

THE IMPACT OF HUMAN CAPITAL INVESTMENT ON ECONOMIC GROWTH: EVIDENCE AND POLICY IMPLICATIONS

©2025 LAZKO K. V.

UDC 331.101:338.24
JEL: I25; J24; O15; O40

Lazko K. V. The Impact of Human Capital Investment on Economic Growth: Evidence and Policy Implications

This article addresses the increasingly critical role of human capital investment in shaping economic growth in both developed and developing countries. The relevance of the topic is underscored by the global transition towards knowledge-based and digital economies, where the accumulation of knowledge, skills, and health-collectively termed human capital has become a decisive factor for enhancing labor productivity, fostering innovation, and ensuring long-term competitiveness. Recent economic disruptions, demographic shifts, and rapid technological change have further highlighted the importance of strategic investments in education, vocational training, and healthcare. Despite notable progress in many countries, persistent challenges such as brain drain, skill mismatches, and unequal access to quality education and health services continue to undermine the full realization of human capital's potential. These issues are particularly acute in developing and transition economies, including Ukraine, where structural transformation and sustainable development depend heavily on the effective mobilization of human capital resources. The primary aim of this article is to synthesize contemporary empirical and theoretical research on the impact of human capital investment on economic growth, while also exploring the policy implications necessary for maximizing its benefits. The study adopts a systematic literature review methodology, analyzing recent English-language articles from leading international journals indexed in scientometric databases such as Scopus and Web of Science. This approach ensures a comprehensive and comparative perspective, drawing on evidence from diverse regions including Europa, Africa, Asia and post-Soviet states. The study identifies key trends, such as the positive and statistically significant relationship between investment in education, skills development, and health, and long-term economic performance. It also highlights the importance of the timing, quality, and alignment of human capital investments with labor market needs, as well as the necessity for inclusive and lifelong learning strategies. It is emphasized that the benefits of human capital investment are cumulative and often realized over an extended period, requiring patient and sustained policy interventions. Empirical studies reviewed show that countries with higher levels of human capital tend to experience faster, more resilient, and inclusive economic growth. The study also reveals that financial development alone is insufficient to drive growth without a complementary foundation of skilled human capital, as innovation and entrepreneurship depend on the effective utilization of financial resources. Furthermore, the article discusses the specific challenges faced by Ukraine, such as demographic decline, labor migration, and under-investment in research and development, which hinder the country's ability to fully leverage its human capital for economic recovery and EU integration. This study emphasizes the need for integrated policy approaches that simultaneously promote human capital development and financial sector growth. It advocates for comprehensive reforms encompassing education, healthcare, continuous upskilling, and supportive work environments to enhance innovation, productivity, and inclusive economic development. Ultimately, the synthesis of international experience and policy recommendations presented in this study provides valuable guidance for governments seeking to design effective strategies for human capital investment as a foundation for sustainable and resilient economic growth.

Keywords: human capital, economic growth, education investment.

Bibl.: 14.

Lazko Kyrylo V. – Postgraduate Student of the Department of Economics and Management, V. N. Karazin Kharkiv National University (4 Svobody Square, Kharkiv, 61022, Ukraine)

УДК 331.101:338.24
JEL: I25; J24; O15; O40

Лазько К. В. Вплив інвестицій у людський капітал на економічне зростання: наявні дані та політичні наслідки

Представлена стаття розглядає все більш критичну роль інвестицій у людський капітал у формуванні економічного зростання як у розвинених країнах, так і в країнах, що розвиваються. Актуальність теми підкреслюється глобальним переходом до економіки на основі знань та цифрової економіки, де накопичення знань, навичок та здоров'я, що в сукупності називається людським капіталом, стало вирішальним фактором для підвищення продуктивності праці, стимулювання інновацій та забезпечення довгострокової конкурентоспроможності. Економічні потрясіння, демографічні зсуви та швидкі технологічні зміни останніх років підкреслюють важливість стратегічних інвестицій в освіту, професійне навчання та охорону здоров'я. Незважаючи на помітний прогрес у багатьох країнах, постійні виклики, такі як «відтік мізків», невідповідність навичок та нерівний доступ до якісної освіти та медичних послуг, продовжують послабляти належне використання потенціалу людського капіталу. Ці проблеми є особливо гострими у країнах, що розвиваються, та у країнах з перехідною економікою, зокрема в Україні, де структурні перетворення та сталий розвиток значною мірою залежать від ефективної мобілізації ресурсів людського капіталу. Головною метою даної статті є синтез сучасних емпіричних та теоретичних досліджень впливу інвестицій в людський капітал на економічний ріст, а також вивчення політичних наслідків, необхідних для максимізації його переваг. Дослідження використовує методологію систематичного огляду літератури та аналізує останні англійські статті з провідних міжнародних журналів, проіндексованих у наукометричних базах даних, таких як Scopus і Web of Science. Цей підхід забезпечує всебічну та порівняльну перспективу, спираючись на дані з різних регіонів, включаючи Європу, Африку, Азію та пострадянські держави. Дослідження визначає ключові тенденції, такі як позитивний та статистично значущий взаємозв'язок між інвестиціями в освіту, розвитком навичок та охороною здоров'я і довгостроковою економічною ефективністю. Також підкреслюється важливість своєчасності, якості та узгодженості інвестицій у людський капітал із потребами ринку праці, а також необхідність наявності інклюзивних і безперервних стратегій навчання протягом життя. Наголошується на тому, що переваги інвестицій у людський капітал є кумулятивними і часто реалізуються протягом тривалого часу, що потребує терпіння та стійких політичних втручань. Емпіричні дослідження показують, що країни з вищими рівнями людського капіталу, як правило, переживають швидший, стійкіший і більш інклюзивний економічний ріст. У дослідженні також виявлено, що фінансовий розвиток сам по собі є недостатнім для того, щоб сприяти зростанню без супутньої основи кваліфікованого людського капіталу,

оскільки інновації та підприємництво залежать від ефективного використання фінансових ресурсів. Також стаття розглядає специфічні виклики, з якими стикається Україна, такі, як демографічний спад, трудова міграція та недостатнє інвестування в дослідження та розвиток, що заважає країні повністю використати свій людський капітал для економічного відновлення та інтеграції в ЄС. Представлене дослідження підкреслює необхідність інтегрованих політичних підходів, які одночасно сприяють розвитку людського капіталу та зростанню фінансового сектору. Дане дослідження також виступає за всебічні реформи, що охоплюють освіту, охорону здоров'я, безперервне підвищення кваліфікації та підтримуючи робочі середовища для покращення інновацій, продуктивності та інклюзивного економічного розвитку. На завершення, синтез міжнародного досвіду та рекомендацій щодо політики, представлених у даному дослідженні, містить цінні вказівки для урядів, які прагнуть розробити ефективні стратегії інвестування в людський капітал як основу для стійкого та стійкого економічного зростання.

Ключові слова: людський капітал, економічне зростання, інвестиції в освіту.

Бібл.: 14.

Лазько Кирило Володимирович – аспірант кафедри економіки та менеджменту, Харківський національний університет імені В. Н. Каразіна (май-дан Свободи, 4, Харків, 61022, Україна)

The impact of human capital investment on economic growth has become a central focus of contemporary economic research and policy-making. Human capital, broadly defined as the knowledge, skills, and health that individuals accumulate, plays a critical role in enhancing labor productivity and fostering innovation. As economies worldwide transition towards knowledge-based and digital industries, the importance of investing in education, vocational training, and healthcare has grown substantially. Empirical studies consistently show that countries with higher levels of human capital tend to experience faster and more sustainable economic growth. This relationship is particularly significant in developing economies, where improving human capital can accelerate structural transformation and poverty reduction.

Identification of unresolved issues and aim.

However, the benefits of human capital investment are not automatic or immediate; they depend on the quality, timing, and relevance of such investments to labor market needs. Challenges such as brain drain, skill mismatches, and unequal access to education and health services can undermine the potential gains. Moreover, rapid technological change demands continuous upskilling and lifelong learning to maintain competitiveness. Policymakers must therefore design comprehensive strategies that integrate education systems with economic development goals and labor market dynamics.

This article aims to synthesize evidence on the impact of human capital investment on economic growth, drawing on recent empirical and theoretical research. It also explores policy implications, emphasizing the need for sustained, well-targeted investments that promote inclusivity and adaptability.

Methods. A systematic literature review was conducted to examine the impact of human capital investment on economic growth, with a focus on evidence and policy implications. The analysis included recent English-language articles published in leading international journals. Sources were selected from reputable scientometric databases, specifically Scopus

and Web of Science, to ensure the quality and relevance of the literature. Studies from various countries were reviewed to provide a comprehensive and comparative perspective on the topic. This methodological approach enabled the identification of key trends, empirical findings, and policy recommendations in the field.

Human capital investment has emerged as a central theme in contemporary economic research, recognized for its pivotal role in fostering productivity, innovation, and long-term economic growth. Numerous empirical and theoretical studies have demonstrated that strategic investments in education, skill development, and healthcare yield substantial benefits for both individuals and national economies. Recent research highlights not only the positive correlation between human capital accumulation and economic growth, but also the importance of the timing, quality, and alignment of these investments with labor market needs. Evidence from diverse contexts—including Sub-Saharan Africa, South and East Asia, and advanced economies—underscores that well-designed human capital policies can enhance innovation, support labor market adaptability, and drive sustainable development. At the same time, challenges such as brain drain, skill mismatches, and unequal access to education and health services persist, requiring nuanced policy responses. As economies become increasingly knowledge-driven and technologically advanced, the imperative for continuous learning and inclusive human capital development has never been greater.

The authors find a generally positive and significant relationship between investment in education and national economic performance, although establishing clear causal links remains challenging [1].

More than 20 years ago the article by Wilson and Briscoe [2] provides a comprehensive review of international research examining the links between human capital investment—primarily education and training—and economic growth. They highlight that increased education leads to higher individual productivity and earnings, which in turn contribute to broader social

returns. The review also discusses the more complex and less conclusive evidence regarding the returns on vocational training. Additionally, the article explores how human capital affects economic growth through various channels, including management skills, organizational performance, and innovation. The authors emphasize that human capital investment not only drives economic benefits but also yields important non-economic gains such as technological and environmental improvements. The investment in education and training is essential for fostering long-term economic growth and offers policy recommendations to support this goal.

This theoretical analysis explores the multifaceted relationship between human capital and economic development. The relationship between human capital investment and economic growth in two Sub-Saharan African countries, South Africa and Kenya [3]. Using panel data from World Bank economic and education indicators spanning 1987 to 2016, the authors employ a fixed effect panel regression model. Their analysis reveals a positive relationship between investment in human capital—primarily through education—and economic growth in both countries. A notable contribution of the study is the inclusion of yearly time dummies in the regression, which underscores the importance of timing in realizing the benefits of such investments. The results suggest that the impact of human capital investment on growth is not immediate, and policymakers should adopt a patient, long-term perspective. The paper adds to the literature by demonstrating that both the amount and timing of investment in education are crucial for fostering economic development. These findings have important policy implications, emphasizing the need for sustained and well-timed investments in human capital to achieve meaningful economic growth.

The study of Deb Gupta S., Divekar R., & Kumar P. [4] empirically examines the effect of human capital generation on economic growth using panel data analysis. The authors highlight the critical role of education, skill development, and labor productivity in driving economic progress. Their findings suggest that investments in human capital significantly enhance innovation and competitiveness across countries. The paper also discusses challenges such as brain drain and the need for policies that encourage skill retention. The analysis underscores the importance of aligning education systems with labor market demands. The authors advocate for continuous upskilling and vocational training to sustain growth in a rapidly changing global economy. Overall, the study provides evidence supporting human capital investment as a key driver of economic development.

Abrha T. G., & Weldeyohans B. T. [5] emphasize that human capital-encompassing education, skills, and health is foundational to productivity, innovation, and sustained growth. By synthesizing economic theories, the paper argues that strategic investments in education, vocational training, and healthcare yield long-term economic benefits. Case studies from Finland and South Korea illustrate how targeted policies can foster resilient and competitive economies. The study highlights the importance of lifelong learning and gender-inclusive workforce participation. It also stresses that human capital is not merely complementary but a fundamental determinant of national economic success. The authors conclude with policy recommendations to enhance human capital development for sustainable growth.

Furthermore, a lot of articles explore how human capital influences the relationship between financial development and economic growth. The study emphasizes that countries with higher levels of human capital, such as skilled scientists and researchers, are better able to utilize financial resources efficiently to foster innovation and entrepreneurship [6]. The financial development alone may not drive growth unless complemented by sufficient human capital, as low human capital can limit the benefits of financial progress. The research underscores the importance of integrated policies that simultaneously promote human capital development and financial sector growth to achieve sustainable economic growth.

In recent years, research emphasizes the crucial role of human capital investment in driving economic growth and promoting sustainable development. Collin M. and Weil D. [7] use a macroeconomic simulation model to demonstrate that increasing investment in human capital significantly boosts global GDP per capita and reduces poverty, particularly in low-income countries. Their findings highlight that the benefits of such investments emerge gradually over time, underscoring the importance of long-term policy commitment. Similarly, Wang S., Lin X., Xiao H. et al. [8] provide empirical evidence showing a strong positive relationship between human capital accumulation—measured through education and health indicators—and economic growth. They further link human capital development to broader sustainable development goals, including social well-being and environmental quality. Both studies agree that strategic government policies supporting education, training, and healthcare are essential to maximize the economic and social returns of human capital investment.

Thus, the reviewed literature consistently demonstrates that investment in human capital is a fundamental driver of economic growth across diverse

contexts. Empirical evidence from Sub-Saharan Africa, India, and cross-country analyses reveals a positive and significant relationship between human capital development—particularly through education, skills training, and health—and long-term economic performance. These studies highlight that the benefits of human capital investment are not immediate; rather, they accumulate over time, requiring sustained and well-timed policy interventions. Additionally, aligning educational systems and skill development with labor market needs is essential to maximize economic returns and address challenges such as brain drain and skill mismatches. The research also underscores the importance of inclusive and lifelong learning strategies, as well as the integration of quality and motivation factors into human capital models, to foster sustainable and resilient growth.

The reviewed research highlights that human capital is a critical factor in enhancing the effectiveness of financial development and driving sustainable economic growth. Studies show that financial progress alone is insufficient without adequate human capital to fully leverage its potential for innovation and entrepreneurship. Moreover, long-term investments in education, health, and skills development are essential for achieving significant and lasting improvements in economic performance and poverty reduction. Integrated policy approaches that simultaneously promote human capital development and financial sector growth are necessary to maximize economic and social benefits. Overall, these findings underscore the vital role of human capital investment as a foundation for inclusive and sustainable development worldwide.

Overall, the findings support the view that comprehensive human capital policies—encompassing education, health, continuous upskilling, and supportive work environments—are crucial for enhancing innovation, productivity, and inclusive economic development in both developing and developed countries.

Compared to most European countries, Ukraine faces several acute challenges in translating human capital investment into sustainable economic growth. First, human capital accounts for only 34% of Ukraine's national wealth, whereas in many European countries this figure exceeds 50%, indicating a significant underutilization of its workforce potential [9]. Ukraine has experienced rapid depopulation, with its population shrinking from 50 million in 1999 to 42 million in 2019, a rate and scale of decline unparalleled among its European neighbors [9]. Labor migration, particularly to the EU, has led to a substantial outflow of skilled workers, further deepening workforce shortages and contributing to a “human capital flight” that undermines growth prospects (Bilan et al., 2021). De-

spite high rates of educational attainment, the quality of education and the relevance of graduates' skills often lag behind European standards, resulting in a persistent mismatch between labor market demand and supply [10].

Vocational education and training (VET) systems in Ukraine are less attractive and less effective than those in Europe, with participation rates falling and limited alignment with the needs of a modern economy. The country's labor productivity is significantly lower than in Central Europe; for example, gross value added per employee in Ukraine is about 5.5 times lower than in Central European countries. Investment in fixed capital as a share of GDP is also lower than in Europe, constraining the modernization of industries and the adoption of new technologies. The war has further exacerbated these problems, causing additional population loss, internal displacement, and disruption of education and healthcare systems [9].

There is also a notable gap in innovation capacity: Ukraine produces fewer patents per capita and invests less in research and development compared to European peers, limiting the ability to translate human capital into high-value economic output [11]. Additionally, the share of young people in the population is declining, and their engagement in the labor market is the lowest among Eastern Partnership countries. Public spending on education, healthcare, and social protection is lower and less centralized than in the EU, affecting overall well-being and productivity [9]. These factors collectively highlight the urgent need for comprehensive reforms and sustained investment to align Ukraine's human capital development with European standards and drive long-term economic growth [10].

Despite the severe impact of war and ongoing demographic challenges, Ukraine's human capital investment prospects remain cautiously optimistic. The government has prioritized human capital development in the Ukraine Plan, a core part of the EU's Ukraine Facility, focusing on inclusive education, healthcare access, labor market reintegration, and social infrastructure improvement [12]. Strategic reforms aim to address skills mismatches, support the return and reintegration of displaced citizens, and foster gender equality and the inclusion of minorities and people with disabilities [9]. Ukraine's growing IT sector and resilient startup ecosystem further demonstrate the country's potential to leverage its highly educated population for economic recovery and innovation [13; 14].

CONCLUSION

Thus, this study clearly establishes that investment in human capital is a fundamental driver of sus-

tained economic growth across diverse regions and contexts. Empirical evidence highlights that education, skills training, and health improvements contribute significantly to long-term economic performance, although the benefits accrue gradually and require consistent policy support. Aligning educational systems with labor market needs and promoting inclusive, lifelong learning are critical to maximizing the returns on human capital investment. Furthermore, human capital enhances the effectiveness of financial development, enabling innovation and entrepreneurship that drive sustainable growth. Integrated policy approaches that simultaneously foster human capital and financial sector development are essential for achieving broad economic and social benefits.

In the same time, Ukraine faces unique challenges in leveraging human capital for growth compared to many European countries. Issues such as population decline, labor migration, skill mismatches, and underinvestment in education and innovation hamper its economic potential. The ongoing conflict has further disrupted education, healthcare, and labor markets, exacerbating these problems. Despite these obstacles, Ukraine's human capital investment prospects remain cautiously optimistic due to strategic reforms under the Ukraine Plan and growing sectors like IT and startups. Continued focus on inclusive education, healthcare access, and labor market reintegration will be vital for recovery.

We believe that a continued commitment to a comprehensive human capital policy can help Ukraine meet European standards and promote long-term inclusive economic development. ■

BIBLIOGRAPHY

1. Psacharopoulos G., Patrinos H. A. Returns to investment in education: A decennial review of the global literature. *Education Economics*. 2018. Vol. 26. Iss. 5. P. 445–458.
DOI: <https://doi.org/10.1080/09645292.2018.1484426>
2. Wilson R. A., Briscoe G. The impact of human capital on economic growth: A review. European Commission. *Report to DG Employment and Social Affairs*. 2004. URL: https://www.cedefop.europa.eu/files/BgR3_Wilson.pdf
3. Rangongo M. F., Ngwakwe C. C. Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries. *Acta Universitatis Danubius*. 2019. Vol. 15. Iss. 1. P. 92–107. URL: <https://ideas.repec.org/a/dug/actaec/y2019i1p92-107.html>
4. Deb Gupta S., Divekar R., Kumar P. Empirical Analysis of the Effect of Human Capital Generation on Economic Growth. In *Proceedings of the 9th Annual International Conference on 4C's-Communication, Commerce, Connectivity, Culture* (SIMSARC 2018).

- P. 1–7. European Alliance for Innovation, India. 17–19 December 2019.
DOI: <http://dx.doi.org/10.4108/eai.18-12-2018.2286388>
5. Abrha T. G., Weldeyohans B. T. The Role of Human Capital in Economic Development: A Theoretical Analysis. *Journal of Human Resource Management*. 2025. Vol. 13. Iss. 2. P. 30–35.
DOI: <https://doi.org/10.11648/jjhrm.20251302.11>
6. Saroj S., Shastri R. K., Singh P. et al. In what ways does human capital influence the relationship between financial development and economic growth? *Benchmarking: An International Journal*. 2023. Vol. 30. Iss. 4. P. 1073–1091.
DOI: <https://doi.org/10.1108/bij-03-2023-0131>
7. Collin M., Weil D. N. The effect of increasing human capital investment on economic growth and poverty: A simulation exercise. *Bravo Working Paper*. 2020-003. URL: <https://economics.brown.edu/sites/default/files/papers/Bravo%20Working%20Paper%202020-003.pdf>
8. Wang S., Lin X., Xiao H. et al. Empirical Study on Human Capital, Economic Growth and Sustainable Development: Taking Shandong Province as an Example. *Sustainability*. 2022. Vol. 14. Iss. 12. Art. 7221.
DOI: <https://doi.org/10.3390/su14127221>
9. Ukraine Economic Update: Addressing Demographic Challenges. *World Bank Group*. 2022. URL: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099885005262211309/ukraine-economic-update-addressing-demographic-challenges>
10. Bilorusets L., Mylenkyi V., Lunova T., Zhurba O., Samoilenko V. The Development of Human Capital within the Framework of the Demographic Economy of Ukraine: Factors of Stability. *International Journal of Economics and Financial Issues*. 2025. Vol. 15. No. 4. P. 144–151.
DOI: <https://doi.org/10.32479/ijefi.19299>
11. Gallardo-Gallardo T., Tunnissen P., Skullion T. Talent management: context matters. *Journal of Human Resource Management*. 2020. Vol. 31. P. 457–473.
DOI: [10.1080/09585192.2019.1642645](https://doi.org/10.1080/09585192.2019.1642645)
12. Ukraine Plan: Human capital development and recovery. *European Commission*. 2023. URL: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/ukraine-plan_en
13. Hanushek E. A., Woessmann L. The knowledge capital of nations: Education and the economics of growth. *MIT Press*. 2015. 280 p.
14. Education at a Glance 2021: OECD Indicators. *OECD Publishing*, 2021. URL: https://www.oecd.org/en/publications/education-at-a-glance-2021_b35a14e5-en.html

REFERENCES

- Abrha, T. G., and Weldeyohans, B. T. "The Role of Human Capital in Economic Development: A Theoretical

- Analysis". *Journal of Human Resource Management*, vol. 13, no. 2 (2025): 30-35.
DOI: <https://doi.org/10.11648/j.jhrm.20251302.11>
- Bilorusets, L. et al. "The Development of Human Capital within the Framework of the Demographic Economy of Ukraine: Factors of Stability". *International Journal of Economics and Financial Issues*, vol. 15, no. 4 (2025): 144-151.
DOI: <https://doi.org/10.32479/ijefi.19299>
- Collin, M., and Weil, D. N. "The effect of increasing human capital investment on economic growth and poverty: A simulation exercise". *Bravo Working Paper*. 2020-003. <https://economics.brown.edu/sites/default/files/papers/Bravo%20Working%20Paper%202020-003.pdf>
- Debgupta, S., Divekar, R., and Kumar, P. "Empirical Analysis of the Effect of Human Capital Generation on Economic Growth". *Proceedings of the 9th Annual International Conference on 4C's-Communication, Commerce, Connectivity, Culture* (SIMSARC 2018). India: European Alliance for Innovation, 2019. 1-7.
DOI: <http://dx.doi.org/10.4108/eai.18-12-2018.2286388>
- "Education at a Glance 2021: OECD Indicators". *OECD Publishing*, 2021. https://www.oecd.org/en/publications/education-at-a-glance-2021_b35a14e5-en.html
- Gallardo-Gallardo, T., Tunnissen, P., and Skullion, T. "Talent management: context matters". *Journal of Human Resource Management*, vol. 31 (2020): 457-473.
DOI: [10.1080/09585192.2019.1642645](https://doi.org/10.1080/09585192.2019.1642645)
- Hanushek, E. A., and Woessmann, L. *The knowledge capital of nations: Education and the economics of growth*. MIT Press, 2015.
- Psacharopoulos, G., and Patrinos, H. A. "Returns to investment in education: A decennial review of the global literature". *Education Economics*, vol. 26, no. 5 (2018): 445-458.
DOI: <https://doi.org/10.1080/09645292.2018.1484426>
- Rangongo, M. F., and Ngwakwe, C. C. "Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries". *Acta Universitatis Danubius*. 2019. <https://ideas.repec.org/a/dug/actaec/y2019i1p92-107.html>
- Saroj, S. et al. "In what ways does human capital influence the relationship between financial development and economic growth?" *Benchmarking: An International Journal*, vol. 30, no. 4 (2023): 1073-1091.
DOI: <https://doi.org/10.1108/bij-03-2023-0131>
- "Ukraine Economic Update: Addressing Demographic Challenges". *World Bank Group*. 2022. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099885005262211309/ukraine-economic-update-addressing-demographic-challenges>
- "Ukraine Plan: Human capital development and recovery". *European Commission*. 2023. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/ukraine-plan_en
- Wang, S. et al. "Empirical Study on Human Capital, Economic Growth and Sustainable Development: Taking Shandong Province as an Example". *Sustainability*, art. 7221, vol. 14, no. 12 (2022).
DOI: <https://doi.org/10.3390/su14127221>
- Wilson, R. A., and Briscoe, G. "The impact of human capital on economic growth: A review". *European Commission. Report to DG Employment and Social Affairs*. 2004. https://www.cedefop.europa.eu/files/BgR3_Wilson.pdf

Scientific advisor: Fedorova Yu., PhD in Economics, Associate Professor of Economics and Management Department at V. N. Karazin, Kharkiv National University (Kharkiv, Ukraine)