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INFLUENCE OF REPUTATION CAPITAL ON THE MACROECONOMIC PARAMETERS OF A REGION: FROM THEORY TO PRACTICE (BY THE EXAMPLE OF THE REPUBLIC OF TATARSTAN)

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Abstract: The main goal of the study is searching and definition of methodological approaches to a formalized assessment of the impact of regional reputation capital. It is based on a systemic paradigm which is a vision of the territory's reputation through a prism of a wide range of factors determining the reputation. Such an approach allows us to consider the theory of "reputation economy" as a special case of assessing and analyzing various potentials of a region that form the opportunities and resources for the development of its residents both institutionally and from the point of view of conjuncture. The Republic of Tatarstan acts as an object of study. The subject of the study is a methodological toolkit for assessing the impact of a region's reputation on the parameters of its investment activities. **Methods.** A key feature of the study is the proposed version of the implementation of an algorithm for the quantitative assessment of the regional reputation based on the use of index analysis methods. **Results.** On the basis of the developed methodology for the formalized assessment, the authors have constructed a model allowing in a formalized manner to determine the degree of relationship between the reputation of the region and its parameters of economic development. **Application of the results.** It is advisable to use the developed methodological approaches and their practical results when developing new forecasting models of economic growth under conditions of increased importance and the role of intangible production factors. **Conclusions.** According to the results of the study, a

significant influence of the regional reputation capital on the dynamics of investment in fixed assets was established. This, in turn, determines the possibility of the formation of adaptation measures of regional state policy, ensuring accelerated economic growth of regions in new institutional conditions.

Keywords: reputational capital of a region, Republic of Tatarstan, economic growth, modelling, reputational economy.

INTRODUCTION

The processes of globalization and integration of national / regional economies into the system of world reproduction processes, the transformation of the economic development mechanisms as a result of the transition to a new type of technological mode, which relies largely on the knowledge economy, determine a special type of competitive environment, where the most important factor determining success in the struggle for raising resources is the regional reputation limited by the economic, social, political, institutional, and other kinds of potential of the territory. Reputational activity forms a whole set of prospects for the development of territories due to persistent positive or, conversely, negative expectations of interacting counterparties regarding their own development opportunities (8; 9; 12). Meanwhile, it is important to note that the study of this question mainly focuses on the micro level. That is, the vast majority of scientific papers are devoted to the study of the reputation of firms. Upon that, the study of reputation activity and its influence on the development of regional economic systems is undeservedly deprived of due attention. In this regard, it seems very relevant and justified to eliminate this theoretical and methodological “gap”.

Our position regarding the significant influence of the regional reputation capital on the effectiveness of its socio-economic development is supported by the works of Russian scientists (10), I. I. Reshetnikova (2016), A.P. Pankrukhin (2014), V.N. Cherepanov (Grunichev & Yelshin, 2019), and others. It is important to note that the measurement of reputation is just an instrument that subsequently opens up a very effective set of iterations that make it possible to detect patterns and dependence of the economy on the transformation of reputation capital, including at the regional level. Systematization of the paradigm and the approaches laid down in our study determined the development of such a thing as “reputation economy”, which is proposed to mean a set of relations in the system of production, distribution, exchange and consumption, which are formed as a result of the perception by economic agents of the opportunities and resources of the territory on the basis of the information field characterizing the economic, social, institutional and other potentials of the territory. Thus, it can be argued that the qualitative characteristics of the information space, which reflect the resource potential, determine the level of competitiveness of the territory as a result of intensification or, conversely, suppression of business activity, which is a consequence of the expectations of economic agents regarding the opportunities and resources generated in the region. This position is largely consistent with the opinion of J. Klein (3).

METHODOLOGY

As we mentioned earlier, the theoretical approaches to formalized assessment of

reputation capital are focused solely on the micro level. The algorithm proposed in the earlier publications of the authors (10; 4) for quantitative assessment of the regional reputation significantly eliminates this kind of problem. It is important to note that the use of these methodological approaches not only helps to determine the index of the reputational capital of the subject under study, but also solves the problem that is much more significant and relevant for the theory of regional economics: modelling the relationship between the changing parameters of the regional reputational capital and its macroeconomic indicators.

In a concentrated form, the essence of the approach is based on the hypothesis that the reputation of the region can be measured by evaluating the so-called system of social evidence in the global information space. In accordance with our position, the region's reputation is a digital reflection, a digital twin in the global information space of the organization system and the development efficiency of the real economy. In other words, reputation capital is a "digital tracing-paper" of the real sector of the economy in all kinds of digital channels for transmitting information. In accordance with this methodological approach, the reputation capital index is calculated using five main iterations. In our case, they involve a comprehensive analysis of the tonality of publications in the global information environment in five main directions, which subsequently determine the values of the five sub-indices considered above. The sub-indices form the integral value of the reputational capital index.

In a concentrated form, the algorithm for evaluating and constructing time series characterizing the values and dynamics of the region's reputation capital is presented below: **Step 1.** Grouping the global information space by the level of reflection of the region's reputation background; **Step 2.** Grouping the global information space by the degree of signal generated either at the macro- or meso- scale (federal / regional information sources); **Step 3.** Determining the list of search queries that form representations (image) about the reputation of the territory (region) (Figure 1) and revealing the essence of the analysed process. At the same step, a procedure is carried out that estimates the number of queries requested by users regarding the analysed object within the estimated time period $p(x_i)$. The reputation of the region is assessed based on 5 key sub-indices.

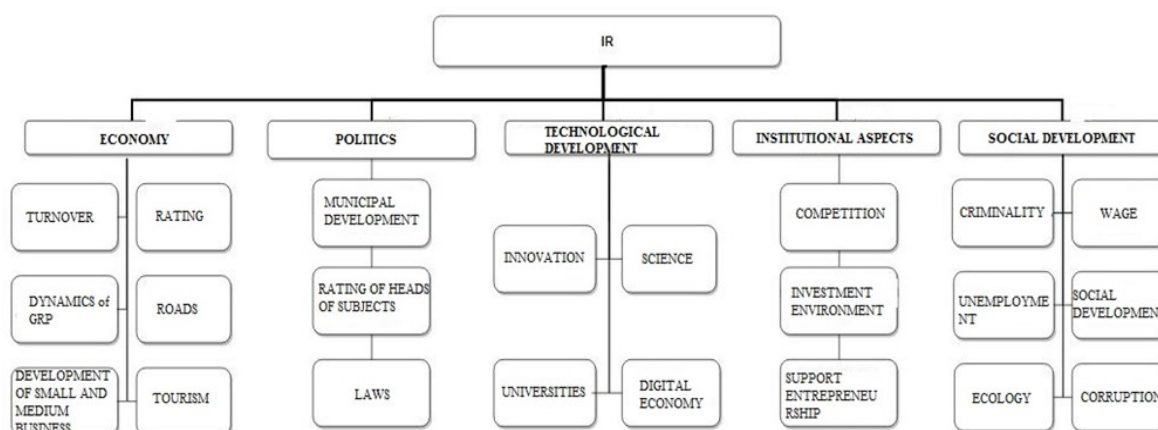


Figure 1. The system of search queries that form representations (image) about the reputation of the territory (region). *Source: Compiled by the authors.*

Step 4. Identification and determination of the repository containing information retrieval systems participating in the analysis procedure in order to assess the popularity and relevance of each of them. **Step 5.** Analysis and systematization of data revealing the estimates of users of the global information environment with respect to the estimated search queries (in accordance with the data presented in Figure 1) forming representations regarding the reputation of the analysed object. **Step 6.** Calculation of the integral values of sub-indices characterizing the reputation capital of the region **Step 7.** Calculation of the integral index of the region's reputation capital. A more detailed description of the research methodology is presented in the works previously published by the authors (10; 4).

RESULTS

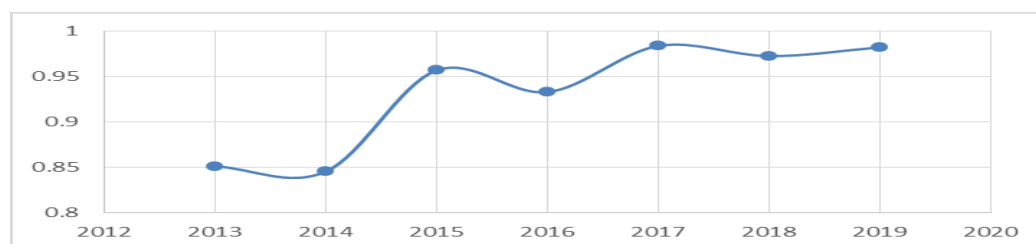
So, in accordance with the summary of the algorithm, table 1 and figure 2 show estimates for the values of the reputation capital index for the Republic of Tatarstan in dynamics over the period from 2013 to 2019, including in the context of individual sub-indices that determine its integral value.

Table 1. Values of the reputation capital index for the Republic of Tatarstan for the period from 2013 to 2019

	2013	2014	2015	2016	2017	2018	2019
Regional reputation in the field of economics	0,298	0,257	0,242	0,297	0,302	0,305	0,308
Regional reputation for social development	0,271	0,201	0,172	0,303	0,305	0,308	0,311
The reputation of the political (managerial) development of the region	0,008	0,014	0,01	0,009	0,005	0,005	0,005
Reputation of the technological development of the region	0,108	0,115	0,122	0,086	0,116	0,117	0,118
Institutional Aspects of a Region's Reputation	0,166	0,259	0,41	0,27	0,256	0,259	0,261
The integral value of the region's reputation activity index	0,851	0,845	0,957	0,965	0,984	0,994	1,004

Source: Compiled by the authors.

Figure 2. Reputation capital index values for the Republic of Tatarstan for the period from 2013 to 2019. Source: Compiled by the authors.



It should be noted that according to the results of the calculations, the values of the reputation capital index (I_{RC}) for the period under review are in the positive zone (a methodically developed algorithm creates a range of index values from -1.994 to 1.994 (2). It is also important to note that the dynamics of the index under study has a stable positive trend with signs of cyclical, undulating series. This, in our opinion, may indicate the instability of the key factors determining the regional reputation over time, which, in fact, is quite natural. The discovered regularity is quite organically synchronized with the theoretical views by I. S. Vazhenina (7) according to which “The main laws governing the development of the image and reputation of the territory include ... the cyclical process of changing the image and reputation of the territory ” (7). Thus, it can be stated that the views and hypotheses existing in the theory of reputational economics regarding the cyclical nature of the process on generating and creating reputation-and-image components of territories are verified by the proposed method of economic and statistical analysis.

An econometric analysis of time series was chosen as a toolkit for solving this problem, where a series characterizing the dynamics of the reputation capital of the region in question was used as an exogenous value, and investment in fixed assets was used as an endogenous one. The choice of this macroeconomic indicator is due to the fact that investment activity is very sensitive to any changes occurring in the socio-economic and institutional environment of the region. And since reputation capital is, in fact, a digital reflection of the quality of such transformations, then considering the level of interconnection between these parameters is strongly and logically justified and fits into the paradigm of economic thought. Relying on the above considerations regarding the modelling of the processes under study, the process of constructing the corresponding regression function was implemented, where the time series “Growth rates of investments in fixed assets of the Republic of Tatarstan” for the period 2013-2019 was used as Y (endogenous variable), and the index of the region's reputation capital for the same analysed period was used as X (exogenous variable). The results and estimates are presented in table 2.

Table 2. Parameters of the regression analysis model

Regression statistics	
Multiple R	0,59
R-squared	0,32
Normalized R-squared	0,24
Standard error	0,88
Observations	7

Source: Compiled by the authors.

Considering that the estimates obtained demonstrate very low parameters of the statistical significance for the constructed model, dummy variables were gradually added to the model in order to calibrate it and increase the level of approximation of the predicted values relative to the actual ones. “As a rule, a dummy variable is an indicator variable that reflects a qualitative characteristic. Moreover, the dummy variable is dichotomous, taking two values, respectively:

$f = 1$ if the residuals of the values of the predicted series take a positive value
and

$f = 0$ if it is negative" (Lambin, 2000).

The final model that satisfies all the required statistical significance parameters is presented below:

$$I\% = -1,25 + 0,42 I_{PA} + 1,44F1 + 1.28F2 \quad (1)$$

Where:

$I\%$ - rates of investment growth in the fixed capital of the Republic of Tatarstan, in % to the previous year;

I_{RA} - integral index of reputation activity of the region under study;

$F1, F2$ - dummy variables.

In the concentrated form, the main parameters characterizing the statistical significance of the resulting model are presented in the table 3, 4.

Table 3. Parameters of the regression model

Regression statistics	
Multiple R	0,94
R-squared	0,89
Normalized R-squared	0,80
Standard error	0,25
Observations	7

Source: Compiled by the authors.

Table 4. Regression coefficient values of the model and their statistical significance

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t-statistic</i>	<i>P-value</i>
Y intersection	-1,25	0,09	-7,33	0,0009
F1	1,44	0,11	6,87	0,000
F2	1,28	0,12	6,56	0,0002
I_{RC}	0,42	0,19	-2,25	0,007

Source: Compiled by the authors.

SUMMARY

The presented values of the coefficient for I_{RC} of the obtained model demonstrate a very high level of influence of the region's reputation capital on the parameters of its investment activity. The obtained calculations demonstrate that an increase in I_{RC} coefficient by 1 percentage point determines an additional impulse for the growth of investments in fixed assets by 0.42 percentage points. It is thus established and empirically proven that changes in the region's reputation capital form a significant potential for correcting the dynamics of investments in fixed capital. Considering that the latter determine the aggregate value of GRP in the aggregate demand model, the importance and relevance of the question of studying reputation and developing

measures of state regulation of the regional economy on the basis of reputation economy methods is beyond doubt.

CONCLUSION

On the whole, the implemented analysis demonstrates that the inclusion of intangible factors of production in the economic growth model (and reputational capital is no exception here) forms a significant potential not only for understanding the prospects for the region's economic development in the current new institutional economic conditions, but also for identifying and constructing measures of state influence on the corresponding functional directions of development of socio-economic systems within the framework of the emerging reputation capital and its individual components. The latter, in turn, significantly determine the regional macroeconomic dynamics, as proved within the framework of the constructed model.

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