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ANALYSIS OF INDICATORS OF RECOVERY GROWTH OF INDUSTRIAL PRODUCTION IN THE REPUBLIC OF UZBEKISTAN IN THE CONDITIONS OF THE CORONA CRISIS

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Abstract:

The article presents a conceptual approach and a system of methods for identifying and quantifying the dynamic parameters of industrial production in the pre-crisis period and during periods of "waves" of coronavirus infection in the Republic of Uzbekistan. Based on the application of methods of multivariate statistical analysis and modeling, an assessment is made of the influence of these parameters on the recovery growth of industry in Uzbekistan. Integrated indicators of production growth in the post-crisis period have been generated, taking into account the features of both short-term fluctuations in production volumes and long-term trends in dynamics by type of industrial activity.

Keywords: *turbulence, crisis, dynamics, industrial production, textile industry, mesofactors, multivariate analysis, indicator, dynamic parameter.*

INTRODUCTION

The economic literature presents works on the analysis of the financial stability of enterprises, taking into account the influence of macroeconomic conditions in specific time periods. For example, in the authors study the financial stability of metallurgical industry enterprises using mathematical models that include parameters of dynamic models of macroeconomic indicators that characterize their fluctuation over time. This provided the authors with the opportunity to take into account in the specification of models of financial stability of enterprises the special conditions of their activities in different periods of time.

The main hypothesis adopted by the authors when conducting this study was as follows: the financial stability of enterprises at the regional level is determined not only by the characteristics of the manifestation of general macroeconomic factors over time and in a given territory, but also by the specifics of mesoeconomic factors that determine the growth and cyclical dynamics of production by industry and industry. sectors of the regional economy. For textile industry enterprises in the regions of the Republic of Uzbekistan, an assessment of the influence of mesofactors on financial stability can be obtained by studying the dynamics of industrial production as a whole.

The purpose of this study is to conduct a multi-component modeling of the dynamics of industrial production in the Republic of Uzbekistan by type of economic activity based on data for the period before the crisis associated with the pandemic of a new coronavirus infection and during the coronavirus crisis to develop dynamic indicators of recovery growth and directions of state support for industrial production.

The main objective of the study is to systematize the types of industrial activity of the Republic of Uzbekistan according to the quantitative and qualitative characteristics of the multicomponent dynamics of production volumes and to identify on this basis dynamic "pre-signals" that determine the pace of recovery from the crisis and are indicators of the potential economic sustainability of individual industries in a situation of turbulence during the global economic crisis.

This study uses methods of multivariate statistical analysis and modeling and assesses the influence of these parameters on the recovery growth of industry in Uzbekistan. Multidimensional analysis methods make it possible to analyze the quantitative dependences of individual aspects of the object under study on its many characteristics. These include, in particular: cluster (taxonomic) analysis, loglinear analysis, correlation analysis, factor analysis, regression analysis and discriminant analysis. The study used correlation, factor and regression analysis. Integrated indicators of production growth in the post-crisis period have been generated, taking into account the features of both short-term fluctuations in production volumes and long-term trends in dynamics by type of industrial activity.

The conceptual basis for solving the main problem of the study is the theoretical concept of "decomposition of a time series," i.e., the identification of qualitatively unique components in the structure of a time series: trends, cyclical (including seasonal) and random fluctuations. Carrying out decomposition allows you to evaluate the specified components of a time series,

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build an adequate model of their relationship in the overall structure of the series (for example, additive or multiplicative), and make reasonable forecasts.

LITERATURE REVIEW

Research over the past twenty years on the study of production capacity, production organization in industrial enterprises and production process management has been analyzed by Y. Levin et al., A. Sebastiano et al., S. Chien et al., M. Davis et al., D. Huang et al., Jingfeng Shao et al., T. Koltai, E.V. Zarova , B.Tursunov and others .

Some of these scientists have explored the interrelated functions that describe the management of production facilities. Methodologies for assessing the efficiency of management of production capacities of textile enterprises were studied by B.O. Tursunov Uzbek professor A. Burkhanov studied the main indicators for assessing the financial security of textile enterprises, A.G. Kalandarovna et al. studied the methodological aspects of creating a system for monitoring compliance with the principles of decent work and social protection in textile enterprises. The methodology for assessing the values of the financial component of the country's economic security indicators was studied by O.D. Averchenko and other Russian scientists. Current problems of controlling the financial security of a company have been studied by a number of scientists, such as A.A. Zinovieva, N.A Kazakova, E.A. Khlevnaya and others.

An article published in The Guardian in 2020 outlined the first results of the coronavirus crisis in China. Despite the active actions of the Chinese authorities, global stocks fell in the first quarter of 2020. The FTSE 100 index closed down more than 2%, or fell 174 points, to 7,412 points. Other European markets suffered big losses as concerns grew over China's economy as it tries to recover from a long-running trade dispute with the United States. Stocks fell on Wall Street, and the Dow Jones Industrial Average fell about 400 points from its record high earlier this year.

The impact of coronavirus on the oil market was studied by Valeria Minchichova, an associate professor at the Financial University under the Government of the Russian Federation. According to her research, the coronavirus outbreak has become a "black swan" for the global oil market - an event with quite negative consequences, and extremely difficult to predict.

The scientific work of foreign scientists O. Armantier, Gizem Koşara, Rachel Pomerantza, Daphné Skandalis, Kyle Smith, Giorgio Topa, Wilbertvan der Klaauw examined the changes that occurred during the first six months of the Covid-19 pandemic in the United States. According to their study, household inflation expectations changed slowly, and mostly in the short term. The data shows an unprecedented increase in individual uncertainty about inflation, which was related in part to how respondents used the stimulus checks they received as part of the 2020 CARES Act. Scientists also found evidence of strong polarization of ideas about inflation across different demographic groups.

MATERIALS AND METHODS

In accordance with the stated conceptual approach adopted to solve the main problem of the study, the following stages of the study are identified:

1. Ensuring temporal comparability of the used source data on the dynamics of industrial production volumes. For this purpose, it is necessary to transform production volume indices of different types for 2015–2020. (see above) into series of similar (annual) data for this period.

2. Based on the transformed data on the dynamics of industrial production by type of activity, build models and evaluate the parameters of long-term trends, cyclical and seasonal components, and evaluate indices characterizing the speed and depth of entry into the crisis.

3. Systematize the types of industrial production according to the assessed dynamic characteristics (clause 1, clause 2) using the principal component method and highlight the typical characteristics of the dynamics characteristic of stable and unstable types of industrial production in crisis conditions.

4. Construct multifactor models of the dependence of the rate of production recovery on generalized factors characterizing the combination of components of the IPP time series by type of economic activity, determining the rate of production growth after the passage of the waves of the coronavirus crisis; develop indicators - "pre-signals" (predictors) of the pace of restoration of industrial production in the Republic of Uzbekistan.

RESULTS

To develop a research concept, it is necessary, first of all, to characterize the phenomenon under study. For this purpose, a graph of the dynamics of industrial production in the Republic of Uzbekistan was constructed based on monthly data for the period 2018–2020. (Fig. 1).

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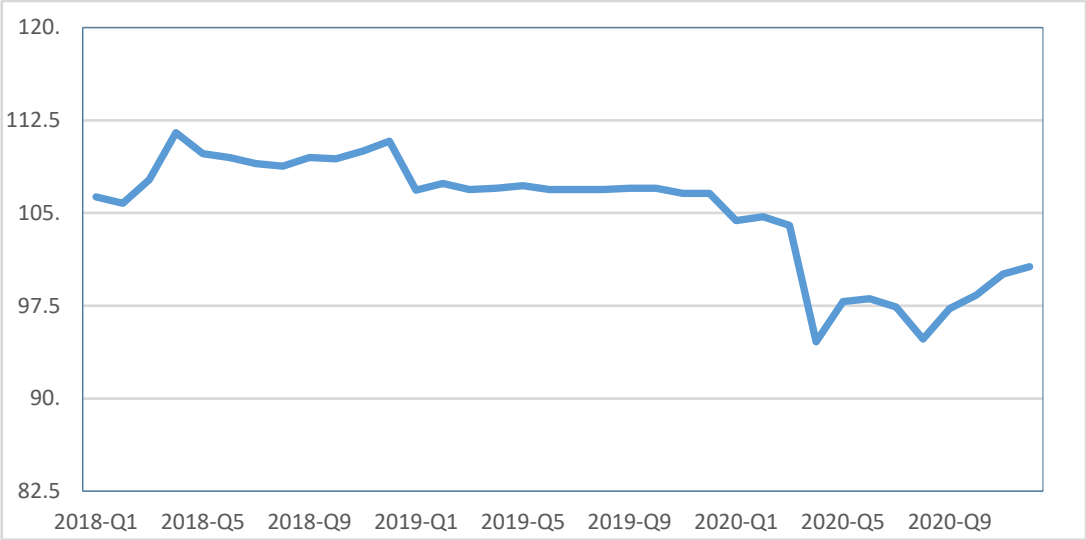

Fig 1. Growth rate of industrial production in the Republic of Uzbekistan (as a percentage of the corresponding month of the previous year).

As follows from the data in the graph presented in Fig. 2 and compiled according to operational (monthly) data, for the period from January 2018 to March 2020 there was a smooth downward trend in industrial production compared to the same periods of the previous year, which was interrupted by a sharp drop in production volumes in April 2020, and then (after a slight recovery) with another decline – in August 2020. Two "points" in the dynamics under consideration – April and August 2020 – indicate two economic "waves" of the coronavirus crisis, followed by a recovery period, and which, undoubtedly , will cause cyclic autoshocks.

Initial statistical data allows us to reveal the ambiguity of the reaction of industrial sectors to crisis conditions.

In table shows the values of the ratios of production indices for individual types of economic activity and for industry as a whole as of two time points of the maximum crisis decline (April and August 2020).

According to N.D. Lukyanchenko, typology of territories is a grouping of territories into certain types (groups) based on their common characteristics (or specific features), reflecting some essential patterns of emergence (inherent in a given territory), development and functioning. As author N.D. states in his article. Lukyanchenko and T.V. Ibragimkhalilov this article is not in the list of references; typologization contributes to a deeper understanding of the characteristics, properties, and essence of territories, allows us to trace the patterns of their development, structural changes, and also predict their further existence. Essentially, the typology of territories is the identification of the studied territories depending on their similarities and differences. Most of the authors focus on three criteria, namely: at the level of socio-economic development, development dynamism and natural-geographical conditions (borders, population, government, economic interests, budget, etc.

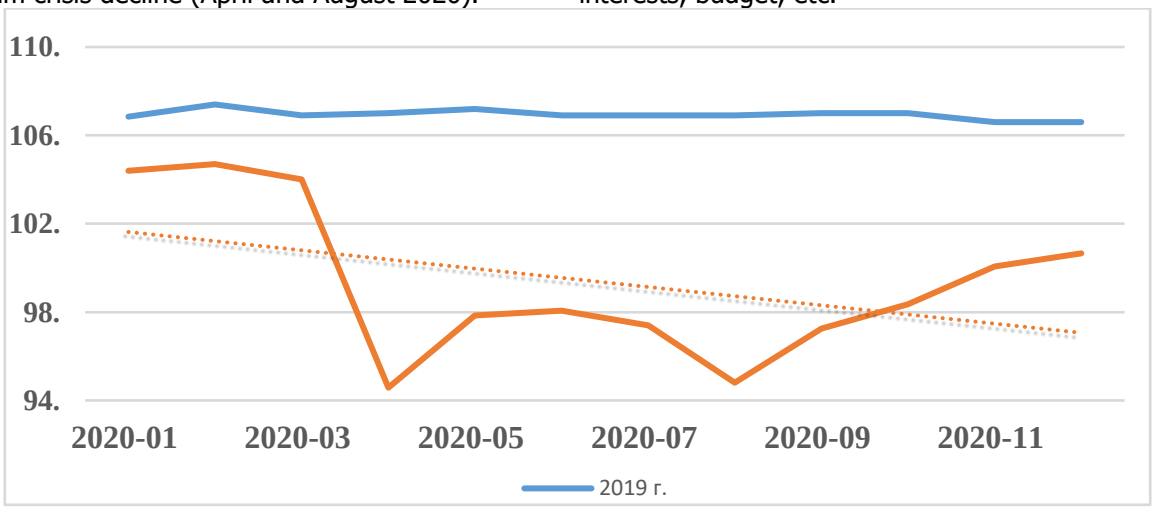

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Fig 2. Dynamics of monthly growth rates (as a percentage of the corresponding month of the previous year)

Since the situation of the global crisis associated with the new coronavirus infection is current, the number of works on modeling and forecasting economic dynamics in the literature is currently insignificant. An example is the scientific publication of the European Central Bank . The authors of this work proposed and tested, using statistical data from G7 countries, methods for modeling "COVID-19 – recession and recovery", based on constructing models of quarterly GDP dynamics with the inclusion of monthly values of industrial production indices as predictors. Noting the scientific significance and relevance of this work, one should pay attention to the fact that it does not highlight and evaluate the influence of various components of the dynamics of the studied indicators on the modeled value. The quantitative characteristics of the crisis recession and the recovery of the dynamics of macroeconomic indicators are determined by the interaction of many factors of both long-term and short-term influence . In accordance with this, it is relevant to develop and test models of post-crisis recovery of macroeconomic dynamics, based on the decomposition of time series, modeling and assessment of the contribution of their individual components to the dynamics of the recovery period. The practical significance of this work lies in the possibility of developing indicators of post-crisis recovery of individual sectors of the economy.

CONCLUSION

As follows from the results of the study, the main quantitative factors of post-crisis recovery growth of industry in the Republic of Uzbekistan in the short term are indicators of the sustainability of long-term production dynamics, as well as indicators of seasonal fluctuations for certain types of economic activity. The study made it possible to prove that the identified and assessed characteristics of the components of time series of industrial production in the Republic of Uzbekistan are reliable predictors of recovery growth in conditions of high turbulence caused by the global economic crisis associated with the COVID-19 pandemic. At the same time, the developed and tested methodology is applicable for short-term multi-component forecasting of production dynamics in the context of different types of economic activities, regardless of the specific economic situation.

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REFERENCES

1. Bidzhoyan D.S, Bogdanova T.K. Modelling the financial stability of an enterprise taking into account macroeconomic indicators // BUSINESS INFORMATICS. 2016. No. 3(37). Pp. 30–36.

2. Zarova E. Statistical Methodology for Evaluating Business Cycles with the Conditions of Their Synchronization and Harmonization, In: Statistics, Statistics - Growing Data Sets and Growing Demand for Statistics, IntechOpen. 2018. Pp. 27–48.

3. Levin Y., Nediak M., Topaloglu H.: Cargo capacity management with allotments and spot market demand // Operations Research. 2012. 60(2). Pp. 351–365. https://doi.org/10.1287/opre.1110.1023.

4. Sebastiano A., Belvedere V., Grando A., Giangreco A. The effect of capacity management strategies on employees' well-being: A quantitative investigation into the long-term healthcare industry // European Management Journal. 2017. 35(4). Pp. 563–573. ttps://doi.org/10.1016/j.emj.2016.12.001.

5. Chien C., Dou R., Fu W. Strategic capacity planning for smart production: Decision modeling under demand uncertainty // Applied Soft Computing. 2018. 68. Pp. 900–909. https://doi.org/10.1016/j.asoc.2017.06.001.

6. Davis M., Dempster M., Sethi S., Vermes D. Optimal capacity expansion under uncertainty // Advances in Applied Probability. 1987. 19(01). Pp. 156–176. https://doi.org/10.2307/1427378.

7. Huang D., Lin Z., Wei W. Optimal production planning with capacity reservation and convex capacity costs // Advances in Production Engineering & Management. 2018. 13(1). Pp. 31–43, https://doi.org/10.14743/apem2018.1.271.

8. Shao J.F., Li Y. Multi-agent production monitoring and management system for textile materials and its applications // Journal of Industrial Textiles. 2010. 40(4), Pp. 380–399. https://doi.org/10.1177/1528083710380428

9. Koltai T., Stecke K. Route-independent analysis of available capacity in flexible manufacturing systems //

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ISSN: 2749-3628,

Production and Operations Management. 2008. 17(2). Pp. 211–223. https://doi.org/10.3401/poms.1080.0017.

10. Burkhanov A., Tursunov, B.O. Main indicators of textile enterprises' financial security assessment. Vlakna a Textil 2020. 27(3). P. 35–40. http://vat.ft.tul.cz/Archive/VaT_2020_3.html.