

Formation of Strategic Directions of Regional Development Ensuring its Economic Stability

Case study of the Mari El Republic

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Abstract—This article considers the issues of developing strategic directions for the region's growth, which aim at achieving economic stability. The study has selected key industries and revealed industrial clusters of the Republic of Mari El as well as found industrial groups with significant growth indicators. In fact, these groups can set a base for cluster initiatives insuring economic stability of the region.

Keywords—region; strategy; cluster; economic stability.

I. INTRODUCTION

Sustainable, integrated and systematic development of the subjects of the Russian Federation and efficiency of its regions ensure national security of the country, including its economic aspect. Economic stability of a region is a potential and ability of its economy to gradually improve population's quality of life within generally accepted standards, to resist the influence of internal and external threats at optimum spend of all types of resources and sustainable use of natural factors, to provide socioeconomic and sociopolitical stability in the region [1].

It is relevant to align development strategies of the regional economy with the Strategy of spatial development of the Russian Federation—2025 in order to establish a regional policy of economic stability as a part of the general socio-economic policy providing independence of the economy and opportunities for sustained improvement of people's wellbeing.

The goal of this study is to develop theoretical and methodological approaches to formation of strategies of regional development for ensuring its economic stability.

II. METHODS

The research methods of this study include both systematic and integrated approaches applied to studying the region's capacity as a dynamically growing system and to shaping strategies of its development. The study uses empirical, theoretical, and quantitative methods, namely: abstract logical, historical, monographic methods, deduction, induction as well as a statistic and economic method, cluster analysis, and an expert method.

The issues of territorial organization of the regional socio-economic space, sustainable development and formation of the regional strategy through a cluster model

are considered in the works of such researchers as: O. Borisenko [2], M. Gritsay [3], A.V. Gutnik [4], O.P. Ivanova [5], O.A. Kozlova [6], B. Markova [7], R.M. Nizhegorodtsev [8], K. Rentkova [9], A .E. Strelyaeva [10], A.L.Gerritsen [11], W. Jianfeng [12], T. Kenderdine [13], J. Saunavaara [14]. Cluster evolution, relation of clusterization with innovations and its influence on outcomes of regional development, cluster efficiency factors are investigated by K. Kourtit, P. Nijkamp and S.Suzuki [15], C.A. Rincón Díaz and J. Albors Garrigós [16], R. Njos, S.-E. Jakobsen [17]. L.I.Abalkin, M.A. Bendikov, S.Yu. Glazyev., I.V. Ilyin, V.L. Ortynsky, V.L. Pozdeev, V.K. Senchagov, V.H. Tsukanov do research into economic stability. However, the regional aspect of a problem of shaping strategies ensuring economic stability of the region remains rather understudied.

This article presents the results of modeling strategic development of the region; the model is created by selecting key industries and revealing regional industrial clusters with their potential growth points, which can ensure the region's economic stability. The results of calculation constitute economic justification for the strategy of the regional development in the long-term perspective.

III. RESULTS AND DISCUSSION

The study has shown that the economy of Mari El has an agro-industrial orientation, with a processing industry prevailing. According to the sectoral classification of the industry and agriculture, Mari El is not a mono-specialized region [18].

Development of the regional policy of economic stability is based on clusterization of the industries and sectors of the regional economy. To reveal regional industrial clusters of Mari El we selected key industries using a location quotient and a regional input of an industry, or its regional shift (TABLE I).

TABLE I. SELECTION CRITERIA OF REGION'S KEY INDUSTRIES

Indicator	Condition for Inclusion in the Further Analysis
Location Quotient	$LQ \geq 1$ not less than 2 times over the analyzed period
Regional Shift (Shift Share analysis)	Annual RS>0 not less than 2 times over the analyzed period (5 years)

Nearly 70 types of activity that constitute specialization of the regional industrial sector show either a significant growth of quality or an increase in production volumes.

Within this study, based on commonality of products, technologies and value chains, we selected 13 production groups which are interpreted as potential clusters (TABLE II). A cluster structure comprises (i) a type of economic activity representing a cluster core and (ii) related manufactures of the processing industry that supply raw materials and components.

TABLE II. INDUSTRIAL CLUSTERS OF MARY EL AND THEIR ELEMENTS

Production Group	Group Level ^a	Group Element (Type of Economic Activity)	
Wood processing and manufacture of wooden products	1st tier	Wood sawing and planing; wood treatment	
		Veneer-sawing industry, plywood industry, board industry, panels industry	
		Wooden building structures and joinery products	
		Wood packaging industry	
		Production of other wooden and corkwood products, plaiting materials	
	2nd tier	Manufacture of basic chemicals	
		Manufacture of other nonmetal mineral products	
		Manufacture of other finished metal goods	
		Production of tools, locking hardwares and locksmith's products	
		Production of machines	
Furniture	1st tier	Furniture production	
	2nd tier	Sawing and planing of wood	
		Veneer, plywood, boards, panels manufacture	
		Production of tools, locking hardwares and locksmith's products	
		Manufacture of other finished metal goods	
Production of machines			
Paper	1st tier	Pulp, ground wood pulp, paper and paperboard production	
		Paper and paperboard goods production	
		Publishing	
		Printing and its services delivery	
	2nd tier	Sawing and planing of wood	
		Manufacture of basic chemicals	
Building materials and constructions	1st tier	Extraction of other minerals	
		Sawing and planing of wood; wood treatment	
		Production of wooden building constructions and joinery	
		Veneer, plywood, boards, panels production	
		Manufacture of glass and glass products	
		Manufacture of bricks and other building articles of burnt clay	
		Manufacture of cement, lime and gypsum	
		Manufacture of concrete, gypsum and cement products	
		Sawing, working and dressing of decorative and building stone	
		Production of other nonmetal mineral products	
		Production of metal building constructions and goods	
		2nd tier	Stone quarry mining
			Manufacture of other machinery and special equipment
		Industrial	1st tier

and household chemistry		Manufacture of paints and varnishes
		Manufacture of soap, detergents, cleaners and polishing agents
		Production of plant protection chemicals
		Production of other chemicals
		Manufacture of rubber products
	2nd tier	Manufacture of plastic products
		Manufacture of mechanical equipment
		Manufacture of other equipment for general use
		Manufacture of other machinery and special equipment
		Manufacture of electric motors, generators and transformers
Pharmaceutics	1st tier	Pharmaceutical manufacturing
	2nd tier	Manufacture of basic chemicals
Food	1st tier	Manufacture of other chemicals
		Production of meat and meat foods
		Processing and canning of fishery products and seafood
		Processing and canning of potatoes, fruits and vegetables
		Manufacture of vegetable and animal oils and fats
		Dairy production
		Production of flour and cereal products
	Production of other food products	
	2nd tier	Beverage production
		Production of prepared feed for animals
Manufacture of plastic goods		
Machinery	1st tier	Manufacture of other metal goods
		Manufacture of mechanical equipment
		Manufacture of mechanical equipment
		Manufacture of other equipment for general use
		Manufacture of machinery and equipment for Agriculture and Forestry
		Production of machines
		Manufacture of other machinery and special equipment
	2nd tier	Manufacture of automobile bodies, trailers, semi-trailers and containers
		Manufacture of auto parts and accessories and its engines
		Building and repair of vessels
Instrument engineering, radio, electrical and electronic equipment	1st tier	Hammering, pressure molding, stamping and forming; manufacture of goods by using the powder metallurgy method
		Manufacture of other finished metal products
		Processing of metal waste and scrap
		Manufacture of electronic components and accessories for radio, TV and communication equipment
		Production of medical products and orthopedic appliances
		Manufacture of devices and tools to measure, control, test
		Manufacture of optical devices, photographic and film equipment
	2nd tier	Manufacture of office and IT-equipment
		Watch making and production of other horological instruments
		Manufacture of casting
Electrical and power equipment	1st tier	Manufacture of insulated wires and cables
		Manufacture of electric motors, generators and transformers
		Manufacture of electrical distributive and regulating equipment
		Manufacture of electric lamps and light equipment
		Manufacture of other electrical equipment

	2nd tier	Ceramics industry, except used in construction Other first processing of iron and steel Manufacture of casting; hammering, pressure molding, stamping and forming; manufacture of goods using a powder metallurgy method	
Processing of ferrous and non-ferrous metals	1st tier	Other first processing of iron and steel Manufacture of casting Metal processing and coating of metals; metal machining using principal engineering processes Hammering, pressure molding, stamping and forming; manufacture of goods using a powder metallurgy method; production of other finished metal goods Processing of metal waste and scrap	
		2nd tier	Production of basic chemicals Manufacture of mechanical equipment
		1st tier	Manufacture of cutlery, tools, locking-furniture hardwares Manufacture of household appliances n.e.c.
			2nd tier
	Textiles and clothing	1st tier	Production of finished textiles except clothing Production of other textiles Production of textile fabric Production of knitted goods Production of clothes from textile materials and clothing accessories Fur dressing and dyeing; production of fur products
2nd tier			Production of basic chemicals Production of other chemicals

^a The activity types of the third tier (service organizations that constitute an economic infrastructure) cannot be referred only to one group and cannot be quantified.

The cluster of wood processing and wooden products includes the biggest number of enterprises (370), which are mostly concentrated in the cities of Yoshkar-Ola and Volzhsk (62.5% of the total volume of the cluster's shipped products). The enterprises of furniture and paper clusters are also concentrated in these cities.

Enterprises of the building material and construction cluster are located in the cities of Yoshkar-Ola (43.7% of the total output), Volzhsk (39.5%) and also in the Medvedevo municipal district (15.9%). The main volume of aggregate output of the industrial and household chemicals, pharmaceuticals clusters is manufactured in the capital city of Mari El.

The largest cluster of Mari El by the volume of output is food production. It includes well-developed production of semi-finished meat, sausages and bread products, dairy products, butter, cheese, and confectionary. The largest output is provided by Yoshkar-Ola Meat-Processing Plant, Meat-Processing Plant Zvenigovsky, Republican Dairy Plant, Souvenir Firm, Sernursky Cheese Factory.

Machine building is the major direction of the specialization of the real sector of Mari El's economy, which employs about one third of the economically active population of the republic. The industry includes defense contractors (MMZ), enterprises producing electrotechnical and electronic equipment (ZPP, Nata-Info, Kopir Plant,

Chromatec), electric equipment and power equipment (Krasnogorsky Plant of Electric Motors, Tavrida Electric).

The cluster core of ferrous and non-ferrous metal processing consists of enterprises manufacturing powder metallurgy parts and iron castings: Kristall, Impuls, Volga Plant of Precision Casting, and Kupol Plant of Powder Products. Production of the cluster of the household appliances and products for home includes refrigerating and heating appliances, locks and hinges, and metal-cutting tools. The leading companies are located in the cities of Volzhsk (Ariada, SoftTerm) and Yoshkar-Ola (Inreko Production Association, Tiara). The cluster of textiles and clothing specializes in production of clothes, knitted, hosiery and fur products and includes such companies as Iskoz Plant, Marital Factory, and Maritex.

The dynamic analysis of enterprises' financial and economic indicators revealed a steady increase in production and product sales in such directions as instrument engineering, metallurgy, food, and wood processing. The stagnating sectors are machine building, pharmaceuticals, production of household appliances and products for home, industrial and household chemicals, electric and power equipment, building materials and construction. Production of furniture, textiles and clothing is decreasing by a number of different criteria.

Visual representation of strategic positions of the processing sectors (Fig.) applies a matrix of "group size – group growth rate".

IV. CONCLUSION

The proposed model of regional strategic development is based on establishing regional industrial clusters. The selected clusters have their individual structures determined by historic, geographic and institutional conditions. For example, proximity to the natural resources and adequate sales markets allow such production groups as Food and Construction Materials to concentrate their manufactures in all the municipal districts of Mari El. Alternatively, the largest cities,

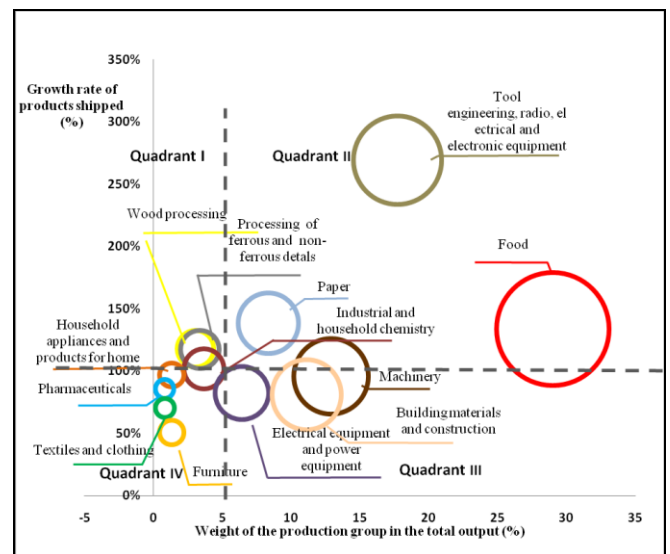


Fig. 1. Strategic positioning of the manufacturing cluster cores

Yoshkar-Ola and Volzhsk, historically became centers of development of machine engineering, paper, metallurgical and textile industries and woodworking.

The dynamical analysis of financial and economic indicators of enterprises forming a cluster allowed us to conclude that the clusters include production groups with significant growth indicators and actually representing a base for development of the cluster initiatives ensuring economic stability of the region.

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