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Human Capital Development, Remittances, and Poverty in Central and Eastern European Countries: What Do the Data Tell Us?

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Abstract

The study investigates the impact of human capital development on poverty in Central and Eastern European Countries (CEECs) using dynamic generalized methods of moments (GMM), fixed effects, random effects, and pooled ordinary least squares (OLS) with panel data ranging from 2008 to 2019. Using the same panel data analysis methods and data set, the study also explored the influence of the complementarity between human capital development and personal remittances on poverty in CEECs. What triggered the investigation into this topic is that the available literature on the subject matter is mixed, divergent, and very much conflicting. The lag of poverty, remittances, the interaction between human capital development and remittances, trade openness, unemployment, and partly financial development significantly increased infant mortality rates in CEECs. On the other hand, human capital development, infrastructural development, and partly financial development were found to have reduced infant mortality rates. These results mean that human capital development, financial development, and infrastructural development reduced poverty in CEECs during the period under study. Central and Eastern European Countries are therefore urged to craft and implement financial development, infrastructural development, and human capital development enhancement policies to combat poverty. Future empirical research could also investigate at what threshold the level of human capital development, financial and infrastructural development would poverty be significantly reduced in CEECs.

Keywords: human capital development, remittances, poverty, panel data analysis

JEL: J24, F24, I3

Introduction

This section consists of three segments, namely the background of the study, the contribution of the paper, and the organization of the study.

Background of the study and research gaps

Poverty eradication is one of the key United Nations Millennium Development Goals, alongside human capital development and unemployment and income inequality reduction, in line with empirical research on the subject matter. The Millennium Development Goals were crafted in such a way that recognizes that human capital development is central to alleviating unemployment, poverty, and income inequality. There have been several empirical studies that investigated the impact of human capital development on poverty, including Awan, Iqbal, and Waqas (2011), Chukwubudom (2016), Adekoya (2018), Bidemi et al. (2018), Olopade et al. (2019), Sajjad et al. (2019), and Wang et al. (2021). These empirical studies produced mixed results and were inconclusive, paving the way for further empirical tests on the subject matter.

The results of this prior empirical research on the influence of human capital development on poverty have several methodological deficiencies. Firstly, they ignored the endogeneity problem normally associated with poverty and its determinants. Secondly, the dynamic nature of the poverty data was largely ignored. Thirdly, they never studied the subject matter using CEECs as a unit of analysis, meaning they are narrow. Fourthly, they wrongly assumed that the relationship between poverty and human capital development is linear. Finally, the majority used an outdated dataset. The current study fills these gaps.

Contribution of the paper

This study contributes to the literature in six different ways. 1) Using the dynamic GMM, the study considered the endogeneity of the poverty function. 2) The dynamic characteristics of poverty data were captured by the dynamic GMM. 3) To the best of the author's knowledge, this is the first study to investigate how the complementarity between human capital development and personal remittances influences poverty. 4) Earlier empirical research on the human capital development-poverty nexus and personal remittances-poverty causality ignored Central and Eastern European Countries (CEECs) as a unit of analysis. In other words, there is an untold story on the human capital development-remittances-poverty nexus in the CEECs. This study fills that gap. 5) Unlike the majority of the empirical literature on the subject matter, this study assumes that there is a non-linear relationship between human capital development and poverty. 6) Unlike prior empirical research work on the subject matter, this study made use of the most recent dataset (2008–2019).

Organization of the paper

The rest of the study is divided into seven sections. Section 2 discusses the impact of human capital development on poverty in the theoretical literature, while Section 3 focuses on the influence of human capital development on poverty found in the empirical literature. Section 4 presents the theoretical literature that explains how remittances affect poverty. Section 5 provides a comprehensive theoretical literature review on how each control variable (financial development, unemployment, savings, infrastructural development, trade openness) influences poverty. Section 6 details the methodological framework used in the research. Items covered include data description, general model specification, econometric model specification, correlation analysis, descriptive statistics, panel unit root tests, and panel co-integration tests. Section 7 discusses and interprets the main results. Section 8 concludes.

The impact of human capital development on poverty – the theoretical literature

According to Chaudhry and Rehman (2009), enhanced human capital development gives people good health, education, and the skills for their businesses to survive and prosper, even in challenging circumstances. The skills and education also easily allow them to get well-paying jobs, reducing not only unemployment but also poverty and income inequality (Afzal et al. 2010).

According to Oshio (2019), poverty is perpetuated and contributes to poor health behaviors, while human capital development is also enhanced by good health status. The same study argued that poor education and health trigger many constraints, which constrains labor participation and reduces the quality of life. Daepp and Arcaya (2017) also noted that the individual's ability to work and access meaningful economic opportunities is curtailed by one's state of health. The same study also revealed that the rate at which one is willing and able to use new technologies depends on an individual's education and health status.

The impact of human capital development on poverty – the empirical literature

Table 1. A summary of empirical studies on human capital development on poverty

Author	Focus of analysis	Methodology	Research findings
Chukwubudom (2016)	Nigeria	Ordinary Least Squares (OLS)	Human capital development's impact on poverty alleviation was found to be positive and significant.
Adekoya (2018)	Nigeria	Vector Error Correction Model (VECM)	Health and education elements of human capital development was found to have reduced poverty in Nigeria.
Bidemi et al. (2018)	Nigeria	Generalized Methods of Moments	Expenditure on health and education was found to have had a significant negative effect on poverty in Nigeria. In other words, human capital development reduced poverty in the case of Nigeria.
Olopade et al. (2019)	OPEC member countries	Panel fully modified least squares of 12 countries	High-quality education and healthcare were found to have reduced poverty in the OPEC group of countries.
Sajjad et al. (2019)	Pakistan	Multiple regression model	A significant positive relationship running from education and health towards poverty alleviation in the Swabi district, Pakistan
Awan, Iqbal, and Waqas (2011)	Pakistan	Multinomial regression analysis	Education of the poor people was found to have had a higher poverty reduction effect in both genders.
Wang et al. (2021)	Sub-Saharan Africa	Autoregressive Distributive Lag (ARDL)	No evidence that human capital development reduces poverty in the long run in Sub-Saharan Africa was found. Short run period revealed that human capital development reduced poverty.
Babasanya, Oseni, and Subair (2018)	Nigeria	Multiregression analysis	Human capital development enhanced Nigeria's ability to achieve millennium development goals during the period under review.
Ewubare and Mark (2018)	Nigeria	Vector Autoregressive (VAR) model	Primary and secondary school enrolments and public health expenditure were all found to have significantly reduced poverty in Nigeria
Ahmad, Bashir, and Hussain (2018)	Developing countries	Generalized Methods of Moments (GMM)	Technology and human capital development had a significant deleterious impact on poverty in developing countries.
Winters and Chiodi (2008)	Mexico	Descriptive statistics	Investment in education improved employment in the agricultural sector, reducing poverty and income inequality overall in Mexico.
David, Awe, and Sesan (2018)	Nigeria	Linear probability model approach	Poverty in Nigeria was further reduced by increased investment in health and education.

Author	Focus of analysis	Methodology	Research findings
Tsaurai (2021)	Emerging markets	Panel data analysis	The complementarity between economic growth and human capital development was observed to have had a significant poverty reduction effect in emerging markets.

Source: author's compilation.

Impact of remittances on poverty alleviation – literature review

According to Anyanwu and Erhijakpor (2010), over-relying on remittance inflows, in the long run, could cause laziness, have a deleterious on economic growth, and increase poverty levels in the long run. However, the optimistic hypothesis authored and expanded by Cattaneo (2005) noted that remittance inflow promotes entrepreneurship, creates self-help projects, boosts self-employment levels and economic growth, and, overall, enhances poverty reduction in the labor-sending country in the long run.

Impact of control variables on poverty

Table 2. Theoretical literature on the impact of control variables on poverty

Variable	Proxy used	Theory intuition	Expected sign
SAV	Gross domestic savings (% of GDP)	According to Azher (1995), a meaningful amount of savings enhances an individual's ability to begin entrepreneurial projects and self-help projects.	-
UNEMP	Unemployment, total (% of total labor force)	According to the majority of the existing literature, unemployed people are more exposed to poverty in comparison to employed people. The income that employed people receive enhances their purchasing power, reducing poverty levels (Azher 1995).	-
OPEN	Total trade (% of GDP)	According to Pradhan and Mahesh (2014), high trade openness leads to increased competition, negatively affecting domestic firms' ability to expand; it creates employment and stems from poverty. The same study believed that increased trade openness enables domestic firms to be international players in sourcing raw materials, funding, and information technology, enhancing their local, regional, and global competitiveness. This enables them to expand, create more jobs, and reduce poverty levels.	+/-

Variable	Proxy used	Theory intuition	Expected sign
FIN	Domestic credit to private sector (% of GDP)	According to Boukhatem (2016), a developed financial sector demands high-value collateral security during the money process. Poor people do not have the required collateral security, further trapping them in the vicious poverty cycle. On the other hand, according to Rajan and Zingales (1998), financial development allows poor people to access small loans, which they can use to finance small self-help projects and entrepreneurial projects, creating self-employment.	+/-
INFR	Individuals using the Internet (% of population)	According to Jahan and McCleery (2005), enhanced infrastructural development enables people to have good roads, access clean water, better health care, all of which reduces poverty levels. Pradhan and Mahesh's (2014) results show that infrastructural development increased poverty levels in developing countries.	+/-

Source: author's compilation.

Research methodology

Data character and description

The study used panel data ranging from 2008 to 2019 to investigate the relationship between human capital development, remittances, and poverty in CEECs. They include Bulgaria, Albania, Croatia, Poland, Romania, Hungary, Slovenia, the Czech Republic, Lithuania, Latvia, Estonia, and Slovakia. The United Nations Development Programme, World Development Indicators, International Financial Statistics, and the International Monetary Fund are the prominent international databases from which the datasets were extracted.

General model specification

Equation 1 represents a general model specification of the poverty function.

$$POVERTY = f(HCD, REMIT, INFR, OPEN, SAV, UNEMP, FIN) \quad (1)$$

The choice of explanatory variables in the poverty function was largely influenced by earlier empirical research on human capital development's impact on poverty (see Winters and Chiodi 2008; Awan, Iqbal, and Waqas 2011; Ahmad, Bashir, and Hussain

2018; Babasanya, Oseni, and Subair 2018; David, Awe, and Sesan 2018; Ewubare and Mark 2018; Wang et al. 2021). The proxies of these variables (poverty, human capital development, remittances, savings, infrastructural development, unemployment, trade openness, and financial development, were also largely selected based on similar empirical research by Awan, Iqbal, and Waqas (2011), Chukwubudom (2016), Adekoya (2018), Bidemi et al. (2018), Olopade et al. (2019), Sajjad et al. (2019), and Tsaurai (2021).

Econometric model specification

Equation 2 is the econometric model version of the econometric model specification.

$$\begin{aligned} POVERTY_{it} = \beta_0 + \beta_1 HCD_{it-1} + \beta_2 REMIT_{it} + \beta_3 INFR_{it} + \beta_4 OPEN + \beta_5 SAV_{it} + \\ + \beta_6 UNEMP_{it} + \beta_7 FIN_{it} + \varepsilon \end{aligned} \quad (2)$$

The intercept is represented by β_0, β_1 to β_7 represents the coefficients for the respective independent variables of the poverty function. ε stands for the error term.

$$\begin{aligned} POVERTY_{it} = \beta_0 + \beta_1 HCD_{it} + \beta_2 REMIT_{it} + \beta_3 (HCD_{it} \cdot REMIT_{it}) + \beta_4 INFR + \\ + \beta_5 OPEN_{it} + \beta_6 SAV_{it} + \beta_7 UNEMP_{it} + \beta_8 FIN_{it} + \varepsilon \end{aligned} \quad (3)$$

A complementary variable (between human capital development and remittances) was introduced into the poverty econometric equation 3, in line with Anyanwu and Erhijakpor (2010). Their study noted that human capital development increases remittance inflows into the labor-sending country, enhancing its ability to promote self-employment, entrepreneurship, economic growth, and poverty reduction efforts. If the co-efficient β_4 is negative and significant, the complementarity between human capital development and personal remittances would have reduced poverty in the Central and Eastern European Countries. The random effects, pooled OLS, and fixed effects are the three panel econometric estimation approaches that were used to estimate equation 3.

$$\begin{aligned} POVERTY_{it} = \beta_0 + \beta_1 POVERTY_{it-1} + \beta_1 HCD_{it} + \beta_3 REMIT_{it} + \\ + \beta_4 (HCD_{it} \cdot REMIT_{it}) + \beta_5 INFR + \beta_6 OPEN_{it} + \beta_7 SAV_{it} + \\ + \beta_8 UNEMP_{it} + \beta_9 FINi_{it} + \varepsilon \end{aligned} \quad (4)$$

Equation 4 introduced the lag of poverty as one of the factors that influence poverty, in line with Azher's (1995) argument supporting the existence of a vicious cycle of poverty. Equation 4 was estimated using the dynamic GMM approach, whose advantages

include (1) that it captures the dynamic nature of poverty data and (2) it considers the endogeneity characteristics of poverty and its determinants.

Correlation analysis results

Table 3. Correlation analysis results

	POV	HCD	REMIT	INFR	OPEN	SAV	UNEMP	FIN
POV	1.00							
HCD	−0.84***	1.00						
REMIT	0.58***	−0.54***	1.00					
INFR	−0.82***	0.80***	−0.32***	1.00				
OPEN	−0.54***	0.50***	−0.23***	0.74***	1.00			
SAV	−0.70***	0.63***	−0.75***	0.58***	0.58***	1.00		
UNEMP	0.34***	−0.35***	0.52***	−0.25***	−0.18**	−0.58***	1.00	
FIN	−0.25***	0.04	−0.20**	0.10	−0.06	0.17**	0.25***	1.00

Source: author's compilation from E-Views.

Where POV is the infant mortality rate (per 1000 live births).

Table 3 shows that there is a significant negative relationship between (1) poverty and human capital development, (2) poverty and infrastructural development, (3) poverty and trade openness, (4) savings and poverty, and (5) poverty and financial development. A significant positive relationship between (a) remittances and poverty and (b) poverty and unemployment was also observed, according to Table 3. The results could imply that human capital development, infrastructural development, trade openness, savings, and financial development are in line with the existing literature. The highest correlation was found between human capital development and poverty (0.84), which is more than 0.80. This means that there is a multicollinearity problem, or the multicollinearity problem exists, consistent with Wisniewski and Stead (1996).

Descriptive statistics results

Table 4. Descriptive statistics results

	POV	HCD	REMIT	INFR	OPEN	SAV	UNEMP	FIN
Mean	5.15	0.83	3.24	67.46	113.55	23.00	9.22	52.85
Median	4.55	0.84	2.44	69.8	122.7	22.78	8.48	50.35
Maximum	14.1	0.92	14.48	90.23	190.86	33.93	19.48	100.82
Minimum	1.70	0.67	0.37	23.86	26.93	6.53	2.01	24.75
Standard deviation	2.56	0.05	2.90	12.67	43.78	6.13	3.94	15.52
Skewness	1.09	−0.95	2.07	−0.79	−0.23	−0.62	0.51	0.81

	POV	HCD	REMIT	INFR	OPEN	SAV	UNEMP	FIN
Kurtosis	3.87	3.94	7.17	3.43	1.91	3.44	2.45	3.50
Jarque-Bera	33.22	26.83	207.7	16.26	8.44	10.47	7.98	17.16
Probability	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Observations	144	144	144	144	144	144	144	144

Source: author's compilation from E-Views.

Where POV is represented by infant mortality rate (per 1000 live births). The standard deviation for variables such as poverty, remittances, infrastructural development, trade openness, savings, unemployment, and financial development is greater than 1. This means that extreme values exist among these variables.

Human capital development, infrastructural development, trade openness, and savings are skewed to the left, while variables skewed to the right include poverty, remittances, financial development, and unemployment, a sign that the data may not be normally distributed. The probability of the Jarque-Bera criteria for all the variables studied is almost zero, an indication that these variables are not normally distributed. In line with Aye and Edoja (2017), if the data shows the character of multi-collinearity, extreme values, and abnormal distribution, the data must be transformed into natural logarithms before the final data analysis. This is done to avoid getting spurious results. This study followed Aye and Edoja's (2017) recommendations.

Panel unit root tests

Table 5 presents the results for panel unit root tests.

Table 5. Panel root tests –Individual intercept

Level				
	LLC	IPS	ADF	PP
LPOV1	–3.42***	–0.31	–2.36**	–6.81***
LPOV2	–6.95***	–2.11**	41.72**	67.56***
LHCD	–34.90***	–21.28***	183.93***	102.90***
LREMIT	–0.20	1.66	14.11	17.89
LINFR	0.77	0.90	20.62	61.44***
LOPEN	–13.85***	–8.37***	103.42***	16.43
LSAV	–7.96***	–3.18***	52.70***	23.73
LUNEMP	1.78	1.36	13.42	8.70
LFIN	–2.65***	0.29	21.31	27.54
First difference				
LPOV1	–7.04**	–2.83*	–5.83***	–12.94***
LPOV2	–2.22**	–2.39***	42.89**	140.80***
LHCD	–26.72***	–15.79***	172.75***	75.39***
LREMIT	–3.32***	–1.57**	35.46**	65.19***

Level				
	LLC	IPS	ADF	PP
LINFR	–2.73**	–6.49***	88.48***	142.49***
LOPEN	–5.21***	–3.63***	56.29***	100.53***
LSAV	–6.73***	–4.75***	65.57***	116.80***
LUNEMP	–4.40***	–3.01***	53.09***	92.64***
LFIN	–5.01***	–2.28**	42.59**	50.44***

Note: LLC, IPS, ADF, and PP stands for Levin, Lin, and Chu (2002); Im, Pesaran, and Shin (2003); ADF Fisher Chi Square, and PP Fisher Chi Square tests, respectively. *, ** and *** denote 10%, 5% and 1% levels of significance, respectively.
Source: author's compilation from E-Views.

Where POV1 is the infant mortality rate (per 1000 live births), and POV2 is the life expectancy at birth, total (years).

It is clear from Table 5 that all the variables were integrated of order 1. In other words, the study observed that all the variables studied were stationary at first difference, consistent with Aye and Edoja (2017). The results paved the way for panel co-integration tests.

Panel co-integration tests

The Kao (1999) panel co-integration methodology produced results that are summarized in Table 6.

Table 6. Results of Kao co-integration tests

Series	ADF t-statistic
POV1 HCD REMIT INFR OPEN SAV UNEMP FIN	–1.3497*
POV2 HCD REMIT INFR OPEN SAV UNEMP FIN	–1.0036

Source: author's compilation.

Using infant mortality rate as a measure of poverty, a long-run relationship between and among the variables used in the study was detected. Consistent with Tembo (2018), an alternative hypothesis that says there is no long-run relationship between and among the variables studied is rejected. This means the null hypothesis, which says that there is a long-run relationship, is not rejected. Using life expectancy as a proxy of poverty, the study noted that the variables under study are not co-integrated. Such results cause the author to drop life expectancy (as a measure of poverty) from the study.

Main data analysis, results discussion, and interpretation

Table 7. Panel data analysis results

	Dynamic GMM	Fixed effects	Random effects	Pooled OLS
POVERTY Lag	1.01***	–	–	–
HCD	–0.17	–0.43	–1.74***	–4.23***
REMIT	–0.002	0.11***	0.14***	0.43***
INTERACTION TERM	–0.005	0.24	0.36**	1.56***
INFR	0.02	–0.30***	–0.52***	–0.91***
OPEN	–0.01	0.06*	0.004	0.03
SAV	–0.02	0.08	0.03	–0.11
UNEMP	–0.01	–0.004	0.09***	0.13**
FIN	0.01	0.37***	0.36***	–0.26***
Adjusted R-squared	0.79	0.73	0.68	0.61
J/F-statistic	134	290	96	73
Prob (J/F-statistic)	0.00	0.00	0.00	0.00

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.
Source: author's compilation from E-Views.

Consistent with Azher (1995), whose study supported the vicious cycle of poverty, the dynamic GMM shows that poverty was positively and significantly affected by its own lag. Fixed effects and the dynamic GMM produced results that show that human capital development had a non-significant negative impact on infant mortality rates, while the random effects and pooled OLS results indicate a significant negative relationship running from human capital development towards infant mortality rate. These results show that human capital development reduced poverty levels in CEECs, in line with Afzal et al. (2010), whose study argued that skills and education also allow people to easily get a well-paying job, reducing not only unemployment but poverty and income inequality as well.

The dynamic GMM shows that remittances had a non-significant negative effect on infant mortality rates, consistent with Cattaneo's (2005) optimistic hypothesis that remittance inflows promote entrepreneurship, create self-help projects, and boost self-employment levels and economic growth. Fixed effects, random effects, and pooled OLS show a significant positive relationship running from remittances on infant mortality, consistent with Anyanwu and Erhijakpor (2010), whose study argued that over-relying on remittances inflows, in the long run, could cause laziness, have a deleterious on economic growth, and increase poverty levels.

The interaction between human capital development and remittances was found to have had a non-significant negative effect on infant mortality rates under the dynamic GMM, contrary to the existing literature. Random effects and pooled OLS showed that the complementarity between human capital development and remittances had a significant positive influence on infant mortality rates. However, fixed effects

produced results that show that infant mortality rates were positively and significantly affected by the interaction term. These results are in line with Anyanwu and Erhijakpor (2010). Their study noted that human capital development increases remittance inflows into the labor-sending country, enhancing its ability to promote self-employment, entrepreneurship, economic growth, and poverty reduction efforts.

A non-significant positive relationship running from infrastructural development towards infant mortality rate under the dynamic GMM means that infrastructural development non-significantly increased poverty, in line with Pradhan and Mahesh (2014). However, infrastructural development had a significant negative effect on infant mortality rates under fixed effects, random effects, and the pooled OLS. This means that random effects, fixed effects, and pooled OLS produced results that show that infrastructural development reduced poverty in CEECs, in line with Jahan and McCleery (2005), whose study noted that enhanced infrastructural development enables people to have good roads, access to clean water, and better health care, all of which reduces poverty levels.

The impact of trade openness on infant mortality was observed to be negative but non-significant under the dynamic GMM, in support of a study by Pradhan and Mahesh (2014). They are of the view that increased trade openness enables domestic firms to be international players in sourcing raw materials, funding, and information technology, enhancing their local, regional, and global competitiveness. Fixed effects showed that trade openness's positive effect on infant mortality is significant, although random effects and the pooled OLS showed a positive but non-significant relationship. These results are in line with Pradhan and Mahesh (2014), who noted that high trade openness increases competition, negatively affecting domestic firms' ability to expand, create employment, or stem poverty.

The impact of savings and unemployment on infant mortality rates produced mixed results across all four econometric estimation methods. On the other hand, fixed and random effects showed that financial development's impact on infant mortality was positive and significant. This was in line with Boukhatem (2016), who argued that a developed financial sector demands high-value collateral security during the money process. By contrast, the pooled OLS noted a significant negative relationship running from financial development towards infant mortality rate. This means that financial development reduced poverty levels under the pooled OLS, in line with Rajan and Zingales (1998). They argued that financial development allows poor people to access small loans, which they can use to finance small self-help projects and entrepreneurial projects, creating self-employment.

Conclusion

The study investigated the impact of human capital development on poverty in Central and Eastern European Countries using dynamic GMM, fixed effects, random effects, and pooled OLS, with panel data ranging from 2008 to 2019. Using the same panel data analysis methods and data set, the study also explored the influence of the complementarity between human capital development and personal remittances on poverty in CEECs. What triggered the investigation into this topic is that the available literature on the subject matter is mixed, divergent, and conflicting.

The lag of poverty, remittances, the interaction between human capital development and remittances, trade openness, unemployment, and partly financial development had a significant effect on increasing infant mortality rates in CEECs. On the other hand, human capital development, infrastructural development, and partly financial development were found to have reduced infant mortality. These results mean that human capital development, financial development, and infrastructural development reduced poverty in CEECs during the period under study. Central and Eastern European Countries are therefore urged to craft and implement financial development, infrastructural development, and human capital development enhancement policies to combat poverty. Future empirical research could also investigate the level of human capital development and financial and infrastructural development that would significantly reduce poverty in CEECs.

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Rozwój kapitału ludzkiego, przekazy pieniężne i ubóstwo w krajach Europy Środkowo-Wschodniej: co mówią nam dane?

Opracowanie przedstawia analizę wpływu rozwoju kapitału ludzkiego na poziom ubóstwa w krajach Europy Środkowej i Wschodniej (CEEC) przy użyciu dynamicznych uogólnionych metod momentów (GMM), metody efektów stałych, efektów losowych i metody pooled OLS na podstawie danych panelowych z okresu 2008–2019. Wykorzystując te same metody analizy danych panelowych i zestaw danych, zbadano również wpływ komplementarności między rozwojem kapitału ludzkiego a osobistymi przekazami pieniężnymi na ubóstwo w krajach Europy Środkowej i Wschodniej. Powodem podjęcia tego tematu był fakt, że dostępna na ten temat literatura jest niepełna, rozbieżna i bardzo sprzeczna. Poziom ubóstwa z roku poprzedniego, przekazy pieniężne, interakcje między rozwojem kapitału ludzkiego a przekazami pieniężnymi, otwartość na handel, bezrobocie i częściowo rozwój finansowy znacznie zwiększyły wskaźniki śmiertelności niemowląt w krajach Europy Środkowo-Wschodniej. Z drugiej strony stwierdzono, że rozwój kapitału ludzkiego, rozwój infrastruktury i częściowo rozwój finansowy zmniejszyły wskaźniki śmiertelności niemowląt. Wyniki te oznaczają, że rozwój kapitału ludzkiego, rozwój finansowy i rozwój infrastruktury ograniczyły ubóstwo w krajach Europy Środkowo-Wschodniej w badanym okresie. W związku z tym wzywa się kraje Europy Środkowej i Wschodniej do opracowania i wdrożenia

polityki rozwoju finansowego, rozwoju infrastruktury i rozwoju kapitału ludzkiego w celu zwalczania ubóstwa. Przyszłe badania empiryczne mogłyby również wykazać, przy jakim poziomie rozwoju kapitału ludzkiego, rozwoju finansowego i infrastrukturalnego możliwa byłaby znacząca redukcja ubóstwa w krajach Europy Środkowo-Wschodniej.

Słowa kluczowe: rozwój kapitału ludzkiego, przekazy pieniężne, ubóstwo, analiza danych panelowych

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