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IMPROVEMENT OF METHODS OF ASSESSING THE INVESTMENT CLIMATE OF THE REGIONS OF THE REPUBLIC OF UZBEKISTAN

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Abstract: The article sets out the views of economists and the author's approach to the role of the socio-economic potential of the regions in the development of the country's economy and the investment climate in the regions. In addition to the traditional method of assessing the investment climate, the author presents a methodology for assessing the investment climate of the regions based on a generalized assessment, which is evaluated taking into account the specifics and characteristics of the regions of the Republic of Uzbekistan.

Key words: investments, innovations, investment activity, attractiveness of the environment, budgetary and financial potential, general integrated indicator

The attractiveness of the environment in the regions depends on a set of factors, which is determined by the influence of an infinite number of factors. Specifically, for comparing interregional investments, the investment climate in each region can be characterized by a certain quantitative measure - synthetic or generalized. On the other hand, the investment climate of the region cannot be quantified in any way - these types of attempts are wrong and can lead to ignoring this complex phenomenon.

At the same time, it is important to understand that in the context of the information explosion experienced by modern civilization, great attention must be paid to the orientation methods in the actual materials of science and how they are used. Therefore, the effectiveness, accuracy and reliability of the selected methodology in terms of its practical application should be consistent with the characteristics of any other method.

Based on the results of the study, it is important to use the following classification algorithms based on the class sizes of different categories selected to assess the investment climate of the regions:

1. the measure of investment attractiveness – (I^a);
2. the investment potential of the region – (I_r^p);
3. Investment Risk Scale – (I^R);
4. investment activity in the region– (Y);
5. Effective use of the region's investment potential ($E_I^p = Y/I_r^p$);
6. Effectiveness of the territory's investment attractiveness ($E_I^a = Y/I^a$).

Investment potential of the region (I_r^p) Characteristics of production and financial potential in the region (size and extent of industrial production change, level of development of small business, share of profitable enterprises, total internal investment resources, retail volume, export potential, number of enterprises and organizations) description (provision of the population with cars and telephones, provision of highways and railways, paid services, living standards), and description of natural and geographical potential of the region (natural resources of mineral resources and their geographical location for foreign trade routes).

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Since all individual indicators of investment attractiveness have different dimensions and sizes, they should be unified for comparison, that is, by standardization, by setting the average value of each specific indicator of a particular region across the country:

$$I_{sit}^{a} = \frac{I_{sit}^{*}}{I_{st}} \quad (1)$$

is here, I_{sit}^{*} – *t*- per year (or other time period) *i*-by region

The numerical value of the private index s,

I_{st} – *t*-year s country average value of private indicator,

I_{sit}^{a} – *t*- per i-area s standardized value of private index.

As a result, all regional indicators are based on the standardized regional indicators (I_{sit}^{a}) This is a non-measurable relative value that describes the ratio of the numerical values of each indicator to the numerical value in the country. Each standardized indicator in the country has a value equal to that of the respective one.

i- the investment attractiveness of the area *t*- Calculation of integral indicator for year (I_{it}) implemented by a two-stage multidimensional mean formula.

In the first phase, a set of privatized regional indicators will be transformed into two integral indicators - a general indicator of investment potential. (I_{it}^{p}) – private indicators, depending on the factors that make up the region's investment potential (I_{sit}^{p}) and an overall investment risk index (I_{it}^{R}) – combining private indicators related to factors of regional non-commercial investment risks (I_{sit}^{R})[13].

i- the investment potential of the region *t*- year (I_{it}^{R}) The general risk index is calculated by the following formula:

$$I_{it}^{p} = \frac{\sum_{s=1}^{n} I_{sit}^{p} \cdot k_{st}^{p}}{\sum_{s=1}^{n} k_{it}^{p}} \quad (2)$$

is here, I_{it}^{p} – *t*- per year (or other time period) *i*- the numerical value of the standardized c-private indicator of investment potential in the region;

k_{st}^{p} – investment potential t year s-private weight ratio of indicator value;

n – number of standardized private indicators, depending on factors of formation of integrated level of investment potential of regions.

At the next stage of determining the attractiveness of the investment climate in the region, it is necessary to determine the innovative potential of the regions, which requires calculating the relative values of the aggregate indicators. A number of factors can be identified in this regard, which can be determined by the following formula:

$$I_{\text{н.к}} = \frac{I_{abs}}{I_{base}} \quad (3)$$

Here: $I_{\text{н.к}}$ – the relative value of the indicator, %;

I_{abs}– the absolute value of the indicator;

I_{base}– base value of the indicator.

In each case, the baseline of different parameters (GRP - gross regional product, etc.) (I_{base}) This allows increasing the absolute value of indicators used in comparable form. Thus, we would like to use the number of people employed in the region. In particular, as indicators I_1, I_2, I_3,..., I_n s. For a

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comprehensive assessment of the innovative potential of the regions, it is appropriate to use group integral indicators that divide all the n key indicators as the nth root of the geometric mean.

$$N_1 = \sqrt[n]{I_{i1} + I_{i2} + \cdots + I_{in}} \quad (4)$$

Integrated assessment of the innovation potential allows us to bring together a set of different indicators into a single generalized index and to compare the innovative potential of the regions, and to assess the innovative potential of the region based not only on its composite values, but also on their complex and multifaceted interrelations. The advantage of these integrated indicators is that it covers all the major innovation potential and its components in a comparable way. In the proposed methodology, group integral values are considered equivalent. Therefore, it is an integrated indicator of the region's innovative potential N_i (m=5) values:

$$G_{i.i} = \sum_{i=1}^{m} N_i \quad (5)$$

is here: $G_{i.i}$ - generalized integral index;

i – number of integral values of the group.

Risk of regional investment (I^R) In order to determine the level of integration, it is necessary to take into account such indicators as the following low-income population, unemployment rate, environmental pollution levels, climatic conditions, and political stability. Therefore, it is advisable to take into account the level of indebtedness for taxes and budget payments, reflecting the consumer price index and the level of financial risk in the region.

I. In order to assess the investment attractiveness of the region, it is necessary to determine one more indicator, that is, the budgetary and financial potential, which is an indicator that can increase the investment attractiveness and interest of the regions. Therefore, taking into account that the level of regional budget stability is determined by the amount of resources required to ensure minimum budget sustainability, we will outline four types of budget sustainability:

1. The absolute steady state of the budget can be characterized by the following correlation: $Pm<D_x+D_t$

is here Pm - Minimum budget expenditures, D_x – private budget revenues, D_T – budgetary regulatory revenues.

2. Normal: $Pm=D_x+D_T$

3. Unstable state: $Pm=D_x+D_T+$ Id . (4)

is here: Id – additional sources of budgetary pressure reduction (eg, extra-budgetary funds, loans, etc.).

4. The state of crisis: $Pm>D_x+D_T+$ Id .

It should be noted that the proposed method for assessing regional budget sustainability is not universal, since it does not take into account the significant differences in revenues of regional governments. The same applies to minimum costs. Correlations may vary depending on the economic situation of the country, legislation, fiscal policy and other factors. Independent budget sections, such as current and investment budgets, provide various sources of funding. The proposed method offers a quick analysis of the budget indices, which allows assessing its current sustainability.

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We are convinced that a deeper and more detailed analysis of the main budget indicators is necessary to assess the financial status of regional governments and the sustainability of their budgets. The budgetary process analysis of the area should include the following key index blocks.

The analysis of regional budget stability factors provides the following indicators of the budget process evaluation:

- Coefficient of the ratio of private and regulated revenues of the budget:

$$k_б = \frac{D_х}{D_т} \quad (6)$$

right here: $k_б$ - budget stability ratio;

$D_х$ - private income ratio;

$D_т$ - regulatory income ratio.

This coefficient indicates which part of budget expenditures is in favor of the private revenue base.

The correlation between taxable and non-taxable sources is an additional index that assesses the revenue base of the regional budget:

$$I_к = \frac{D_t}{D_{nT}} \quad (7)$$

is here: $I_к$ - Additional index that estimates the budget revenue base;

D_t- taxable income;

D_{nt} - non-taxable income.

This index is even more useful if we do not take into account revenues that do not represent the result of tax authorities' actions.

Therefore, the ratio of private sector revenues to taxable income, excluding official transfers, on the basis of international standards of public financial advice:

$$I = \frac{D_{хt}}{D_{nt-N}} \quad (8)$$

is here:

$D_{хt}$ - private taxable income;

N - official transfers.

$k_б$, $I_к$ and I The indexes complement each other and describe both sides of the taxable portion of the regional budget. Dynamic discussion of these indices allows us to assess the authority's performance in mobilizing regional financial potential.

To estimate the level of financial independence of the regional budget, we can use the coefficient of reliability:

$$k_м = \frac{D_х}{\sum_{i=1}^{n} D_i} \quad (9)$$

$D_х$ - private income;

D_i - budget revenues.

If the value of this index is high, then the regional budget's financial viability will be high.

As the quantitative criterion [14], we can use the following scale for these coefficients (Table 1).

Table 1.

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Regional budget status criteria [15]

Indexes	Stable state	Normal	Moderate condition	Unstable state	Severe condition
Dx:D	85-100 %	72-84 %	60-71 %	43-59 %	29-42 %
D_T:D	20-30 %	40-50 %	60-70 %	80-90 %	90-100%
V:$X_б$	5-10 %	10 – 15%	20 - 25%	30 - 35%	40 - 50%

is here: D_x - private budget revenues;
D_T - regulatory revenues;
D – total income;
$X_б$ - total budget expenditures;
V - total budget debt.

II. The effectiveness of fiscal policy is governed by the budget deficit and the size of the public debt, so it is necessary to assess the regional budget with absolute and relative balance indicators. The budget balance ratio shows how budget expenditures are balanced with revenues:

$$k_м = \frac{D}{X_б} \cdot 100\% \quad (10)$$

III. The following indexes can be selected to describe the structure of regional budget revenues and expenditures:

- Cost structure ratio:

$$k_{Xтар} = \frac{X_ж}{I_б} \quad (11)$$

is here: $X_ж$ - current expenditure budget;
$I_б$ - investment budget.

- Private Source Guarantee Rate:

$$М_к = \frac{D_x}{X_ж} \quad (12)$$

D_x - private income;
$X_ж$ - current costs.

If $М_к \to 1$ This means that the region will be able to fully cover the mandatory costs with private revenue. Using the above, the cost ratio can be summarized as follows:

$$X_{тар} = \frac{К_{уқм}}{Б_р} \quad (13)$$

$К_{уқм}$- long-term and short-term loans;
$Б_р$- development budget.

If the value of this coefficient is more than one, it indicates a tendency for the budget to lose stability. The aggregate level of budgetary and financial potential can be determined by the following formula:

$$Б_у = \frac{D_x + D_T + K}{X_б} \quad (14)$$

In this formula, K represents long-term credit. We determine the investment climate of the regions of the Republic of Uzbekistan based on each of the aforementioned potential formulas based on their specific capabilities and characteristics.

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As part of this study, the natural and geographical potential of the area could be evaluated on the basis of questionnaires, and because of the correlation between the statistical data obtained with them, it was not possible to synthesize neural networks tightly coupled in hybrid nets in the neural network. Based on the results of the research, the scale of indicators should be further expanded to determine the integrated level of the investment potential of each region.

In our opinion, the investment potential should be taken into account when calculating the investment potential, because the region's ability to quickly adapt to changing market conditions by improving new products, manufacturing, introducing new equipment and technologies increases the competitiveness of the region and at the same time increases the level of investment in the region. The budget and financial capacity of the regions should then be taken into account, which determines the rational use and allocation of allocated financial resources.

Also, accounting for budget and financial capacities characterizes the level of independence of a particular entity and its budget subsidies: the higher the level of independence, the greater the likelihood that decisions will be made to finance high-liquidity projects at the regional level. The low level of independence of the region slows down the allocation of financial resources due to the implementation of inter-budgetary relations. Financial resources received at the local budgets are redistributed to the State Budget of the Republic of Uzbekistan, which are then transferred to the regional budgets through inter-budgetary transfers. The disadvantages of the subsidy process are the length of time that financial resources are transferred to the regional budgets and the limited financial resources.

In conclusion, it is desirable that the methodological framework for the analysis of regional development should be considered as a multifunctional region, not a strictly autonomous object, but rather a vertical (center-region) and horizontal (interregional) interconnected system of global economic relations. It should be noted that the analysis and forecasting of the distribution of investments in the economic development of the regions should be created as interconnected structures, which should become a common strategy for the socio-economic development of the country.

As a result of the aforementioned results, it is also important to have a clear understanding of the criteria and indicators that reflect socio-economic growth in terms of investment efficiency in the manufacturing process, and what factors are associated with them. For general analysis of the above data, it is advisable to refer directly to mathematical tools. This requires, of course, the study of modeling processes, understanding and conclusions about mathematical formulas, including the relevance, interrelationships, and correlations of the statistical data presented.

It should be noted that a large number of selected factors require their classification and generalized conclusions. Here we see a way of dividing the sample into groups of objects that do not intersect, based on the linking of objects to the class boundary objects. At the same time, it is advisable to cover selective grouping of reference objects.

In summary, the application of neural models to the distribution of investments, as well as other sectors, allows us to make clear decisions for this process, as well as to identify hidden laws in the process, and to make clear decisions in the uncertainty. However, neural networks are not the only method, and in most cases, traditional statistical methods are more effective. Nevertheless, in many areas of risk management, neural networks are a more rational solution and require further research in this area.

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