

UDK 339.9:338.49

*Anatolii Rybchuk, Vasyl Levkivskyi***PROSPECTS FOR FORMING THE INVESTMENT POTENTIAL
OF GLOBAL INFRASTRUCTURE PROJECTS***Анатолій Рибчук, Василь Левківський***ПЕРСПЕКТИВИ ФОРМУВАННЯ ІНВЕСТИЦІЙНОГО ПОТЕНЦІАЛУ
ГЛОБАЛЬНИХ ІНФРАСТРУКТУРНИХ ПРОЕКТІВ***Анатолій Рыбчук, Василий Левковский***ПЕРСПЕКТИВЫ ФОРМИРОВАНИЯ ИНВЕСТИЦИОННОГО ПОТЕНЦИАЛА
ГЛОБАЛЬНЫХ ИНФРАСТРУКТУРНЫХ ПРОЕКТОВ**

The article studies modern trends and perspective directions of attracting investment resources to the implementation of large-scale infrastructure projects. Various forms of infrastructure investments, which are effected by the state, the private sector, banking institutions, pension funds and insurance companies are analyzed.

Key words: *international production infrastructure; infrastructure projects; infrastructure investment; investment potential; public-private partnership.*

Fig.: 1. Tabl.: 1. Bibl.: 11.

Досліджено сучасні тенденції та перспективні напрямки залучення інвестиційних ресурсів до реалізації великомасштабних інфраструктурних об'єктів. Проаналізовано різні форми інфраструктурних інвестицій, які вкладаються державою та приватним сектором, банківськими установами, пенсійними фондами і страховими компаніями.

Ключові слова: *міжнародна виробнича інфраструктура; інфраструктурні проекти; інфраструктурні інвестиції; інвестиційний потенціал; державно-приватне партнерство.*

Рис.: 1. Табл.: 1. Бібл.: 11.

Исследованы современные тенденции и перспективные направления привлечения инвестиционных ресурсов к реализации крупномасштабных инфраструктурных проектов. Проанализированы различные формы инфраструктурных инвестиций, которые вкладываются государством и частным сектором, банковскими учреждениями, пенсионными фондами и страховыми компаниями.

Ключевые слова: *международная производственная инфраструктура; инфраструктурные проекты; инфраструктурные инвестиции; инвестиционный потенциал; государственно-частное партнерство.*

Рис.: 1. Табл.: 1. Библ.: 11.

JEL Classification: F21

Problem setting. Internationalization of economic life and the process of its further globalization led to the formation of supranational reproductive systems, which cannot operate without adequate servicing system – international production infrastructure. In addition, the operation of supranational production and its infrastructure support demanded the globalization of financial sector as well, the latter being the resource that provides for effective viability of the world economy.

Implementation of large-scale infrastructure projects requires constant supply and effective use of significant investment resources that can be replenished from both national and foreign sources. As a rule, national sources tend to dominate in the total volume of world investment, and the business sector in general, is characterized by a high level of self-financed expanded reproduction. However, the lack of internal financial resources, so required for effective operation of the reproduction process, is compensated by firms entering foreign capital markets.

Globalization of capital markets stems mainly from cross-border merge of securities markets, and to a lesser extent of direct investment, bank loans and deposits markets. Constant capital flows beyond national borders have caused deepening internationalization of production, turned international credit relations into an integral part of economic relations, and therefore, now in the third millennium international credit markets have become a funding source for supranational reproductive system and complex of servicing industries, i.e. international production infrastructure.

Analysis of the recent researches and publications. The issue of studying the prospects of formation and use of investment potential in the creation and modernization of large-scale infrastructure projects is the subject of scientific debate among domestic and foreign scientists. Thus, in particular, B. Holovash notes that among the main EU investment funds one should name: European Regional Development Fund (ERDF), which supports measures

aimed at reducing regional disparities, as well as regional industry restructuring and solving structural problems in backward regions; European Agricultural Guidance and Guarantee Fund (EAGGF), which finances a number of projects under the Common Agricultural Policy; Cohesion Fund (CF), which finances large projects of individual states related to investment in ecology and transport infrastructure [1, p. 96].

T. Cryshtal, in studying countries' investment policies, stresses that investment policy should be developed at all levels of economic activity. At the micro level, – for enterprises, financial-industrial groups, holding companies, banks and other economic agents implementing investment projects. Investment policy at regional and municipal levels of government is equally important. It should take into account the prospects of development of territorial units and their features, serve as a basis to elaborate special-purpose programs, and strategy to support the most promising projects, including the development of infrastructure sector. Investment policy should be formed not only based on the development strategy of a region, but also the priorities and resources of the state center, volume of its funds, as well as potential capacity of regional and international markets for consumer products and services [4, p. 314].

K. Karoyan draws attention to the fact that historically infrastructure projects were financed primarily by debt instruments (60–80 %), with the most commonly used tool for project funding being syndicated loans without recourse or with the right of partial recourse. Analysis of the database on infrastructure projects funding for 2015 of IJ Global Project Finance and Infrastructure showed that the share of banks amounted to almost 60 %, banks for development – 16 %, bonds – 9 % and equity – 15 %. Hereby, there was a markable trend of increasing share of bond financing, including special bonds to finance infrastructure projects [3, p. 29].

A. Godunova notes that public investment comprises about 65 %, however, the possibility of its further increase is limited by high debt load and state budget deficits. The role of private investment, accounting for 35 % of the infrastructure investment, is significantly increasing. Governments of different countries are developing incentives to attract investors and find a reasonable balance of risk and return of infrastructure projects [2].

A. Shevchenko, in analyzing investment in infrastructure facilities, indicates that infrastructure investment is attractive to institutional investors in times of economic downturn and decline in market interest rates, as it then offers comparable (and sometimes big) in terms of profitability and reliability investment tools. In terms of developed financial markets, infrastructure bonds and hybrid securities can be adapted to the needs of specific types of institutional investors, which have exclusive requirements to liquidity and profitability of securities [5].

Purpose of the article. The purpose of the article is to ground the necessity of attraction of private investment to finance industrial infrastructure facilities, development of public-private partnership.

Statement of the main material. The relationship and interdependence of the world's financial resources and international industrial infrastructure goes through forms of interaction between infrastructure elements and sources funding their development. The high level of globalization of financial resources is explained by the fact that the most mobile their part is capital, in particular. The positive result of globalization of financial means is that in modern conditions the relative “hunger” to respective resources has disappeared, therefore, in developed and developing countries capital (primarily in monetary form) is not a scarce resource. In addition, globalization also increases competition in the domestic financial markets and thereby reduces the cost of financial services. In terms of the abovementioned, is important to note that financial resources, particularly capital in monetary form, is the main condition for functioning of supranational reproduction processes and simultaneously the means to realize functions of the global economic servicing system, i.e. international production infrastructure.

The existing forms of investment and industrial cooperation, which are the foundation of global economic reproduction process, provide for the presence of such elements of global industrial infrastructure (Internet, information technologies) that at the same time ensure global financial flows. Considering the global economy as a system, it can be argued that means of communication, ensuring global financial flows, serve as global industrial infrastructure elements.

The development, expansion and modernization of the objects of global industrial infrastructure depend on investment volumes that may emerge at the expense of both state budget and private equity. Hereby, the development of science-based investment strategy in a country makes it possible to establish certain relationships between different sources of finance for infrastructure projects. Direct financing of industrial infrastructure objects from the state budget and attraction of private investment allows detecting positive and negative consequences of this process. The latter arise when a state displaces private investment, i.e. increase in public spending on the development of infrastructure objects leads to adequate cost reductions in private sector. Hereby, the effect of displacement occurs when a state finances infrastructure projects that are attractive to private equity (specific industries, oil and gas, etc.).

Foreign expertise of formation of the investment potential witnesses the use of advanced forms of cooperation between public and private sectors. The so-called types of partnerships, taking place in developed countries, help to attract possible investments for the development and modernization of production infrastructure in time. The main types of partnerships include government contracts, leases, joint ventures and concessions. Thereby, the state delegates its rights to the private sector. In recent decades, concessions have become the most widespread. This form of partnership enables adequate cooperation between the state and private equity. The latter is free in making various types of decisions on the implementation of infrastructure projects, and thus, a real possibility of sharing risks between the parties when investing into industrial infrastructure objects is created.

The minimum requirement for infrastructure investment to support economic growth is 3.5 % of global GDP or USD 57 trillion. However, in most countries infrastructure is under-financed by 20–40 %. Public investment comprises about 65 %, however, the possibility of its further increase is limited by high debt load and state budget deficits. The role of private investment, accounting for 35 % of the infrastructure investment, is significantly increasing. Governments of different countries are developing incentives to attract investors and to find a reasonable balance of risk and return of infrastructure projects [8].

For decades, many countries have not invested enough in infrastructure. This led not only to a sort of discomfort in everyday life, but (which is even worse) to emergence of barriers to economic growth. To address the infrastructure deficit requires significant cash injections; however, their search is only part of the issue facing governments. It is also necessary to reform the planning process of infrastructure facilities and supervision of their implementation. Society cannot afford to put up with projects which cost is rapidly getting out of control.

Only in order to ensure globally projected growth rates the volume of annual investment in transport, energy, telecommunication and water supply systems is necessary to be increased from USD 2.5 to 3.3 trillion and maintained at this level until 2030 [6]. However, despite the obvious need for such actions, investment in infrastructure has reduced in reality – after the 2008 global financial crisis, this phenomenon has been witnessed in 11 countries of the “Big Twenty”.

The countries’ governments could more actively attract private investment, starting with ensuring certainty in regulation and allowing investors to set tariffs that provide reasonable returns taking account of all the risks. In general, governments should take up creation of a market that would efficiently connect institutional investors seeking stable long-term income with projects that require funding.

These investors manage assets worth of about USD 120 trillion, so the issue is not in the lack of capital, but in the lack of well-prepared projects. One possible solution to this problem

ФІНАНСОВІ РЕСУРСИ: ПРОБЛЕМИ ФОРМУВАННЯ ТА ВИКОРИСТАННЯ

would be to create the regulatory and institutional framework needed to ensure consistent flows of funds from institutional investors from developed countries into projects of developing countries, where a huge number of people still needs affordable basic infrastructure [9].

Institutional investors have significant potential for investment in infrastructure, and infrastructure assets are the most suitable for investment by pension funds and insurance companies, as they are not dependent on the economic cycle and do not correlate with other asset classes, as well as have long-term and stable operating cash flow.

Increase of investment in infrastructure is a proven and reliable way to stimulate economic growth. In the short term, increased investment in infrastructure creates jobs, in the medium term, it stimulates economic growth, and in the long term, – reduces transportation costs of businesses and improves the quality of life. According to experts from the OECD, with the doubling of world GDP by 2035, the volumes of passenger air traffic for the same period will have increased by 2.5 times, cargo air traffic – three-fold, and transportation of containers – four-fold [10]. At the same time, the capacity of existing transport corridors between Asia and Europe will enable to increase cargo turnover on average by another 50 %, which will be utilized within 6–8 years. Given that the design, construction and expansion of large infrastructure facilities will take years, decisions on funding mechanisms should be made anon. According to McKinsey, an additional 1 % of GDP of infrastructure investment will create 3.4 million new jobs in India, 1.5 million jobs in the USA or 1.3 million jobs in Brazil [6].

Credit financing is a primary source of infrastructure development, particularly in the least developed countries (Table), due to the unfavorable factors of external economic and legal environments. The share of equity finance in projects of infrastructure development ranges from 1 to 30 %, with about 20 % being the most frequent. Bond financing is the most attractive for the purpose of implementation of public-private partnership (PPP) projects and is almost never used in the least developed countries. This is due to the following reasons: municipal and subfederal bonds issued in public-private partnership projects have a higher credit rating and investment attractiveness, which is particularly important in terms of developing economies; developing countries and countries with emerging financial markets cannot ensure favorable conditions for investors.

Trends in global economic development demand to create sustainable infrastructure that produces controlled effects for the three interrelated systems: economy (promote economic growth, job creation, fiscal and tax efficiency), environment (resistance to environmental risks, meet high efficiency and environmental standards) and social sector (best meet the needs of all population groups, elimination of social inequality).

Table

Financial structure of project financing and PPP in developing countries and least developed countries in 2007–2015, %

Sources of finance	2007	2008	2009	2010	2011	2012	2013	2014	2015
Project financing agreements, developing countries									
Credit	64,11	58,13	69,06	74,94	79,40	77,89	72,41	81,77	89,04
Bonds	1,41	0,52	2,06	1,24	1,46	5,92	5,71	3,70	3,65
Equity	17,90	24,55	19,38	18,90	19,76	21,61	25,82	14,61	7,24
Own sources	16,57	16,79	9,50	4,93	-0,61	-5,42	-3,94	-0,08	0,07
Project financing agreements, least developed countries									
Credit	68,24	53,64	82,24	97,70	77,94	82,72	81,69	66,34	98,84
Bonds	0,00	0,91	0,00	0,00	0,00	0,00	9,09	8,40	0,00
Equity	31,91	22,78	21,66	2,03	21,15	19,83	9,07	25,28	1,16
Own sources	-0,14	22,67	-3,90	0,27	0,91	-2,56	0,16	-0,02	0,00
Public-private partnership, developing countries									
Credit	61,37	49,08	72,31	69,60	75,02	71,37	67,35	78,80	63,56
Bonds	2,39	2,15	0,00	2,54	2,47	5,23	10,07	3,99	8,14
Equity	11,95	15,22	25,35	26,23	19,47	25,25	29,60	17,31	9,07
Own sources	24,29	33,56	2,34	1,63	3,05	-1,84	-7,02	-0,11	19,23

Source: [5].

ФІНАНСОВІ РЕСУРСИ: ПРОБЛЕМИ ФОРМУВАННЯ ТА ВИКОРИСТАННЯ

IJ Global Project financing and infrastructure Journal global overview reflects the dominance of bank credit, in broad terms (Fig.). In particular, it refers to various credit schemes for different purposes (primary, extra investment, refinancing debt, etc.) and stages of projects development. It is noteworthy that the volume of loans from financial development institutions in recent years has decreased and in 2015 slightly exceeded volumes of project bonds. The decline may be due to quality of the loan portfolio. Within some development institutions, the share of good loans does not exceed 30 % [7].

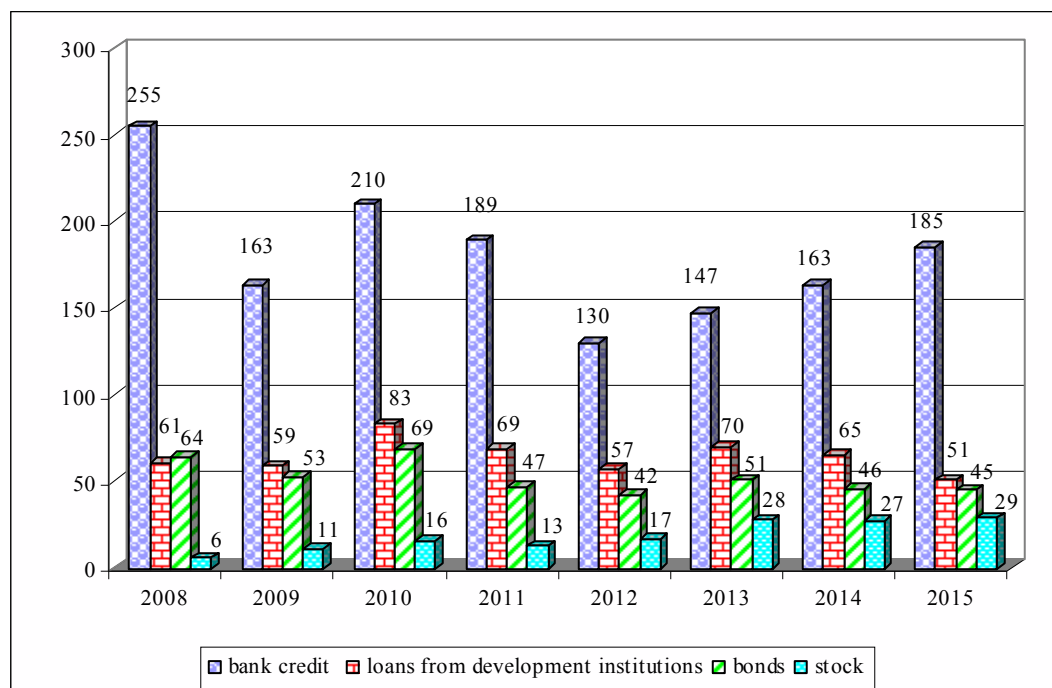


Fig. Financial instruments of global internal and external infrastructure investment, million USD
Source: [3, p. 29].

Projects usually do not necessarily have a good and predictable yield, which leads to bad debts and reduces opportunities for further expansion of the bank's credit portfolio. Another important aspect is the cycle of economic development and the corresponding risk appetite of institutional investors. For example, after the financial crisis of 2008-2009, the general trend shift of investment of pension savings from risky shares into alternative sources with less risk, including investment in infrastructure, has been traced. Such situation is more peculiar to economic nature of risk management by institutional investors that are focused on long planning horizons due to the long-term structure of their liabilities.

The study from the Bank for International Settlements (BIS) [11] also compares the volumes of syndicated project loans and infrastructure bonds. In particular, the BIS experts show that for the last 20 years syndicated lending to infrastructure projects has significantly increased both in developed and developing countries. The leaders in volume terms are countries from the Asia-Pacific region. The sharp increase in syndicated loans may be associated with post-crisis period of loose monetary policy in the analyzed countries. In this case, as well as the OECD, the BIS shows the prevalence of loans over project bonds in all the studied regions. For the purpose of more detailed analysis of proportions between tools of financing of infrastructure projects, data on more than 270 transactions in Australia, Brazil, India, Indonesia, Mexico, Peru, Turkey, Chile, actually concluded (i.e. with a signed agreement) in 2015, were analyzed. The sample of countries was formed with respect to the index of attractiveness for private infrastructure investment (Risk/Reward Index). The exception is Australia, which

ФІНАНСОВІ РЕСУРСИ: ПРОБЛЕМИ ФОРМУВАННЯ ТА ВИКОРИСТАННЯ

was chosen as the benchmark country for infrastructure investment, as being one of the centers of the use of best practices. [3, p. 33].

Conclusions. Thus, globalization poses new requirements for establishment, operation, forms of financing and utilization of infrastructure facilities that meet high standards of productivity, environmental and socio-economic efficiency. State budget deficit, rising public debt and lack of efficiency of public investment spending have cut infrastructure funding from the state and promoted involvement of private equity into projects. Initially, corporate finance was a popular form of private sector participation in infrastructure projects, where infrastructure assets are recorded on the balance sheet of a private commercial organization. This financing scheme is popular in construction of utilities, pipelines, etc. Debt capital instruments – loans and bonds – are the most significant sources of infrastructure financing and ensure the ability to take into account the characteristics of infrastructure assets.

References

1. Holovash, B.E. (2016). Investytsiynyi potensial intehratsii Ukrainy v Yevropeyskyi Soiuz [Investment potential of Ukrainian integration to the EU]. *Naukovi pratsi Poltavskoi DAA. Seriya: Ekonomichni nauky – Scientific studies of Poltava SAA. Series: Economic sciences*, issue 4, vol. 2, pp. 94–99 (in Ukrainian).

2. Hodunova, A.O. Infrastruktura Rossii v kontekste novykh finansovykh institutov [Russian infrastructure in terms of new financial institutions]. Retrieved from http://sisupr.mrsu.ru/2016-1/PDF/Godunova_A_O_2016-1.pdf.

3. Karoian, K.E. (2016). Tendentsii razvitiia mekhanizmov finansirovaniia infrastrukturykh proektov: osobennosti investytsionnykh strategii v razlichnykh stranakh [Development trends of finance mechanisms of infrastructure projects: peculiarities of investment strategies in different countries]. *Problemy rynochnoi ekonomiki – Problems of market economy*, no. 4, pp. 28–34 (in Russian).

4. Kryshchal, T.M. (2013). Teoretychni osnovy ta osoblyvosti zdiisnennia investytsiinoi polityky v infrastrukturnii sferi rehionu [Theoretical grounds and peculiarities of investment policy in the regional infrastructure area]. *Teoretychni i praktychni aspekty ekonomiky ta intelektualnoi vlasnosti: zbirnyk naukovykh prats: u 2 vyp. – Theoretical and practical aspects of economy and intellectual property: collection of scientific studies*. (Vols. 1-2), issue 1, vol. 2, pp. 314–317 (in Ukrainian).

5. Shevchenko, A.A. (2016). Istochniki i riski finansirovaniia infrastruktury [Sources and risks of financing infrastructure]. *Internet-zhurnal “NAUKOVEDENIE” – Internet-journal “Science of science”*, vol. 8, no. 6. Retrieved from <http://naukovedenie.ru/PDF/153EVN616.pdf>.

6. *Global Infrastructure: How To Fill A \$500 Billion Hole*. Retrieved from www.standardandpoors.com/ratingsdirect.

7. *IJ Global Project Finance and Infrastructure Journal*, 2015. Retrieved from <https://ijglobal.com>.

8. Infrastructure Financing Instruments and Incentives, *OECD*, 2015. Retrieved from <http://www.oecd.org/pensions/private-pensions/Infrastructure-Financing-Instruments-and-Incentives.pdf>.

9. *Infrastructure fundraising and deals first IQ 2014*. Preqin Retrieved from <https://www.preqin.com/docs/reports/Q1-2015-Infrastructure-Factsheet.pdf>.

10. *OECD Development Cooperation Report 2016: The Sustainable Development Goals as Business Opportunities*. Paris: OECD Publishing, 2016 (in English).

11. *OECD Pooling of Institutional Investors Capital - Selected Case Studies in unlisted equity infrastructure*. Paris: OECD Publishing, 2014 (in English).

References (in language original)

1. Головаш Б. Е. Інвестиційний потенціал інтеграції України в Європейський Союз / Б. Е. Головаш // Наукові праці Полтавської ДАА. Серія: Економічні науки. – 2016. – Вип. 4, т. 2. – С. 94–99.

2. Годунова А. О. Инфраструктура России в контексте новых финансовых институтов [Электронный ресурс] / А. О. Годунова. – Режим доступа : http://sisupr.mrsu.ru/2016-1/PDF/Godunova_A_O_2016-1.pdf

ФІНАНСОВІ РЕСУРСИ: ПРОБЛЕМИ ФОРМУВАННЯ ТА ВИКОРИСТАННЯ

3. Кароян К. Е. Тенденции развития механизмов финансирования инфраструктурных проектов: особенности инвестиционных стратегий в различных странах / К. Е. Кароян // Проблемы рыночной экономики. – 2016. – № 4. – С. 28–34.

4. Кришталь Т. М. Теоретичні основи та особливості здійснення інвестиційної політики в інфраструктурній сфері регіону / Т. М. Кришталь // Теоретичні і практичні аспекти економіки та інтелектуальної власності : збірник наукових праць : у 2 вип. – Маріуполь, 2013. – Вип. 1, Т. 2. – С. 314–317.

5. Шевченко А. А. Источники и риски финансирования инфраструктуры / А. А. Шевченко // Интернет-журнал «НАУКОВЕДЕНИЕ». – 2016. – Т. 8, № 6. – Режим доступа : <http://naukovedenie.ru/PDF/153EVN616.pdf>.

6. *Global Infrastructure: How To Fill A \$500 Billion Hole* [Електронний ресурс]. – Режим доступу : www.standardandpoors.com/ratingsdirect.

7. *IJ Global Project Finance and Infrastructure Journal* [Електронний ресурс]. – Режим доступу : <https://ijglobal.com>.

8. *Infrastructure Financing Instruments and Incentives*, OECD [Електронний ресурс]. – Режим доступу : <http://www.oecd.org/pensions/private-pensions/Infrastructure-Financing-Instruments-and-Incentives.pdf>.

9. *Infrastructure fundraising and deals first 1Q 2014* [Електронний ресурс] // Preqin. – Режим доступу : <https://www.preqin.com/docs/reports/Q1-2015-Infrastructure-Factsheet.pdf>.

10. *OECD Development Cooperation Report 2016: The Sustainable Development Goals as Business Opportunities*. – Paris : OECD Publishing, 2016. – 316 p.

11. *OECD Pooling of Institutional Investors Capital - Selected Case Studies in unlisted equity infrastructure*. – Paris : OECD Publishing, 2014. – 64 p.

Rybachuk Anatolii – Doctor of Economics, Professor, Head of Department of Theoretical and Applied Economics, Drohobych Ivan Franko State Pedagogical University (24 I. Franko Str., 82100 Drohobych, Ukraine).

Рибчук Анатолій Васильович – доктор економічних наук, професор, завідувач кафедри теоретичної та прикладної економіки, Дрогобицький державний педагогічний університет імені Івана Франка (вул. І. Франка, 24, м. Дрогобич, 82100, Україна).

Рыбчук Анатолий Васильевич – доктор экономических наук, профессор, заведующий кафедрой теоретической и прикладной экономики, Дрогобычский государственный педагогический университет имени Ивана Франко (ул. И. Франко, 24, г. Дрогобыч, 82100, Украина).

Levkivskiy Vasyl – Doctor of Economics, Professor, Head of Department of Socio-Economic Branches of Science, Chernihiv Taras Shevchenko National Pedagogical University (53 Hetmana Polubotka Str., 14013 Chernihiv, Ukraine).

Левківський Василь Миколайович – доктор економічних наук, професор, завідувач кафедри соціально-економічних дисциплін, Чернігівський національний педагогічний університет імені Т. Г. Шевченка (вул. Гетьмана Полуботка, 53, м. Чернігів, 14013, Україна).

Левковский Василий Николаевич – доктор экономических наук, профессор, заведующий кафедрой социально-экономических дисциплин, Черниговский национальный педагогический университет имени Т. Г. Шевченко (ул. Гетьмана Полуботка, 53, г. Чернигов, 14013, Украина).

E-mail: vasy_levkovsky@mail.ru