| | Import | 14791.00 | 4.73 | 97.10 | 0.03 |
| 2013 | Turnover | 73947.00 | 8.83 | 716.70 | 0.09 |
| | Export | 68807.10 | 13.00 | 470.40 | 0.09 |
| | Import | 18845.80 | 5.98 | 138.10 | 0.04 |
| 2014 | Turnover | 87652.90 | 10.40 | 608.50 | 0.07 |
| | Export | 57601.40 | 11.60 | 191.00 | 0.04 |
| | Import | 15795.20 | 5.49 | 137.40 | 0.05 |
| 2015 | Turnover | 73396.60 | 9.34 | 328.40 | 0.04 |
| | Export | 36950.40 | 10.76 | 310.30 | 0.09 |
| | Import | 10016.90 | 5.49 | 66.10 | 0.04 |
| | Turnover | 46967.30 | 8.93 | 376.40 | 0.07 |

In the US system of maintenance of the road infrastructure has a very different principle: “Design Build-Finance-Management” by using a fundamentally new system of payment of toll roads, known as the “shadow taxes” (Shadow Toll). The meaning of such a system is that it is not the driver who is making on the toll road to the concessionaire for the but the state, depending on the intensity and composition of traffic on the toll roads. These systems are currently in use in the United States, Finland, Norway, Spain, Portugal and other countries.

Successful attempts to make a universal international transportation network is making a taxi Uber. According to Wikipedia, Uber an international company in San Francisco which created the same name mobile app to search, call and pay a taxi or a private driver. The application is available in 68 countries and 378 cities around the world, including Moscow, St. Petersburg, Novosibirsk, Yekaterinburg and others.

In Russia, “Platon” much faster arranges transportation than the development of mobile applications based on as the scale of the country, length of roads, traffic volume in Russia is reflected in much larger numbers than in other countries. In addition, the state will require as well as a high level of confidence in the system and its participants. As it can be seen from Table 2, the fee for “Platon” a comparative table of statistics of foreign trade.

According to the Table 3, 2012 in the Volga Federal District there was a sharp increase in the volume of export operations in 2013 bucking the trend a sharp decline in

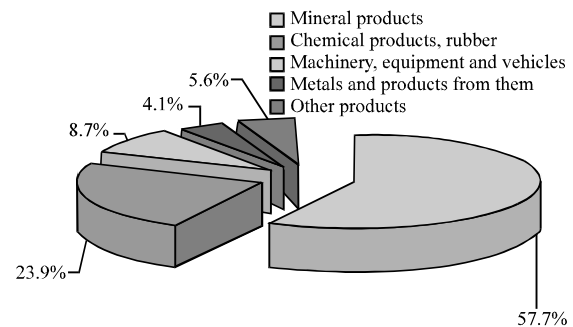


Fig. 1: The commodity structure of export VFD

exports. For the Republic of Mari El in 2012 similar to the district it is observed a sharp increase in exports, after which it falls in the years 2013 and 2014 but export volumes increased in 2015 which does not occur in general in the VFD. Therefore, it can be assumed that the export potential of the Republic of Mari El can give a boost to increase exports to the Volga Federal District.

According to the results of foreign trade for 2015 in VFD in the commodity structure of export value were: mineral products 57.7%; chemical products, rubber 23.9%; machinery, equipment and transport materials 8.7%; metals and products from them 4.1% (Fig 1).

One of the ways to support large-scale export oriented businesses in the Republic of Mari El is the economic business of the mission-the representatives of the region’s business meet with the business community to another region in order to acquire new partners.

The most important thing for the region which has no natural resources is the production of electrical and optical equipment. Although, the number of such enterprises is small but it is growing. The task of government is to increase the number of enterprises of this cluster as the most promising for our country.

These statistics allow us to estimate the total turnover of companies engaged in the production of electrical equipment. From the Table 4 we see that their contribution to the region's economy quite significantly. If the total number of organizations of <1 % (most of the organizations are small trading enterprises), the contribution has increased from 5% in the total turnover in 2010-7% in 2014 and is set to rise further due to presence of competitive advantages. There is every reason to believe that the crisis will leave these organizations with fewer losses than trading (Table 5).

Presented in the Table 6 basic indicators of organizations by kind of economic activity "manufacture of electrical and optical equipment" shows that the cluster has a positive trend not only in terms of volume of shipped goods but also for employment of workers, the balanced financial result. The most important is the increase in the profitability of enterprises cluster which is more attractive for investors. An important factor in the growth of the cluster is the presence in the city of Yoshkar-Ola University of Technology which trains qualified specialists in the Department of Radio Engineering.

Energy resources play an important role in the regional economy. Cluster development can only take place subject to the availability of generating capacity. According to the Territorial Authority Federal State Statistics Service of the Republic of Mari El the production and distribution of electric energy, gas and

water 253 organizations in the gross regional product for the year 2014 amounted to 15818.1 million rubles or 6.16%. This gross value added to the specified type of activity amounted to 5.6088 billion. rubles or 4.5%. The share of unprofitable enterprises reduced and data is 33.3% against 61.5% in 2011. The balance of electric energy is shown in Table 7.

State regulation is subject to the prices and tariffs for goods and services of resource supplying organizations (electricity supplying, heat supply, utilities organizations engaged in provision of services for water and wastewater, gas suppliers).

Tariffs on goods and services of municipal utilities-price rates at which the settlements with organizations of municipal complex for the goods (rendered services) produced by them and which are included in the price (tariff) for the consumer, excluding extra charges to tariffs on goods and services of utility complex.

Table 4: Distribution of organizations by kind of economic activity (at the beginning of the year, units)

| Years | 2010 | 2013 | 2014 | 2015 |
|---|-------|-------|-------|-------|
| Total | 15724 | 15371 | 15938 | 15812 |
| Manufacture of electrical optical equipment, electronic and equipment from it | 114 | 120 | 127 | 132 |
| Manufacture of electrical machinery and equipment | 41 | 50 | 55 | 56 |
| Manufacture of radio, television and communications | 20 | 25 | 27 | 32 |

Table 5: Total turnover of all the organizations in the country and organizations engaged in the production of electrical equipment (in actual prices, millions of rubles)

| Years | 2010 | 2013 | 2014 |
|---|----------|----------|----------|
| Total | 166770.0 | 246251.9 | 289721.8 |
| Manufacture of electrical equipment, electronic and optical equipment | 9032.4 | 12729.0 | 21422.8 |

Table 6: Main indicators of organizations by kind of economic activity "Manufacture of electrical and optical equipment"

| Years | 2010 | 2014 | 2015 |
|---|--------|---------|---------|
| The number of active organizations (end of year) | 114.0 | 127.0 | 132.0 |
| The volume of shipped goods of own production works and services on their own (mln. rub.) | 8813.2 | 12187.0 | 20537.2 |
| Production index, a percentage of the previous year | 145.7 | 124.0 | 128.5 |
| Average number of employees of organizations (people) | 9964.0 | 11258.0 | 11481.0 |
| Net financial result (mln. rub.) | 509.8 | 2453.8 | 5562.3 |
| Profitability of sold goods (works, services) (%) | 17.1 | 21.4 | 31.2 |

Table 7: Balance of electric energy

| The volume of electricity consumed | | | | | | | | | | | | |
|------------------------------------|------------------|-------------------------------------|-------|---------------|-------------|----------|----------------------------|------------------------------|------------|-----|----------------|-------------------------------|
| Years | Power generation | Retrieved from outside the republic | Total | Manufacturing | | | Wholesale and retail trade | Transport and communications | | | Network losses | Released outside the republic |
| | | | | Manufacturing | Agriculture | Building | | Others | Population | | | |
| 2011 | 1128 | 3119 | 3192 | 801 | 92 | 31 | 130 | 1119 | 361 | 445 | 343 | 1055 |
| 2012 | 1024 | 3340 | 3131 | 813 | 107 | 34 | 131 | 1010 | 231 | 467 | 338 | 1233 |
| 2013 | 998 | 3670 | 3117 | 781 | 121 | 32 | 117 | 997 | 502 | 258 | 309 | 1551 |
| 2014 | 976 | 2532 | 2585 | 838 | 153 | 34 | 130 | 411 | 476 | 300 | 243 | 923 |

Tariffs in the field of heating a system of price rates at which payments are made for thermal energy (power), the coolant for services for heat transfer, heat transfer medium.

The above rates are formed by the Department of tariff regulation of the Ministry of Economic Development and Trade of the Republic of Mari El on the basis of the analysis of economic soundness of regulated institutions costs for the next period of regulation in carrying out activities for the production of utility resources cold and hot water, gas, heat).

From 2011-2015 there is a rise in prices for energy resources. This fact affects the share of payment for energy of households and organizations. On the tariff increase is significantly affected by the value of goods and services related industries, used in carrying out regulated activities including the prevailing price level of the fuel and energy, the building complex.

The amount of payment for energy also depends on the characteristics of the process, the climatic characteristics and geographical location of the organization. At the same tariffs for organizations located in one settlement may also differ due to differences in the volume of sales of goods and services, the level of power consumption of the installed equipment, the degree of wear and length of networks.

CONCLUSION

The economic development of the country depends directly on the socio-economic development of its regions which can be achieved by increasing the competitiveness of regions. The competitiveness of the regions defined by the presence of competitive industries that successful development requires the support of regional authorities.

IMPLEMENTATION

In the Republic of Mari El growing number of small and medium enterprises, the use of the cluster approach in the long term will allow:

- Increase the productivity of enterprises and industries by creating specialization within the cluster
- Access to new technology suppliers
- Improve infrastructure, logistics and product promotion
- Accelerate the introduction of advanced development research institutes on the basis of high-tech products manufacturers
- Create a data base containing information on technology, marketing and consumer needs

- To attract financial institutions to implement large-scale projects
- Increase the competitiveness of small enterprises engaged in production of high-tech products

Today, the main problems hindering the development of the cluster system in the region are:

- Lack of public policies aimed at the formation of innovation clusters
- No development of social institutions that affect the interaction between the organizations themselves
- Poor development of communication between enterprises and institutions engaged in research activities

Realizing the need to develop the region's economy, the government should start to stimulate high-tech production by adopting for the implementation of cluster projects programs provide entry by enterprises in cluster networks, provide advice and information support it is possible to create a favorable tax climate in the region for these enterprises.

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