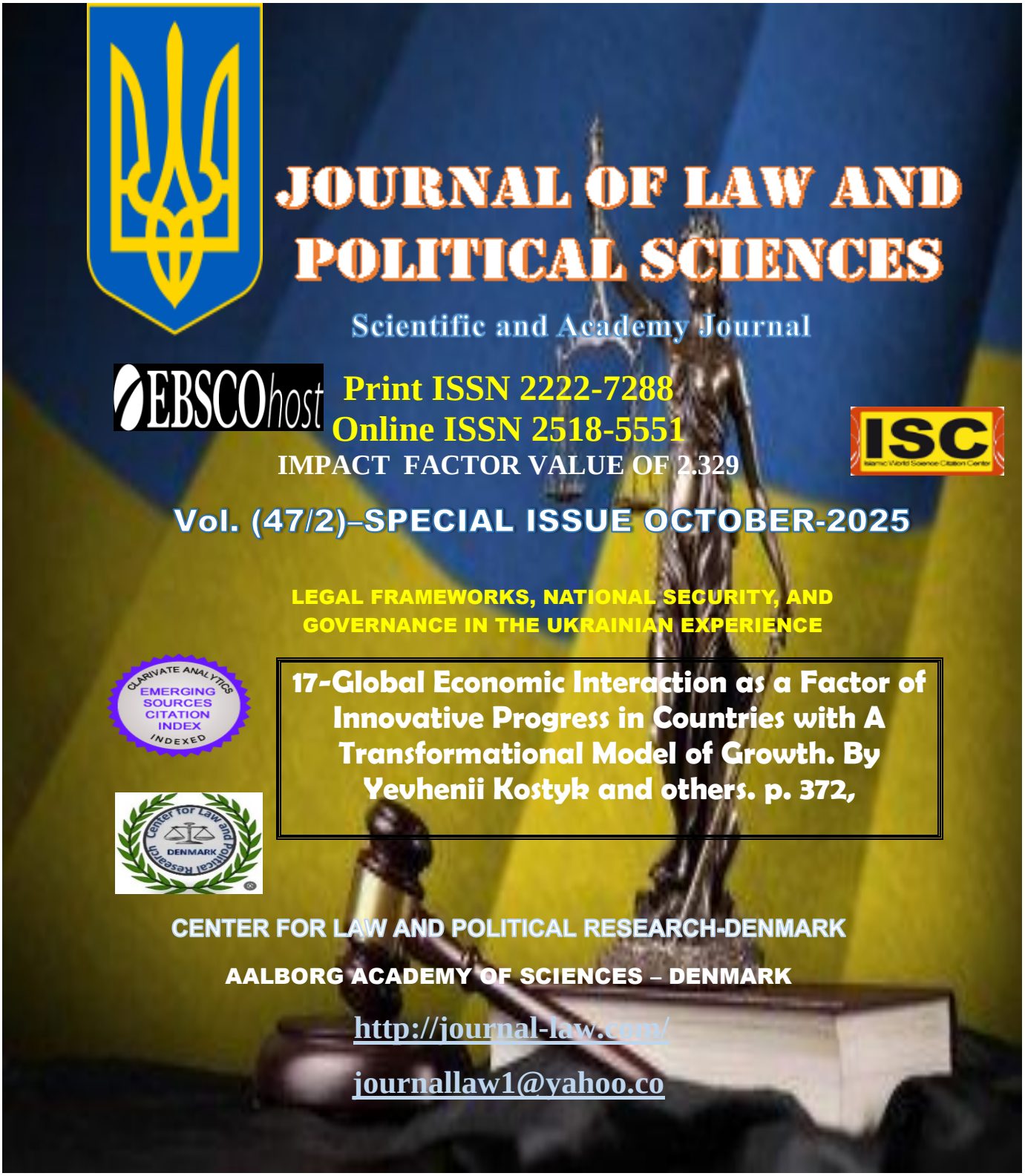

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17-Global Economic Interaction as a Factor of Innovative Progress in Countries with A Transformational Model of Growth. By Yevhenii Kostyk and others. p. 372,

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GLOBAL ECONOMIC INTERACTION AS A FACTOR OF INNOVATIVE PROGRESS IN COUNTRIES WITH A TRANSFORMATIONAL MODEL OF GROWTH

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ABSTRACT

The degree of international financial and economic integration determines the country's export capacity and the possibility of trade in innovative products. Access to global and regional markets facilitates the use of the existing innovation potential.

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The purpose of the article is to identify the relationship between the indicators of international economic relations (IER) and innovation in developing countries. The methodology of the study is based on a quantitative comparative approach to comparing the main indicators of the development of international economic relations and innovation in India, Vietnam, the Philippines, and Ukraine. The results demonstrate significant differences in the development of IER and innovation in developing countries in 2017–2024. India has the highest level of utilization of the available innovation potential with low levels of financial and economic integration. Vietnam and the Philippines have a fairly high level of innovation activity with a high level of trade openness and sustainable financial integration. As a result, these countries ensure the use of the results of created knowledge, technologies, research and development, and creative activity. Ukraine is significantly inferior in terms of utilizing its innovation potential, despite its openness to trade. The practical significance of the results lies in the possibility of their application for the formation and revision of innovation and trade policy in developing countries.

Keywords: international economic relations, intellectual business, global economy, regional economy, innovation activity, innovation potential.

1- INTRODUCTION

International economic relations play an important role in the development of innovation in developing countries, including opportunities to attract highly qualified specialists, export innovative technologies for production purposes, and exchange of experience and knowledge with other countries. Foreign trade in high-tech products, participation of developing countries in transnational value chains, and international scientific and technical cooperation ensure the transfer of knowledge and know-how as the basis for the development of intellectual capital and business.

In turn, intellectual business as a form of economic activity focused on the creation of intangible assets (research, innovation, technology) is a critical growth factor for developing countries. The establishment of the relevant business activity largely depends on external channels of cooperation: access to global and regional markets; the state of technology transfer in the country; participation in international research programs; foreign investment in innovative sectors of the economy.

The development of international economic relations makes it possible to assess the level of integration of countries into international innovation activities, the level of innovative interaction between countries and technology transfer.

The aim of the article is to identify the relationship between the state of international economic relations (IER) and innovation activity in developing countries.

2. LITERATURE REVIEW

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Over the past 2000–2024, attention has increased to the role of international economic relations in stimulating innovation in developing countries.[1] The research focuses on the interrelationships between trade and innovation, foreign direct investment (FDI) as a factor in stimulating innovation, and cooperation between states and firms in the innovation sphere. Based on a systematic analysis of scientific publications, the main areas of research are identified.

The relationship between trade, innovation, and economic growth

A number of empirical studies have shown the impact of international trade on stimulating innovation.[2] These studies prove that economic openness promotes technology transfer, productivity growth, and innovation. In particular, Sener and Delican[3] found these links based on a panel regression analysis of relevant indicators for 26 developing countries. Unidirectional causal relationships between exports and global innovation are characteristic of developing countries due to the different dynamics of foreign trade compared to developed countries. Similar conclusions are drawn from the study of the relationship between innovation and economic growth in My Thi Thi and Tran Phu Do[4] for 71 countries for the period 1996-2020. In another publication, My Thi Thi et al.[5] show a positive two-way causal relationship between technological innovation and growth in Vietnam. A high degree of economic freedom in developing countries has a positive impact on innovation.[6]

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[1] **Lema, R., Rabellotti, R., & Gehl Sampath, P. (2018). Innovation trajectories in developing countries: Co-evolution of global value chains and innovation systems. *The European Journal of Development Research, 30,* 345–363. https://doi.org/10.1057/s41287-018-0149-0;**
Zolkover, A., & Ovcharenko, P. (2024). Modelling a comprehensive assessment of the level of innovation security. *Smart Economy, Entrepreneurship and Security, 2*(1), 50–57. https://doi.org/10.60022/sis.2.(01).5

[2] **Sener, S., & Delican, D. (2019). The causal relationship between innovation, competitiveness and foreign trade in developed and developing countries. *Procedia Computer Science, 158,* 533–540. https://doi.org/10.1016/j.procs.2019.09.085;**
Shu, P., & Steinwender, C. (2019). The impact of trade liberalization on firm productivity and innovation. *Innovation Policy and the Economy, 19*(1), 39–68. https://doi.org/10.1086/699932;
Zanello, G., Fu, X., Mohnen, P., & Ventresca, M. (2016). The creation and diffusion of innovation in developing countries: A systematic literature review. *Journal of Economic Surveys, 30*(5), 884–912. https://doi.org/10.1111/joes.12126;
Smith, K. (2018). Reshaping international relations: Theoretical innovations from Africa. In *Widening the world of international relations* (pp. 142–156). Routledge. https://doi.org/10.4324/9780203702239-8;
Zolkover, A., & Ovcharenko, P. (2024). *Id.*

[3] **Sener, S., & Delican, D. (2019). *Id.***

[4] **My Thi Thi, D., & Tran Phu Do, T. (2024). The interrelationships between economic growth and innovation: International evidence. *Journal of Applied Economics, 27*(1), 2332975. https://doi.org/10.1080/15140326.2024.2332975**

[5] **My Thi Thi, D., Trinh Hoang Hong, H., & Do Phu Tran, T. (2024). Linking among economic growth, technology innovation, carbon dioxide emissions in Vietnam: Evidence from three stage least squares models. *Cogent Economics & Finance, 12*(1), 2407237. https://doi.org/10.1080/23322039.2024.2407237**

[6] **Liu, Y. Q., & Feng, C. (2023). How do economic freedom and technological innovation affect green total-factor productivity? Cross-country evidence. *Emerging Markets Finance and Trade, 59*(5), 1426–1443. https://doi.org/10.1080/1540496X.2022.2138325;**

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Shu and Steinwender,[7] based on a review of empirical studies, found a stimulating effect of trade liberalization on productivity and innovation in developing countries over the period 1960–2016. Export opportunities and access to intermediate imported products generally have a positive impact on innovation. According to Lewandowska et al.,[8] the complementarity of different types of innovation contributes to the intensity of exports of new products. On the other hand, Iqbal et al.[9] argue that international business plays a significant role in exporting innovations. Zanello et al.,[10] Zahonogo[11] found a positive impact of trade openness on economic growth in Africa and Sub-Saharan Africa. Smith[12] examines theoretical concepts of innovation in different African countries, depending on the state of economic openness (more or less isolated countries). Based on an empirical assessment of the relationship between innovation and economic growth in 32 African countries for 2006–2017, Kasongo and Makamu[13] found a stimulating effect of innovation on economic growth.

The importance of FDI in technology transfer as a channel for knowledge and innovation

A separate area of research concerns the importance of FDI in technology transfer, which is considered as a channel for transferring external knowledge and innovation, a factor in the growth of innovation activity in host countries, especially in Asia and Latin America over the period 1996–2013, including China, India, Malaysia, and Singapore.[14] These countries provide monopoly rights, tax incentives, and cost advantages for foreign investors when investing in innovation. Over the past 2000-2024, attention has increased to the role of international economic relations in stimulating innovation in developing countries.[15] The research focuses on the interrelationships between trade and innovation, foreign direct investment (FDI) as a factor in stimulating innovation, and

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Wen, J., & Okolo, C. V. (2023). Does global economic reform accentuate technological innovation? A comparative evidence around the world. *Economic Research-Ekonomska Istraživanja, 36*(3). https://doi.org/10.1080/1331677X.2023.2264371

[7] **Shu, P., & Steinwender, C. (2019). *Id.***

[8] **Lewandowska, M. S., Szymura-Tyc, M., & Gołębiowski, T. (2016). Innovation complementarity, cooperation partners, and new product export: Evidence from Poland. *Journal of Business Research, 69*(9), 3673–3681. https://doi.org/10.1016/j.jbusres.2016.03.028**

[9] **Iqbal, N., Abbasi, K. R., Shinwari, R., Guangcai, W., Ahmad, M., & Tang, K. (2021). Does exports diversification and environmental innovation achieve carbon neutrality target of OECD economies? *Journal of Environmental Management, 291*, 112648. https://doi.org/10.1016/j.jenvman.2021.112648**

[10] **Zanello, G., Fu, X., Mohnen, P., & Ventresca, M. (2016). *Id.***

[11] **Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade, 3*(1–2), 41–56. https://doi.org/10.1016/j.joat.2017.02.001**

[12] **Smith, K. (2018). *Id.***

[13] **Kasongo, A., & Makamu, T. (2024). Innovation and economic growth: An empirical analysis for African countries. *African Journal of Science, Technology, Innovation and Development, 16*(6), 751–760. https://doi.org/10.1080/20421338.2024.2382612**

[14] **Erdal, L., & Göçer, İ. (2015). The effects of foreign direct investment on R&D and innovations: Panel data analysis for developing Asian countries. *Procedia - Social and Behavioral Sciences, 195*, 749–758. https://doi.org/10.1016/j.sbspro.2015.06.469**

[15] **Lema, R., Rabellotti, R., & Gehl Sampath, P. (2018). *Id.***

cooperation between states and firms in the innovation sphere. Based on a systematic analysis of scientific publications, the main areas of research are identified.

Cooperation, networking and internationalization of small businesses

Much attention in the academic literature has been paid to the impact of internationalization of small and medium-sized enterprises (SMEs) on innovation capacity.[16] The results of an empirical study of 177 Indian firms by Singh et al.[17] demonstrate the indirect impact of R&D organizations on SMEs' innovation performance, and as a result, on economic performance. Oura et al.[18] examines the role of innovation potential of Brazilian SMEs on export performance, which is much less important compared to the international experience of firms' expansion. Similar conclusions are drawn by Love and Roper[19] on the link between SME innovation, exports, and growth.

Innovation, competitiveness and export structure

A well-researched area in the academic literature is related to the study of the relationship between innovation, high-tech exports, and global competitiveness.[20] Rajapathirana and Hui[21] consider innovation as a factor of competitiveness in the global economy. More specifically, Wang et al.[22] empirically prove the importance of export

[16] **Love, J. H., & Roper, S. (2015). SME innovation, exporting and growth: A review of existing evidence. *International Small Business Journal, 33*(1), 28–48. https://doi.org/10.1177/0266242614550190;**
Oura, M. M., Zilber, S. N., & Lopes, E. L. (2016). Innovation capacity, international experience and export performance of SMEs in Brazil. *International Business Review, 25*(4), 921–932. https://doi.org/10.1016/j.ibusrev.2015.12.002;
Wadho, W., & Chaudhry, A. (2018). Innovation and firm performance in developing countries: The case of Pakistani textile and apparel manufacturers. *Research Policy, 47*(7), 1283–1294. https://doi.org/10.1016/j.respol.2018.04.007;
Singh, R., Chandrashekar, D., Hillemane, B. S. M., Sukumar, A., & Jafari-Sadeghi, V. (2022). Network cooperation and economic performance of SMEs: Direct and mediating impacts of innovation and internationalisation. *Journal of Business Research, 148,* 116–130. https://doi.org/10.1016/j.jbusres.2022.04.032

[17] **Singh, R., Chandrashekar, D., Hillemane, B. S. M., Sukumar, A., & Jafari-Sadeghi, V. (2022). *Id.***

[18] **Oura, M. M., Zilber, S. N., & Lopes, E. L. (2016). *Id.***

[19] **Love, J. H., & Roper, S. (2015). *Id.***

[20] **Groba, F., & Cao, J. (2015). Chinese renewable energy technology exports: The role of policy, innovation and markets. *Environmental and Resource Economics, 60,* 243–283. https://doi.org/10.1007/s10640-014-9766-z;**
Sarkar, M. A., Xie, J., & Rahman, H. (2022). International cooperation and innovation: Evidence from Asian countries trade facilitation and economic cooperation. *Open Access Library Journal, 9*(7), 1–27. https://doi.org/10.4236/oalib.1108991

[21] **Rajapathirana, R. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge, 3*(1), 44–55. https://doi.org/10.1016/j.jik.2017.06.002**

[22] **Wang, L., Chang, H. L., Rizvi, S. K. A., & Sari, A. (2020). Are eco-innovation and export diversification mutually exclusive to control carbon emissions in G-7 countries? *Journal of Environmental Management, 270,* 110829. https://doi.org/10.1016/j.jenvman.2020.110829**

diversification policies for promoting green business innovation. Moughari and Daim[23] and Bayraktutan and Bıdırdı[24] focus on this issue: the authors prove that developed innovation systems have a positive impact on export structure and economic growth. In particular, Bayraktutan and Bıdırdı[25] focus on the impact of the number of patents on the exports of high- and medium-tech products in developed and developing countries for 1996-2012. As a result, it was found that patent activity is a determinant of exports of high- and medium-tech products. Moughari and Daim[26] found a significant impact on technological innovation of knowledge management, firms' production capabilities, and service innovations.

Despite significant progress in studying the role of international economic relations in stimulating innovation, there are limitations in the academic literature. Thus, most publications focus on developed middle-income countries,[27] theoretical concepts of the relationship between IER and innovation.[28] It should also be noted that recent studies do not take into account the political and economic factors of developing countries that affect IER and innovation. In view of this, the scientific interest and value of studying innovation in developing countries is growing.

3. METHOD

The methodology of the study is based on a quantitative comparative approach to a comprehensive analysis and comparison of developing countries in terms of the level of development of international economic relations and innovation potential, the prevailing internal conditions for innovation activity, and the impact of IER on innovation activity.

Correlation analysis based on the Pearson correlation coefficient is used to identify the relationship between the degree of global economic integration and innovation activity. The statistical significance of the relationship between the GEM indicators and the indicators of innovation activity is tested using the p-value (not more than 0.01). The correlation coefficient was calculated separately for each country, taking into account differences in economic integration and innovation activity, for 2000–2023. The availability and accessibility of data for 2000–2023 was taken into account when selecting indicators for correlation analysis.

The criteria for selecting the sample of developing countries included the following indicators according to the International Monetary Fund classification:

[23] **Moughari, M. M., & Daim, T. U. (2023). Developing a model of technological innovation for export development in developing countries.** ***Technology in Society, 75,*** **102338. https://doi.org/10.1016/j.techsoc.2023.102338**

[24] **Bayraktutan, Y., & Bıdırdı, H. (2018). Innovation and high-tech exports in developed and developing countries.** ***Journal of International Commerce, Economics and Policy, 9*****(3), 1850011. https://doi.org/10.1142/S1793993318500114**

[25] **Bayraktutan, Y., & Bıdırdı, H. (2018).** ***Id.***

[26] **Moughari, M. M., & Daim, T. U. (2023).** ***Id.***

[27] **Lema, R., Rabellotti, R., & Gehl Sampath, P. (2018).** ***Id.***

[28] **Lema, R., Rabellotti, R., & Gehl Sampath, P. (2018).** ***Id.***

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average income per capita; the state of export diversification and consideration of the structure of the developing country's economy; the degree of participation in the international financial system in terms of foreign direct investment (FDI).

The selection of developing countries also takes into account the average income per capita according to the World Bank methodology, the state of the developing country's innovation potential according to the Global Innovation Index 2024.[29] As a result, countries with lower-than-average incomes (below USD 3,895) and higher incomes among the lowest-income countries (above USD 995) were selected.[30] These countries include: India, Vietnam, the Philippines, and Ukraine, which were among the leaders in the Global Innovation Index 2024.

Additional criteria for the comparative analysis of the development of IE in developing countries included: the share of trade in GDP to identify differences in the level of international economic integration; the share of high-tech exports in total exports; and net foreign direct investment (FDI) inflows into the economies of the countries.

For a comparative analysis of the state of innovation, the countries with the highest degree of innovation capacity in 2024 according to the Global Innovation Index among developing countries were selected: India, the Philippines, Vietnam, and Ukraine. For the comparison, the comparative analysis tool of the World Intellectual Property Organization was used, which allowed to identify the main factors of innovation development.[31] The research methodology is based on a quantitative comparative approach to a comprehensive analysis and comparison of developing countries in terms of the level of development of international economic relations and innovation potential, the prevailing internal conditions for innovation activity, and the impact of IER on innovation activity (Table 1).

Correlation analysis based on the Pearson correlation coefficient is used to identify the relationship between the degree of global economic integration and innovation activity. The statistical significance of the relationship between the GEM indicators and the indicators of innovation activity is tested using the p-value (not more than 0.01). The correlation coefficient was calculated separately for each country, taking into account differences in economic integration and innovation activity, for 2000–2023. The availability and accessibility of data for 2000–2023 was taken into account when selecting indicators for correlation analysis.

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[29] **World Intellectual Property Organization. (n.d.).** ***Global Innovation Index: Compare economies – Viet Nam and Philippines.*** **Retrieved May 14, 2025, from https://www.wipo.int/gii-ranking/en/compare?country1=viet-nam&country2=philippines**

[30] **World Data. (n.d.). Developing countries. Retrieved May 12, 2025, from https://www.worlddata.info/developing-countries.php;**
Trade Facilitation Agreement Database. (n.d.). Developing countries. World Trade Organization. Retrieved May 12, 2025, from https://www.tfadatabase.org/en/developing-countries

[31] **World Intellectual Property Organization. (n.d.).** ***Id.***

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Table 1. Results of the sample selection of developing countries according to the criteria of economic development and IER development

Country / criterion	**Average income per capita, USD. USD per capita for 2017–2023**	**Export diversification and economic structure**	**Average FDI, net inflows, % of GDP, 2017–2023**
India	2133.98	Low share of high-tech exports	43.33 (below average)
Vietnam	3608.00	Medium share of high-tech exports	170.05 (high)
Philippines	3381.76	Above average share of high-tech exports	67.24 (average)
Ukraine	3862.61	Low share of high-tech exports	88.73 (above average)
Additionally: average in lower-middle-income countries	2206.17	Low share of high-tech exports	53.92 (average)

Source: compiled by the author based on data from the World Bank,[34] World Bank,[35] World Data,[36] Trade Facilitation Agreement Database[37]

[32] **World Intellectual Property Organization. (n.d.).** ***Id.***
[33] **World Data. (n.d.).** ***Id.;***
Trade Facilitation Agreement Database. (n.d.). ***Id.***
[34] **World Bank. (n.d.-b). GDP per capita (current US$).** ***World Development Indicators.*** **https://data.worldbank.org/indicator/NY.GDP.PCAP.CD;**

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To identify the interrelationships and mutual influences of IER on innovation, it was analyzed indicators and metrics: Global Innovation Index, research and development expenditures, number of patents per capita, share of high-tech exports in total exports, share of trade in GDP, and foreign direct investment.

4. RESULTS AND DISCUSSION

After a significant increase in investment in science and innovation in 2020–2022, in 2023 there was a significant decline in capital investment in this area (-5.3% globally). According to the Global Innovation Index 2024, which measures the innovative capabilities of countries, the countries with the highest scores tend to have a developed science and technology sector, including clusters concentrated in certain cities or regions.

Countries with lower middle-income levels and high levels of innovation capacity include India, Vietnam, the Philippines, Ukraine, Morocco, Mongolia, Yurdan, Uzbekistan, Pakistan, and Senegal.

According to the results of a comparative analysis of developing countries by favorable factors influencing innovation in 2024, there is a significant differentiation between countries in terms of factors that allow them to use existing innovation opportunities (Table 2).

In India, the main advantage for innovation is a highly developed research and development (R&D) sector due to a sufficient level of public spending on R&D (0.65% of GDP in 2020),[38] global corporate investment in R&D, and a high level of quality in higher education. The number of researchers involved in the R&D sector amounted to 259 people per 1 million population in 2020.[39] The formation of market conditions for the commercialization of innovations, the effectiveness of the use of knowledge, technology and creative activity are additional competitive advantages of the country. It should also be noted that the country has four innovation clusters in the cities of Bengaluru, Delhi, Chennai and Mumbai, where innovation networks are developed. For example, in Bengaluru, Samsung Electronics and the leading educational organization IISC-Bangalore University have developed cooperation.[40]

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[35] **World Bank. (n.d.-c). High-technology exports (% of manufactured exports).** ***World Development Indicators.*** **Retrieved May 13, 2025, from https://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS**

[36] **World Data. (n.d.).** ***Id.***

[37] **Trade Facilitation Agreement Database. (n.d.).** ***Id.***

[38] **World Bank. (n.d.-d). Research and development expenditure (% of GDP). https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS**

[39] **World Bank. (n.d.-f). Researchers in R&D (per million people). https://data.worldbank.org/indicator/SP.POP.SCIE.RD.P6**

[40] **World Intellectual Property Organization. (2024).** ***Global Innovation Index 2024: Cluster rankings.*** **https://www.wipo.int/web-publications/global-innovation-index-2024/en/cluster-ranking.html**

JOURNAL OF LAW AND POLITICAL SCIENCES (JLPS)
P.ISSN 2222-7288 E. ISSN 2518-5551
Vol. 47-2-Special Issue-Ukraine-October2025
IMPACT FACTOR 2.329
First edition 2011

By comparison, Vietnam is characterized by a higher level of development of the institutional and business environment for innovation (operational and political stability), an average level of education development and a sufficiently developed R&D sector, and the availability of ICT infrastructure for business and the use of technology. Favorable market conditions for innovation include sufficient domestic lending for innovations, availability of loans from microfinance institutions, and venture capital investment in intellectual businesses. The level of spending on research and development amounted to only 0.42% of GDP in 2021.[41] The number of researchers involved in the R&D sector amounted to 768 people per 1 million people in 2021.[42]

Table 2. Positive factors influencing high innovation capacity in developing countries as of 2024

India (overall score 39)	**Vietnam (overall score 44)**
– Institutional and regulatory environment; – Highly developed research and development sector due to a sufficient level of public spending on R&D, global corporate investment in R&D and a high level of quality of higher education; developed general infrastructure of the country; – Market conditions for innovation, including: conditions for lending to innovations by microfinance institutions and financing startups, investment conditions and availability of venture capital investors, terms of trade, diversification, and market size; – Results of the use of knowledge and technology (creation, impact on innovation, dissemination) – Results of creative activity, including creation of intangible assets, creative goods and services, online creativity	– Institutional and business environment, including established operational stability for doing business, political stability for entrepreneurial innovation – Average level of education development and a sufficiently developed R&D sector (sufficiency of researchers, gross R&D expenditures, global corporate R&D expenditures by investors) – Satisfactory state of development of ICT infrastructure, including high availability and use of technologies, general infrastructure and investments in its development, environmental sustainability of infrastructure – Market conditions for innovation: domestic lending to the private sector, loans from microfinance institutions, start-up financing; average investment conditions, including

[41] **World Bank. (n.d.-d).** ***Id.***
[42] **World Bank. (n.d.-f).** ***Id.***

	venture capital and the number of such investors; trade, diversification, market size; Above average business conditions: existing conditions for conducting innovative business, including intellectual personnel, innovative connections, and knowledge absorption – Results of creative activity, including creation of intangible assets, creative goods and services, online creativity
Philippines (overall score 53)	**Ukraine (overall score 60)**
– Average level of development of the institutional, regulatory, and business environment – Fairly high level of development of higher education, including engineering and technical graduates, and an average level of development of the R&D sector – Below average level of infrastructure development – Below-average market conditions for innovation, including: investment conditions (the most positive factors are the number of venture capitalists and market capitalization); trade conditions, diversification, market size – Above-average business conditions, including existing innovation networks, knowledge absorption – Results of knowledge and technology use (impact on innovation, diffusion) – Results of creative activity, including creation of intangible	– State of human capital development, including the state of education and availability of researchers to meet the needs of innovation activity – Developed information and communication infrastructure (public services, e-participation, access to ICT) and environmental sustainability – The applied rate of tariffs for innovation activity is one of the factors of the current market environment for innovation activity

assets, creative goods and services, online creativity	

Source: systematized by the author according to WIPO,[43] WIPO[44]

The Philippines has a somewhat lower level of innovation capacity due to the relatively lower quality of the institutional, regulatory, and business environment. While the country has a high level of higher education development, including a sufficient number of engineering and technical graduates, the country has an average level of R&D sector development, which hinders innovation. R&D expenditures amounted to 0.32% of GDP in 2018.[45] The number of researchers involved in the R&D sector amounted to 170 people per 1 million population in 2018.[46] Below-average infrastructure and market conditions for innovation hinder relevant activities, in particular, despite the large number of venture capitalists, the volume of venture capital funding lags far behind India. Similar to India, the Philippines also has a high efficiency in the use of knowledge, technology, and creativity.

Compared to India, Vietnam, or the Philippines, Ukraine has the worst conditions for innovation, despite its high level of human capital development, availability of researchers, and significant progress in the development of ICT infrastructure.[47] The institutional and regulatory environment and market conditions do not allow for the full utilization of the existing innovation potential. R&D expenditures amounted to 0.33% of GDP in 2023.[48] The number of researchers involved in the R&D sector was 586 people per 1 million population in 2022.[49] In the last 2020-2024, the ICT infrastructure was developed quite rapidly, but this is not enough to accelerate the pace of innovation.

[43] **World Intellectual Property Organization. (2024).** ***Id.***
[44] **World Intellectual Property Organization. (n.d.).** ***Id.***
[45] **World Bank. (n.d.-d).** ***Id.***
[46] **World Bank. (n.d.-f).** ***Id.***
[47] **Zolkover, A., Kaplina, A., Loboda, O., Kyrychenko, N., & Chopko, N. (2021). Features of the influence of human capital on economic development: The case of Ukraine.** ***Journal of Eastern European and Central Asian Research, 8*****(3), 425–437. https://doi.org/10.15549/jeecar.v8i3.**
[48] **World Bank. (n.d.-d).** ***Id.***
[49] **World Bank. (n.d.-f).** ***Id.***

JOURNAL OF LAW AND POLITICAL SCIENCES (JLPS)
P.ISSN 2222-7288 E. ISSN 2518-5551
Vol. 47-2-Special Issue-Ukraine-October2025
IMPACT FACTOR 2.329
First edition 2011

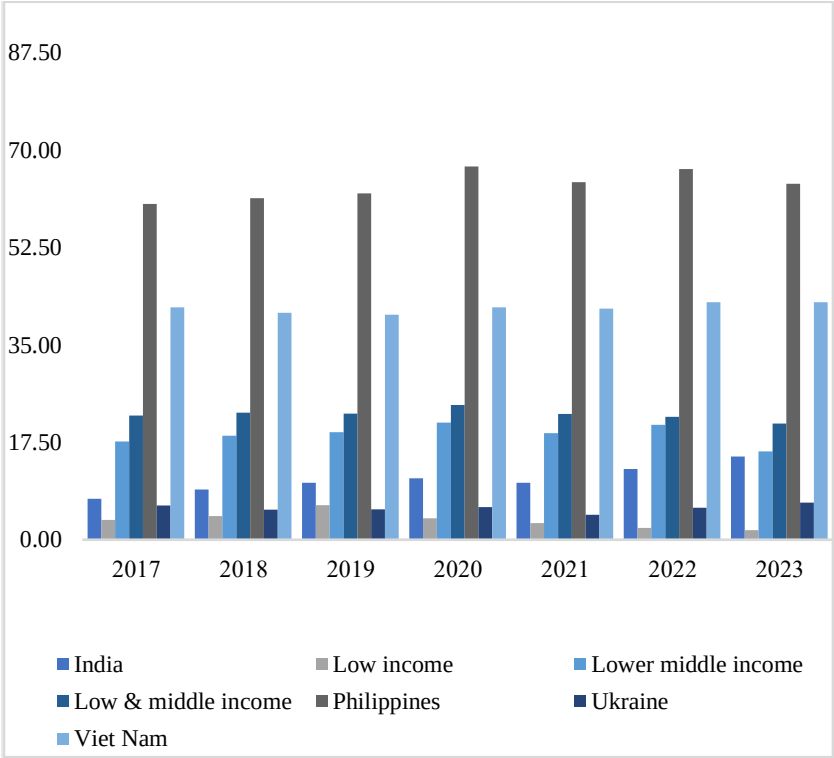

Figure 1. The share of high-tech exports of India, Vietnam, the Philippines and Ukraine in the countries' exports in 2017–2023, %

Source: compiled by the author[50]

Despite somewhat lower estimates of innovation potential, the Philippines and Vietnam have fairly high values of high-tech exports, estimated at 63.9% and 4.26%, respectively, in 2023. At the same time, the average value of high-tech exports for lower-middle-income countries is 20.8% in 2023. India exported only 14.9% of high-tech exports, while Ukraine exported 6.69% in 2023, which is close to the low-income countries' figure of 1.73% (Figure 1). This situation is related to the level of trade openness as a sign of international integration. Thus, in India, the share of trade in GDP in 2023 is estimated at only 45.9%, while in the Philippines it is 67.4%, in Vietnam – 166.32%, and in Ukraine – 78.1% in 2023. At the same time, the average value for lower-middle-income countries is 56.3%, and for low-income countries – 49.5%.

Thus, it is Vietnam's high level of international economic integration and the Philippines' medium degree of global interaction with the international trade

[50] **World Bank. (n.d.-c).** ***Id.***

JOURNAL OF LAW AND POLITICAL SCIENCES (JLPS)
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Vol. 47-2-Special Issue-Ukraine-October2025
IMPACT FACTOR 2.329
First edition 2011

environment that favors high-tech exports. Ukraine is rather weak in innovation, despite a sufficient level of integration into the global economy and developed trade with the EU. In terms of trade openness, developing countries are generally limited in their participation in international supply chains, which is one of the challenges for exporting innovations. Therefore, the role of the IEA in innovation is significantly limited.

Developing countries differ in the level of financial and economic integration into the global environment. In general, there is a tendency to reduce the share of FDI in GDP in countries with lower middle incomes (Figure 2). In India, the share of FDI in GDP decreased in 2017–2023 to 0.79% in 2023. Vietnam has a much higher degree of financial ties with foreign partner countries, as the share of FDI in GDP amounted to 4.31% in 2023. In the Philippines, the figure was estimated at 2.09%, and in Ukraine – at 2.56% in 2023. Thus, Vietnam has a steady level of financial integration, while financial interconnections in India have deteriorated significantly in recent years. A relative level of financial openness is observed in the Philippines, while in Ukraine there is significant volatility due to unstable financial conditions, political and economic environment.

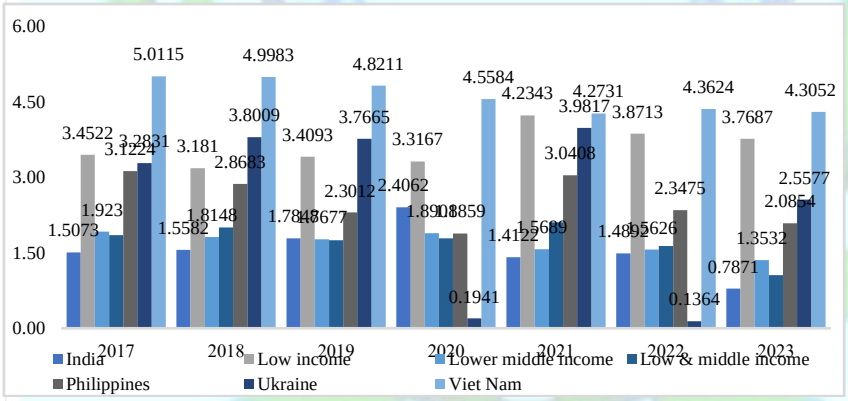

Figure 2. Share of inward FDI flows in India, Vietnam, the Philippines, and Ukraine in 2017–2023, %

Source: created by the author[51]

[51] **World Bank. (n.d.-a). Foreign direct investment, net inflows (% of GDP) (indicator code: BX.KLT.DINV.WD.GD.ZS). https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS**

Developing countries have significant prospects for developing their innovation potential and exporting innovative products, which requires a greater level of financial and economic integration. The main challenges in utilizing the existing potential are related to the limited access of these countries to global financial markets, uneven integration into the global economic system, structural differences in economies, and the institutional, regulatory, and market environment.

The example of India demonstrates a fairly high level of innovation capacity development, but at the same time a low level of trade openness and external financial relations. The existing market conditions for innovation allow the country to use the knowledge, technologies and results of creative activity in the domestic market. For India, the main challenge is to revise the current trade conditions for innovative products. The experience of Vietnam and the Philippines shows significant progress in utilizing the country's innovation potential, while trade openness and sustainable financial integration allow for the export of high-tech products. Instead, there are significant problems with innovation development in Ukraine, which does not use the available human intellectual capital to disseminate knowledge, technologies, and use the results of research and development activities internally. This requires a revision of the country's innovation policy, development of the institutional, regulatory, and business environment, and improvement of the quality of infrastructure for the integration of innovations. A high degree of trade openness does not provide the country with the benefits it could gain from exporting R&D, knowledge and technology dissemination. This remains a major challenge for domestic innovation policy.

The results of the correlation analysis indicate the existence of both direct and inverse relationships between the development of trade, investment activity, and innovation. A high degree of direct correlation was found between R&D expenditures and FDI in the Philippines, which confirms the importance of R&D development in promoting innovation, and the importance of inward investment in stimulating R&D. In contrast, in India and Ukraine, these links are weak, and in Vietnam, the inverse low impact of R&D expenditures and investment flows was found. On the other hand, Vietnam is characterized by a high positive degree of trade impact on R&D expenditures. There is a low degree of correlation between patent activity and FDI and trade in all countries. At the same time, India is characterized by inverse relationships

between these variables, while Ukraine is characterized by direct relationships, especially between the number of non-resident patents and FDI (Table 3).

For developing countries, there are significant prospects for innovative development: expanding access to knowledge and technology through the establishment of external financial and economic ties and greater trade openness; formation of intellectual business clusters in leading cities with the participation and involvement of international partners; development of external export opportunities to promote trade in innovations.

The main barriers that limit innovation development and the use of existing potential are the internal conditions of the institutional, regulatory, and business environment, market maturity, lack of financing and investment in innovative startups, and restrictions on trade in innovative products.

Table 3. Results of the correlation analysis of the relationship between IER indicators (FDI, trade) and innovation activity for 2000–2023

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Vol. 47-2-Special Issue-Ukraine-October2025
IMPACT FACTOR 2.329
First edition 2011

FDI, % of GDP	Share of trade in GDP, %.	R&D expenditures, % of GDP	Number of resident patents	Number of patents of non-residents
FDI of India, % of GDP	0,487	0,311	-0,300	-0,398
FDI of Philippines, % of GDP	-0,166	0,765	0,199	-0,289
FDI of Ukraine, % of GDP	-0,100	0,281	0,030	0,349
FDI of Vietnam, % of GDP	0,218	-0,250	-0,339	0,155
Trade share, % of GDP	FDI in GDP, %.	R&D expenditures, % of GDP	Number of resident patents	Number of patents of non-residents
India's trade share, % of GDP	0,487	0,143	-0,127	-0,483
Trade share of the Philippines, % of GDP	-0,166	-0,286	-0,012	0,266
Share of Ukraine's trade, % of GDP	-0,100	0,433	0,401	-0,179
Share of Vietnam's trade, % of GDP	0,218	0,755	-0,238	0,189

Source: calculated by the author[52]

[52] **World Bank. (n.d.-a).** ***Id.;***
World Bank. (n.d.-d). ***Id.;***
World Bank. (n.d.-g). Trade (% of GDP). ***World Development Indicators.*** **https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS**
World Bank. (n.d.-j). Patent applications, residents. ***World Development Indicators.*** **https://data.worldbank.org/indicator/IP.PAT.RESD**
World Bank. (n.d.-k). Patent applications, nonresidents. ***World Development Indicators.*** **https://data.worldbank.org/indicator/IP.PAT.NRES**

5. CONCLUSION

The development of internal conditions for innovation is essential for ensuring the effectiveness of the use of knowledge and technologies for research and development and their subsequent commercialization. At the same time, the level of international economic integration of developing countries affects the export capacity of innovative products. The most important factors for building an intelligent business and promoting innovation are the institutional, regulatory, and stable business environment, and a developed R&D sector, including links to innovation networks. Market maturity and market conditions also have a significant impact on innovation, namely the following factors: internal credit conditions for firms, financing by microfinance institutions, and venture capital financing for startups,

To ensure the growth of innovation exports, developing countries are recommended to create conditions for foreign trade in innovative products abroad, which will contribute to the growth of trade openness. As the experience of Vietnam and the Philippines shows, the role of international economic integration is important for promoting high-tech exports.

Further research should be aimed at studying the types of innovative development models in the economies of developing countries and the cause-and-effect relationships of their development in order to formulate innovation policy.

References

1. Bayraktutan, Y., & Bıdırdı, H. (2018). Innovation and high-tech exports in developed and developing countries. *Journal of International Commerce, Economics and Policy, 9*(3), 1850011. https://doi.org/10.1142/S1793993318500114
2. Erdal, L., & Göçer, İ. (2015). The effects of foreign direct investment on R&D and innovations: Panel data analysis for developing Asian countries. *Procedia -*

Social and Behavioral Sciences, 195, 749–758. https://doi.org/10.1016/j.sbspro.2015.06.469

3. Groba, F., & Cao, J. (2015). Chinese renewable energy technology exports: The role of policy, innovation and markets. *Environmental and Resource Economics, 60,* 243–283. https://doi.org/10.1007/s10640-014-9766-z
4. Iqbal, N., Abbasi, K. R., Shinwari, R., Guangcai, W., Ahmad, M., & Tang, K. (2021). Does exports diversification and environmental innovation achieve carbon neutrality target of OECD economies? *Journal of Environmental Management, 291,* 112648. https://doi.org/10.1016/j.jenvman.2021.112648
5. Kasongo, A., & Makamu, T. (2024). Innovation and economic growth: An empirical analysis for African countries. *African Journal of Science, Technology, Innovation and Development, 16*(6), 751–760. https://doi.org/10.1080/20421338.2024.2382612
6. Lema, R., Kraemer-Mbula, E., & Rakas, M. (2021). Innovation in developing countries: Examining two decades of research. *Innovation and Development, 11*(2–3), 189–210. https://doi.org/10.1080/2157930X.2021.1989647
7. Lema, R., Rabellotti, R., & Gehl Sampath, P. (2018). Innovation trajectories in developing countries: Co-evolution of global value chains and innovation systems. *The European Journal of Development Research, 30,* 345–363. https://doi.org/10.1057/s41287-018-0149-0
8. Lewandowska, M. S., Szymura-Tyc, M., & Gołębiowski, T. (2016). Innovation complementarity, cooperation partners, and new product export: Evidence from Poland. *Journal of Business Research, 69*(9), 3673–3681. https://doi.org/10.1016/j.jbusres.2016.03.028
9. Liu, Y. Q., & Feng, C. (2023). How do economic freedom and technological innovation affect green total-factor productivity? Cross-country evidence. *Emerging Markets Finance and Trade, 59*(5), 1426–1443. https://doi.org/10.1080/1540496X.2022.2138325
10. Love, J. H., & Roper, S. (2015). SME innovation, exporting and growth: A review of existing evidence. *International Small Business Journal, 33*(1), 28–48. https://doi.org/10.1177/0266242614550190
11. Moughari, M. M., & Daim, T. U. (2023). Developing a model of technological innovation for export development in developing countries. *Technology in Society, 75,* 102338. https://doi.org/10.1016/j.techsoc.2023.102338
12. My Thi Thi, D., & Tran Phu Do, T. (2024). The interrelationships between economic growth and innovation: International evidence. *Journal of Applied Economics, 27*(1), 2332975. https://doi.org/10.1080/15140326.2024.2332975
13. My Thi Thi, D., Trinh Hoang Hong, H., & Do Phu Tran, T. (2024). Linking among economic growth, technology innovation, carbon dioxide emissions in Vietnam: Evidence from three stage least squares models. *Cogent Economics & Finance, 12*(1), 2407237. https://doi.org/10.1080/23322039.2024.2407237

14. Oura, M. M., Zilber, S. N., & Lopes, E. L. (2016). Innovation capacity, international experience and export performance of SMEs in Brazil. *International Business Review, 25*(4), 921–932. https://doi.org/10.1016/j.ibusrev.2015.12.002
15. Rajapathirana, R. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge, 3*(1), 44–55. https://doi.org/10.1016/j.jik.2017.06.002
16. Sarkar, M. A., Xie, J., & Rahman, H. (2022). International cooperation and innovation: Evidence from Asian countries trade facilitation and economic cooperation. *Open Access Library Journal, 9*(7), 1–27. https://doi.org/10.4236/oalib.1108991
17. Sener, S., & Delican, D. (2019). The causal relationship between innovation, competitiveness and foreign trade in developed and developing countries. *Procedia Computer Science, 158*, 533–540. https://doi.org/10.1016/j.procs.2019.09.085
18. Shu, P., & Steinwender, C. (2019). The impact of trade liberalization on firm productivity and innovation. *Innovation Policy and the Economy, 19*(1), 39–68. https://doi.org/10.1086/699932
19. Singh, R., Chandrashekar, D., Hillemane, B. S. M., Sukumar, A., & Jafari-Sadeghi, V. (2022). Network cooperation and economic performance of SMEs: Direct and mediating impacts of innovation and internationalisation. *Journal of Business Research, 148*, 116–130. https://doi.org/10.1016/j.jbusres.2022.04.032
20. Smith, K. (2018). Reshaping international relations: Theoretical innovations from Africa. In *Widening the world of international relations* (pp. 142–156). Routledge. https://doi.org/10.4324/9780203702239-8
21. Trade Facilitation Agreement Database. (n.d.). Developing countries. World Trade Organization. Retrieved May 12, 2025, from https://www.tfadatabase.org/en/developing-countries
22. Wadho, W., & Chaudhry, A. (2018). Innovation and firm performance in developing countries: The case of Pakistani textile and apparel manufacturers. *Research Policy, 47*(7), 1283–1294. https://doi.org/10.1016/j.respol.2018.04.007
23. Wang, L., Chang, H. L., Rizvi, S. K. A., & Sari, A. (2020). Are eco-innovation and export diversification mutually exclusive to control carbon emissions in G-7 countries? *Journal of Environmental Management, 270*, 110829. https://doi.org/10.1016/j.jenvman.2020.110829
24. Wen, J., & Okolo, C. V. (2023). Does global economic reform accentuate technological innovation? A comparative evidence around the world. *Economic Research-Ekonomska Istraživanja, 36*(3). https://doi.org/10.1080/1331677X.2023.2264371
25. World Bank. (n.d.-a). Foreign direct investment, net inflows (% of GDP) (indicator code: BX.KLT.DINV.WD.GD.ZS). Retrieved May 14, 2025, from https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS

26. World Bank. (n.d.-b). GDP per capita (current US$). *World Development Indicators.* Retrieved May 13, 2025, from https://data.worldbank.org/indicator/NY.GDP.PCAP.CD
27. World Bank. (n.d.-c). High-technology exports (% of manufactured exports). *World Development Indicators.* Retrieved May 13, 2025, from https://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS
28. World Bank. (n.d.-d). Research and development expenditure (% of GDP). Retrieved May 14, 2025, from https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS
29. World Bank. (n.d.-f). Researchers in R&D (per million people). Retrieved May 14, 2025, from https://data.worldbank.org/indicator/SP.POP.SCIE.RD.P6
30. World Bank. (n.d.-g). Trade (% of GDP). *World Development Indicators.* Retrieved May 13, 2025, from https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS
31. World Bank. (n.d.-j). Patent applications, residents. *World Development Indicators.* Retrieved May 13, 2025, from https://data.worldbank.org/indicator/IP.PAT.RESD
32. World Bank. (n.d.-k). Patent applications, nonresidents. *World Development Indicators.* Retrieved May 13, 2025, from https://data.worldbank.org/indicator/IP.PAT.NRES
33. World Data. (n.d.-h). Developing countries. Retrieved May 12, 2025, from https://www.worlddata.info/developing-countries.php
34. World Intellectual Property Organization. (2024). *Global Innovation Index 2024: Cluster rankings.* https://www.wipo.int/web-publications/global-innovation-index-2024/en/cluster-ranking.html
35. World Intellectual Property Organization. (n.d.). *Global Innovation Index: Compare economies – Viet Nam and Philippines.* Retrieved May 14, 2025, from https://www.wipo.int/gii-ranking/en/compare?country1=viet-nam&country2=philippines
36. Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade, 3*(1–2), 41–56. https://doi.org/10.1016/j.joat.2017.02.001
37. Zanello, G., Fu, X., Mohnen, P., & Ventresca, M. (2016). The creation and diffusion of innovation in developing countries: A systematic literature review. *Journal of Economic Surveys, 30*(5), 884–912. https://doi.org/10.1111/joes.12126
38. Zolkover, A., & Ovcharenko, P. (2024). Modelling a comprehensive assessment of the level of innovation security. *Smart Economy, Entrepreneurship and Security, 2*(1), 50–57. https://doi.org/10.60022/sis.2.(01).5
39. Zolkover, A., Kaplina, A., Loboda, O., Kyrychenko, N., & Chopko, N. (2021). Features of the influence of human capital on economic development: The case

of Ukraine. *Journal of Eastern European and Central Asian Research, 8*(3), 425–437. https://doi.org/10.15549/jeecar.v8i3.