Zeszyty Naukowe Uniwersytet Ekonomiczny w Krakowie

1 (999)
2023

Zesz. Nauk. UEK, 2023, 1(999): 31–46
ISSN 1898-6447
e-ISSN 2545-3238
https://doi.org/10.15678/ZNUEK.2023.0999.0102

The Effectiveness of Investment in Human Capital in Poland and Ukraine: Directions for Growth Based on Comparative Analysis

Efektywność inwestycji w kapitał ludzki w Polsce i w Ukrainie – kierunki wzrostu na podstawie analizy porównawczej

Olena Brintseva

Kyiv National Economic University named after Vadym Hetman, Socioeconomics and Personnel Management Department, 54/1 Pr. Peremogy, 03057, Kyiv, Ukraine, e-mail: o.brintseva@gmail.com, ORCID: https://orcid.org/0000-0003-2442-3000

Suggested citation: Brintseva, O. (2023), "The Effectiveness of Investment in Human Capital in Poland and Ukraine: Directions for Growth Based on Comparative Analysis", *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie* 1(999): 31–46, https://doi.org/10.15678/ZNUEK.2023.0999.0102.

ABSTRACT

Objective: To perform a comparative analysis of the effectiveness of investments in human capital in Poland and Ukraine; to identify priority directions of implementing the Polish experience for increasing the effectiveness of investments in education, healthcare and the social and labour sphere.

Research Design & Methods: Cost method was used to determine the value of human capital, which is based on an assessment of human capital investment in three areas – education costs, enterprise spending on advanced training, and healthcare costs – and adjusted by the human capital efficiency ratio. Comparative analysis is also used to characterise the situation in Ukraine and Poland in key areas of human capital reproduction.

Findings: The results indicate that the efficiency of human capital in Ukraine is low. This is caused primarily by negative economic dynamics, but also by fairly low public spending on education and healthcare.
Implications/Recommendations: A review of the literature shows that implementation of the Polish experience could boost the effectiveness of human capital investments in Ukraine. Conducting a comparative analysis will make it possible to identify the main areas and directions of their implementation.
Contribution: The article contributes to the scientific literature on evaluating the effectiveness of human capital investment. It also identifies current shortcomings in the creation, development, use and preservation of human capital, and which should be improved in such areas as education, healthcare and the social and labour sphere.

Article type: original article.

Keywords: human capital, comparative analysis, socio-economic mechanism, investment, effectiveness.

JEL Classification: J24.

STRESZCZENIE

Cel: Celem badań było przeprowadzenie porównawczej analizy efektywności inwestycji w kapitał ludzki w Polsce i w Ukrainie, a także określenie priorytetowych kierunków wykorzystania polskich doświadczeń w celu poprawy efektywności inwestycji w takich obszarach, jak edukacja, opieka zdrowotna oraz sfera pracy.
Metodyka badań: W badaniu wykorzystano metodę kosztową do określenia wartości kapitału ludzkiego, która jest oparta na ocenie inwestycji w kapitał ludzki w trzech obszarach (wydatki na edukację, wydatki przedsiębiorstw na zaawansowane szkolenia, koszty opieki zdrowotnej) i skorygowana przez współczynnik efektywności kapitału ludzkiego. Metoda analizy porównawczej została zastosowana w celu porównania sytuacji w Ukrainie i w Polsce w kluczowych obszarach reprodukcji kapitału ludzkiego.
Wyniki badań: Wyniki wskazują, że efektywność wykorzystania kapitału ludzkiego w Ukrainie jest niska, co jest spowodowane przede wszystkim negatywną dynamiką gospodarczą, a także stosunkowo niskimi wydatkami publicznymi na edukację i opiekę zdrowotną.
Wnioski: Przegląd literatury pozwolił stwierdzić, że wykorzystanie polskich doświadczeń może przyczynić się do wzrostu efektywności inwestycji w kapitał ludzki w Ukrainie. Przeprowadzona analiza porównawcza umożliwiła z kolei określenie głównych obszarów i kierunków ich wdrażania.
Wkład w rozwój dyscypliny: Artykuł wnosi wkład do literatury przedmiotu dotyczącej oceny efektywności inwestycji w kapitał ludzki. Wskazuje niedociągnięcia w zakresie tworzenia, rozwoju, wykorzystania i utrzymania kapitału ludzkiego w obszarach, które powinny ulec poprawie, takich jak edukacja, opieka zdrowotna oraz sfera pracy.

Typ artykułu: oryginalny artykuł naukowy.

Słowa kluczowe: kapitał ludzki, analiza porównawcza, mechanizm społeczno-ekonomiczny, inwestycje, efektywność.

1. Introduction

The efficiency of human capital utilisation is an important scientific problem, primarily because of the role it plays in economic development in most countries of the world. The processes of creation, development, utilisation and preservation of human capital occur in areas including education, healthcare and the social and labour sphere. In the educational system, the process of transferring knowledge from one generation to another takes place, forming the intellectual foundation of society. In the healthcare system, human capital helps maintain health and the ability to work at an appropriate level. In the social and labour spheres, efficiency ensures the productive use of human capital and financial resources for the processes of its reproduction at various stages.

As evidenced by reports from international organisations, Poland and Ukraine have different levels and conditions of human capital reproduction. The World Bank contributed significantly to the human capital monitoring process in 2018 by developing The Human Capital Index (The World Bank 2020a), which measures the amount of human capital that a child born today can expect to attain by age 18. The Index shows the productivity of the next generation of workers compared to a benchmark of complete education and full health. This indicator averaged 56% in 2020 in the world (The World Bank 2020a), while for Poland it came in at 75% (The World Bank 2020b) and for Ukraine at 63% (The World Bank 2020c).

UN Development Programme reports – Human Development Index (UNDP 2021) evaluates one dimension of human capital: knowledge. The indicators of Education Index (the expected years of schooling and mean years of schooling) in Poland were also higher in 2021 than in Ukraine: 16.0 and 13.2 years in Poland, 15.0 and 11.1 years in Ukraine (UNDP 2021). International monitoring of human capital indicators is important for numerous reasons. One is that the monitoring of the expected formation of human capital in the next generation, as a measure of the effect of near-term investments in health and education, could facilitate a mechanism to hold countries and donors accountable to their populations for these investments (Kim 2018).

The objective of this article is to conduct a comparative analysis of the effectiveness of investments in human capital in Poland and Ukraine and to identify priority directions for implementing the Polish experience for increasing the effectiveness of investments in education, healthcare and the social and labour sphere. In the context of comparative analysis of effectiveness of investment in human capital in Poland and Ukraine, it is important to pay attention to the following features (Brintseva 2022, Gylfason, Hochreiter & Kowalski 2022, Kichurchak 2022): Poland's more extensive and better-quality education and opportunities for human development; its more extensive and diversified exports, and fewer restrictions on trade; its more comprehensive and quicker restructuring of the national economy inspired by

the EU perspective; its more extensive democracy and longer experience of it; its lower levels of corruption, better governance, and freer press; its smaller agricultural sector and greater emphasis on manufacturing; its lower inflation and more extensive financial development. These features are responsible for Poland's higher economic development and better positions in world rankings on human capital in general and in education and labour relations in particular.

2. Literature Review

The theoretical basis of human capital as a concept can be traced back to Becker (1962), Bowen (1977), Sen (1999), Schultz (1961). The foundations of human capital theory, the processes of its reproduction and the issues of the effectiveness of investment in human capital, have been studied by Czajkowski (2012), Kotarski (2013), Libanova (2021), Łukasiewicz (2014), Michalska (2009), Terendij (2017) and others. In the genesis of the concept of human capital, the current stage is based on the assumption that significant asymmetries exist in all spheres of public life and there is a systemic crisis in the social and employee sphere. Accordingly, the studies listed above focus primarily on unproductive forms of human capital and improving the effectiveness of investments in human capital.

Education is a priority in the formation of human capital, while healthcare is mainly responsible for its preservation and the social and labour spheres are the main domains in which it is used. Investment in human capital and its effectiveness have been studied on the macroeconomic level by Boarini, d'Ercole and Liu (2012), Buffie *et al*. (2022), Fender (2013), Grishnova, Dorosh and Shurpa (2015) among others. A review of the literature and analysis of methods presented in the scientific literature: Davidyuk (2012), Grishnova, Dorosh and Shurpa (2015), Brintseva (2016), Grishnova & Brintseva (2018) show that human capital is assessed using four methods.

The first is representative evaluations. In such evaluations, education-related characteristics, usually the average number of years of education, are most often used. In order to comprehensively cover the main aspects of human capital, the evaluation can be carried out on such groups of indicators as "Education and Training", "Health", "Improvement of Employment and Income Growth", "Innovative Economic and Social Development", and "Development of Social Values". The Human Capital Index and the Human Development Index here serve as intermediate integrated evaluation indicators.

The second method is cost-based evaluation, which measures the flow of investments made by individuals, households, employers and the government. With this method, the most important aspect is to clearly identify which costs are considered investments in human capital. The main areas of investment in human capital

include education, healthcare, professional development and retraining, innovation and creativity, and mobility.

The third evaluation method is based on the profitability of using human capital. Profitability here is the basis of monetary benefits, which are more often used, or non-monetary benefits, which are difficult to objectively determine, and therefore are less often examined. The fourth method is the market-based method. The essence of this method is to find a specialist who has similar characteristics: level of training, work experience, health, etc. In this case, the employee's "value" to the company is determined by the price at which could be hired on the market.

The evaluation of human capital at the macroeconomic level can be carried out by using the cost-based evaluation method and the evaluation method based on the profitability of human capital. Representative evaluations can be used to assess qualitative indicators at the macroeconomic level, while the market method assesses human capital at the microeconomic level. In the present research, cost method was used to determine the value of human capital, based on an assessment of human capital investment in three areas: education costs, enterprises spending on advanced training, and healthcare costs, and adjusted by the human capital efficiency ratio. Comparative analysis was used to characterise the situation in Ukraine and Poland in key areas of human capital reproduction.

3. Findings from the Empirical Research

Following Boarini, d'Ercole and Liu (2012) and Grishnova, Dorosh and Shurpa (2015), the value of human capital is calculated using the cost method:

$$HC_{\text{value}} = I_{HC} \cdot E_{HC},$$

where HC_{value} is the value of human capital (millions of euros), I_{HC} is investment in human capital (millions of euros) and E_{HC} is the human capital efficiency ratio.

Assuming that: 1) total education spending combines public education, private company and household spending, 2) total investment also includes corporate costs for training, 3) total health spending combines public health spending, company and corporate spending, household spending and donor organisation assistance, the investment in human capital (I_{HC}) can be formally described as follows:

$$I_{HC} = I_E + I_Q + I_H,$$

where I_E is the total spending on education (millions of euros), I_Q is corporate spending on advanced training (millions of euros) and I_H is total healthcare costs (millions of euros).

The efficiency of human capital (E_{HC}) is determined by an indicator method according to the following formula:

$$E_{HC} = \frac{I_{QPL}}{I_{IHC}},$$

where I_{QPL} is the rate of growth of production in the country due to productivity growth and I_{IHC} is the growth rate of investment in human capital. Given that the cost indices are reduced to a single currency (euro), the proposed method for calculating the value of human capital can be used for international comparisons.

To conduct the comparative analysis, the amount of investment in human capital in Ukraine (Table 1) and Poland (Table 2) was calculated based on official data from the State Statistical Service of Ukraine, Statistics Poland (GUS), and the Statistical Office of the European Union (Eurostat).

The indicator "Total expenditure on education" (Table 1) consolidates the spending of the state budget, local budgets and household spending on education in Ukraine. During the period under review, local budgets accounted for the largest share of education spending. To ensure that the amount of investment in human capital in Ukraine and Poland can be compared, all indicators were converted into euros at the average annual exchange rate of the National Bank of Ukraine and the National Bank of Poland. The total amount of enterprise spending on advanced training, according to the survey, averages 0.2% of the employee payroll fund (State Statistics Service of Ukraine 2011). Total healthcare costs combine government spending, household spending and other private spending (insurance benefits, health insurance funds, etc.), and international aid. It is noteworthy that household spending is almost equal to public spending on healthcare.

In 2013–2020 (Table 1), the healthcare costs accounted for the largest share in investment in human capital in Ukraine. For example, in 2020, healthcare costs were 55.6% while education costs came in at 44.1%. Unfortunately, business investment in human capital (enterprise spending on advanced training) has traditionally been low: in 2013–2020 it ranged between 0.3% and 0.4%.

This is mainly because enterprises are not well developed technologically as most do not require employees to have advanced qualifications. Ukrainian enterprises also exhibit a low level of social responsibility and lack financial resources due to the negative impact of the crisis. Investment in human capital in Ukraine tended to fall in the 2013–2020 period. For example, in 2020 investment was 14.9% lower than it had been in 2013. The efficiency of human capital utilisation in Ukraine in 2013–2020 was calculated according to the methodology elaborated above was also low (Table 3).

During the present crisis in Ukraine the utilisation of human capital has become much less efficient. This is related to both the decline in production and the negative dynamics of investment in the country's human capital. To increase the effectiveness of investment in human capital in Ukraine, the following steps could be taken: first, ensure the targeted use of public investments, and use them responsibly. Second, provide state support for education and healthcare as priority areas of human capital formation. Third, develop an effective system for monitoring key indicators

Table 1. Investment in Human Capital in Ukraine, 2013–2020

Indicator	Year								Change 2020/2013	
	2013	2014	2015	2016	2017	2018	2019	2020	+/–	%
Total expenditure on education, mln euro	10,927.3	6,920.0	4,713.2	4,575.1	5,929.7	6,534.3	7,902.1	8,213.2	–2,714.1	–33.0
Enterprises spending on advanced training, mln euro	75.1	47.6	33.5	34.6	43.6	50.7	64.8	68.1	–7	–10.3
Total healthcare costs, mln euro	10,907.9	7,492.7	6,406.4	6,418.8	7,455.6	7,249.4	8,695.5	10,356.5	–551.4	–5.3
Investment in human capital, mln euro	21,910.3	14,460.3	11,153.1	11,028.5	13,429.0	13,834.4	16,662.3	18,637.8	–3,272.5	–17.6

Source: calculated by the author based on data from State Statistics Service of Ukraine (2020a, 2020b, 2020c, 2020d), Ministry of Health of Ukraine (2020), National Bank of Ukraine (2021).

Table 2. Investment in Human Capital in Poland, 2013–2020

Indicator	Year								Change 2020/2013	
	2013	2014	2015	2016	2017	2018	2019	2020	+/–	%
Total expenditure on education, mln euro	20,802.6	21,606.2	22,703.7	21,193.6	22,897.0	24,875.4	26,737.3	27,156.8	6,354.2	23.4
Enterprises spending on advanced training, mln euro	423.7	445.6	501.9	481.6	466.3	506.6	544.5	553.1	129.4	23.4
Total healthcare costs, mln euro	18,298.3	19,065.9	20,095.3	19,755.7	21,888.5	23,921.4	26,035.5	28,228.8	9,930.5	35.2
Investment in human capital, mln euro	39,524.6	41,117.7	43,300.9	41,430.9	45,251.8	49,303.4	53,317.3	55,938.7	16,414.1	29.3

Source: calculated by the author based on data from Eurostat (2022a, 2022b), Statistics Poland (2021a, 2021b), National Bank of Poland (2021), PKO Bank Polski (2016).

of socio-economic development and their use in management decisions. Fourth, increase social responsibility at all levels. Fifth, create the conditions necessary for productive employment. Finally, take measures to improve migration trends, building a culture of cohesion and responsibility in society.

Table 3. Human Capital Utilisation Efficiency in Ukraine, 2013–2020

Indicator	Year						
	2014/ 2013	2015/ 2014	2016/ 2015	2017/ 2016	2018/ 2017	2019/ 2018	2020/ 2019
The index of production growth in the country due to increased productivity	0.828	0.984	1.031	0.971	0.953	0.917	0.932
Human capital investment growth rate	0.660	0.771	0.989	1.218	1.030	1.204	1.119
Human capital utilisation efficiency	1.255	1.276	1.043	0.797	0.925	0.761	0.834

Source: calculated by the author based on data from the State Statistics Service of Ukraine (2021).

Investment in human capital in Poland in 2013–2020 calculated on the basis of available statistics was considerably more extensive than in Ukraine (Table 2). The difference in the indicators used for Ukraine and Poland is primarily due to the availability of statistical data. Therefore, unlike Ukraine, this survey for Poland is about government spending on education and healthcare. It is also interesting to note that, according to a PKO Bank Polski survey, spending on training in relation to total business revenues in Poland was at about 0.06% (PKO Bank Polski 2016). According to Table 2, in Poland in 2013–2019, more was spent on education than on healthcare, but in 2020 the situation reversed, with healthcare expenditures coming in higher. Evaluating these changes based on global trends and the Ukrainian experience in particular, it may be said that this is not a good trend for the reproduction of human capital. Enterprises spending on advanced training in Poland is low, but slightly higher than in Ukraine, which during the years 2013–2020 ranged between 1.0–1.2%. However, despite the fact that the structure of investment in human capital is very similar, in quantitative terms, these investments are on average three times higher in Poland than in Ukraine, endowing the former with far greater opportunities for reproducing human capital (Fig. 1).

In 2013–2020, the expenditure on education in Poland were on average 3.6 times higher than in Ukraine, while total healthcare costs were an average of 2.8 times higher. Analysing the reasons that led to such a significant difference in the indicators characterising human capital in Ukraine and Poland, one can first of all identify those factors which reduce effectiveness:

1) in education: lowering the quality of educational services and corruption, which creates conditions for obtaining a level of education and qualifications that are not confirmed by real knowledge; low salaries paid by educational institutions;

excessive bureaucracy of the national education system; limited access to high--quality educational services for the majority of the population; inconsistent effectiveness of remote education; a low level of academic integrity, ethics of citing and publishing scientific papers; the digital gap among older people; lack of a culture of lifelong learning, and others;

2) healthcare: the poor physical condition of the country's public healthcare facilities; low salaries in public healthcare institutions; low financial capacity of the population to maintain good health and invest in its improvement; high prices of services in private healthcare facilities; poor quality control of medical services in private healthcare facilities; a low level of social responsibility among employees of private healthcare institutions; lack of a culture of lifelong health support, a lack of systematic preventive examinations and others;

3) the social and labour sphere: low wages in the economy, "cheap labour" policy; lack of social stability, few social guarantees; entrepreneurs focusing on "quick results" and short-term planning. At the same time, most domestic companies fail to invest in employee development and career planning; discrimination of certain categories of the population are discriminated against on the labour market; low salaries; career advancement not through skills, but through contacts; asymmetries in pension legislation, significant differences between the amount of pensions received; age discrimination in the domestic labour market; low level of social responsibility of the state and others.

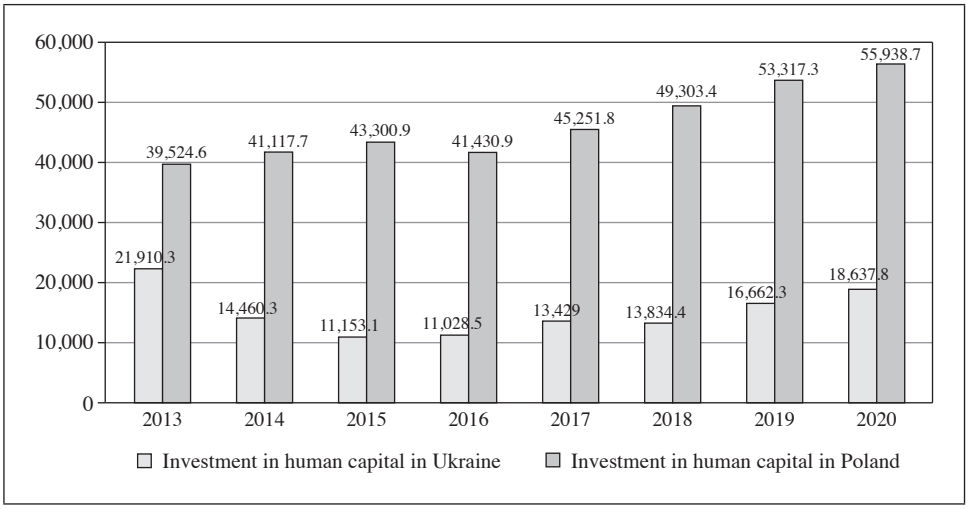

Fig. 1. The Dynamics of Investment in Human Capital in Ukraine and Poland, in 2013–2020, mln euro

Source: calculated by the author.

The efficiency of human capital utilisation in Poland in 2013–2020 was calculated in Table 4.

Table 4. Human Capital Utilisation Efficiency in Poland, 2013–2020

Indicator	Year						
	2014/ 2013	2015/ 2014	2016/ 2015	2017/ 2016	2018/ 2017	2019/ 2018	2020/ 2019
The index of production growth in the country due to the increase in productivity	1.018	1.023	1.042	1.092	1.057	1.036	1.045
Human capital investment growth rate	1.040	1.053	0.957	1.092	1.090	1.081	1.049
Human capital utilisation efficiency	0.979	0.971	1.089	1.000	0.970	0.958	0.996

Source: calculated by the author based on data from The World Bank (2022), Statistics Poland (2021a, 2021b).

Analysis of the effectiveness of investment in human capital in Ukraine and Poland shows that, unfortunately, in most of the analysed periods, it was below 1. This was caused not only by negative economic dynamics in Ukraine, but also by the fact that public spending on education and healthcare is quite low. To increase the effectiveness of investment, it may be appropriate to build a socio-economic mechanism that will promote more productive use of existing resources at various stages of human capital reproduction. This will create conditions for overcoming the negative effects of crises at all levels and gradually restore positive economic dynamics in Ukraine. In the structure of the socio-economic mechanism, it is possible to distinguish three blocks under which the purpose and tasks of the operation of this mechanism are carried out: organisational and economic support, regulatory support and socio-economic support. This socio-economic mechanism (Fig. 2) operates with a clearly defined purpose and tasks. It also combines blocks and elements, the interaction of which ensures rising efficiency of the human capital investment in Ukraine.

The purpose of the socio-economic mechanism is to create an effective infrastructure for human capital management, unify and coordinate all aspects of socio-economic policy in human capital management and create favourable conditions for living, development, training and employment of people in the country. To achieve this goal, the following steps should be taken: create an effective infrastructure for human capital management; coordinate the human capital management activities of all social institutions; implement the Polish experience in human capital management, development and implementation of a state programme for human capital management; introduce state monitoring of human capital indicators; reform the healthcare system, with an emphasis on preserving human capital; increase the level of social responsibility of employers and the state; set an appropriate level of state social standards.

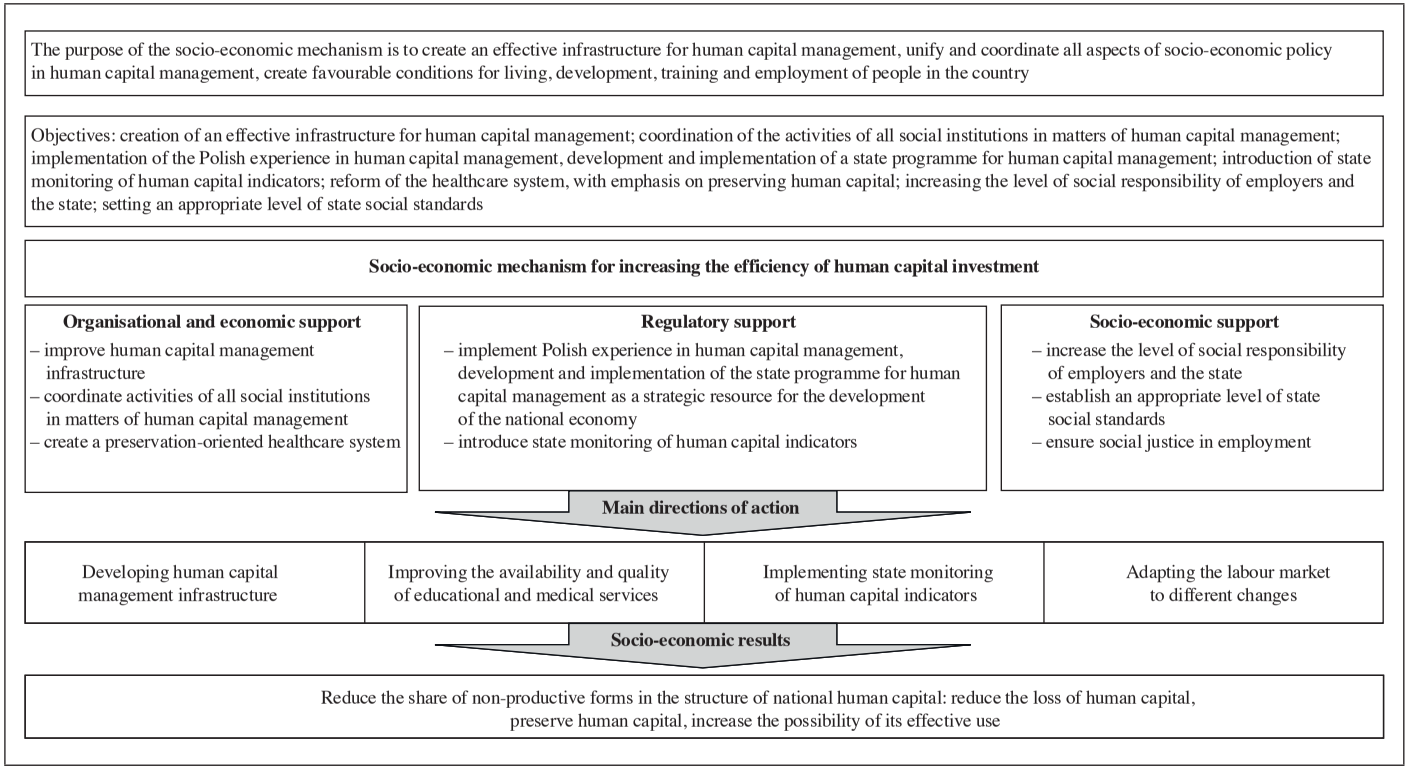

Fig. 2. Socio-economic Mechanism for Increasing the Efficiency of Human Capital Investment in Ukraine

Source: the author.

Regulatory support may be carried out in areas including: implementation of the Polish experience in human capital management, development and implementation of a state programme for human capital management as a strategic resource for the development of the national economy; state monitoring of human capital and other indicators. First and foremost, however, must come the legal regulation of remote work, the provision of legal protection against cyber threats, and the implementation of anti-discrimination policies in the domestic labour market.

State monitoring of human capital indicators is an effective tool for control, as it studies the dynamics of human capital indicators for making sound management decisions. It also identifies priority areas of impact in the implementation of state social policy. I propose monitoring the following human capital performance indicators: total expenditure on education; enterprise spending on advanced training; total healthcare costs; investment in human capital; the index of production growth in the country due to the increase in productivity; human capital investment growth rate; and human capital utilisation efficiency. This monitoring would be carried out by the Ministry of Social Policy of Ukraine jointly with the State Statistical Service of Ukraine.

Organisational and economic support combines: improvements made to the human capital management infrastructure; coordinating the activities of all social institutions on human capital management issues; and creating a healthcare system geared to last. Human capital management infrastructure links the structural units of the relevant ministries and departments dealing with human capital management – the Ministry of Social Policy of Ukraine, the State Employment Service of Ukraine, the Ministry of Education and Science of Ukraine, Ukraine's Ministry of Health, the Social Insurance Fund, the Pension Fund of Ukraine and others. This infrastructure is formed on a matrix basis, i.e., no additional public body is envisaged to be responsible for these issues.

As part of socio-economic support, it is necessary to: increase the level of social responsibility of employers and the state; establish an appropriate level of state social standards; and ensure social justice in employment. Three steps – increasing the level of social responsibility of employers and the state, improving the level of state social standards, and ensuring social justice in employment – could form the foundation for high ethical values and the gradual transition to a "people-oriented" social economy.

4. Conclusions

To increase the effectiveness of investment in human capital in Ukraine, it is recommended that a socio-economic mechanism be built. As concerns education, it is necessary to increase the effectiveness of investment in human capital, increase the quality of educational services and competitiveness of universities, expand

access to education for various social groups, combat corruption, and adapt the educational system to the conditions of distance learning. Prior to that, it will be necessary to implement measures including the following: to develop international cooperation and increase the presence of universities in international rankings; increase the competitiveness of university-trained specialists in the national and international labour market; attract international investment to improve the provision of resources (scientific and educational potential; material and technical base; innovative potential and its implementation, etc.); increase the efficiency of activities in the market for educational services (development of various forms of education; increasing the effectiveness of the promotion of educational services; establishing a competitive price, etc.); ensure a transparent application procedure that uses online registration forms; raise the level of social responsibility of university academics and students; support the further development of digital competence of teachers and administrative staff (including through participation in training courses, workshops on the use of online learning platforms, creation of digital content, data analysis); implement changes in curricula, including adapting them to remote education, and others.

In the healthcare system, it is essential to increase the effectiveness of investment in human capital; expand the level of availability of quality medical services to the general public; and develop a culture of lifelong support for health. The following are also recommended: improve working conditions in the health sector, including an increase in wages; reform the system for training medical staff; make the healthcare management system more coherent; increase the effectiveness of treatment and introduce universal prevention, which will reduce the cost of public health services in the long term; increase confidence in healthcare by raising the level of social responsibility of healthcare workers; increasing the digitisation of the healthcare system, implementing a coherent e-health strategy; improve public communication on health issues; and raise the quality of cooperation with the medical community and others.

In the social and labour sphere in Ukraine, increasing the effectiveness of investment in human capital is essential. It will entail overcoming asymmetries in the social and labour spheres that contribute to the growth of unproductive forms of human capital and increasing the culture of investment in employee development. The priority directions for implementing the Polish experience in Ukraine include: decreasing the share of the shadow economy by implementing a system of measures at the state level. This will require many steps, including increasing social guarantees, raising the national average wage and improving working conditions; implementing anti-discrimination policies in the labour market; raising the level of social responsibility employers take; implementing long-term strategies for the professional development of employees; supporting the further development

of digital competence of employees; increasing computerisation/digitalisation at the enterprise level; ensuring the maintenance of work-life balance and providing protection against cyber threats.

References

Becker G. S. (1962), *Investment in Human Capital: A Theoretical Analysis*, "The Journal of Political Economy", vol. 70(5), https://doi.org/10.1086/258724.

Boarini R. M., d'Ercole M., Liu G. (2012), *Approaches to Measuring the Stock of Human Capital: A Review of Country Practices*, OECD Statistics Working Papers No. 2012/04, OECD Publishing, Paris, http://doi.org/10.1787/5k8zlm5bc3ns-en.

Bowen H. (1977), *Investment in Learning: The Individual and Social Value of American Higher Education*, Jossey-Bass Publishers, San Francisco.

Brintseva O. (2016), *Liudskyi kapital: konceptualni pidkhody ta osoblyvosti ociniuvannia* [Fictitious Human Capital: Conceptual Approaches and Features of Evaluation], "Visnyk Kyivskoho Nacionalnoho Uniwersytetu Imeni Tarasa Shevchenka. Ekonomika" [Bulletin of the Taras Shevchenko National University of Kyiv. Economics], vol. 4(181), https://doi.org/10.17721/1728-2667.2016/181-4/5.

Brintseva O. (2022), *Yak zapobihty fiktyvizatsii liudskoho kapitalu: dosvid vyshchoi osvity Polshchi* [How to Prevent the Fictivization of Human Capital: The Experience of Higher Education in Poland], "Socialno-trudovi Vidnosyny: Teoriia ta Praktyka" [Social and Labour Relations: Theory and Practice], vol. 11(1), https://doi.org/10.21511/slrtp.11(1).2021.05.

Buffie E. F., Adam C., Zanna L. F., Balma L., Tessema D., Kpodar K. (2022), *Public Investment and Human Capital with Segmented Labour Markets*, "Oxford Economic Papers", https://doi.org/10.1093/oep/gpac051.

Czajkowski Z. (2012), *Kapitał ludzki – pojęcie i miary* [Human Capital – Concept and Measures], Instytut Gospodarki Światowej, Szkoła Główna Handlowa, Warszawa, retrieved from https://ssl-kolegia.sgh.waw.pl/pl/KGS/struktura/IGS-KGS/publikacje/Documents/Z._Czajkowski_312.pdf (accessed: 26.05.2023).

Davidyuk T. (2012), *Liudskyi kapital yak obiekt vartisnoho vymiriuvannia v bukhhalterskomu obliku* [Human Capital as the Subject of Value Measurement in Accounting], retrieved from http://pbo.ztu.edu.ua/article/viewFile/36447/38637 (accessed: 26.05.2023).

Eurostat (2022a), *General Government Expenditure by Function* (*COFOG*), Education, retrieved from https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_EXP__custom_4203075/default/table?lang=en (accessed: 27.05.2023).

Eurostat (2022b), *General Government Expenditure by Function* (*COFOG*), Health, retrieved from https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_EXP__custom_4203211/default/table?lang=en (accessed: 27.05.2023).

Fender V. (2013), *Measuring the UK's Human Capital Stock. Methodology Guidance*, Office for National Statistics, London.

Grishnova O., Brintseva O. (2018), *Konkurentospromozhnist vyshchoi osvity i pratsivnykiv: yak stvoriuietsia fiktyvnyi liudskyi kapital?* [Competitiveness of Higher Education and the Competitiveness of Workers: How Is Fictitious Human Capital Created?], "Rynok pratsi ta zainiatist naselennia" [Labour Market and Employment], vol. 1(54).

Grishnova O., Dorosh V., Shurpa S. (2015), *Investuvannia v liudskyi kapital u systemi chynnykiv zabezpechennia hidnoi pratsi* [Investing in Human Capital in the System of Factors Ensuring Decent Work: A Monograph], Kyiv National Economic University, Kyiv.

Gylfason T., Hochreiter E., Kowalski T. (2022), *Different Choices, Divergent Paths: Poland and Ukraine*, Research Report 465, The Vienna Institute for International Economic Studies, retrieved from https://wiiw.ac.at/different-choices-divergent-paths-poland-and-ukraine-dlp-6419.pdf (accessed: 28.05.2023).

Kichurchak M. (2022), *Development of the Higher Education Market in the EU Countries as a Factor of Human Capital Accumulation: Experience for Ukraine*, "Economic Annals-XXI", vol. 192(7–8(2)), https://doi.org/10.21003/ea.v192-05.

Kim J. Y. (2018), *The Human Capital Gap: Getting Governments to Invest in People*, "Foreign Affairs", vol. 97(4).

Kotarski H. (2013), *Marnotrawstwo mózgów? Kapitał ludzki podkarpackich bezrobotnych* [Brain Waste? Human Capital of the Unemployed from Podkarpacie], "Modern Management Review", vol. 18(20(4)), http://doi.prz.edu.pl/pl/pdf/zim/79.

Libanova E. (2021), *COVID-19: socialno-ekonomichni vtraty 2020 roku ta potenciini ryzyky* [COVID-19: Socio-economic Losses of 2020 and Potential Risks], "Visnyk Nacionalnoi akademii nauk Ukrainy" [Bulletin of the National Academy of Sciences of Ukraine], no. 6, https://doi.org/ 10.15407/visn2021.06.042.

Łukasiewicz G. (2014), *Niedoinwestowany kapitał ludzki* [Underinvested Human Capital], "Personel i Zarządzanie" [Personnel and Management], no. 5.

Michalska J. (2009), *Nieoceniony kapitał ludzki* [Invaluable Human Capital], "Bank", no. 6.

Ministry of Health of Ukraine (2020), *MOZ Ukrainy: Shcho bulo, ye i bude* [Ministry of Health of Ukraine: What Was, Is and Will Be], retrieved from https://moz.gov.ua/uploads/2/13773-transition_book_healthcare.pdf (accessed: 27.05.2023).

National Bank of Poland (2021), *Historic Average Exchange Rates*, retrieved from https://nbp.pl/en/statistic-and-financial-reporting/rates/archive-table-a-csv-xls/ (accessed: 27.05.2023).

National Bank of Ukraine (2021), *The Official Exchange Rate of the Hryvnia against Foreign Currencies*, retrieved from https://bank.gov.ua/ua/markets/exchangerate-chart (accessed: 27.05.2023).

PKO Bank Polski (2016), *Rynek usług szkoleniowych* (*85.59*) [Training Services Market (PKD 85.59)], retrieved from http://www.pkobp.pl/media_files/6df66082-489e-441f-9413-f66a726c945b.pdf (accesssed: 27.05.2023).

Schultz T. W. (1961), *Investment in Human Capital*, "The American Economic Review", vol. 51(1).

Sen A. (1999), *Development as Freedom*, Oxford University Press, Oxford.

State Statistics Service of Ukraine (2011), *Labor Costs of Enterprises*, retrieved from http://www.dst.dk/ext/107806513/0/ukraine/UKR_Survey-on-Enterprise-Labour-Costs-in-Ukraine--pdf (accessed: 27.05.2023).

State Statistics Service of Ukraine (2020a), *Salary Fund for All Employees by Type of Business Activity*, retrieved from https://ukrstat.gov.ua/operativ/operativ2018/gdn/Fop_ed/Arch_Fop_ed_u.htm (accessed: 27.05.2023).

State Statistics Service of Ukraine (2020b), *Satellite Account of Education in Ukraine*, retrieved from https://ukrstat.gov.ua/operativ/operativ2020/osv/sat_rah_osv/arh_sat_rah_u.htm (accessed: 28.05.2023).

State Statistics Service of Ukraine (2020c), *Satellite Account of Healthcare in Ukraine*, retrieved from https://ukrstat.gov.ua/metaopus/2023/1_04_00_02_2023.htm (accessed: 27.05.2023).

State Statistics Service of Ukraine (2020d), *Statistical Yearbook of Ukraine for 2019*, I. E. Verner (ed.), Kyiv.

State Statistics Service of Ukraine (2021), *Statistical Yearbook of Ukraine for 2020*, I. E. Verner (ed.), Kyiv.

Statistics Poland (2021a), *Human Capital in Poland in the Years 2016–2020*, retrieved from https://stat.gov.pl/en/topics/other-studies/other-aggregated-studies/human-capital-in-poland-in-the-years-20162020,5,7.html (accessed: 28.05.2023).

Statistics Poland (2021b), *Wydatki na ochronę zdrowia w latach 2019–2021* [Expenditure on Healthcare in 2019–2021], retrieved from https://stat.gov.pl/obszary-tematyczne/zdrowie/zdrowie/wydatki-na-ochrone-zdrowia-w-latach-2019-2021,27,2.html (accessed: 28.05.2023).

Terendij D. (2017), *Rentowność inwestycji w kapitał ludzki – paradoks szkolenia jako benefit* [Profitability of Investments in Human Capital – the Paradox of Training as a Benefit], "Modern Management Review", vol. 22(2), http://doi.prz.edu.pl/pl/pdf/zim/291.

UNDP (2021), *Human Development Index* (*HDI*), *Explore HDI*, retrieved from https://hdr.undp.org/data-center/human-development-index#/indicies/HDI (accessed: 28.05.2023).

The World Bank (2020a), *The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19*, retrieved from https://openknowledge.worldbank.org/handle/10986/34432 (accessed: 28.05.2023).

The World Bank (2020b), *Poland. Human Capital Index*, retrieved from https://databank.worldbank.org/data/download/hci/HCI_2pager_POL.pdf?cid=GGH_e_hcpexternal_en_ext (accessed: 28.05.2023).

The World Bank (2020c), *Ukraine, Human Capital Index*, retrieved from https://databank.worldbank.org/data/download/hci/HCI_2pager_UKR.pdf?cid=GGH_e_hcpexternal_en_ext (accessed: 28.05.2023).

The World Bank (2022), *Paths of Productivity Growth in Poland. A Firm-level Perspective*, retrieved from https://documents1.worldbank.org/curated/en/099235002102240024/pdf/P17424902ef0460db083a002cec248affd7.pdf (accessed: 28.05.2023).