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METHODS OF SUBSTANTIATION OF THE SUBJECT AREA OF THE FORECAST OF SOCIO-ECONOMIC SECURITY OF THE INDUSTRIAL SECTOR

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МЕТОДИКА ОБОСНОВАНИЯ ПРЕДМЕТНОЙ ОБЛАСТИ ПРОГНОЗА СОЦИАЛЬНО-ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ ПРОМЫШЛЕННОГО СЕКТОРА

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Abstract. The reliability of the results of any forecast is dependent on the validity of the selection of objects and the definition of its subject area. Suppose that in the total number of objects of the forecast it makes sense to exclude the signatures of the industrial sector (industrial objects) and non-industrial objects, which, despite the relation to the external environment, have a specific impact on the position and formation of the industrial sector. To clarify the selection of the objects and the subject of the forecast of socio-economic security of the industrial sector, the following methodological approach is proposed. The forecast objects are oriented by the location of the sources of industrial sector hazards — “internal environment — external environment” — by the scheme of interelement connections in its structure and the importance of communications outside the structure (to distinguish objects it is proposed to mark them symbolically in accordance with the “industry objects” and “non-industry objects”). The subject field of the forecast is formed by the qualitative and quantitative properties of the objects of study. The task is to identify those objects from a large number of probable objects and their data that will allow to identify negative phenomena and processes capable of implementation in the current period (updated threats).

Аннотация. Достоверность итогов любого прогноза находится в зависимости от обоснованности выбора объектов и определения его предметной области. Предположим, что в общее количество объектов прогноза имеет смысл включить сегменты промышленного сектора (отраслевые объекты) и внеотраслевые объекты, которые, несмотря на отношение к наружной среде, оказывают конкретное воздействие на положение и становление промышленного сектора. Для уточнения выбора состава объектов и предмета прогноза социально-экономической безопасности промышленного сектора предлагается нижеследующий методический подход. Объекты прогноза ориентируются по местоположению источников опасностей промышленного сектора — «внутренняя среда — наружная среда» — по схеме межэлементных связей в его структуре и важности коммуникаций за пределами структуры (для различия объектов предлагается символически

их отметить в соответствии с тем как «отраслевые объекты» и «внеотраслевые объекты»). Предметное поле прогноза формируют качественные и количественные свойства объектов исследования. Задача сводится к тому, дабы из большого количества вероятных объектов и их данных выявить те, которые разрешат выделить отрицательные явления и процессы, способные к реализации в текущем периоде (актуализированные угрозы).

Keywords: socio-economic security, government, society, enterprise, employee, threat, security, interests, economics, analysis, system.

Ключевые слова: социально-экономическая защищенность, государство, общество, предприятие, работник, угроза, защищенность, интересы, экономика, анализ, система.

The result of the forecast of socio-economic security is systematized information that is used to assess the resistance of the industrial sector to threats and saving properties of its development, taking into account the individuality of the emerging criteria of functioning. Based on this, the object of the forecast is obliged to meet these requirements: recordability (quantitative certainty), exposure to evolutionary changes under the influence of external (positive or negative) influence, reactivity in relation to the overall dynamics of the industrial sector (variability in agreement with the emerging direction of industrial dynamics).

In relation to industrial facilities, these requirements are largely met by the characteristics of the industrial sector segments, which are in many positions as characteristics of the industrial sector and characteristics of the production potential. Characteristics of the industrial sector constitute the largest share of the subject area of the forecast and are designated as “main parameters”. In particular, the characteristics of the industrial sector segments are considered to be quantitatively measurable (the registration requirement), largely justified by changes in the external environment (for example, a decrease or increase in effective demand linked to the income of the population), which corresponds to the second requirement. This means that it makes sense to apply them to determine the reactivity of the industrial sector structure to internal and external influences (the third requirement). In turn, on the principle of feedback, the main characteristics affect the processes occurring in the external environment. So, the subject field of the forecast of socio-economic security is not limited to the characteristics of the segments of the industrial sector and the production potential, but also includes the properties of non-industrial facilities, reflecting the interaction of the industrial sector with the external environment.

Together with that, we must indicate that the selection of the data neotrazimyi objects associated with the task their correlation with parameters of the segments of the industrial sector and productive capacity (the problem of establishing the type of dependence) and interpretations of the results of the forecast (the problem of definable results). This can be explained as follows. According to the properties of large systems, the complexity and uncertainty of the external environment of the industrial sector as a system of greater order will exceed its structural complexity. As a result, the mutual influence on the position and formation of sectoral and non-sectoral objects is dependent on the interrelations of non-sectoral objects related to a more complex system. In accordance with this, the difficulty in describing the mechanism of the impact of changes in these non-industry objects on the characteristics of industry and unambiguous interpretation of the consequences of this impact in relation to socio-economic security. For example, it is impossible to assess the positive communication with the external environment for the segments of the industrial sector, which by the symptom of interaction with the global aspect have all the chances to be at the same time attributed to both export-oriented and import-dependent. To determine the

subject area of the forecast of socio-economic security of the industrial sector, the following method is proposed [1–2].

The task of the methodology is to specify the subject field of the socio-economic security forecast and to solve the problem of the certainty of the interpretation of its results. The method is based on the theoretical provisions on the destabilization of the industrial sector structure and the criteria of its dynamic stability. Its implementation in the system of public administration will provide an opportunity to qualify more important characteristics for the activation of transformation processes in the structure of the industrial sector.

The technique is able to implement the presented algorithm.

1. Selection of characteristics included in the subject field.

The subject field of the socio-economic security forecast consists of the number of characteristics of the industrial sector (main parameters), production capacity data and data of non-industrial facilities. Non-industrial objects and their properties are selected on the basis of the progressive structure of the industrial sector and the dynamic foreign economic work in the segments of the industrial sector.

2. Requests for characteristics included in the subject field of the forecast.

The main characteristics play a stabilizing role in the functioning of the industrial sector. They meet the financial and economic indicators of the sectors of the economy, which occupy the largest share in the mass of industrial products. The choice of financial and economic characteristics is formed in coordination with the indicators used in determining and assessing the degree of financial and economic dependence. Stabilization resistance is confirmed by the indicators of production capacity. The properties of the volume and structure of the production potential are formed on the basis of quantitative characteristics of the size of the elements of its particular potentials. Properties of non-industrial objects are dependent on the type of segment (external or intra - oriented) and the purpose of the products. The circumstances of selection are presented in Table 1.

Table 1.

CONDITIONS FOR THE SELECTION OF CHARACTERISTICS OF NON-INDUSTRIAL FACILITIES
 IN THE CONTEXT OF INDUSTRIAL SECTOR SEGMENTS

<i>Segments of the industrial sector</i>	<i>The terms “power” industries in the composition of the segment</i>	<i>Out-of-industry facilities</i>	<i>Characteristics of non-industrial facilities</i>
Communicative (externally oriented)	Representing the main commodity groups in the structure of export and import of industrial products	Suppliers of imported products; Buyers of exported products	Reliability of partnership relations; financial solvency of contractors; competitiveness of the supplied products
<i>Intra-oriented, including sub-segments:</i>			
Feasibility-technological	Belonging to the “core” of progressive technological structure	Innovative development leaders	The technological structure of the economy of the States-leaders of innovative development; the Composition of the “core” emerging progressive technological structure
Social	Production of socially significant products	Suppliers of the product group “critical import”	Reliable partnerships

Source: elaboration of the author based on data [3–15]

3. Estimation of the progressivity and adaptability of the structure of the industrial sector.

The progressiveness of the structure is marked by the fact that it has a large part of the sectors of the economy belonging to the industry favorites in the global industrial development and specialization of the state in the global division of labor. To assess the evolutionary stability, the choice of economic sectors is based on the symptom of communication. The segments of the industrial sector are divided into basic sectors: communicative (external) and intra-oriented. The communication sector is dedicated to highlight a group of sectors of the economy that interact with the global aspect of the outdoor environment. The intra-oriented sector demonstrates a group of sectors of the economy that determine communication with the state aspect of the external environment, as well as inter-sectoral interaction in the internal environment of the industrial sector. Dynamic foreign economic work is specified by communications with the external environment based on the structure of exports and imports of the leading commodity groups. To assess the dynamics of foreign economic work (communication), it is proposed to rank groups of exported and imported goods, emphasizing the dominant rule: the greater the share of the product in the structure of exports or imports, the greater the rank (i). The rank number varies from 1 (highest) to n (lowest). The designation of ranks by commodity groups and the circumstances of the assessment of the communicativeness of economic sectors are given in Table 2.

Table 2.

CONDITIONS FOR ASSIGNING TO SECTORS OF THE ECONOMY THE ASSESSMENT OF “HIGH COMMUNICATION”

<i>Commodity group</i>	<i>The notation (i - number of rank)</i>	<i>Conditions of evaluation “high communication”</i>
Exported products to CIS countries	Ei	E1;E2;E3;
Exported products to other countries	Ci	C1;C2;C3;
Imported products from CIS countries	Ii	I1;I2;I3;
Imported products from other countries	Cli	CI1;CI2;CI3;

Source: elaboration of author

Evaluation of “high communication” allows to note the sectors of the economy, the functioning of which is largely determined by external causes, which in a negative scenario in the first-place leads to a violation of stabilization stability (equilibrium).

4. Assessment of stabilization and evolutionary stability of the industrial sector structure. To assess the sustainability of the industrial sector (i. e. the possibility of not aggravating the value of characteristics with changes in the external environment), the characteristics of the sectors of the economy that make up the intra-oriented sector are used. The role of this sector is to guarantee the functioning of other sectors of the national economy (the national aspect of the external environment) and to support inter-element interaction in the structure of the industrial sector. Depending on the purpose of intra-oriented segments of the industrial sector in the financial and economic system of the state and the structure of the industrial sector, it makes sense to note them by the symptom of the financial and economic purpose of the product (“means of production” or “consumer goods”, i. e. the group of economic sectors “A” or “B”). Evaluation of the significance of the characteristics of the sectors of the economy that form these sub-segments is carried out by the size and dynamics of the modification of their ranks in the industrial sector structure. The ranking is executed according to the rule: the greater the specific volume of production of the Sigma in industrial production, the higher the rank (UI). The rank number (i) varies from 1 (highest) to n

(lowest). The circumstances of estimating the significance of the segment in providing evolutionary stability are given in Table 3.

Table 3.

CRITERIA CONDITIONS FOR ASSESSING STABILIZATION STABILITY

<i>The value of the rank for the industries segment</i>		<i>The trend in the rank</i>	<i>Stabilization stability level</i>
<i>Technical and technological</i>	<i>Social</i>		
	U1;U2;U3	unchanged	high
	U1;U2;U3	reduction	medium
	U4;U5;U6	increase	medium
		unchanged	medium
	U4;U5;U6	unchanged	low
	U4;U5;U6	reduction	low
	U7;U7	unchanged	low

Source: elaboration of author

5. The assessment of the evolutionary sustainability of the industrial sector is carried out according to the following scale (Table 4).

Table 4.

SCALE OF ASSESSMENT OF SUSTAINABILITY OF THE INDUSTRIAL SECTOR

<i>Subject area</i>	<i>Condition of stability</i>	<i>The result of the verification conditions</i>
<i>Stabilization stability</i>		
Main parameters	The degree of economic dependence for the dominant industrial sectors in the structure of the industrial sector	With a minimum degree of economic dependence, the estimate is “stable”; with a high degree, the estimate is “unstable”.
<i>Evolutionary sustainability</i>		
Characteristics of production capacity	The ratio of sources of accumulation of production capacity and possible types of economic dependence in each specific period of time according to the criteria: “minimum economic dependence” and “maximum value of production potential”.	If the ratio satisfies the condition, the estimate is “stable”. Otherwise – “unstable”
Main characteristics of non-industrial facilities	Comparison of the technological structure of the economy of the Republic of Belarus and the leading countries of economic development	If the technological structure of the compared countries changes in one direction, the assessment is “stable”
	Comparison of the sectoral composition of the emerging “core” of the progressive technological structure in the economy of the Republic of Belarus and the countries-leaders of economic development	If the industry composition is basically the same — the assessment is “stable”

Source: elaboration of the author based on data [16–27] (<https://goo.gl/NyUaLM>).

The lowest level of financial and economic dependence is manifested if there is no investment and economic dependence in the dominant segment. In accordance with this, the limit level is fixed in the presence of all types of financial and economic dependence.

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