Assessment of Effect of Large Investment Projects on Development of Investment Potential of Regions of Russia as Exemplified by Universiade 2013 in Kazan[1]

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Abstract

Objective: development and testing in Russia of methods of assessment of the effect of individual managerial decisions on modification of investment attractiveness of the region Methods: institutional, cost and systemic approaches were employed, as well as econometric modeling Results: new methods of assessment of the effect of individual managerial decisions and measures on the level of investment attractiveness of the region are suggested and evaluated as exemplified by assessment of the effect of preparation and hosting Universiade 2013 in Kazan on investment attractiveness of the Republic of Tatarstan. Employment of the mentioned methods is illustrated by assessment of the consumer potential growth in the Republic of Tatarstan. Scientific novelty: methods of assessment of the effect of managerial decisions and measures of regional level on investment attractiveness of the region are offered, a number of regression models is built allowing to assess the effect of large regional projects on the consumer potential of the region of Russia as exemplified by the Republic of Tatarstan. Practical value: The suggested methods are universal and can be applied when assessing any large regional project in Russia, in any of its subjects.

Keywords: methods of assessment of investment attractiveness of the region, investment potential of the region, consumer potential of the region, investment risks, Universiade

1. Introduction

Professional literature covers approaches to assessment of investment attractiveness of the region quite extensively. Factors favoring investment climate have been determined. Yet, few works are dedicated to issues of theory and practice of management of investment attractiveness of the region. Experience shows that to get significant results, management of investment attractiveness must be of long-term character. Effective management of investment attractiveness depends on operational, precise and complex assessment of every managerial decision. The present article is dedicated to working out methods of assessment of the effect of individual managerial decisions on modification of investment attractiveness of the region.

2. Literature Review and Research Methodology

Investment attractiveness of the region is a complicated versatile parameter. According to the most common definitions of investment attractiveness, it represents generalized characteristics of a combination of social, economic, organizational, legal, political, cultural prerequisites determining attractiveness and advisability of investment into certain economic system [1], [3], [6].

For its assessment, it is necessary to employ systemic approach and mechanisms of modeling economic processes, which makes it possible to properly consider the diversity of factors and conditions of investment influencing

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the development of the Russian Federation subjects.

At present, a lot of research has been conducted in the area of assessment of investment attractiveness of different economic subjects. There are the following approaches: those based on financial and economic assessment of individual investment projects; methods, based on the assessment of the financial condition of economic entities; complex methods of assessment of investment attractiveness of industries and regions.

To solve the task set in the present research, it is worthwhile to analyze the existing approaches and methods of assessment of investment attractiveness of regions, applied in practice around Russia. They can be divided into three groups.

The approaches of the first group are based on detecting a key factor of investment attractiveness of the region. For example, K. Guseva considers as such factor «market response of regions»; for I. Zulkarnaev, «society institutions» play a dramatic role in forming and sustaining investment attractiveness; T. Lukyanenko notes the necessity to form a positive opinion about the investment object; A. Stetsenko and E. Beniksov consider the «image of the region» as an essential factor of investment attractiveness. Among the key indicators of investment attractiveness are dynamics of gross regional product, rate of change of industrial products manufacturing volumes; the level of legislative development in the area of investment activities; development of investment and capital markets. The reviewed approaches are relatively simple while conducting analysis and calculations, and they also have a high level of universality. The drawback of these approaches is limitation and incompleteness of assessment of factors of investment attractiveness. The methods in the mentioned case are not of A. Privalov, methods of the second group are multiple-factor, they use a number of factors considered of equal value in the context of its effect on investment attractiveness of the region. In its turn, each factor is determined by a number of indicators. Among them, indicators of investment potential are used, as well as different indicators of economic environment; the level of market infrastructure development; as well as other financial, economic and institutional factors. The listed approaches are employed by M. Knysh, B. Perekatov, A. Privalov, Y. Tyutikov. Among advantages of this approach are its comprehensiveness, opportunity to make conclusions about the perspectives of development of Russian regions in investment area; to conduct comparative analysis of the level of investment attractiveness of different regions, to determine the degree of implementation of the existing investment potential; employ standard and relatively precise and valid statistical methods (application of correlation analysis, for example). This group has its drawbacks, among them inconsistency of assumption of the equal effect on investment attractiveness by different factors, insufficient justification of choice of the combination of factors of investment attractiveness, as well as indicators characterizing them. Apart from that, conducting the correct comparison of regions by the level of investment attractiveness with the mentioned approach is rather difficult.

The third group of approaches supported by E. Anankina, G. Marchenko, O. Machulskaya, is also based on the analysis of a wide range of factors, but investment attractiveness of the region is viewed as an integral characteristic determined by investment potential and combination of investment risks. The method of the rating agency «Expert-RA» belonging to this group of methods is well-known and widespread. Overall investment potential of the region, according to this method, includes: financial, manufacturing, resource-based, consumer, innovative, infrastructure, labor and institutional components. Overall risks of the region include political, economic, financial, social, environmental, crime, legislative risks [2]. Main advantages of the suggested approach are wider and multilateral choice of factors completely reflecting contemporary processes of development of post-industrial economy, justified grouping of factors convenient for a potential investor in the market conditions (investment potential and investment risks), relevance of the grouping of factors (and the methods on the whole) to the international practice in the area of monitoring and assessment. The presented methods are not perfect either: it is not always that the procedure of aggregation of aggregate components of investment potential and investment risks is properly justified. Apart from that, the methods do not reflect the interconnection of indicators of investment potential and risks. Besides, value of a number of indicators is determined based on subjective expert judgement.

The approaches to assessment of investment attractiveness of regions presented above are based on employment of a number of methods which can be divided into three groups:

1. Economic and mathematical methods.
2. Methods of factorial analysis.
3. Methods of expert judgement.

The most frequently used economic and mathematical methods are correlation analysis, optimization methods, economic and mathematical modeling.

In contemporary conditions, one of the most widespread methods is that of expert judgement. Unlike the first two groups of methods, expert judgement includes not only quantitative, but also qualitative analysis allowing to use not only statistical data, but also non-regular, one-time information without numeric expression, as well as rich experience of

experts at assessing the perspectives of development of social and economic systems. Under the conditions of development of institutional economy, institutional (non-economic, qualitative) factors exert even more effect on investment attractiveness of the region, among them attitude to foreign entrepreneurs, the level of trust between participants of market relationships, etc.

Together with the methods of expert judgement, statistical methods of calculation of averages for indicators by sampling are employed, as well as methods of calculation of the (mean value) indicators, and also methods of calculation of average weighted aggregates. Criterial gradation and weighing-out procedure are most vulnerable to subjectivity.

The procedure of aggregation of indicators characterizing investment attractiveness of the region allows to build up the rating of investment attractiveness of regions and their grouping by a number of features reflecting conditions of investment and the overall level of usefulness for investors. The mentioned rating is an important indicator when taking investment decisions.

Researchers [6], [10] widely extend on the main positive and negative sides of the existing methods of building up the rating of investment attractiveness. Their advantages are considered to be:

1) validity of the received results due to cooperation of experienced experts in the analysis;
2) ranking regions by factorial methods with employment of statistical data reflecting the situation in the region;
3) considering interrelations of many factors in factorial methods with the differential approach to various levels of economic systems.

Among the drawbacks, the authors note:

1) inability to determine the real distance between the rating participants;
2) subjectivity of expert judgement, especially when choosing weighted coefficients; to get a more precise result, it is suggested to use options of assessment with equal competence and an option of competence self-assessment, when all experts assess their competence answering each question; in the second option, when compiling group judgement, the assessment of each expert is weighed by weighted coefficients of competence indicated by them [7];
3) published generalized ratings do not allow to get an impression about the system of statistical indicators by which final assessment is formed;
4) low promptness of ratings due to delays in gathering, grouping and analysis of statistical information by state statistical authorities and consequently, low degree of verifiability of the results of the rating procedure;
5) analysis of mainly macroeconomic aspects at the expense of microeconomic indicators (as consequence of attempts to adopt foreign practices of assessing investment climate).

Many authors also note other disadvantages of Russian methods of compiling ratings of investment attractiveness (see for example [4], [10]):

1) despite their development while employing principles of the needed variety of components and minimal sufficiency and their goal orientation, they do not provide full impression about the region; this drawback, however, is inherent to any procedure of modeling social and economic systems, among them the procedure of forming ratings;
2) at the same time, the rating uses certain factors, such as: attitude of regional bodies officials to businesses; attitude of the population to privatization outcome revision; attitude of the population to local and foreign entrepreneurs; the potential of transportation system modernization, attitude of regional authorities to foreign investors, etc., which are hard to interpret; it is necessary to specify or eliminate the effect of these factors from the analysis.
3) in most of the existing methods of assessment of investment attractiveness of regions, industry indicators are not presented to a proper degree, industry opportunities of the region are not taken into account, as a result, important supplementary information required by the investor is lost.

Summing up the above, we can conclude that it is necessary to develop new, embracing contemporary realia, complex methods of assessment of investment attractiveness of Russian Federation subjects, taking into account all factors and conditions of regional development (including industrial, institutional ones), based not only on the long existing methods, but also on others, alternative ones, allowing regional authorities and investors to get supplementary information. While assessing investment attractiveness of the region, it is necessary to consider specific interests of different groups of investors for whom values of indicators of investment potential and investment risks may differ.

Management of investment attractiveness of the region is a difficult task. It is not easy either to assess the effectiveness of managing it in the region. The task is to some extent simplified if we consider the effect of individual measures and managerial decisions on investment attractiveness of the region, or, to be more exact, on a range of specific factors which determine it.

We will define the effect of Universiade 2013 in Kazan on investment attractiveness of the Republic of Tatarstan. Priority in the research will be given to receiving of quantitative characteristics of such effect.

In the process of preparation and hosting Universiade 2013, a number of sports facilities were constructed, the road traffic and transportation infrastructure of Kazan significantly improved (the construction industry secured a lot of orders), the international image of the Republic got better, which gave a new impetus to development of tourist industry in the region, growth of consumption in the market of educational services in tourism, trade, hospitality, etc. There happened a significant development of information and communication systems, as well as reforming of institutional environment in the Republic. In terms of the most frequently used structure of investment attractiveness of the region, hosting Universiade 2013 facilitated growth of financial, consumer, infrastructure and institutional potential of the Republic.

We will assess the consumer potential growth in the Republic of Tatarstan. We will assess the effect on consumer potential, viewing growth of potential domestic demand of the population of the Republic as a result of reviving in industries involved in preparations to Universiade 2013.

3. Data Characteristics

Preparation to the Universiade led to revitalization of a number of industries in the Republic, on the whole, the volume of delivery of goods, works, services grew, and correspondingly, gross regional product increased. Growth of these indicators will lead to growth of aggregate income of the population. Total expenditures of the population also went up (these facts are confirmed by the statistical data for several previous years, also including the Republic of Tatarstan). In addition, the level of domestic investment activity increased, and it also influences investment attractiveness of the region.

Table 1. Key social and economic indicators of the Republic of Tatarstan in 2003-2012, bln.rub.

Indicator	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
GRP	305	391	483	606	757	923	885	1002	1276	1415
p/h, th.rub	81	104	128	161	201	245	234	265	336	371
Investment	70	100	139	161	215	273	277	328	393	464
Construction	31	45	71	87	124	157	165	178	220	287
income	194	242	334	423	523	641	720	837	921	1098
expenditures	179	226	308	390	485	620	707	811	903	1076
Delivery of GWS*	282	370	500	612	758	933	867	1070	1345	1467
Income/GRP	63%	62%	69%	70%	69%	69%	82%	84%	72%	78%
Expenditures/Income	93%	93%	92%	92%	93%	97%	98%	97%	98%	98%

* GWS – goods, works, services

Data in Table 1 clearly show that the crisis of 2008 exerted influence on the correlation of the presented indicators. In particular, following 2008, the percentage of income of the population in GRP of the Republic of Tatarstan grew from 69% to 82%, in the post-crisis period the indicator never decreased to the pre-crisis value. In addition, the percentage of expenditures in the income amount of the population also grew from 93% to 98%.
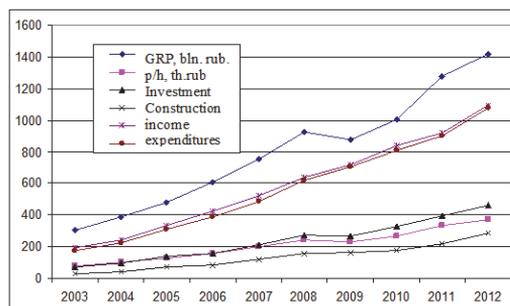
Graph. 1. Key social and economic indicators of the Republic of Tatarstan in 2003-2012, bln. rub.

Hence, we can implicitly make a conclusion about exceeding rate of salary growth as compare to rate of labor productivity growth. During the post-crisis period the percentage of savings of the population of the Republic of Tatarstan decreased in their aggregate income from 7% to 2%.

First, the mentioned facts prove negative in the long run. Second, the influence of the crisis of 2008 significantly affected the structural correlations of indicators of the Republic of Tatarstan, so it must be taken into account in regression modeling.

The interconnection between growth of population expenditures, investment activity and increased delivery of goods, works and services in the Republic is assessed on the basis of econometric modeling. By way of empirical data, we took key indicators of financial and economic activity of the Republic of Tatarstan for 2003-2012 presented in reports of the regional body of the Federal Service for National Statistics for the Republic of Tatarstan (further referred to as Tatarstanstat), displayed in Table 1, in Graph.1.

4. Results of Econometric Modeling

Results of building up the regression model of assessment of the effect of growth of volume of GWS delivery on income of the population of the Republic of Tatarstan are presented in Table 2.

Table 2: Regression model of assessment of the effect of growth of indicator of GSW delivery on income of the population of the Republic of Tatarstan.

Included observations: 10,Sampling 2003 – 2012		Dependent variable INCOME – income of the population of the Republic of Tatarstan (per year)		
Variable	Coefficient	Standard error	t-statistics	Probability of H_0 hypothesis
C	22,4002	31,1890	0,7182	0,4959
GSW	0,6429	0,0483	13,3202	0,0000
D2	107,7089	37,0416	2,9078	0,0227
R^2	0,9898	Mean value of dep. Variable		592,9756
Durbin-Watson statistics	2,2664	Probability by F-statistics		0,0000

where D2 – dummy variable taking into account the influence of the crisis of 2008 (its inclusion confirms the hypothesis of modification of quantitative stochastic interconnection between variables presented in the model in the post-crisis period as compared to pre-crisis, starting with 2009).

Statistical significance of the coefficient before the dummy variable mathematically confirms structural transformation of the model presented in Table 2, in the post-crisis period.

A similar model of assessment of the effect of GRP on the investment activity of the region, expressed by the indicator of investment volume in the Republic per year, is presented in Table 3.

Table 3: Regression model of assessment of the effect of growth of gross regional product GRP on the investment volume in the Republic of Tatarstan.

Included observations: 10, Sample: 2003 – 2012		Dependent variable INVEST – investment volume of the Republic of Tatarstan (per year)		
Variable	Coefficient	Standard error	t-statistics	Probability of H_0 hypothesis
C	-38,763	8,992	-4,311	0,003
GRP	0,348	0,010	33,927	0,000
R^2	0,993	Mean value of dep. variable		241,047
Durbin-Watson statistics	2,302	Probability by F-statistics		0,000

Functional dependencies corresponding to the above regression models are as follows:
$$INCOME = 22,4002 + 0.6429 \ast GSW + 107,7089 \ast D2 + \varepsilon$$
$$INVEST = -24.30623088 + 0.323424459 \ast GRP + \varepsilon.$$
In the above expressions ε – regression error.

Data in Table 4 show close connection between income and expenditures of the population of the Republic of Tatarstan. In addition, in the post-crisis period, the model saw structural shift expressed by increased percentage of expenditures in income and decreased level of savings of the population.

Table 4: Regression model of assessment of the effect of income of the population of the Republic of Tatarstan on their expenditures.

Included observations: 10, Sample: 2003 – 2012		Dependent variable CONSUM – the expenditures of population of the Republic of Tatarstan (per year)		
Variable	Coefficient	Standard error	t-statistics	Probability of H_0 hypothesis
C	-14,3289	5,7064	-2,5110	0,0403
INCOME	0,9683	0,0144	67,3179	0,0000
DD	21,1434	8,2567	2,5608	0,0375
R2	0,9997	Mean value of dep. Variable		570,398
Durbin-Watson statistics	1,263	Probability by F-statistics		0,000

where DD – dummy variable taking into account the influence of the crisis of 2008 (its inclusion confirms the hypothesis of modification of quantitative stochastic interconnection between variables presented in the model in the post-crisis period as compared to pre-crisis, starting with 2008).

Regression equation corresponding to Table 4 model looks as follows:

CONSUM = -14,3289 + 0.9683*INCOME + 21,1434*D2 + ε

All developed models are well specified: coefficients at independent variables are statistically significant; moreover, probability of confirming the null hypothesis by all t-statistics is practically equal to zero (far less than 1%); value of Durbin-Watson statistics for all models is close to two (which is relevant for regression models built by dynamic series); indicator R^2 for all models exceeds 95%, which emphasizes the fact of explaining over 95% fluctuations of the dependent variable as a result of building the model; the F-statistics value is quite high for all models, which characterizes their common high level of specification.

The built models are fully economically justified. Positive signs before coefficients of independent variables of the models confirm the positive effect of GRP on income and expenditures of the population, as well as on investment volume in the region for the report year.

In this way, by employing parameters and functional dependencies of regression models, it is possible to assess growth of domestic investment and expenditures of the population as a result of certain growth of GRP. Domestic investment and expenditures of the population are direct indicators of investment attractiveness of the region. First, capability of regional residents to co-fund investment projects exerts favorable influence on conditions of investment: lowers risks for outside investors, increases the degree of flexibility of investment schemes, etc. Second, expenditures of the population of the region demonstrate the potential ability of the population to buy goods, pay for works and services, they form domestic aggregate demand in the region – the indicator which characterizes response of practically any investment project implemented there. Thus, the reviewed indicators characterize both investment potential and investment risks of the region, which, when combined, determine its investment attractiveness.

In the period of preparation and hosting of Universiade 2013 provision of goods, works, services will grow in the Republic of Tatarstan. Consequently, investment attractiveness of the region will increase during that time. We will use the regression models built earlier for quantitative assessment of growth of investment attractiveness of the Republic of Tatarstan as exemplified by a number of economic indicators of the region.

Volume of construction works, expenses for measures in environmental protection and healthcare will make 117,2 bln.rub. [10].

In addition, the total operating budget of Universiade 2013, including expenses on organizational measures for its preparation and holding, will make 11,7 bln.rub. for 2010-2013.

Therefore, the total budget of the Universiade will make 128,9 bln.rub. Correspondingly, at this cost there will be goods manufactured, works implemented, services provided. Distribution of the mentioned amount by year in the period of preparation for Universiade 2013 in Kazan gives us initial information for assessment of growth of income and expenditures of the population, as well as increasing investment activity during that time.

5. Conclusions and Results of Research

Applying the results of building regression models, the earlier received functional dependencies corresponding to the detected stochastic connections, as well as data on distribution of budget expenditures for Universiade 2013 in 2009 – 2013, it is possible to assess growth of income and expenditures of the population and domestic investment activity as a result of preparation to hosting Universiade 2013 in 2009 -2013 (see Table 5).

Table 5. Dynamics of growth of key indicators of the Republic of Tatarstan as a result of preparation to hosting Universiade 2013 in 2009 -2013

Indicator, bln.rub.	2009	2010	2011	2012	2013	Year average
Growth of population income	7,31	15,18	37,45	15,28	7,67	16,57
Growth of population expenditures	7,16	14,87	36,70	14,97	7,51	16,24
Growth of investment in the region	3,95	8,21	20,27	8,27	4,15	8,97
Growth of population income, %	1,0%	2,1%	5,3%	2,2%	1,1%	2,3%
Growth of population expenditures, %	1,0%	2,1%	5,2%	2,1%	1,1%	2,3%
Growth of investment in the region, %	1,5%	3,1%	7,6%	3,1%	1,5%	3,3%

Thus, as the outcome of the conducted research, the methods of quantitative assessment of the effect of large-scale regional managerial decisions and measures on the level of investment attractiveness of the region have been suggested and tested. The mentioned methods can be used as a basis for current and long-term management of investment attractiveness of the region. In the forthcoming research, we plan to continue improvement and extending the area of application of the created methods.

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