

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ НІВЕРСИТЕТ  
ІМЕНІ СЕМЕНА КУЗНЕЦЯ**

**ЗАТВЕРДЖЕНО**  
на засіданні кафедри  
статистики і економічного  
прогнозування  
Протокол № 15 від 29.06.2023 р.



Каріна НЕМАШКАЛО

**МЕТОДИ ТА МОДЕЛІ ПРОГНОЗУВАННЯ ПРОЦЕСІВ У  
ЗОВНІШНЬОЕКОНОМІЧНІЙ ДІЯЛЬНОСТІ  
робоча програма навчальної дисципліни (РПНД)**

Галузь знань **05 Соціальні та поведінкові науки**  
Спеціальність **051 Економіка**  
Освітній рівень **другий (магістерський)**  
Освітня програма **Міжнародна економіка**

Статус дисципліни **обов'язкова**  
Мова викладання, навчання та оцінювання **англійська**

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Олена РАЄВНСВА

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Людмила ПІДДУБНА

**Харків  
2023**

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**  
**Simon Kuznets Kharkiv University of Economics**

**APPROVED**

at the meeting of the Department  
of Statistics and Economic Forecasting  
Minutes № 15, dated 29.06.2023

**"APPROVED"**  
Vice-Rector for Educational and Methodical Work



**METHODS AND MODELS OF FORECASTING PROCESSES IN FOREIGN ECONOMIC  
ACTIVITY**

**the work program of the academic disciplines**

Branch of knowledge **05 «Social and behavioral sciences»**  
Specialty **051 «Economy»**  
Educational Level **Second (Master's)**  
Educational Program **International Economics**

Type of discipline **Compulsory**  
The language of teaching, learning and rating **English**

Developer:  
Doctor of Economics,  
associate professor

Olena RAYEVNEVA

Head of Department  
of Statistics and Economic  
Forecasting

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Guarantor of the program

Olena RAYEVNEVA

Lyudmila PODDUBNA

**Kharkiv**  
**2023**

## INTRODUCTION

The development of economic relations between countries, the rapid growth of the scale of the globalization process, and the increase in the level of competition on the world market require domestic enterprises to constantly implement measures to ensure the development of their foreign economic activity (FET). The process of planning the company's activities is limited and complicated by a number of objective and subjective reasons. First of all, the enterprise does not have complete data about its current and future state and is unable to predict all the changes that may occur in the environment of its operation. Even modern enterprises that have powerful information systems and have access to valuable sources of information are unable to completely exclude uncertainty and, accordingly, fully plan their activities. Since, the elimination of uncertainty is an impossible task due to the impossibility of excluding the influence of external factors, a variety of conflicting interests and actions. Uncertainty is characterized by the vagueness of used opinions and assessments of experts, the incompleteness and inaccuracy of data on the main parameters and conditions of the forecasting object.

The greatest difficulty in forecasting the foreign economic activity of an enterprise and firm is due to the high dynamism, multifactorial nature of formation and difficult predictability of foreign economic relations. The effectiveness and probability of successful implementation of foreign economic activity depends on many factors. Therefore, there is a need for forecasting and planning of the implementation of economic development using the methods of economic and mathematical modeling.

One of the most urgent tasks facing today's leading companies engaged in foreign economic activity is the determination of the prospective strategy and tactics of the company's behavior on modern software products and online technologies in order to improve the quality of management decisions.

Modeling is the main specific method used to analyze and determine development trends of economic entities. This is of particular importance for those enterprises and organizations engaged in foreign economic activity. The development of strategy and tactics of behavior in the markets of foreign countries is a complex structured problem that requires managers to have timely knowledge of the trends in the development of the analyzed processes and to forecast the main indicators of their activity in foreign markets.

The educational discipline "Methods and models of forecasting processes in foreign economic activity" will allow you to effectively use the methods of modeling foreign economic processes, build economic and mathematical models for the description of economic processes, determine the future consequences of foreign economic activity based on the forecasting of relevant indicators, visualize the results of calculations, using modern software products and online technologies.

The goal of the educational discipline is for future specialists in the field of international activity to acquire competencies in building and using econometric models for the purpose of assessment, analysis and forecasting of complex socio-

economic systems that function in conditions of high levels of uncertainty and risk in both the national and global market economy.

The tasks of the academic discipline are:

obtaining a holistic view of the process of forecasting socio-economic phenomena; acquiring knowledge about classes of econometric methods and models describing the behavior of an object of foreign economic activity or process;

acquisition of skills for pre-processing information on the activities of organizations engaged in foreign economic activity;

acquiring skills in the development of simple and econometric forecasting models;

obtaining practical skills in predicting the behavior of organizations based on expert methods;

acquisition of management decision-making skills based on process forecasting.

The subject of the academic discipline is methods and models of forecasting foreign economic processes and the behavior of socio-economic systems.

The object of the academic discipline is the economic system, which carries out foreign economic activity and processes that reflect the main spheres of its life activity.

The results of studying and competences formed by the educational discipline are defined in the table. 1.

Table 1

Learning outcomes and competences formed by the educational discipline

<b>Результати навчання</b>	<b>Competencies that should acquire a higher education</b>
LO1	SC3
LO4	SC6, SC13
LO5	SC8
LO7	SC1
LO8	SC6
LO10	SC3
LO11	GC1, SC6
LO12	SC12, SC13
LO13	SC10, SC12, SC13
LO14	SC6, SC10, SC13
LO15	SC12, SC13
LO16	SC1, SC10, SC13
LO17	GC2, SC10

where: GC1. Ability to generate new ideas (creativity).

GC2. Ability to abstract thinking, analysis and synthesis.

SC1. The ability to apply scientific, analytical, methodical tools to justify the strategy of development of economic entities and related management decisions.

SC3. The ability to collect, analyze and process statistical data, scientific and analytical materials, which are necessary for solving complex economic problems, to

draw reasonable conclusions based on them.

SC6. The ability to formulate professional tasks in the field of economics and solve them, choosing the appropriate directions and appropriate methods for their solution, considering the available resources.

SC8. Ability to assess possible risks, socio-economic consequences of management decisions.

SC10. The ability to develop scenarios and strategies for the development of socio-economic systems.

SC12. The ability to ensure effective management of the international competitiveness of the enterprise.

SC13. Create an analytical system for assessing the effectiveness of the international economic activity of the enterprise and the degree of its adaptation to changes in the external environment.

LO1. Formulate, analyze and synthesize solutions to scientific and practical problems.

LO4. Develop socio-economic projects and a system of complex actions for their implementation, considering their goals, expected socio-economic consequences, risks, legislative, resource and other restrictions.

LO5. Adhere to the principles of academic integrity.

LO7. Choose effective methods of managing economic activity, substantiate the proposed solutions based on relevant data and scientific and applied research.

LO8. Collect, process, and analyze statistical data, scientific and analytical materials necessary for solving complex economic problems.

LO10. Apply modern information technologies and specialized software in socio-economic research and management of socio-economic systems.

LO11. Determine and critically evaluate the state and trends of socio-economic development, form and analyze models of economic systems and processes.

LO12. To substantiate management decisions regarding the effective development of economic entities, considering goals, resources, limitations, and risks.

LO13. Assess possible risks, socio-economic consequences of management decisions.

LO14. Develop scenarios and strategies for the development of socio-economic systems.

LO15. Organize the development and implementation of socio-economic projects, considering informational, methodical, material, financial and personnel support.

LO16. To substantiate the choice of the most effective management solutions and business strategies for the development of international economic activity.

LO17. Determine the most powerful factors influencing the level of international competitiveness of the enterprise (financial, human, marketing, etc.) and

apply effective methods of increasing it.

## **EDUCATIONAL DISCIPLINE PROGRAM**

### **Content of the academic discipline**

#### **Content module 1. General methodological aspects of economic forecasting of systems**

##### **Topic 1. Introduction to economic forecasting**

- 1.1. Forecasting as a means of predicting socio-economic processes.
- 1.2. System of economic forecasting, its elements.
- 1.3. Principles and functions of economic forecasting.
- 1.4. Classification of economic forecasting methods.

##### **Topic 2. Series of dynamics as a means of determining the trend of development of economic processes**

- 2.1. The concept of a series of dynamics, its components. Comparison of the levels of a series of dynamics.
- 2.2. Requirements for statistical information. Preliminary processing of empirical data.
- 2.3. The average values of the levels of the dynamics series and their numerical characteristics.
- 2.4. An analytical model of a series of dynamics.

#### **Content module 2. Methods of forecasting economic processes**

##### **Topic 3. Forecasting foreign economic processes based on the use of econometric models**

- 3.1. The concept of regression equation. The main limitations of building a regression model.
- 3.2. Construction of a univariate regression model. Assessment of statistical significance of parameters and adequacy of the model.
- 3.3. Building a multifactor forecasting model.
- 3.4. The use of models with dummy variables for forecasting foreign economic processes.

##### **Topic 4. Modeling and forecasting of multidimensional processes**

- 4.1. Modeling of spatio-temporal aggregates in the economy.
- 4.2. Forecasting complex foreign economic processes by means of structural modeling.

##### **Topic 5. Application of specific models for forecasting the course of foreign economic processes**

- 5.1. Study of the seasonal component of the economic process using the decomposition of time series.
- 5.2. Prediction of processes due to expansion in the Fourier series.

##### **Topic 6. Adaptive forecasting methods**

- 6.1. Features of short-term forecasting methods.
- 6.2. Algorithmic methods of smoothing time series.
- 6.3. Forecasting using moving averages. Brown's method. Holt's method.

The list of practical (seminar) and/or laboratory classes/tasks by academic discipline is given in the table. 2

Table 2

**List of practical (seminar) and/or laboratory classes/tasks**

<b>Title of the topic and/or task</b>	<b>Content</b>
Topic 1. Introduction to economic forecasting	Seminar session on topic 1 Laboratory work 1. "Primary data analysis" Case assignment "Practical experience of an entrepreneur"
Topic 2. Series of dynamics as a means of determining the trend of development of economic processes	Laboratory work on topic 2. "Investigation of patterns of development of foreign economic activity at the expense of statistical indicators".
Topic 3. Forecasting foreign economic processes based on the use of econometric models	Laboratory work on topic 3. "Multifactor modeling of foreign economic processes represented by qualitative and quantitative initial data"
Topic 4. Modeling and forecasting of multidimensional processes	Laboratory work on topic 4. "Panel data as a means of researching spatial-quality processes. Structural modeling of processes in the FEA".
Topic 5. Application of specific models for forecasting the course of foreign economic processes	Laboratory work on topic 5. "Determining the trend component in the original series. Forecasting foreign economic phenomena and processes taking into account cyclical fluctuations"
Topic 6. Adaptive forecasting methods	Laboratory work on topic 6. "Construction of models of short-term forecasting in the FEA"

The list of self study work by academic discipline is given in the table. 3

Table 3

**List of self study work**

<b>Title of the topic and/or task</b>	<b>Content</b>
Topic 1-6	Studying lecture material
Topic 1	Essay writing Solving a situational (case) task
Topic 2, 3, 5	Performing a practical task
Topic 1 - 6	Preparation for the exam

The number of hours of lectures, practical (seminar) and/or laboratory classes and hours of independent work are given in the work plan (technological map) for the academic discipline.

**TEACHING METHODS**

In the process of teaching an educational discipline, in order to acquire certain learning outcomes, to activate the educational process, it is envisaged to use such learning methods as:

group work (Topic 1), case technologies (Topic 1), problem lectures (Topic 2), situational tasks (Topic 1, 6), creating situations of cognitive novelty (topics 3, 6).

In person (demonstration (Topic 1-6)).

Practical (laboratory work (Topic 1-6), essay (Topic 1), case method (Topic 1, etc.).

## **ASSESSMENT FORMS AND METHODS**

In accordance with the Regulation on the work program of the academic discipline at Simon Kuznets Kharkiv National University of Economics, approved by the academic council of the university on June 29, 2023, protocol No. 7 and put into effect by the order of the rector of Simon Kuznets KhNUE dated June 29, 2023. No. 177, control measures include current and final control.

The university uses a 100-point accumulative system for evaluating the learning outcomes of students of higher education.

The current control of the academic discipline is carried out during lecture, laboratory and seminar classes and is aimed at checking the level of preparedness of the student of higher education to perform a specific job and is evaluated by the sum of points scored: the maximum sum is 60 points; the minimum amount that allows a student of higher education to pass an exam is 35 points

The final control includes the semester control and certification of the student of higher education.

Semester control is conducted in the form of a semester exam (exam). The semester exam (exam) is taken during the exam session.

The maximum number of points that a student of higher education can receive during the examination (examination) is 40 points. The minimum amount for which the exam is considered passed is 25 points.

The final grade for the academic discipline is determined by summing the points for the current and final control.

During the teaching of the academic discipline, the following control measures are used:

Current control: express survey (10 points), laboratory work (24 points), essay (5 points), situational (case) task (3 points), test tasks (18 points), etc.

Semester control: Exam (40 points).

More detailed information about the evaluation system is given in the work plan (technological map) for the academic discipline.

An example of an examination ticket and assessment criteria for an academic discipline with a form of semester examination control (exam).

### **An example of an examination task**



Simon Kuznets Kharkiv University of Economics  
The second (master's) level of higher education  
Specialty "Economics"  
Educational program "International Economy". Semester I  
Academic discipline 'Methods and models of forecasting processes in foreign  
economic activity'

**EXAMINATION TASK No 1**

*Stereotype tasks:*

1. Forecasting methods are:
  - a. sequential and mixed
  - b. functional and structured
  - c. logical-intuitive and formalized
2. According to the scale of the object, the forecasts are:
  - a. search and target
  - b. sublocal, local, superlocal and global
  - c. deterministic, stochastic and mixed
3. The system is
  - a. a composition of elements that are connected to each other
  - b. a complex of interconnected elements and their components that develop in the process of interaction
  - c. a set of components that are characterized by a common origin and are in the process of development
4. The main types of structures of socio-economic systems are the following:
  - a. network, hierarchical, matrix and with arbitrary connections
  - b. informational, physical, analog and mathematical
  - c. cognitive, hierarchical and pragmatic
5. According to the degree of determinism of the object, forecasts are:
  - a. deterministic, stochastic and mixed
  - b. search and target
  - c. quantitative and qualitative
6. The task is solved with the help of discriminant analysis
  - a. reductions
  - b. classification
  - c. regressions
7. The characteristic used to distinguish one class from another is called:
  - a. Wilks's lambda
  - b. discriminant variable
  - c. Mahalanobis distance
8. Static models describe the state of an economic object:
  - a. in retrospect
  - b. at a specific moment or period of time

c. in time

9. The basic absolute growth is equal to:

- a. sum of chain absolute increments
- b. root of the n-1 degree from the sum of absolute increments
- c. the root of the n-1 degree from the product of chain absolute increments
- d. product of chain absolute increments

10. The interval series of dynamics is:

- a. there is no right answer
- b. annual dividends paid on shares of the company, which was founded in 2000
- c. distribution of last year's profit of the company for dividends

11. A one-factor regression equation is called the dependence:

- a. where only one exogenous factor is involved
- b. between two factors – one exogenous and one endogenous
- c. all options are correct

12. The grouping of analytical indicators of changes in speed and intensity of time series does not include the group:

- a. uniform law
- b. by the index law
- c. normal law

13. Absolute growth:

- a. shows the amount of changes in the absolute level of the series in a given period in comparison with the previous certain period in the past
- b. shows the amount of absolute changes in the level of a series in a given period in comparison with the previous one or in comparison with a certain period in the past
- c. shows the amount of static changes of the series at the present time in comparison with the previous one (chain) or in comparison with some certain period in the past (baseline)

14. The data are:

information processed in a special way for decision-making

- a. the value of economic indicators, which are objects of storage
- b. a numerically expressed characteristic of any property of an economic object, process or decision

15. To estimate the parameters of a simple panel data model, the following is used:

- a. KMNK
- b. DMNK
- c. MNC

16. The range of changes in values from -1 to +1 in:

- a. determination indicator
- b. pair correlation coefficient
- c. Fisher's test

17. Panel data combine:

- a. cross sections
- b. spatial data and time series

c. spatial data and cross sections

18. Properties of complex systems include:

a. emergency

b. flexibility

c. complex structure

19. As the sample size increases, the length of the confidence interval for the individual value of the endogenous variable:

a. is decreasing

b. does not change

c. increases

20. Randomness is:

a. a partial case of uncertainty

b. a situation when information about the possible states of the system and the external environment is completely or partially missing

c. a situation when the probability of a system transition from one state to another is known

### *Diagnostic task 1*

Based on the calculations of the matrix of factor loadings shown in the figure, draw a conclusion about the obtained results of the factor analysis, if we have the following notations:

X1 - specific weight of losses from defects;

X2 - the index of reduction in the cost of production;

X3 - fund return;

X4 - coefficient of equipment variability;

X5 - labor productivity;

X6 - the specific weight of the purchased products.

Variable	Factor Loadings (Varimax) Extraction: Principal component method (Marked loadings are > 0,5)	
	Factor 1	Factor 2
X1	-0,895031	0,038570
X2	-0,797132	-0,199649
X3	0,308632	0,734529
X4	-0,758089	0,022847
X5	0,113966	-0,827884
X6	0,745916	0,156541
Expl. Var	2,395031	1,291299
Prp. Totl	0,399172	0,215216

### *Diagnostic task 2*

Comment on the results of the calculations shown in fig. 1. Give a general view of the regression model and evaluate its adequacy.

Regression Summary for Dependent Variable: Y (Spreadsheet1)						
R= ,97904761 R <sup>2</sup> = ,95853421 Adjusted R <sup>2</sup> = ,95261053						
F(3,21)=161,81 p<,00000 Std. Error of estimate: ,16986						
N=25	Beta	Std. Err. of Beta	B	Std. Err. of B	t(21)	p-level
Intercept			0,120410	0,045252	2,66086	0,014623
X1	0,111192	0,081004	0,122259	0,089067	1,37267	0,184338
X2	-0,458178	0,346341	-0,381907	0,288687	-1,32291	0,200090
X3	1,338852	0,334584	1,078752	0,269584	4,00154	0,000647

### Heuristic task

In the table 1 shows indicators of socio-economic development of Ukraine for 7 years in a quarterly section. Based on the data in Table 1, build a multiple regression model. Determine the dependent and independent variables of the model, conduct an appropriate check of the quality of the construction of the regression model. Provide reasonable conclusions based on the calculations.

Table 1

### Output data

Term	GDP, mill. hrn.	Consumer price index,%	Export, mill. hrn.	Import, mill. hrn.
1	1937,3	102,6	2339402,7	2712852,43
2	1820,2	101,2	2518534,3	3171353,67
3	2054,4	101,3	3129139,2	3872083,7
4	2029,8	100,4	2953856,7	3283634,6
5	2108	100,5	3104624,5	3632466
6	2221,8	100,3	3317653,5	3610201,2
7	2433,1	100,7	3344490,8	3686831,1
8	2030	100,2	3511110,9	3839422,4
9	2836,1	100,1	3676317,9	4147061,3
10	2567,6	100,3	3437449,5	4021637,6
11	2467,7	100,6	3344121,8	3922054
12	2358	100,8	3691002,6	5134893,1
13	2249,9	101,7	3208484,9	3700647,9
14	2049,5	101,7	3409760,2	4297569,8
15	2487,4	100,8	4108205,4	4953434,5
16	2488,3	100,6	4067299,9	4820236,3
17	2576	100,6	4083445,1	4852211,6
18	2692,1	101	4235294,1	4682039,7
19	2768,2	100,9	4258746,5	5315298,1
20	2978,5	100,1	4167498,9	4872915,4
21	3168,2	100,8	4114710,7	4851865,6
22	3230,8	101,6	4345291,8	5872680,3
23	3447,3	101,2	4450168,3	5822204
24	3027,9	101,1	4799157,8	6628819,8
25	2963,7	102,3	3663214,9	4627526,5
26	2854	101,2	4682418,3	6465057,5
27	3087,4	101,2	5444491,8	7712994,2
28	3298,8	101,4	5571314,2	7936247,4

Approved at the meeting of the Department of Statistics and Economic Forecasting, Minutes No. \_\_\_\_ of " \_\_\_\_ " \_\_\_\_20\_\_ y.

Examiner Doctor of Economics, Prof. Rayevneva O. V.

Head of department Doctor of Economics, Prof. Rayevneva O. V.

### **Exam assessment criteria**

When taking an exam in an educational discipline, a student solves 23 tasks, of which 20 are stereotypical, 2 are diagnostic, and 1 is heuristic.

The stereotypical task is valued at 20 points (each correct answer to the test is 1 point).

The diagnostic task is evaluated in 5 points on a scale:

1 point - the task is solved incorrectly, but some steps are given correctly or the task is solved with gross errors that affect the final result; 2 points – the task was completed half correctly: only a part of the calculations were carried out;

3 points – the task is completely completed, but there are insignificant inaccuracies in the calculations or there are no comments to the calculations and conclusions;

4 points – the task is fully completed, but the expediency of using one or another statistical toolkit is not substantiated or there are no conclusions based on the results of the calculations;

5 points - the task was completed correctly, it was well designed, a full justification of the calculations was provided and a thorough interpretation of the results was provided.

The heuristic task is evaluated in 10 points on the scale:

1 point – the student created only a file with raw data;

2 points – the problem is solved incorrectly, but some stages are given correctly;

3 points – the task was solved with gross errors affecting the final result of the calculations;

4 points – the task was completed half correctly: only a part of the calculations were carried out;

5 points - the task is completely completed, but there are insignificant inaccuracies in the calculations and there are no comments on the calculations and conclusions;

6 points – the task is completely completed, but no justification for the feasibility of using one or another statistical toolkit is given;

7 points – the task is correctly completed, qualitatively designed, the expediency of using one or another statistical toolkit in the analysis of the proposed situation is substantiated, but there is no economic interpretation of the results;

8 points – the task is correctly completed, qualitatively designed, the

expediency of using one or another statistical toolkit in the analysis of the proposed situation is substantiated, but the conclusions are incomplete;

9 points – the task was solved flawlessly, knowledge of the software and statistical apparatus was demonstrated, a full justification of the calculations and economic conclusions was given;

10 points - the task was completed flawlessly, without any errors, it was well designed, a comparative analysis of one or another statistical toolkit was carried out to solve practical situations, reasoned analytical conclusions and generalizations were made based on the results of the calculations.

## RECOMMENDED LITERATURE

### Main

1. Halushchak M. P., Halushchak O. Ya., Kuzhda T. I. Prohnozuvannia sotsialno-ekonomichnykh protsesiv: navch. posib. dlia ekon. spets.– Ternopil`, 2021. – 160 P.

2. Rayevnyeva O., Karpinski M., Brovko O., Falat P., Aksonova I. The Diagnostic Model For Assessing The State Of Stability Of An Industrial Enterprise // Technology of Definition and Directions of Improvement. In: Wrycza S., Maślankowski J. (eds) Digital Transformation. PLAIS EuroSymposium 2021. Lecture Notes in Business Information Processing, vol 429. Springer, Cham. 14/09/2021, Page 51-67 <https://link.springer.com/book/10.1007/978-3-030-85893-3>

3. Prohnozuvannia sotsialno-ekonomichnykh protsesiv : konsp. lektsii / uklad.: O. V. Shebanina ta in. – Mykolaiv, 2022. - 95 p.

### Additional

1. Rayevnyeva O., Brovko O., Filip S., Aksonova I., Derykhovska V. Management and modelling of the industrial enterprise's crisis situations // Problems and Perspectives in Management. – Січень 2020, V. 18, Iss. №1. – pp. 192-205. – Режим доступу: <https://www.businessperspectives.org/index.php/journals/problems-and-perspectives-in-management/issue-340/management-and-modelling-of-the-industrial-enterprise-s-crisis-situations>

2. Ryzhikova N. Trends in the development of accounting in the context of Ukraine's European integration aspirations / N. Ryzhikova, I. Serova, I. Shevchenko // Development Management. – 2022. – Vol. 20. - No. 2. – P. 26-32. – Режим доступу: <http://www.repository.hneu.edu.ua/handle/123456789/29609>

3. Rayevnyeva O. The Impact of a Sensitivity of Economic Activities on the Economic Behaviour of Enterprise / O. Rayevnyeva, S. Filip, I. Aksonova and other // Economics of Development. – 2022. – Vol. 21. - No. 3. – P. 27-39. – Режим доступу: <http://www.repository.hneu.edu.ua/handle/123456789/29607>

## **Informational resources**

1. The official website of the Main Department of Statistics in the Kharkiv region – [Electronic resource]. - Access mode: [http:// uprstat. kharkov. ukrtel.net/](http://uprstat.kharkov.ukrtel.net/),[http://uprstat. kharkov. ukrtel.net/](http://uprstat.kharkov.ukrtel.net/).
2. Official website of the Department of Statistics of the United Nations – [Electronic resource]. - Access mode: <http://unstats.un.org/unsd/default.htm>
3. Official website of the State Statistics Service of Ukraine [– [Electronic resource]. - Access mode: [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua).
4. Website of the Department of Statistics and Economic Forecasting. Information resources. – [Electronic resource]. - Access mode: <https://statistics.hneu.edu.ua/data/>