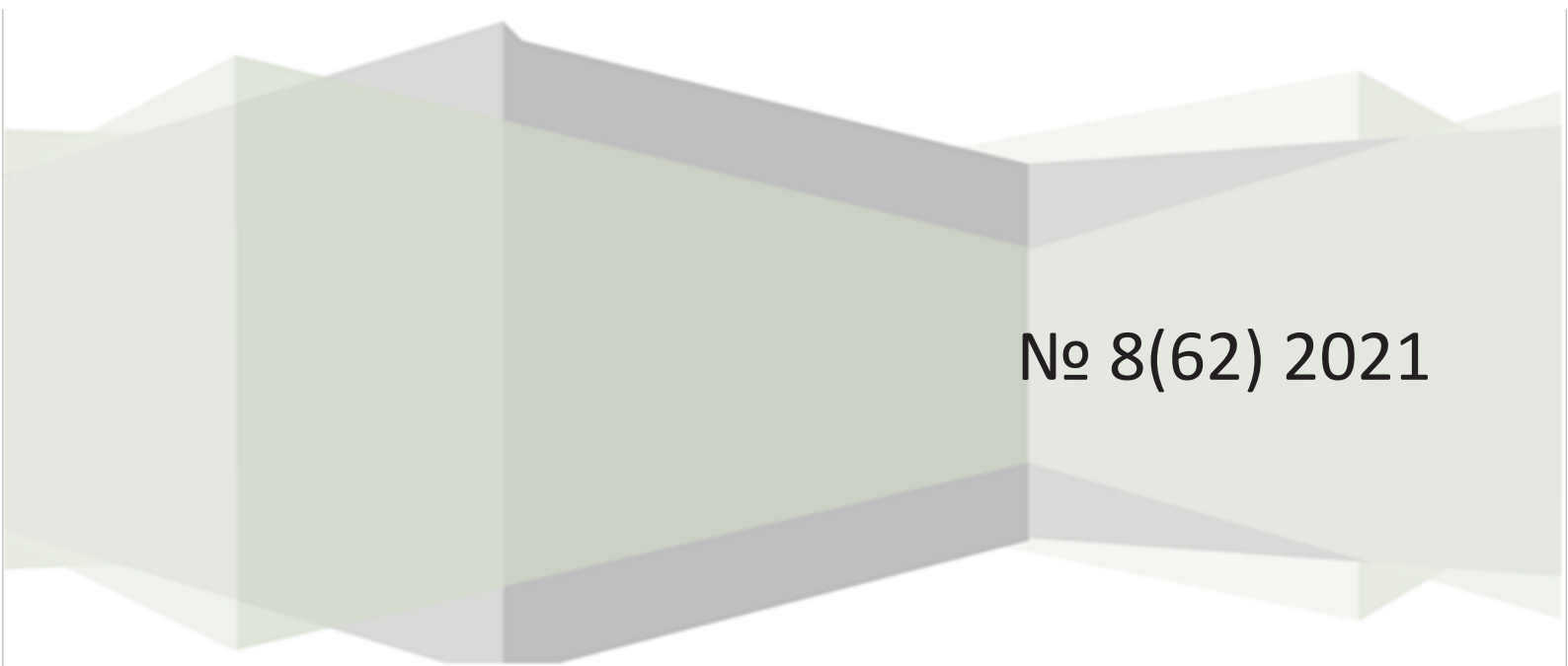


ISSN 1997-9347

Components of Scientific and Technological Progress

SCIENTIFIC AND PRACTICAL JOURNAL



No 8(62) 2021

Paphos, Cyprus, 2021

Journal "Components
of Scientific and Technological
Progress"
is published 12 times a year

Founder
Development Fund for Science
and Culture
Scientific news of Cyprus LTD

The journal "Components of Scientific
and Technological Progress" is included
in the list of HAC leading peer-reviewed
scientific journals and publications
in which the main scientific results
of the dissertation for the degree
of doctor and candidate of sciences
should be published

Chief editor
Vyacheslav Tyutyunnik

Page planner:
Marina Karina

Copy editor:
Natalia Gunina

Director of public relations:
Ellada Karakasidou

Postal address:
1. In Cyprus:
8046 Atalanta court, 302
Paphos, Cyprus
2. In Russia:
13 Shpalernaya St,
St. Petersburg, Russia

Contact phone:
(+357)99-740-463
8(915)678-88-44

E-mail:
tmbprint@mail.ru

Subscription index of Agency
"Rospechat" No 70728
for periodicals.

Information about published
articles is regularly provided to
Russian Science Citation Index
(Contract No 124-04/2011R).

Website:
<http://moofrnk.com/>

Editorial opinion may be different
from the views of the authors.
Please, request the editors'
permission to reproduce
the content published in the journal.

ADVISORY COUNCIL

Tyutyunnik Vyacheslav Mikhailovich – Doctor of Technical
Sciences, Candidate of Chemical Sciences, Professor, Director of
Tambov branch of Moscow State University of Culture and Arts,
President of the International Information Center for Nobel Prize,
Academy of Natural Sciences, tel.: 8(4752)504600,
E-mail: vmt@tmb.ru, Tambov (Russia)

Bednarzhevsky Sergey Stanislavovich – Doctor of Technical
Sciences, Professor, Head of Department of Safety, Surgut State
University, laureate of State Prize in Science and Technology,
Academy of Natural Sciences and the International Energy Academy,
tel.: 8(3462)762812, E-mail: sbed@mail.ru, Russia

Voronkova Olga Vasilyevna – Doctor of Economics, Professor,
Academy of the Academy of Natural Sciences, tel.: 8(981)9720993,
E-mail: voronkova@tambov-konfcentr.ru, St. Petersburg (Russia)

Omar Larouk – PhD, Associate Professor, National School
of Information Science and Libraries University of Lyon,
tel.: +0472444374, E-mail: omar.larouk@enssib.fr, Lyon (France)

Wu Songjie – PhD in Economics, Shandong Normal University,
tel.: +86(130)21696101; E-mail: qdwucong@hotmail.com,
Shandong (China)

Du Kun – PhD in Economics, Associate Professor, Department of
Management and Agriculture, Institute of Cooperation of Qingdao
Agrarian University, tel.: 8(960)6671587,
E-mail: tambovdu@hotmail.com, Qingdao (China)

Andreas Kyriakos Georgiou – Lecturer in Accounting, Department of
Business, Accounting & Finance, Frederick University,
tel.: (00357) 99459477 E-mail: bus.akg@frederick.ac.cy, Limassol
(Cyprus)

Petia Tanova – Associate Professor in Economics, Vice-Dean of
School of Business and Law, Frederick University,
tel.: (00357)96490221, E-mail: ptanova@gmail.com, Limassol
(Cyprus)

Sanjay Yadav – Doctor of Philology, Doctor of Political Sciences,
Head of Department of English, Chairman St. Palus College Science,
tel.: 8(964)1304135, Patna, Bihar (India)

Levanova Elena Alexandrovna – Doctor of Education, Professor,
Department of Social Pedagogy and Psychology, Dean of the Faculty
of retraining for Applied Psychology, Dean of the Faculty of Pedagogy

and Psychology of the Moscow Social and Pedagogical Institute; tel.: 8(495)6074186, 8(495)6074513; E-mail: dekanmospi@mail.ru, Moscow (Russia)

Petrenko Sergey Vladimirovich – Doctor of Technical Sciences, Professor, Head of Department of Mathematical Methods in Economics, Lipetsk State Pedagogical University, tel.: 8(4742)328436, 8(4742)221983, E-mail: viola@lipetsk.ru, viola349650@yandex.ru, Lipetsk (Russia)

Tarando Elena Evgenievna – Doctor of Economics, Professor of the Department of Economic Sociology, St. Petersburg State University, tel.: 8(812)2749706, E-mail: elena.tarando@mail.ru, St. Petersburg (Russia)

Veress József – PhD, Researcher in Information Systems Department, Business School of Corvinus University, tel.: 36 303206350, 36 1 482 742; E-mail: jozsef.veress@uni-corvinus.hu, Budapest (Hungary)

Kochetkova Alexandra Igorevna – Doctor of Philosophy and Cultural Studies (degree in organizational development and organizational behavior), PhD, Professor, Department of General and Strategic Management Institute of Business Administration of the Russian Academy of National Economy and Public Administration under the President of the Russian Federation, E-mail: dak6966@gmail.com, Moscow (Russia)

Bolshakov Sergey Nikolaevich – Doctor of Political Sciences, Doctor of Economics, Vice-Rector for Academic Affairs, Professor, Syktyvkar State University named after Pitirim Sorokin, tel.: 8(921)6334832, E-mail: snbolshakov@mail.ru, Syktyvkar (Russia)

Gocłowska-Bolek Joanna – Center for Political Analysis, University of Warsaw, tel. 48691445777, E-mail: j.gocłowska-bolek@uw.edu.pl, Warsaw (Poland)

Karakasidou Ellada – A&G, Kotanides LTD, Logistic, tel.: +99346270, E-mail: espavoellada9@gmail.com, Paphos (Cyprus)

Artyukh Angelika Alexandrovna – Doctor of Art History, Professor of the Department of Dramatic and Cinema Studies, St. Petersburg State University of Cinema and Television; tel.: +7(911)9250031; E-mail: s-melnikova@list.ru, St. Petersburg (Russia)

Melnikova Svetlana Ivanovna – Doctor of Art History, Professor, Head of the Department of Dramatic Art and Cinema Studies at the Screen Arts Institute of St. Petersburg State University of Cinema and Television; tel.: +7(911)9250031; E-mail: s-melnikova@list.ru, St. Petersburg (Russia)

Marijan Cingula – Tenured Professor, University of Zagreb, Faculty of Economics and Business, tel.: +385(95)1998925, E-mail: mcingula@efzg.hr, Zagreb (Croatia)

Pukharenko Yury Vladimirovich – Doctor of Technical Sciences, Professor, Head of the Department of Building Materials Technology and Metrology at St. Petersburg State University of Architecture and Civil Engineering, Corresponding Member of the Russian Academy of Architecture and Construction Sciences; tel.: +7(921)3245908; E-mail: tsik@spbgasu.ru, St. Petersburg (Russia)

Przygoda Mirosław – Dr. hab., Head of Institute of Economic Analysis and Planning, Department of Management, University of Warsaw, tel.: 225534167, E-mail: mirosławprzygoda@wp.pl, Warsaw (Poland)

Recker Nicholas – PhD, Associate Professor, Metropolitan State University of Denver, tel.: 3035563167, E-mail: nrecker@msudenver.edu, Denver (USA)

Contents

Economic Sciences

Fedosimov B.A. The Main Directions of the Development of New Approaches to the Functioning of the Tax System of the Russian Federation in the Digital Economy	5
Ismailov A.A. Employment of the Population and Problems of Labor Market Development.....	9
Linnikov A.S. Russian Human Capital in the Context of National Economic Competitiveness.....	13
Voronkova O.V., Semenova Yu.E. Economic Security in the Context of Import Substitution and the Presence of Foreign Companies in the Russian Market.....	20

Information Sciences

Ponamorenv I.V. Priority Issues of Information Security.....	25
---	----

Содержание

Экономические науки

Федосимов Б.А. Основные направления разработки новых подходов к функционированию налоговой системы РФ в условиях цифровой экономики.....	5
Исмаилов А.А. Занятость населения и проблемы развития рынка труда.....	9
Линников А.С. Российский человеческий капитал в контексте конкурентоспособности национальной экономики	13
Воронкова О.В., Семенова Ю.Е. Экономическая безопасность в условиях импортозамещения и присутствия иностранных компаний на рынке России	20

Информационные технологии

Понаморев И.В. Приоритетные вопросы безопасности информации.....	25
---	----

UDK 351.35

The Main Directions of the Development of New Approaches to the Functioning of the Tax System of the Russian Federation in the Digital Economy

B.A. Fedosimov

*Audit, Accounting and Tax and Financial Consulting
“Support of Russia”, Moscow (Russia)*

Key words and phrases: digital economy; digitalization; tax system; tax system; tax policy; tax administration; tax risks; approaches to the functioning of the tax system.

Abstract. The article discusses the main directions of transformation of the tax system of the Russian Federation in the context of emerging risks caused by the transition to the digital economy. The author systematized the main aspects that affect the country's tax system in the conditions of digitalization of the economy. The hypothesis of the study is that two main approaches to the transformation of the tax system in the context under study are identified: providing theoretical and methodological searches for solutions to the issue of optimizing the tax system, including elements of taxes, and aimed at developing approaches to minimize the risks of the state and, accordingly, improve the quality of tax administration, including by changing the very model of the relationship of participants in tax relations and increasing their social effect. The study used general scientific research methods. The advantages and disadvantages of these approaches are analyzed by the author through the prism of an actual discussion in modern economics.

The stability and stability of the taxation system is one of the most important components of the economic system of a modern state, playing a fundamental role in regulating the economy and financial support, directly correlating with the provision of processes and conditions of social stability. In this regard, any state in the current conditions faces the need to optimize the tax system, search for its most effective models of functioning and optimal structure. As it is known, building an optimal tax system at the same time, from a practical point of view, is a challenging task, since changing its structure, transformation in any of its elements, as well as in a large number of internal and external factors affecting it, can entail completely different consequences. Against the background of the continuous development of the state and the economy, the country's tax system cannot be static, it must be improved and constantly brought to the level of the economy, as well as contribute to its further development and improvement, which puts on the agenda in modern conditions the need for continuous modernization and

optimization of the tax systems of the countries of the world. In the context of the global transition to the information economy (the current stage of development of which is the stage of the digital economy – in connection with which we will also use the term “digital economy” in the article), the pace of these processes is noticeably increasing. The digital (information) economy is “The result of the transformational effects of new digital technologies in the field of information and communication” [1].

It should be emphasized that the information economy, which has become particularly acute at the digital stage of its development, does not fit into the framework of an outdated tax system. And this problem has affected not only our country today. In the context of the digital economy, the understanding of the essence of the economic efficiency of the national economy is being transformed, the number of types of electronic business is growing, which, taking into account the prevailing national norms, rules and standards of taxation, it is quite difficult to attract taxes, taking into account the influence of digitalization processes, traditional types of business and forms of management are changing, new enterprises and markets are emerging, traditional services and products are being transformed, other business models are beginning to prevail in the digital economy, it is difficult to understand the essence of the *modus operandi* (mode of action) of a particular type of business. The introduction of information technologies leads to the blurring of geographical and physical boundaries and opens up new prospects for economic cooperation, as well as for the growth of regional and global competitiveness.

The symbiosis of digitalization and the tax sphere stimulates the emergence of a number of new advantages and opportunities for each participant in tax relations, as well as for the national economy as a whole. Thus, for tax authorities, it is an opportunity to improve the quality of tax administration, etc. At the same time, there is the emergence of deep transformations in the system of tax relations between the state and economic entities, the blurring of the boundaries of taxation and the tax base (including due to the lack of methodological tools for determining the economically reasonable cost of new goods and services, the formation of such parameters of the tax base that cannot be assessed in traditional methods of analysis and tax policy building). There are new problems associated with the collection of corporate income tax and VAT due to the need for simultaneous administration of a large number of residents of different jurisdictions – both suppliers and consumers of products and services affected by the processes of digitalization, growing mobility, business flexibility, transfer pricing, the emergence of unique products and services, etc. And these problems are not isolated.

According to the researchers, scientific, methodological and practical discussions about the digital economy are currently still dominated by representatives in the field of information and communication sciences, experts in the field of economic activity are not yet fully ready to comprehensively and in-depth discuss this topic at a professional level. [2] This is largely due to the difficulties of applying the causal approach to the concept of value familiar to economists in the context of business digitalization. However, the main problem is methodological in nature and lies in the fact that there are quite a large number of approaches and strategies to implement the concept of the digital economy [3]. In this regard, the issue of developing and changing approaches to the functioning of the entire tax system in the context of development priorities and at the same time taking into account the global challenges of the information and digital economy is acute for all countries of the world today.

The global attention to this problem and its severity is evidenced by the fact that in the “Action Plan to Combat Tax Minimization and Profit Withdrawal” (BEPS Plan), developed in 2013 and implemented since 2014– a joint project of the OECD and the Group of Twenty [4], which includes a commitment to take measures necessary for implementation both at the national and

international level, the development of measures to solve problems in the field of taxation of the information (digital) economy occupies a primary place. It should also be noted that currently the European Commission is talking about creating a unified taxation system for companies actively integrating digital technology developments into their activities (while there are fewer companies not participating in these processes every year), and therefore countries are recommended to study existing business models of the digital economy, value chains and continuously adjust national tax rules and taxation system accordingly [5]. For Russia, where the index of digital technology adoption by companies of the international ICT Development Index (IDI) has grown by 5 points over the past 3 years [6], these trends are more than relevant.

References

1. Добрынин, А.П. Цифровая экономика – различные пути к эффективному применению технологий / А.П. Добрынин, К.Ю. Черных // International Journal of OIT. – 2016. – Vol. 4. – No. 1. – P. 4–10.
2. Рамазанов Т. Некоторые аспекты налогообложения в цифровой экономике / Т. Рамазанов // Вестник Ун-та им. О.Е. Кутафина. – 2016. – No. 6. – P. 137–141.
3. Гончаренко, Л.И. Актуальные проблемы налоговой системы в условиях цифровой экономики / Л.И. Гончаренко, Ю.В. Малкова, А.С. Адвокатова // Экономика. Налоги. Право. – 2018. – No 2. – С. 166–172.
4. OECD Presents Outputs of OECD/G20 BEPS Project for Discussion at G20 Finance Ministers Meeting // OECD.org [Electronic resource]. – Access mode : <http://www.oecd.org/ctp/oecd-presents-outputs-of-oecd-g20-beps-project-for-discussion-at-g20-finance-ministers-meeting.htm>.
5. Цифровая повестка Евразийского экономического союза до 2025 года: перспективы и рекомендации. Обзор // Группа Всемирного банка [Electronic resource]. – Access mode : <http://documents.vsemirnyjbank.org/curated/ru/413921522436739705/pdf/EAEU-Overview-Full-RUS-Final.pdf>.
6. ICT Development Index (IDI), 2019 [Electronic resource]. – Access mode : https://www.itu.int/en/ITU-D/Statistics/Documents/statistics/ITU_ICT%20Development%20Index.pdf.

Основные направления разработки новых подходов к функционированию налоговой системы РФ в условиях цифровой экономики

Б.А. Федосимов

*Комиссия по аудиту, бухгалтерскому учету
и налогово-финансовому консультированию «Опора России», г. Москва (Россия)*

Ключевые слова и фразы: налоговая политика; налоговая система; налоговое администрирование; налоговые риски; подходы к функционированию налоговой системы; система налогов; цифровая экономика; цифровизация.

Аннотация. В статье рассмотрены основные направления трансформации налоговой системы РФ в условиях возникающих рисков, обусловленных переходом к цифровой экономике. Автором осуществлена систематизация основных аспектов, оказывающих влияние на налоговую систему страны в условиях цифровизации экономики. Выделены

два основных подхода к трансформации налоговой системы в исследуемом контексте: предусматривающий теоретико-методологические поиски решения вопроса оптимизации системы налогообложения, включая элементы налогов, и направленный на разработку минимизации рисков государства и, соответственно, повышение качества налогового администрирования, в том числе посредством изменения самой модели взаимоотношений участников налоговых отношений и повышения их социального эффекта. Достоинства и недостатки данных подходов проанализированы автором через призму актуальной дискуссии в современной экономической науке.

© В.А. Fedosimov, 2021

UDK 338

Cartographic Method of Selecting Architectural Monuments for Art History Excursion Programs

A.A. Ismailov

*Kazan (Volga Region) Federal University,
Kazan (Russia)*

Key words and phrases: labor market problems; economic analysis; review of economic literature; statistical analysis; types of employment; conditions of reproduction in the labor market; consequences of unemployment.

Abstract. In order to describe the problems of the labor market and its development, the article analyzes the main types of employment, conditions of reproduction in the labor market and the consequences of unemployment. The author uses methods of economic analysis, review of economic literature, statistical analysis. As a result of the conducted scientific research, the main types and causes of unemployment were presented and identified, the conditions of occurrence and consequences of unemployment for the country's economy were described.

Employment of the population is a necessary condition for its reproduction, since the standard of living of people, the costs of society for the selection, training, retraining and advanced training of personnel, for their employment, for material support of people who have lost their jobs depend on it.

The problems of the labor market and employment of the population in Russia are complex and contradictory. Here, both general patterns taking place in different countries of the world and processes and phenomena specific to our state are manifested.

Achieving a high level of employment is one of the main goals of the state's macroeconomic policy. The economic system, which creates an additional number of jobs, sets the task of increasing the amount of public product and thereby meeting the material needs of the population to a greater extent. With incomplete use of available labor resources, the system works without reaching the limit of its production capabilities. Unemployment also causes considerable damage to people's vital interests, preventing them from applying their skills in the kind of activity in which a person can best express himself, or depriving them of such an opportunity, which is why people suffer serious psychological stress. From the above, it can be concluded that the indicators of employment and unemployment are among the key indicators of macroeconomics, which serve to assess the effectiveness and identify the main trends in the functioning and development of market relations in the context of the general state of the country's economy.

Employment is the activity of the able-bodied population associated with the production

of material and spiritual goods in order to meet personal and social needs, which does not contradict the legislation of the Russian Federation and brings earnings, labor income.

Quantitatively, employment is characterized by the level of employment, i.e. the ratio of the number of employed to the number of economically active population (as a percentage).

Citizens are considered to be employed:

- working under an employment contract (contract), including those performing paid work on a full-time or part-time basis, as well as having other paid work (service), including seasonal, temporary work;
- engaged in entrepreneurial activity;
- engaged in subsidiary trades and selling products under contracts;
- members of production cooperatives (artels), as well as those performing work under civil law contracts (contract agreements);
- elected, appointed or approved for a paid position;
- undergoing military service, as well as service in the internal affairs bodies;
- full-time students in general education institutions, institutions of primary vocational, secondary vocational and higher vocational education and other educational institutions, including training in the direction of the federal state employment service;
- temporarily absent from the workplace due to disability, vacation, retraining, advanced training, suspension of production caused by a strike or other reasons;
- who are founders (participants) of organizations other than public, religious, charitable.

Employment can be: full, productive, socially useful, rational, effective.

With full employment, all able-bodied citizens who wish have an objective opportunity to have a paid job, while the unemployment rate is equal to the natural one.

Rational employment is a kind of full-time employment, assuming a qualitative correspondence of employees and the jobs they occupy.

With productive employment, the population is employed in public production, this is the employed part of the economically active population, which corresponds to the methodology of the International Labor Organization.

Socially useful employment is characterized by the activities of people who work in public production, serve in the armed forces and internal troops (in internal affairs bodies), study full-time (at working age), are engaged in household management, caring for children and sick relatives.

Effective employment is the use of labor resources in which the maximum material result and social effect are achieved with minimal labor costs (including working time), with minimal social costs.

The structure of employment is a set of proportions in the use of the labor force of society (economically active population), which are determined by the ratios between:

- the number of employed and unoccupied labor resources;
- the number of employed, distributed by type of employment;
- the number of people employed in the production and non-production spheres;
- the number of people employed in the branches of material production;
- the number of people employed in non-production sectors;
- the number of employees by regions and territories of the country;
- the number of employees in enterprises of various forms of ownership;
- the number of employed workers of various professions and specialties, as well as various types of activities.

Employment is the most important factor affecting the level and quality of life of the population. It affects unemployment, the fight against which is one of the priorities of each state. Most countries face problems of low wages and high unemployment, which negatively affects their economic development. The Russian labor market is characterized by a high unemployment rate. The paradox is the fact that at the same time the market is experiencing a shortage of qualified personnel. This situation has developed due to the relatively low level of wages.

The reasons for employment include:

- dynamic changes in the economy;
- crisis phenomena;
- decrease in the growth rate of total income;
- decrease in business activity.

Since 2019, there has been a gradual decline in the number of officially employed. Most of the unemployed are women. A large share is accounted for by urban residents. About 20 % of the unemployed are persons under the age of 25 who have no work experience. The lowest unemployment rate is typical for the Central Federal District, the North-Western District is in second place, and the Volga Region is in third. The highest unemployment rate is observed in the North Caucasus Federal District.

The main reason for unemployment is the lack of experience among the younger generation. Graduates get a job that does not require skills, so it is not paid enough. Low wages scare away young professionals. The issue of employment is central to socio-economic policy. In addition to the obvious economic advantages, employment growth removes a lot of social problems, stabilizes public sentiment. Citizens get the opportunity to improve their standard of living, use the services of credit and monetary organizations, which stimulates the country's financial system.

References

1. Rosstat. Trud i zanyatost v Rossii : statisticheskij sbornik, 2021.
2. Sidorov, V.A. Ekonomicheskaya teoriya : uchebnik dlya vuzov / V.A. Sidorov, 2018.
3. Starovojtova, L.I. Zanyatost naseleniya i ee regulirovanie / L.I. Starovojtova. – M., 2018.
4. Voronkova, O.V. Realizatsiya v Tambovskoj oblasti dopolnitelnykh meropriyatij po snizheniyu napryazhennosti na rynke truda / O.V. Voronkova // Sovremennoe obrazovanie: sodержanie, tekhnologii, kachestvo. – 2010. – T. 1. – S. 324–326.

Занятость населения и проблемы развития рынка труда

А.А. Исмаилов

*ФГАОУ ВО «Казанский (Приволжский) федеральный университет»,
г. Казань (Россия)*

Ключевые слова и фразы: виды занятости; обзор экономической литературы; последствия безработицы; проблемы рынка труда; статистический анализ; условия воспроизводства на рынке труда; экономический анализ.

Аннотация. С целью описания проблем рынка труда и его развития в статье прово-

дится анализ основных видов занятости, условий воспроизводства на рынке труда и последствий безработицы. Автор использует методы экономического анализа, обзора экономической литературы, статистического анализа. В результате проведенного научного исследования были представлены основные виды и выявлены причины безработицы, описаны условия возникновения и последствия безработицы для экономики страны.

© A.A. Ismailov, 2021

UDK 331.108.4+331.108.45; 339.137.2+339.97

Russian Human Capital in the Context of National Economic Competitiveness

A.S. Linnikov

Financial University under the Government of the Russian Federation, Moscow (Russia)

Key words and phrases: foreign economic competitiveness; human capital; innovative development; knowledge economy; national economy; overtaking development.

Abstract. The purpose of the study is to assess the impact of human capital on the foreign economic competitiveness when transiting to a new technological paradigm. The objectives are to justify the importance of the transition to the “knowledge economy” for Russia and to define its current state; to analyze the importance of human capital for a national economy as a competitiveness tool. The hypothesis is based on the assumption that the development of human capital is one of the essential conditions for the transition to an innovation-based economy. The research methods are theoretical and empirical methods, namely, scientific generalization, system analysis, deductive synthesis, logical analysis. Mathematical and statistical research methods were also used over the course of the study. The findings are as follows: it is established that the foreign economic competitiveness of Russia under the transition to new technological paradigms is determined by its ability to create and retain highly qualified personnel, as well as attract its foreign counterparts.

The modern global economy is driven by the countries that are the most capable of forming and using the knowledge, skills and competencies of their people, their ability to learn and interact included. If a country has a well-developed human capital (that it can use effectively), it can achieve a higher level of competitiveness [5].

Within post-industrial economies, information is the key economic resource; its owners are the dominant social group, while services act as the main economy sector. Meanwhile, labor remains an important factor of production, one that implies highly qualified work now. The availability of said highly qualified employees (i.e., capable of performing tasks that require not only skills, but also a creative approach and/or high social intelligence) is an important condition for the development of post-industrial states.

Thus, raising human capital is a priority task both for the government and the society overall. The Russian Federation economy, currently focused on exporting raw materials, should

reinvent itself so as to be more knowledge-based. For this to be done, four key tasks need to be achieved:

- 1) creating conditions for human capital quality improvement;
 - 2) reducing the outflow of human capital abroad;
 - 3) attracting high-quality human capital from other countries;
 - 4) creating conditions for a more effective use of human capital within the national economy.
- To achieve these tasks, a set of economic and political measures is required.

Having researched the role of human capital in Russia (from the foreign economic security standpoint), we have formulated the following comments:

- 1) the Russian Federation has substantial human resources. In spite of the difficulties of the past decades, the quality of human capital remains high;
- 2) preserving human resources and developing human capital are the principal tasks of the Russian government;
- 3) the raw material export model has exhausted itself over the past several years; further development of Russia needs to comply with the new technological order; the expectations of said order can only be met by the competencies of educated, healthy people with a long life expectancy;
- 4) the foreign political stand-off and the autarkization of the Russian economy, will lead to a dramatic decrease in opportunities for national development. Normalization of political and economic relations remains necessary and beneficial for the Russian people (as does integration into global economic processes);
- 5) solving current economic problems at the cost of insufficient government spending on human capital growth factors (i.e., social welfare, healthcare, education, and culture) will be detrimental towards the future development and competitiveness of Russia.

Since the collapse of the Soviet Union, the competitiveness of the Russian economy has declined significantly. Despite the significant shortcomings of the command-administrative economy model, it was still able to administer resources required for various large-scale geopolitical and domestic projects (albeit with varying degree of efficiency), an arms race, as well as a well-developed and fully-functional system of social welfare. As of now, many of the Soviet achievements of the fourth and fifth economic paradigms have been lost. A significant part of the Russian economy functions within the framework of the third paradigm, its raw material-based nature is generally recognized. Thus, in order to raise the economic competitiveness of Russia, a systemic social transformation becomes necessary. In other words, a large-scale and rapid change in the mode of production, technological and institutional foundations of the economy must take place.

Large-scale changes have occurred multiple times over the course of Russian history. The most striking examples are Peter the Great's reforms and the Soviet industrialization. These systemic changes were initiated by internal governing entities, but their causes were external factors – a significant gap between Russia and its competitors in terms of economic and, above all, technological development. While Peter the Great's reforms were primarily institutional in nature, transforming the technological basis of the economy was an important goal as well. Industrialization, as the term adopted in Russian historiography itself implies, was aimed at the large-scale development of the industrial sector and the introduction of new production technologies.

Radical development reforms had to be implemented under a significantly shorter period of time than in the advanced countries. The time factor has always meant that the modernization process would have to take the form of a rapid breakthrough. Thus, the Soviet government had

to search for the necessary resources through violence, forced seizure of private property and manufactured products, centralization of the economy and destruction of institutions familiar at the time. Such measures had a negative impact on the Soviet population, which was already suffering from a decreasing income, economic and social instability, and political persecution of reform opponents, mass repressions aimed at forming forced labor resources. All of this was also a detriment for human capital.

One cannot underplay the efforts of Russian reformers aimed at the development of human capital. The times of Peter the Great saw the foundations of the future Russian science and education system being laid. Between the Civil War and the Second World War, illiteracy was largely eliminated in the USSR, the healthcare system was improved, and scientific breakthroughs were achieved.

Nevertheless, rapid modernization in Russia has always been carried out “from above” in response to foreign political threats, leading to social upheavals detrimental to the Russian human capital. Nowadays, the authorities are expected to take modernization measures without causing significant damage to society and citizens, who suffered significantly during the radical economic reforms of the 1990s.

Under competition from foreign powers, Russia has two development models available, hereinafter referred to as the “innovative” and “overtaking” models. The innovative model suggests a constant search and selection of the most effective technological and institutional solutions, which are then widely used in the socio-economic system. Ultimately, this model treats revolutionary changes in the technological paradigm as the expected operating procedure, with the countries that have successfully implemented such changes becoming leaders of economic and, generally, political development on the global stage. The “innovative” development model is often accompanied by serious social contradictions and is initiated by intra-system factors, with its subjects being private structures and various public forces.

The “overtaking” model is based on searching for optimal development solutions among the existing ones, their adaptation (at best) to national conditions and their implementation “from above”. Thus, this model is intrinsically dependent, being based on the government’s desire to accelerate the economy development in order to catch up to the advanced countries. This is usually achieved by borrowing technological and, to a lesser extent, institutional solutions of the competitors.

Choosing between the “innovative” and “overtaking” strategies (along with combining tactical solutions) is always a difficult task for the government, one that requires long-term plans and systematic measures to implement said plans. Implementing modernization scenarios always has a dramatic impact on the socio-economic system, leading either to the system being modified or destroyed, with a new system “assembled” afterwards. One of the sustainability factors of socio-economic systems (and their transformation capacities) is human capital.

Human capital is a unique type of capital: a stock of physical and mental abilities of people (e.g., their knowledge, skills, motivations, etc.), aimed at creating new goods, services and knowledge. The Russian Federation has significant human resources, an advantage which has always been the key to the survival of the Russian state and its society. Unfortunately, military victories and economic breakthroughs were often achieved via great sacrifices of the populace. Nevertheless, demographic trends in Russia are currently unfavorable. Despite the short-term excess of the birth rate over the mortality rate, the situation changed for the worse again after 2015. The positive population dynamics is largely caused by immigration processes. Thus, one can observe the gradual exhaustion of the quantitative human resources as a result of the economic and social phenomena of recent decades (and demographic trends, e.g. the

decreasing birth rate). As a result, the overtaking modernization scenario, achieved by reducing human development investments and the “expenditure” of human capital, becomes extremely undesirable. It entails a further reduction of the Russian population, deterioration of its living standards and human capital.

The economic crisis caused by the systemic problems of the Russian economy, as well as the sanctions imposed against it by foreign states, has negatively affected investments in human capital. The expenditures of the consolidated federal budget on education and healthcare are clearly insufficient to implement modernization intensively.

It should be noted that with its resources having been reduced, the Russian authorities have carried out the pension reform, rising the retirement age. Measures like these, combined with insufficient education and healthcare spending, show a lack of a long-term strategy for the development and renewal of human capital. Using Russia as an example, one can observe a common negative trend for both physical and human capital investments, namely the lack of them. This lack leads to a higher depreciation of fixed assets and a lower reproduction rate of human capital. The large-scale use of outdated and worn-out production means within the Russian economy comes with a forced increase in the tenure of employment. While such measures may make it possible to prolong the relatively stable state of stagnation or weak growth of the Russian economy, they will bring serious shocks in the future.

At the same time, there is a fairly widespread opinion that the key to implementing the “overtaking” development model is the critical amount of human capital. To elaborate, this amount is seen as necessary for borrowing and distributing technologies and institutions from the “innovative” countries [1; 2]. Knowledge, skills, health and life longevity of workers are no less important than modern means of production, technologies and management decisions. Indeed, without a sufficient number of competent employees, expensive equipment will either be used inefficiently, or it will be damaged and lost. Moreover, the “innovative” development model always implies achieving a systemic effect from the functioning of highly integrated production chains, the interaction of economic sectors, the formation of new institutions and the modification of already existing ones.

Thus, even the mass acquisition of technologies and equipment abroad will not be enough to overcome the national technological lag if there is a lack of necessary labor resources. Similar problems were already present during the Soviet industrialization. Not only were the means of production purchased abroad, foreign companies carried out the design, construction and installation of equipment at the industrial “giants”. Yet, there was not enough qualified personnel at all levels among the local populace.

What is even more revealing is the case of the African states that have received technologies and equipment from abroad, but do not have sufficient human capital to use them effectively. The situation in Rwanda is a widely known example. After the liberation processes, local residents of European origin, who carried out management and maintenance in the agricultural sector – the keystone of the Rwandan economy – were deprived of many rights and left the country. As a result, the local population was unable to effectively carry out economic activities, which, along with other reasons, caused serious economic and subsequently social upheavals that ultimately ended in genocide.

Currently, in most of the “overtaking” developing countries, modernization is associated with the transition from an industrial to a post-industrial society. In post-industrial societies, information becomes vastly important as an economic resource that is subject to production, accumulation and exchange. In the form of data processed in various systems, information becomes a system-forming development factor. With the concept of cyber-physical systems as

its basis, new management circuits are being formed at various levels. It has been pointed out that the economy sectors linked to the intangible production of intellectual products and services are developing at a faster pace.

The intellectualization of economic activities based on the further development of information systems and institutional changes related to it (the shared consumption economy, “uberization”, etc.) imposes significant requirements on the level of education, skills and abilities of both workers and consumers. Consumer preferences change towards greater intellectualization of goods, while the motivation of individuals changes towards non-material incentives. There is a growing demand for highly qualified IT specialists in the Russian economy, particularly in those sectors, where the share of added value attributable to the intellectual component is increasing. Due to the wide spread of the IT industry achievements and the Internet, the general population develops its IT skills as well. Moreover, intellectual production stands out as the field where human capital is formed and used most intensively [4]. As a result, human capital, both as an economic resource and the basis of the modern consumption structure of post-industrial societies, is the foundation of an economy based on knowledge and information.

The national competitiveness indicator is a multiplicative function consisting of variables related to a variety of competitiveness factors expressed in numerical values. One of these factors is the national level of human capital development.

“The competitiveness of human resources at the global labor market and a country’s position on the global stage are determined by the success of the policies implemented within the field of human capital development. The outstanding performance of Japan, Singapore, South Korea and other Asian economies over the past decades clearly demonstrates the importance of human capital: having focused their state policies on education and science, these countries have shown a steady economic growth” [6].

Under the Michael E. Porter’s theory of national competitiveness, the role of human capital at all competitiveness stages cannot be underplayed. The first stage, driven by factors of production, suggests that labor is one of the possible factors. The abundance of cheap labor makes the national economy more competitive. At the same time, the health and education of workers should allow them to fit their positions and spend many hours in the workplace. The birth rate in such a country should be high so as to maintain high competition in the labor market and quickly replace retired workers.

It should be noted that human capital may not have a significant impact on the economic development of a country at the first stage, if natural resources are a competitiveness factor within this country. In this case, the government sees the population as the main beneficiary of obtaining natural rent, which is beneficial for the human capital development, allowing the country to proceed to the next stages. The opposite scenario will have the political and business elites supplying seeing the populace with the minimal amount of resources, one that maintains the lowest level of their well-being, while preserving political stability at the same time. In these countries, the human capital development measures are often haphazard, populist in nature and, as a result, ineffective.

At the investment-driven stage, human capital becomes an investment area, which leads to an increase in its quality. The growth of human capital leads to private initiatives being developed, as well as competition and domestic demand. The welfare of citizens is growing, which ensures the self-reproduction of human capital and support for its future development at the expense of households and businesses.

At the innovation-led stage, human capital is crucial. Innovative activities, which allow a nation to become one of the global leaders, are impossible without a significant number of

employees engaged in intellectual labor. Therefore, investment in human capital development becomes one of the most important factors of economic growth.

From the human capital theory standpoint, the wealth stage (as highlighted by M.E. Porter) is of particular interest. This stage is one of decline, when the successes achieved by the country begin to hinder further development, since upon achieving prosperity, the motivation of economic agents decreases and, using the terminology of L.N. Gumilyov, the “passionarity” of the political elite decreases. In this case, human capital may deteriorate due to a decreasing motivation of individuals to self-develop and act productively under an abundance of accumulated resources.

Under the theory of Michael E. Porter, Russia is mostly at the second competitiveness stage (with individual elements of the first being present): the Russian economy is still largely based on the export of natural resources and the extremely uneven redistribution of rental income among various groups of the population.

The Russian labor market is characterized by a relatively small involvement of workers in the “knowledge economy”, amounting to mere 17 %. This includes workers who have more than 50 % of their tasks involving analysis, improvisation, creativity, uncertain environment, goals and objectives. With the working conditions require a high level of education, a broad outlook and a long and continuous training, the employees in question are highly autonomous as decision-makers. Ideally, this kind of high-quality employees comprises managers, doctors, scientists, teachers, engineers [3].

The countries that have successfully transitioned to a knowledge-based economy, have the share of high-quality workers ranging from a quarter to half (with 22 % in South Korea, 25 % in Japan, 24 % in the USA, 29 % in Germany, 34 % in Singapore, and 45 % in the UK). Nowadays, this particular share of workers is one of the key indicators of the global competitiveness of countries. Over time, the importance of this factor will only grow [7].

With the increasing role of human capital as an important production factor in the knowledge-based economies, Russia will not be able to be competitive at the worldwide economic stage without globally competitive personnel from the “knowledge-based” category, one that will be ready to remain in the country, rather than immigrate to other states.

Thus, the competitiveness of Russia under the new industrial revolution and the change of technological paradigms is determined by the ability to create new highly qualified personnel, retain it, and attract its foreign counterparts.

References

1. Benhabib, J. Human Capital and Technology Diffusion / J. Benhabib, M.M. Spiegel // Handbook of Economic Growth. – Amsterdam, 2005. – P. 935–966.
2. Nelson, R.R. Investment in Humans, Technological Diffusion, and Economic Growth / R.R. Nelson, E.S. Phelps // American Economic Review. – 1966. – No. 56(2). – P. 69.
3. Rasmussen, J. Skills, Rules, and Knowledge / J. Rasmussen // Signals, Signs, and Symbols, and other distinctions in Human Performance models, 1983.
4. Didenko, D.V. Chelovecheskij kapital kak faktor razvitiya rossijskoj intellektualnoekonomiki v komparativnom kontekste (istoriko-ekonomicheskij analiz) : diss. ... dokt. ekonom. nauk / D.V. Didenko. – M., 2016. – S. 65.
5. Biryukova, S.S. Kak uvelichit chelovecheskij kapital i ego vklad v ekonomicheskoe i sotsialnoe razvitie / S.S. Biryukova i dr.; pod red. YA.I. Kuzminova, L.N. Ovcharovoj, L.I. Yakobsona; Nats. issled. un-t «Vysshaya shkola ekonomiki». – M. : Izd. dom Vysshaj shkoly ekonomiki, 2018. – S. 6.

6. Rossijskoe obrazovanie v kontekste indeksa chelovecheskogo kapitala // Byulleten o sfere obrazovaniya. – Analiticheskij tsentr pri Pravitelstve Rossijskoj Federatsii – С. 6 [Electronic resource]. – Access mode : <http://ac.gov.ru/files/publication/a/20277.pdf>.

7. Rossiya 2025: ot kadrov k talantam. – The Boston Consulting Group. – S. 13–14.

Российский человеческий капитал в контексте конкурентоспособности национальной экономики

А.С. Линников

ФГБОУ ВО «Финансовый университет при Правительстве Российской Федерации», г. Москва (Россия)

Ключевые слова и фразы: внешнеэкономическая конкурентоспособность; догоняющее развитие; инновационное развитие; национальная экономика; человеческий капитал; экономика знаний.

Аннотация. Цель работы – дать оценку влияния человеческого капитала на внешнеэкономическую конкурентоспособность страны в условиях перехода к новому технологическому укладу.

Задачи: обосновать важность перехода к «экономике знаний» для России и охарактеризовать его текущий статус; проанализировать значение человеческого капитала как инструмента конкурентоспособности для национальной экономики.

Гипотеза: развитие человеческого капитала является одним из важнейших условий перехода к экономике, основывающейся на инновациях.

Методы: теоретические и эмпирические, в частности, научное обобщение, системный анализ, дедуктивный синтез, логический анализ. Также в исследовании использовались математические и статистические методы исследования.

Результаты: установлено, что внешнеэкономическая конкурентоспособность России в условиях смены технологических укладов определяется возможностью создавать новые, привлекать иностранные и удерживать собственные высококвалифицированные кадры.

© A.S. Linnikov, 2021

UDK 338.22.021.1; 339.972

Economic Security in the Context of Import Substitution and the Presence of Foreign Companies in the Russian Market

O.V. Voronkova, Yu.E. Semenova

*Russian State Hydrometeorological University,
St. Petersburg (Russia)*

Key words and phrases: economic security; vendors; investment risk; competition; market monopolization; import substitution.

Abstract. The article discusses the reasons for the decline in the presence of foreign companies on the Russian market. The attempt to monopolize the market for Russian suppliers within the framework of import substitution has brought our country not only positive results, but also caused a number of negative consequences. With a monopoly, there are losses that consumers primarily bear: an increase in prices, loss of quality, lack of choice of suppliers for business. The purpose of the article is to consider this problem, analyze the main causes of its occurrence and develop recommendations for successful business development for foreign vendors in the context of import substitution. The hypothesis of the study is the assumption that there is a set of reasons that do not allow foreign companies to develop effectively. The main research methods in the article are the analysis of scientific literature and statistical data. Based on the results of the study, the authors have developed recommendations for overcoming existing negative trends.

Currently, there is a trend to reduce the presence of foreign companies on the Russian market. The number of companies created by foreigners in Russia fell by a third during the pandemic. Over the past three years, foreigners have become twice less likely to establish companies in Russia, it follows from the data of the service of information and analytical services in the field of business Kartoteka.ru, made on the basis of the Unified State Register of Legal Entities. In 2018, foreign legal entities and individuals established 2,931 companies in Russia, in 2019 – 2,247 companies (minus 23 %), in 2020 the number reached 1,443 companies (minus 36 % compared to the previous year) [4]. The trend began long before the pandemic, but intensified in 2020 against the backdrop of border closures. According to the Federal Tax Service, 214.6 thousand commercial organizations were created in Russia in 2020, including only 0.7 % of companies with foreign founders [3]. In an interview with RBC, a representative Kartoteka.ru He said that according to their data, individuals – citizens of the USA, Germany and the UK in 2020 opened only 20 companies in Russia (against 35 in 2018). Among them,

the Americans have established 7 Russian legal entities, the Germans – 12, the British – 1. Barriers to entry to the Russian market for foreign players have become a difficult obstacle. What restrictions exist, and what should a foreign company do in this situation?

Since 2014, the Russian market, once attractive to foreign companies, has begun to lose its position. Russia has so limited natural competition for foreign suppliers and manufacturers that many companies have left the market. Those who remained are the top, which determines the level of development of our country. Let's take a closer look at the new barriers to entry of foreign companies into the Russian market. The authors can identify the following main reasons.

Sanctions

Since 2014, they have affected the limited choice of work of foreigners with companies whose legal entities or individuals are included in the sanctions lists of the United States and Europe.

A jump in exchange rates

It affected the cost of goods and services of foreign production, prices increased by 2–3 times, practically depriving companies of the opportunity to compete with local producers on the price factor.

Government Orders and Ministry Orders to give preferences to Russian manufacturers when participating in tenders of companies with state assets

For example, if a Russian and a foreign supplier participate in a tender at the same price, a local company will win, since it will be considered cheaper by 15 % (order of the Ministry of Finance of Russia No. 126n). And the lists of companies that can supply software include only companies that have discovered the program code and are recognized by Russian developers.

Requirements for localization of production

Depending on the market areas, localization requirements vary from 65 to 80 % [2]. For foreign companies, this means large investments in production in the territory of the Russian Federation, which affects both the selling price of products and the company's presence in the supplier pool in general, since it takes time to build its production.

Additional accreditations and certifications, inspections of foreign vendors' productions

This barrier does not arise by industry, but specifically individually by accounts, further increasing the cost of foreign-made products.

A set of these rules and documents has defined Russia's global goal – import substitution of everything that is possible. The barrier to entry into the Russian market is so serious and constantly being tightened that many foreign companies close offices in the Russian Federation, repurpose production facilities, work only with the private sector of customers, or go to the regions. It would be wrong to say that the attempt to monopolize Russian suppliers for the Russian market has brought only positive results to our country. With a monopoly, there are

losses that are primarily borne by consumers.

First, there is an increase in prices. Despite the declared Russian composition of components in products, in fact, foreign components even of native Russian goods have a large percentage. Therefore, local manufacturers have also raised the price. Secondly, the loss of quality. Reducing the degree of natural competition is always about reducing the quality of the product. If earlier Russian cheese competed with Swiss cheese and, in order to increase its competitive share, improved the quality of products, now cheese production from Voronezh is struggling with production from Yaroslavl, where cows, their feed and milk quality are approximately the same. The main thing for our producers now is not creating demand (the state helped in this), but increasing the volume of supplies. Thirdly, the lack of choice of suppliers. Due to the closure of foreign representative offices and the withdrawal of many companies from the Russian market, buyers in some areas have to choose according to the residual principle.

Despite serious restrictions on the business of foreign companies, our country is still interesting to most of them. We have entire industries or individual types of products in which import substitution is not yet possible. The trend, of course, is moving towards Russian brands, but it still needs time. Medicine, large-scale energy, services in the oil and gas sector, operating and payment systems, wine, cars and smartphones – these are just a very short list of areas where Russians prefer foreign manufacturers or have no other offer than from them. Despite the fact that we consider our country developed, the whole world considers it developing. This means we have a lot to grow. We are just gaining momentum, entering the era of Industry 4.0, realizing the importance of ecology and energy-efficient systems and creating our own payment systems. Innovations and trends are a free niche for foreign companies to offer the Russian market technologies that have already gained experience in the world of implementation. Russia is a country of conservatives. We do not like sudden movements, follow principles and are reluctant to change habits. At the same time, the historical and socio-economic environment has made Russians “greedy” for any novelties of well-known brands [1, p. 34]. Based on this feature of the market from the point of view of marketing, world leaders-giants such as BMW, Mercedes and Apple will receive pre-orders for their new products for a long time.

Unfortunately, in view of the socio-economic and foreign policy situation, the question of a foreign company's working with the Russian Federation sounds like this: “Is the company ready to make incredible efforts to develop/maintain its position in the market and is it aware that Russia is a separate segment of Central Asia that requires an individual approach?”

If the answer is yes, then it is necessary to specify for which markets in Russia the company is ready to supply (after the analysis and assessment of barrier risks). After determining the market, consider individual segments, accounts, analyze your product policy, a map of competitors and build goals using the decomposition method. In general, the approach to sales is similar, both for local and foreign manufacturers and suppliers. Turning to specific recommendations on successful business development of foreign vendors in the context of import substitution, these include.

1. OEM partnership (OEM – Original Equipment Manufacturer) with a Russian company: it is necessary to create a product with an OEM partner so that the completion of the product with Russian spare parts fits the required level of localization of the industry.

2. Creation of its own plant in the territory of the Russian Federation or a joint venture with a Russian competitor: it is quite a time-consuming task, but the experience of such enterprises proves the effectiveness of such a business.

3. Opening of a representative office: taking into account the introduction of the draft law to the State Duma in July 2021 on the mandatory establishment of representative offices of foreign

software companies, this is one of the priorities.

4. Transition to the XaaS (Everything as a Service) sales system: this business system does not involve the installation of servers and software in the enterprise. All information is stored in the cloud, thereby minimizing the costs of the client and the company's presence in the territory of the Russian Federation. Of course, the question of cybersecurity arises. But this is solved by creating private clouds and collaborating with the client's IT department.

5. Entering new markets: due to restrictions on working with state-owned enterprises, new markets may be private sector companies where import substitution requirements are not mandatory.

6. Transition to competition at the decision level: in the current situation, the unattractiveness of the prices of foreign suppliers is obvious [5, p. 11]. To avoid direct comparison with competitors, you need to create solutions from the company's products, and compete at this level.

7. Compliance with the latest trends and creation of a unique innovative product: being an innovator of any solutions, it is always easier to take a share in the desired market. When there is no competition as such, it is much easier to sell.

8. Cost reduction: an increase in profit can be achieved not only by the volume and cost of products, but also by reducing the costs of the enterprise. We are talking about optimizing the costs of the office (possibly a remote option) and partly on staff, combining the functions of several employees into one highly qualified specialist.

The pandemic was only one of the factors that caused a drop in foreign investment in Russian businesses [6, p. 30]. Total foreign investments in Russian equity (both direct and portfolio) decreased by \$36 billion last year – the maximum since 2008 [4]. Foreign companies are now going through hard times. Perhaps in the future Russia will be able to return to natural competition without artificially created barriers in the market or, most likely, localization of production will reach the highest levels. In any case, those foreigners who will remain on the Russian market can definitely be considered suitable for our customers, because the efforts made to stay on the vendor list definitely guarantee quality and a clear knowledge of the target audience.

References

1. Desfontejnes, L.G. TSifrovaya transformatsiya biznesa v period ekonomicheskoy turbulentnosti / L.G. Desfontejnes, YU.E. Semenova // Integratsiya nauki i proizvodstva. – 2019. – № 6. – S. 33–37.

2. Drozdova, T. Pochemu inostrannye kompanii ukhodyat iz Rossii / T. Drozdova [Electronic resource]. – Access mode : https://www.e-xecutive.ru/finance/novosti-ekonomiki/1994509-pochemu-inostrannye-kompanii-uhodyat-iz-rossii?utm_campaign=3330&utm_medium=menedzhment&utm_source=email.

3. Oficialnyj sajt Kartoteka.ru [Electronic resource]. – Access mode : <https://www.kartoteka.ru>.

4. Oficialnyj sajt RBK [Electronic resource]. – Access mode : <https://www.rbc.ru/economics/01/02/2021/6012d8889a7947eca63a5ba1>.

5. Kurochkina, A.A. Trends in Changing Consumer Behavior in the Local Goods Market / A.A. Kurochkina, Yu.E. Semenova, A.M. Baranova // Components of Scientific and Technological Progress. – 2021. – № 2(56). – P. 10–13.

6. Semenova, Yu.E. Main Consumer Trends in Retail in the Context of Coronavirus /

Yu.E. Semenova, A.A. Kurochkina, O.V. Voronkova // Components of Scientific and Technological Progress. – 2020. – № 11(53). – P. 29–32.

**Экономическая безопасность в условиях импортозамещения
и присутствие иностранных компаний на рынке России**

Воронкова Ольга Васильевна

Семенова Юлия Евгеньевна

*ФГБОУ ВО «Российский государственный гидрометеорологический университет»,
г. Санкт-Петербург (Россия)*

Ключевые слова и фразы: вендоры; импортозамещение; конкуренция; монополизация рынка; риск инвестиций; экономическая безопасность.

Аннотация. В статье рассмотрены причины снижения присутствия на российском рынке иностранных компаний. Попытка монополизировать рынок для российских поставщиков в рамках импортозамещения, принесла нашей стране не только положительные результаты, но и вызвала ряд негативных последствий. При монополии есть потери, которые в первую очередь несут потребители: увеличение цен, потеря качества, отсутствие выбора поставщиков для бизнеса. Целью статьи является рассмотрение данной проблемы, анализ основных причин ее возникновения и разработка рекомендаций для успешного развития бизнеса иностранным вендорам в условиях импортозамещения. Гипотеза исследования заключается в предположении о том, что существует комплекс причин, не позволяющих эффективно развиваться иностранным компаниям. Основные методы исследования в статье – анализ научной литературы и статистических данных. По итогам исследования авторами разработаны рекомендации по преодолению существующих негативных тенденций.

© O.V. Voronkova, Yu.E. Semenova, 2021

UDK 004.056

Factors of Macroeconomic Instability in the Context of the Pandemic

I.V. Ponamorev

Russian University of Transport (MIIT), Moscow (Russia)

Key words and phrases: sources of threats to information; causing financial and material damage; ways to eliminate threats to information security.

Abstract. The purpose of the article is to classify the causes and eliminate threats to information, search for conditions to avoid financial and material damage. The study deals with the problem of ensuring information security in electronic information systems. As a result, the ways of forming information security in our country, the development of new methods in solving this problem are described.

Information security is one of the highest priority issues. Information security systems are in great demand, both among government and commercial organizations, and in the life of modern society as a whole. Electronic trading platforms and network entrepreneurs need to protect confidential information and reduce the likelihood of its theft. Most information systems are characterized by some factors that can create vulnerabilities: a large amount of information, an impressive number of users in the system who work with this information, anonymity of access, transmission of information through communication channels, as well as the possibility of "information sabotage". All these and many other factors create the task of maintaining the security of information networks.

Information security is one of the characteristics of an information system, i.e. an information system at a certain point in time has a certain state (level) of security, and information protection is a process that must be performed continuously by an information system. A secure information system can be called a system that, firstly, protects data and information from unauthorized access, secondly, is always ready to provide them to its users, and thirdly, reliably stores information and guarantees the immutability of data.

Threats related to malicious software cannot be ignored. A malicious program is any software whose purpose is to unlawfully gain access to information located on a computer, electronic media or in an information database for the purpose of spoiling or stealing data. Malicious software aimed at violating the information protection system from unauthorized access can be classified according to the following criteria.

1. A logic bomb is a tool for destroying the integrity of information. However, it is sometimes used to steal data. A logic bomb is a serious threat. As a rule, an enterprise is rarely able to cope with such an attack; this is due to the fact that such manipulations are carried out by disgruntled employees, as well as employees with special political views. From this it follows that most organizations are not ready for an unpredictable threat, where the main role is played by the human factor.

2. A Trojan horse is a program that starts to run in addition to other information security software and other software necessary for operation.

3. The virus is a special independent program. Its characteristic features are the ability to independently distribute through the system, reproduce and embed its code into third-party programs by changing data in order to execute malicious code without leaving “traces”.

4. A worm is a program that transmits its body or parts of it over the network. It does not leave copies on magnetic media and uses all possible mechanisms for transmitting themselves over the network and infecting the attacked computer.

5. Password interceptor is a software package for stealing passwords and credentials in the process of users accessing the authentication terminals of an information system.

The program does not try to bypass the information security service directly, but only attempts to take possession of credentials that allow, without arousing any suspicion, completely authorized to penetrate the information system, bypassing the information security service, which will not suspect anything. Usually, the program initiates an error during authentication, and the user, thinking that he made a mistake when entering the password, repeats entering the credentials and logs in, however, now this data becomes known to the owner of the password interceptor, and further use of the old credentials is unsafe.

There are information protection documents describing the information circulating in the information system and transmitted via communication channels, but information protection documents are continuously being supplemented and improved, although after the attackers make more and more technological breakthroughs of the information protection model, no matter how complex it may be.

The term “Encryption” means the transformation of data into a form that is not readable for humans and software systems without an encryption-decryption key. Cryptographic methods of information protection provide means of information security; therefore it is part of the concept of information security.

The most important component of the cryptographic method of information protection is the key, which is responsible for the choice of transformation and the order of its execution. A key is a sequence of characters that sets up the encryption and decryption algorithm of a cryptographic information security system.

Each such transformation is uniquely determined by a key that defines a cryptographic algorithm that ensures the protection of information and information security of an information system.

One of the fundamentals of cryptography information security is data integrity. Information protection in local networks and information protection technologies, along with confidentiality, are required to ensure the integrity of information storage. That is, the protection of information in local networks should transmit data in such a way that the data remains unchanged during transmission and storage.

In order for information security of information to ensure the integrity of data storage and transmission, tools are needed that detect any distortions of the source data, for which redundancy is attached to the source information.

Another aspect of information security at the enterprise is working with personnel. All hardware, software and information resources included in the local network of the enterprise fall within the scope of information security. The protection policy is also aimed at people working with the network, including users, subcontractors and suppliers.

Information security in Russia is considered at the level of the Information Security Doctrine,

which serves as the basis for the adoption of regulations. Among the fundamental issues of the doctrine is the need for Russia's independent information presence in the international community and the choice of channels for the supply of reliable data and news, which will reduce the damage from disinformation attacks. At the present stage, various state institutions are responsible for Russia's information security, including the Federal Service for Technical and Export Control (**FSTEC**), the Federal Service for Supervision of Communications, Information Technology and Mass Communications (Roskomnadzor), specialized departments of ministries and departments, as well as the interdepartmental commission under the Security Council.

However, participants in the process of combating cyber-attacks believe that at the present stage it is necessary to combine functions and transfer them to a separate regulator at the level of the federal service with independent resources and significant powers.

The trend of development of the traditional information security market shows that it is characterized by lagging behind the IT sphere in terms of development. New technologies are emerging that provoke new threats, and after that new ways of fighting and protecting are born. Despite the fact that the level of the IT market in the Russian arena is quite inferior to the West, there is still no serious lag in the field of information security. It can be noted that both in Russia and in the West, for the most part, the same software and hardware are used – antivirus systems, firewalls, systems for preventing inter-network attacks, etc.

This is largely due to the fact that until the last moment, information security was considered by representatives of the domestic technical field, and all emerging applications of the latest technical means.

The international service provider Orange Business Services and the research company International Data Corporation (**IDC**) in February 2018 announced the analysis Corporate cybersecurity services market in Russia. As part of the companies' research, many segments were studied, such as managed security services and managed remote security services, cloud enterprise security services and consulting services.

References

1. Vidy i istochniki ugroz informatsionnoj bezopasnosti [Electronic resource]. – Access mode : http://infoprotect.net/note/vidyi_i_istochniki_ugroz_informacionnoy_bezopasnosti.
2. Savchenko, P.V. Klassifikatsiya internet veshchej kak sposob optimizatsii informatsionnoj bezopasnosti / P.V. Savchenko, K.F. Bagdasaryan // Nauka i biznes: puti razvitiya. – M. : TMB-print. – 2021. – № 9(123).
2. Bezopasnost ofisa. Sovremennye resheniya / D.A. Polukhina // Direktor po bezopasnosti: elektronnyj nauchnyj zhurnal [Electronic resource]. – Access mode : <http://www.s-director.ru/magazine/magdocs/view/136.html>.
3. Informatsionnaya sistema. Vikipediya [Electronic resource]. – Access mode : [https://ru.wikipedia.org/wiki/ Informatsionnaya_sistema](https://ru.wikipedia.org/wiki/Informatsionnaya_sistema).
4. Rol informatsionnoj bezopasnosti v sovremennom mire [Electronic resource]. – Access mode : <https://searchinform.ru/informatsionnaya-bezopasnost/osnovy-ib/ib-v-rossii-i-mire>.
5. Sajt universiteta RUT (MIIT) ROAT [Electronic resource]. – Access mode : <https://pgups.ru>.

Приоритетные вопросы безопасности информации

И.В. Понаморов

*ФГАОУ ВО «Российский университет транспорта (МИИТ)»,
г. Москва (Россия)*

Ключевые слова и фразы: источники угроз для информации; нанесение финансового, материального ущерба; способы устранения угроз информационной безопасности.

Аннотация. Целью статьи является классификация причин и устранение угроз для информации, поиск условий избежания финансового, материального ущерба. Данная работа посвящена проблеме обеспечения информационной безопасности в электронных информационных системах. В результате описаны способы формирования информационной безопасности в нашей стране, разработки новейших методов решения этой проблемы.

© I.V. Ponomorev, 2021

List of Authors

- Fedosimov B.A.** – Candidate of Economic Sciences, Associate Professor, Chairman of the Audit, Accounting and Tax and Financial Consulting “Support of Russia”, Moscow (Russia), E-mail: BorisFedosimov@gmail.com
- Федосимов Б.А.** – кандидат экономических наук, доцент, председатель комиссии по аудиту, бухгалтерскому учету и налогово-финансовому консультированию «Опора России», г. Москва (Россия), E-mail: BorisFedosimov@gmail.com
- Ismailov A.A.** – Postgraduate Student, Kazan (Volga Region) Federal University, Kazan (Russia), E-mail: tmbprint@mail.ru
- Исмаилов А.А.** – аспирант Казанского (Приволжского) федерального университета, г. Казань (Россия), E-mail: tmbprint@mail.ru
- Linnikov A.S.** – Candidate of Legal Sciences, Vice-Rector for International Cooperation, Associate Professor, Department of World Economy and International Business, Financial University under the Government of the Russian Federation, Moscow (Russia), E-mail: ASLinnikov@fa.ru
- Линников А.С.** – кандидат юридических наук, проректор по международному сотрудничеству, доцент Департамента мировой экономики и международного бизнеса Финансового университета при Правительстве Российской Федерации, г. Москва (Россия), E-mail: ASLinnikov@fa.ru
- Voronkova O.V.** – Doctor of Economics, Professor, Department of Environmental Management Economy and Accounting Systems, Russian State Hydrometeorological University; Professor, Institute of Industrial Management, Economics and Trade, Peter the Great Saint Petersburg Polytechnic University, St. Petersburg (Russia), E-mail: journal@moofrnk.com
- Воронкова О.В.** – доктор экономических наук, профессор кафедры экономики предприятия природопользования и учетных систем Российского государственного гидрометеорологического университета; профессор Института промышленного менеджмента, экономики и торговли Санкт-Петербургского политехнического университета Петра Великого, г. Санкт-Петербург (Россия), E-mail: journal@moofrnk.com
- Semenova Yu.E.** – Candidate of Economic Sciences, Associate Professor, Department of Environmental Management Economy and Accounting Systems, Russian State Hydrometeorological University, St. Petersburg (Russia), E-mail: semenjulia69@mail.ru
- Семенова Ю.Е.** – кандидат экономических наук, доцент кафедры экономики предприятия природопользования и учетных систем Российского государственного гидрометеорологического университета, г. Санкт-Петербург (Россия), E-mail: semenjulia69@mail.ru
- Ponamorev I.V.** – PhD Candidate, Russian University of Transport (MIIT), Moscow (Russia), E-mail: igor.ponamorev@icloud.com
- Понаморев И.В.** – соискатель Российского университета транспорта, г. Москва (Россия), E-mail: igor.ponamorev@icloud.com

COMPONENTS OF SCIENTIFIC AND TECHNOLOGICAL PROGRESS
№ 8(62) 2021
SCIENTIFIC AND PRACTICAL JOURNAL

Manuscript approved for print 19.08.21
Format 60.84/8
Conventional printed sheets 3.49
Published pages 1.89
200 printed copies

16+

Printed by Zonari Leisure LTD. Paphos