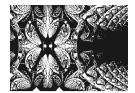# BRIDGING BORDERS, ALLEVIATING POVERTY: THE ROLE OF INTERNATIONAL REMITTANCES

Zeynep Gizem CAN
Adana Alparslan Türkeş Science and Technology
University, Adana, Turkey

Ufuk CAN
Central Bank of the Republic of Turkey, Adana, Turkey

This paper examines the impact of international remittances on poverty. A three-stage least squares model is used to examine whether there is a two-way relationship between poverty and international remittances. Rising poverty levels create incentives for migration abroad, with immigrants sending remittances back to their country of origin, thereby reducing poverty. Higher household incomes are associated with a decline in poverty, while growing income inequality tends to exacerbate poverty. In addition, trade openness has a positive effect on international remittances, and in financially developed economies, official remittances flow more smoothly as transaction costs decline. By channeling international remittances, which are recognised as a stable source of financial support, into the accumulation of physical and human capital, they contribute to economic development and enhance their impact on poverty reduction. This study makes a notable contribution to the literature by using the latest comprehensive dataset and an econometric methodology. It also distinguishes the impact of international remittances on poverty using income group-specific and region-specific considerations.

Keywords: international remittances, panel data analysis, poverty

✉ Zeynep Gizem Can, Adana Alparslan Türkeş Science and Technology University, Balcalı Mah. Güney Kampüs 10/1U Sarıçam, Adana, Turkey.
E-mail: zgcan@atu.edu.tr

INTRODUCTION

In an era marked by globalisation, where borders between nations are increasingly blurred, there is a silent but powerful force at work that transcends geographic boundaries to combat one of humanity's most pressing challenges: poverty. International remittances, the financial lifelines sent by migrant workers to their families back home, have become a beacon of hope for millions living on the edge of economic stability. In this interconnected world, where people crisscross the globe in search of better opportunities, the flow of money across continents is changing not only the lives of individual recipients, but also the socioeconomic landscape of entire nations.

The sheer scale of international remittances in recent years paints a compelling picture. With the expansion of remittance corridors and the continued growth of the diaspora, these financial flows have become an important source of external financing for many developing countries. According to the World Bank, remittance flows to low- and middle-income countries increased by 8 percent in 2022, reaching a staggering $647 billion. This remarkable increase, which followed a robust growth rate of 10.6 percent in 2021, occurred against a backdrop of global economic challenges, including slowing economies, inflationary pressures, and geopolitical conflict. Looking ahead to 2023, the dynamics of international remittances are at a crossroads. Growth is expected to slow to 1.4 percent, representing a total of $656 billion. This is primarily due to slowing economic growth in the major remittance sending countries (World Bank, 2023). Nevertheless, the overarching question remains: Can these financial lifelines, often sent by humble workers far from home, really make a meaningful contribution to addressing persistent and pervasive poverty?

The intricate mechanisms by which international remittances affect poverty have been explored extensively in academic discussions. The impact of these remittances can vary widely depending on how recipient households in the country of origin use this vital financial resource. If these households primarily use these funds to increase their income levels and change their consumption habits, such as the propensity to spend more, the short-term gains in poverty reduction from international remittances may prove temporary and unsustainable in the long run (Amuedo-Dorantes & Pozo, 2006; Yang, 2008; Okolo, 2017). Conversely, households receiving these remittances have the potential to initiate durable economic development and long-term poverty reduction by using this financial inflow to accumulate human and physical capital (Adams & Page, 2005; Huay & Bani, 2018; Abduvaliev & Bus-

tillo, 2020). From a macroeconomic perspective, the inflow of international remittances can have complex effects, particularly on the exchange rate of the recipient country. In such cases, the real sector may suffer a competitive disadvantage, leading to phenomena that are well documented in the academic literature, such as Dutch disease or the reverse J-curve effect. These consequences, in turn, can culminate in a current account deficit and a possible worsening of poverty (Chami et al., 2008; Ratha, 2013; Meyer & Shera, 2017; Hien et al., 2020).[1]

This study attempts to fill the existing gap in the field of international remittances and their impact on poverty by making a notable contribution to the scholarly discourse in three ways. First, it sets itself apart from previous studies by using the most recent and comprehensive data set and state--of-the-art econometric methods. Second, it takes a novel approach by categorising countries by both income groups and regional affiliations – a unique dimension that, to our knowledge, has not been explored in previous literature. Third, it provides a nuanced perspective on the impact of international remittances on poverty by disaggregating these impacts through a comparative lens that considers income and regional categorisations. In this way, this study aims not only to expand existing knowledge but also to provide valuable insights for future research efforts.

Given the diverse composition of countries in our dataset and the inherent endogenous relationship between international remittances and poverty, we have adopted the three-stage least squares (3SLS) method as our econometric approach in this study. The 3SLS method, renowned for its versatility and potency, finds application across a spectrum of disciplines, encompassing economics, finance, and social sciences, particularly in addressing the challenges posed by endogeneity and simultaneity in regression models. This method proves to be indispensable when dealing with complicated systems of equations with multiple endogenous variables. The seminal work of Zellner (1962) plays an important role in this context, as it introduced the pivotal concept of instrumental variables and promoted the 3SLS estimator as a formidable solution to mitigate endogeneity problems in simultaneous equation models.

The following sections of this article are structured as follows. Section 2 provides an overview of the dataset used in this study and explains the intricacies of our chosen estimation strategy. Section 3 unveils the empirical findings and their implications. Finally, we conclude our discussion with a summary of key insights and concluding remarks in the Section 4.

DATA AND METHODOLOGY

The data

The dataset used in this study is compiled from a variety of sources in the World Bank's extensive database repositories. Poverty and inequality measures come from comprehensive household surveys, while macroeconomic indicators are drawn from authoritative official databases. Our dataset covers 115 countries and spans the period from 1990 to 2021. It is important to note that this dataset represents unbalanced panel data, signifying that the availability of data varies by country and year. The chosen analytical timeframe of 1990 to 2021 was selected with deliberation; pre-1990 data exhibit concerns related to reliability, and regrettably, post-2021 data are currently unavailable for inclusion in this study.

↻ TABLE 1
Definitions of the variables

Label	Code	Definition	Source	Expected sign
Headcount ratio	HR	Percentage of the population living below the poverty threshold	PovcalNet	+
Poverty gap	PG	The mean income shortfall from the poverty threshold	PovcalNet	+
GDP per capita	GDP	The ratio of a country's total output to its population	WDI	-
International remittances	REM	The ratio of official international remittances in the GDP	WDI	-
Gini index	GINI	An indicator of income distribution disparity	PovcalNet	+
Trade openness	OPEN	The international trades normalised by GDP	WDI	+
Unemployment rate	UR	The ratio of unemployed individuals to the working-age population	WDI	+

Estimating poverty levels presents inherent challenges. In this study, we employ two distinct poverty measures, both expressed in 2017 purchasing power parity (PPP) on a per-person-per-day basis. The first measure we use is the headcount ratio, which quantifies the percentage of the population living below certain poverty thresholds set at $2.15, $3.65, and $6.85. While this metric offers insights into the extent of poverty within the population, it does not capture the depth of deprivation experienced by the impoverished. To address this limitation, we also consider the poverty gap ratio. This metric goes beyond the headcount ratios providing an assessment of how far the average income of people living in poverty falls

below the respective poverty thresholds. Based on World Bank calculations to more accurately measure poverty, we use thresholds of $2.15, $3.65, and $6.85 to gauge the extent of this income gap among the impoverished.

Income can be measured by GDP per capita adjusted to the 2017 Purchasing Power Parity (PPP) terms, sourced from national accounts data. In calculating PPP, the World Bank estimates the composite cost of goods in each country relative to those in the United States.

International remittances include two main components: personal remittances, colloquially referred to as workers' remittances, and workers' compensation. According to the International Monetary Fund (2009), personal remittances encompass all transfers of money or goods between resident and non-resident households. In contrast, workers' compensation pertains to the earnings of individuals engaged in cross-border, seasonal, or other short-term employment within an economy in which they maintain non-resident status, as well as residents employed by non-resident firms. Similar to poverty data, however, data on international remittances are vulnerable to vulnerabilities, primarily because of their transmission through informal channels. Our analysis assumes that international remittances follow an official transmission path, primarily through established financial channels such as banking systems, which ensures a well-defined and recognisable specification of remittance data.[2]

The Gini coefficient serves as a robust indicator of income inequality within a population. This normalised measure gauges income disparities across different quintiles of society. One of the drivers of international remittances is trade openness, which quantifies the extent of a country's foreign trade activity. Higher levels of trade openness are often associated with a higher likelihood of receiving remittances, as these countries tend to have more robust and well-developed financial systems. Unemployment, on the other hand, represents the share of the population that is actively seeking employment but is currently without a job. High unemployment is expected to trigger migration and contribute positively to international remittances.

To discern the nuanced unit-specific effects in our panel data, we have thoughtfully classified countries based on two key criteria: geographic region and income group. We explain these categorisations in Table 4 in the Appendix.[3] It is important to emphasise that this study does not encompass an examination of poverty in high-income countries; thus, these countries were not included in our analysis. A noteworthy observation arises from the fact that a significant proportion of countries in the Europe and Central Asia regions also be-

long to the middle-income group. In addition, it is important to emphasise that the vast majority of countries in the sub-Saharan regions fall predominantly into the low-income group.

Estimation strategy

As widely documented in the existing literature, there is often a bidirectional relationship between poverty and international remittances, referred to as the heterogeneity problem. The escalation of poverty in the country of origin can serve as a catalyst for migration and lead to an increase in the number of expatriates living abroad, which in turn contributes to an upsurge in international remittances.[4] To address this issue, the three-stage least squares (3SLS) model is used in this paper.

The 3SLS method unfolds through a meticulous three-stage procedure aimed at estimating the coefficients in a system of simultaneous equations. In the first stage, the instrumental variables for each endogenous variable are carefully selected to effectively mitigate endogeneity problems. Then, in the second stage, a set of equations is estimated in reduced form, which facilitates obtaining consistent coefficient estimates for the endogenous variables. Finally, in the third stage, the structural equations come into focus, with parameter estimation guided by the coefficients obtained from the equations in reduced form. This methodology is renowned for its capacity to produce robust and efficient parameter estimates even when faced with challenges such as correlated errors and endogeneity issues.

A crucial milestone in the development of the 3SLS method can be attributed to the seminal work of Zellner (1962), who not only introduced the concept of instrumental variables but also promoted the 3SLS estimator as an effective means of dealing with endogeneity in simultaneous equation models. The applicability of the 3SLS method spans a wide range of economic models. One particularly noteworthy application is the estimation of production functions where multiple inputs are determined simultaneously. In particular, Baltagi and Chang (1994) and Arellano and Bover (1995) have made important contributions by developing extensions and refinements of the 3SLS method tailored to specific econometric challenges. For a comprehensive examination of the 3SLS method in the context of production function estimation and related economic models, you can turn to the invaluable resource of Greene (2008). This comprehensive review is a valuable tool for deciphering the intricate interdependencies among input factors and their profound effects on output.

Following the exemplary paper by Gupta et al. (2009), the general representation of the 3SLS model is as follows.

$$P_{i,t} = \gamma_0 + \gamma_1 GDP_{i,t} + \gamma_2 GINI_{i,t} + \gamma_2 REM_{i,t} + \xi_i + \varepsilon_{i,t}$$
$$REM_{i,t} = \delta_0 + \delta_1 P_{i,t} + \delta_2 OPEN_{i,t} + \delta_3 UR_{i,t} + \wp_i + \in_{i,t} \quad (1)$$

where $P_{i,t}$ represents various poverty measures, $GDP_{i,t}$ denotes gross domestic product per capita, $GINI_{i,t}$ stands for the Gini index, measuring income inequality, $REM_{i,t}$ signifies international remittances per capita, $OPEN_{i,t}$ represents trade openness, $UR_{i,t}$ denotes unemployment rate, γ_0 and δ_0 are constant terms, ξ_i and $\wp_i$ account for region- and income-group specific effects, eit and eit encompass error terms capturing unit-specific effects across $i = 1,2,\ldots,N$ at time $t = 1,2,\ldots,T$ units. γ_1, γ_2, and γ_3 reflect the elasticities of poverty concerning income, income inequality and international remittances; on the other hand, δ_0, δ_2, and δ_3 signify the elasticities of international remittances concerning poverty, trade openness, and unemployment rate. In the context of the related literature, it is generally expected that δ_2 and δ_3 exhibit positive signs, indicating that an increase in the degree of openness and the unemployment rate corresponds to an increase in international remittances.

This paper places specific emphasis on two key coefficients, namely, γ_3 and δ_1, which respectively represent the elasticity of poverty concerning international remittances and vice versa. The significance of γ_3 and δ_1 holds pivotal importance; their statistical significance would signify the presence of a bi-directional relationship between these variables. Notably, all variables incorporated in equations (1) are log-transformed. This transformation serves to mitigate data skewness while facilitating the convergence of data originating from diverse units.

EMPIRICAL FINDINGS

Preliminary analysis

To determine the most suitable model for this analysis, we employ both the specification test of Hausman (1978) and the Lagrange multiplier (LM) test of Breusch and Pagan (1979). The outcomes of these tests provide valuable insights. The results reveal that the χ^2 statistic for the Hausman specification test is 34.95 ($p = 0.00$), while the χ^2 statistic for the Breusch and Pagan LM test is notably higher at 85.28 ($p = 0.00$). The p-values in parentheses indicate the significance level at which the null hypotheses can be rejected with confidence. In light of these findings, the Hausman test suggests that the unbalanced panel data in this study is best estimated using a 3SLS with fixed-effects. In addition, the Breusch and Pagan test highlights the presence of a significant difference within cross-country data. Consequently, the adoption of a 3SLS with

fixed-effects is deemed appropriate to capture unit-specific effects. To this end, we introduce five regional dummy variables representing East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and Caribbean (LAC), Middle East and North Africa (MENA), and South Asia (SA). Furthermore, we incorporate two dummy variables for income groups delineating lower middle income (LMI) and upper middle income (UMI). It is important to note that all variables in our analysis are log transformed rendering the coefficients can be interpreted as elasticities.

Three-stage least squares (3SLS) models

This section unveils the results of the three-stage least squares (3SLS) models. Table 2 and Table 3 illuminate that the endogeneity problem does indeed arise when income group-specific and region-specific effects are examined. In all estimates, the coefficients on the poverty measures are statistically significant, underscoring the consistency and unbiasedness of the results of the three-stage least squares models.

The findings in Table 2 and Table 3 elucidate that the coefficients of gross domestic product (GDP) per capita, the Gini index, international remittances, poverty measures, and trade openness reach statistical significance in most models, consistent with our expectations. The coefficients of the dependent variables change dramatically depending on the threshold, but their sign and statistical significance remain the same. In particular, a 10% increase in GDP per capita leads to a remarkable reduction in the headcount ratio and the poverty gap, ranging from 6.5% to 19.8%. Conversely, a 10% increase in the Gini index corresponds to an increase in the headcount ratio and the poverty gap that ranges from 3.5% to 36.8%. In contrast, a 10% increase in international remittances per capita is associated with a decrease in the headcount ratio and the poverty gap, ranging from 0.8% to 2.1%. It is worth noting that an increase in trade openness leads to an increase in international remittances per capita. However, it is worth noting that only the coefficient for the unemployment rate variable often does not reach statistical significance. When we examine the income group-specific effects, we find that these dummy variables are statistically significant when we estimate the poverty measures as the dependent variable. As for the region-specific effects, the dummy variables for Europe and Central Asia, the Middle East and North Africa, and South Asia turn out to be statistically significant in most estimates.

Summarising the main results from Table 2 and Table 3, it is clear that there is a compelling bidirectional relationship between poverty measures and international remittances. This

dynamic unfolds as follows: An escalation in poverty prompts migration abroad. In response, immigrants send international remittances to their countries of origin, helping to reduce poverty. The unit-specific effects underscore the important role played by income group-specific and region-specific dynamics.

| | Dependent variables: | | | | | | | | | | | |
| | HR (2.15) | | REM | | HR (3.65) | | REM | | HR (6.85) | | REM | |
	1	2	1	2	1	2	1	2	1	2	1	2
GDP	-1.98*	-1.69*			-1.47*	-1.21*			-0.83*	-0.65*		
GINI	3.10*	3.40*			1.16*	1.82*			0.35*	0.38*		
REM	-0.20*	-0.17*			-0.14*	-0.12*			-0.1**	-0.03		
P			0.13*	0.47*			0.30*	0.74*			0.76*	1.57*
OPEN			1.45*	1.55*			1.47*	1.56*			1.42*	1.52*
UR			-0.03	-0.28*			-0.06	-0.24*			-0.10	-0.11
LMI	0.84*		0.04		0.86*		0.10		0.58*		0.11	
UMI	1.22*		-0.39		1.09*		-0.21		0.74*		-0.07	
EAP		0.09		0.39		0.39*		0.23		0.27*		0.19
ECA		0.37**		1.95*		0.37*		1.89*		0.16**		1.80*
LAC		0.11		1.40*		0.01		1.61*		-0.02		1.87*
MENA		-0.65*		2.82*		-0.11		2.60*		-0.06		2.22*
SA		0.81*		2.03*		0.89*		1.77*		0.40*		1.65*
Constant	7.01*	4.15*	-5.39*	-7.31*	6.88*	10.8*	-6.33*	-8.78*	10.6*	8.15*	-8.31*	-1.2.7*

Notes: (1) * and ** denote that the null hypothesis can be rejected at 1% and 5% significance levels, respectively. (2) HR stands for headcount ratio, GDP for gross domestic product per capita, REM for international remittances per capita, GINI for Gini index, P for poverty measures, i.e., headcount ratio, OPEN for openness degree, UR for unemployment rate, LMI for lower-middle income, UMI for upper-middle income, EAP for East Asia and Pacific, ECA for Europe and Central Asia, LAC for Latin America and Caribbean, MENA for Middle East and North Africa, and SA for South Africa. (3) While the estimates with (1) are the 3SLS model with income group-specific effects, the estimates with (2) are the 3SLS model with region-specific effects.

| | Dependent variables: | | | | | | | | | | | |
| | PG (2.15) | | REM | | PG (3.65) | | REM | | PG (6.85) | | REM | |
	1	2	1	2	1	2	1	2	1	2	1	2
GDP	-1.90*	-1.62*			-1.72*	-1.47*			-1.18*	-0.97		
GINI	3.42*	3.68*			2.15*	2.72*			0.58*	1.12*		
REM	-0.16*	-0.21*			-0.17*	-0.16*			-0.09*	-0.08*		
P			0.04	0.40*			0.19*	0.56*			0.45*	0.99*
OPEN			1.41*	1.50*			1.46*	1.56*			1.46*	1.55*
UR			-0.04	-0.37*			-0.04	-0.28*			-0.08	-0.20*
LMI	0.45*		0.06		0.79*		0.08		0.66*		0.14	
UMI	1.01*		-0.49		1.08*		-0.31		0.86*		-0.10	
EAP		0.28**		0.43		0.24**		0.32		0.29*		0.29
ECA		0.44**		1.90*		0.42*		1.92*		0.25*		1.91*
LAC		0.03		1.29*		0.04		1.49*		-0.05		1.76*
MENA		-0.77*		2.78*		-0.36**		2.74*		-0.04		2.52*
SA		0.25		2.18*		0.85*		1.95*		0.58*		1.83*
Constant	4.21*	1.54	-4.79*	-6.33*	8.33*	4.76*	-5.63*	-7.58*	10.7*	7.39*	-6.82*	-9.68*

Notes: (1) * and ** denote that the null hypothesis can be rejected at 1% and 5% significance levels, respectively. (2) HR stands for headcount ratio, GDP for gross domestic product per capita, REM for international remittances per capita, GINI for Gini index, P for poverty measures, i.e., poverty gap, OPEN for openness degree, UR for unemployment rate, LMI for lower-middle income, UMI for upper-middle income, EAP for East Asia and Pacific, ECA for Europe and Central Asia, LAC for Latin America and Caribbean, MENA for Middle East and North Africa, and SA for South Africa. (3) While the estimates with (1) are the 3SLS model with income group--specific effects, the estimates with (2) are the 3SLS model with region-specific effects.

In general, the importance of international remittances in alleviating poverty declines as a country's income level rises. In particular, in the regions of Europe and Central Asia, the Middle East and North Africa, and South Asia, international remittances emerge as a statistically significant instrument for poverty alleviation. Crucially, our results reveal the presence of an endogeneity problem between poverty and international remittances per capita, highlighting empirical consistency with previous studies such as Adams and Page (2005) and Peković (2017).

CONCLUDING REMARKS

This study illuminates the profound impact of international remittances on poverty using data from a comprehensive sample of 115 countries from 1990 to 2021. Poverty measures reflected in the headcount ratio and poverty gap at thresholds of $2.15, $3.65, and $6.85 serve as the linchpin of our analysis. We examine the complicated bidirectional relationship between international remittances and poverty using a three-stage least squares model. Our empirical results reveal a compelling bidirectional relationship between poverty and international remittances, in which increasing poverty spurs migration abroad and sets in motion a cycle in which immigrants, driven by their attachment to their countries of origin, send international remittances that contribute significantly to poverty reduction. Within this framework, international remittances are proving to be important tools for poverty reduction. They are particularly effective in low- and middle-income countries and a welcome boon to recipient countries. Moreover, promoting prosperity, whether through increased higher household incomes, is proving to be a powerful tool in the fight against poverty. Conversely, rising income inequality exacerbates poverty.

At another level, our analysis underscores the positive impact of trade openness on international remittances. This relationship is illustrated by the accompanying financial deepening and reduction in transaction costs, which facilitates the flow of international remittances through official channels. The regions of Europe and Central Asia, the Middle East and North Africa, and South Asia stand out as beneficiaries of this poverty-reducing effect. They are characterised by high financial development and relatively low financial transaction fees, as documented by the World Bank in 2023. In this context, strategically reducing transaction costs and promoting competition within the financial sector are proving to be effective mechanisms for further promoting financial development. For countries seeking to maximise the impact of international remittances on poverty reduction, a prudent approach is to channel these funds into the accumulation of physical

and human capital, thereby promoting long-term economic development.

It is imperative to consider possible biases that may arise in household budget surveys, the main source of data on poverty and income inequality. It is also important to keep in mind that international remittances are underestimated because unofficial transfers are not taken into account. In addition, the use of unbalanced panel data, especially in cases where the frequency of data collection varies, limits the potential for dynamic analyses.

To increase the reliability of estimates, we need to move to balanced panel data and dynamic models that can generate data for years with missing information through techniques such as interpolation. The inclusion of unregistered international remittance data from all countries will increase the robustness of the projections. In addition, the profound impact of the Covid-19 pandemic, which led to a sharp decline in international remittances and structural shifts in the data, will require further research to examine the evolving landscape of poverty and international remittances in the post-pandemic period. Taken together, these efforts will enrich the scholarly discourse in this important area.

APPENDIX

TABLE 4
Specification of the countries

Income group	Country[5]
Upper middle income[a] (567 observations)	Albania[I], Argentina[III], Armenia[I], Azerbaijan[I], Belarus[I], Belize[III], Bosnia and Herzegovina[I], Botswana[VI], Brazil[III], Bulgaria[I], China[II], Colombia[III], Costa Rica[III], Dominican Republic[III], Ecuador[III], El Salvador[III], Fiji[II], Gabon[VI], Georgia[I], Guatemala[III], Indonesia[II], Iraq[IV], Jamaica[III], Kazakhstan[I], Kosovo[I], Malaysia[II], Maldives[V], Marshall Islands[III] , Mauritius[VI], Mexico[III], Moldova[I], Montenegro[I], Namibia[VI], North Macedonia[I], Paraguay[III], Peru[III], Russian Federation[I], Serbia[I], South Africa[VI], St. Lucia[III], Suriname[III], Thailand[II], Tonga[II], Turkey[I], Tuvalu[II], West Bank and Gaza[IV]
Lower middle income[b] (291 observations)	Algeria[IV], Angola[VI], Bangladesh[V], Benin[VI], Bhutan[V], Bolivia[III], Cabo Verde[VI], Cameroon[VI], Comoros[VI], Côte d'Ivoire[VI], Djibouti[IV], Egypt[IV], Estawini[VI], Gana[VI], Guinea[VI], Haiti[III], Honduras[III], India[V], Iran[IV], Jordan[IV], Kenya[VI], Kiribati[II], Kyrgyz Republic[I], Laos[II], Lesotho[VI], Mauritania[VI], Micronesia[II], Mongolia[II], Morocco[IV], Myanmar[II], Nepal[V], Nicaragua[III], Nigeria[VI], Pakistan[V], Papua New Guinea[II], Philippines[II], Republic of Congo[VI], Samoa[II], São Tomé and Principe[VI], Senegal[VI], Solomon Islands[II], Sri Lanka[V], Tajikistan[I], Tanzania[VI], Timor-Leste[II], Tunisia[IV], Ukraine[I], Vanuatu[II], Vietnam[II], Zambia[VI], Zimbabwe[VI]

(Continues, next page)

TABLE 4 (continued)
Specification of the countries

Income group	Country[5]
Low income[c] (75 observations)	Burkina Faso[VI], Burundi[VI], Central African Republic[VI], Democratic Republic of Congo[VI], Ethiopia[VI], Gambia[VI], Guinea- Bissau[VI], Liberia[VI], Madagascar[VI], Malawi[VI], Mali[VI], Mozambique[VI], Niger[VI], Rwanda[VI], Sierra Leone[VI], Togo[VI], Uganda[VI]

[a] 4466 USD ≤ GDP per capita
   of Upper Middle Income ≤ 13845 USD

[b] 1136 USD ≤ GDP per capita
   of Lower Middle Income ≤ 4465 USD

[c] GDP per capita of Low Income ≤ 1135 USD or less

[I] Europe & Central Asia

[II] East Asia & Pacific

[III] Latin America & Caribbean

[IV] Middle East & North Africa

[V] South Asia

[VI] Sub-Saharan Africa

NOTES

[1] For a more detailed and up-to-date review of the region-specific literature, see Yoshino et al. (2017), Wagle and Devkota (2018), Musakwa and Odhiambo (2019), Abduvaliev and Bustillo (2020), Acheampong et al. (2021), Anwar and Mang (2022). Moreover, for a cross-country analysis with the most comprehensive dataset, see Can et al. (2022), and Can and Çiftçi (2022).

[2] While this assumption may seem idealistic, it is worth noting that Adams and Page (2005) point out that unofficial international remittances may account for a significant portion of total international remittance volume, ranging from one-third to one-half. Nevertheless, it is important to acknowledge that estimating the magnitude of unofficial international remittances falls beyond the scope of this article.

[3] Country classifications adhere to the methodology established by the World Bank.

[4] The drivers of the heterogeneity problem may include differences in the population, structural breaks, measurement differences, sample selection bias, and latent factors.

[5] The World Bank database has certain limitations in capturing poverty data, especially for countries such as Afghanistan. In addition, in countries such as India, the national distribution is based on an aggregate Lorenz curve derived from the original rural and urban distributions, which introduces some uncertainty and affects the reliability of these data. These data gaps and reliability issues limit the scope of countries that can be subjected to analysis.

REFERENCES

Abduvaliev, M., & Bustillo, R. (2020). Impact of remittances on economic growth and poverty reduction amongst CIS countries. *Post-Communist Economies, 32*(4), 525–546. https://doi.org/10.1080/14631377.2019.1678094

Acheampong, A. O., Appiah-Otoo, I., Dzator, J., & Agyemang, K. K. (2021). Remittances, financial development and poverty reduction in Sub-Saharan Africa: Implications for post-COVID-19 macroeconomic policies. *Journal of Policy Modeling, 43*(6), 1365–1387. https://doi.org/10.1016/j.jpolmod.2021.09.005

Adams Jr, R. H., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? World *Development, 33*(10), 1645–1669. https://doi.org/10.1016/j.worlddev.2005.05.004

Amuedo-Dorantes, C., & Pozo, S. (2006). Migration, remittances, and male and female employment patterns. *American Economic Review, 96*(2), 222–226. https://doi.org/10.1257/000282806777211946

Anwar, A. I., & Mang, C. F. (2022). Do remittances cause Dutch disease? A meta-analytic review. *Applied Economics, 54*(36), 4131–4153. https://doi.org/10.1080/00036846.2021.2022091

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29–51. https://doi.org/10.1016/0304-4076(94)01642-D

Baltagi, B. H., & Chang, Y. J. (1994). Incomplete panels: A comparative study of alternative estimators for the unbalanced one-way error component regression model. *Journal of Econometrics, 62*(2), 67–89. https://doi.org/10.1016/0304-4076(94)90017-5

Breusch, T. S., & A. R. Pagan (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica, 47*(5), 1287–1294. https://doi.org/10.2307/1911963

Can, Z. G., & Çiftçi, H. (2022). International remittances and poverty: Blessing or curse? *Ekonomický časopis* (*Journal of Economics*), *70*(6), 544–561. https://doi.org/10.31577/ekoncas.2022.06.04

Can, Z. G., Can, U., & Bal, H. (2022). Effectiveness of the international remittances on poverty: Evidence from cross-country analysis. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 15*(4), 963–978.

Chami, M. R., Barajas, M. A., Cosimano, M. T. F., Fullenkamp, C., Gapen, M. T., & Montiel, M. P. (2008). *Macroeconomic consequences of remittances*. International Monetary Fund.

Greene, W. (2008). Functional forms for the negative binomial model for count data. *Economics Letters, 99*(3), 585–590. https://doi.org/10.1016/j.econlet.2007.10.015

Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of remittances on poverty and financial development in Sub-Saharan Africa. *World Development, 37*(1), 104–115. https://doi.org/10.1016/j.worlddev.2008.05.007

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica, 46*(6), 1251–1272. https://doi.org/10.2307/1913827

Hien, N. P., Vinh, C. T. H., & Mai, V. T. P. (2020). Remittances, real exchange rate and the Dutch disease in Asian developing countries.

The Quarterly Review of Economics and Finance, 77, 131–143. https://doi.org/10.1016/j.qref.2019.10.006

Huay, C. S., & Bani, Y. (2018). Remittances, poverty and human capital: Evidence from developing countries. *International Journal of Social Economics, 45,* 1227–1235. https://doi.org/10.1108/IJSE-10-2017-0454

International Monetary Fund (2009). *Balance of payments and international investment position manual.* Washington DC. https://doi.org/10.1057/ukbp.2009.9

Masron, T. A., & Subramaniam, Y. (2018). Remittance and poverty in developing countries. *International Journal of Development Issues, 17*(1), 305–325. https://doi.org/10.1108/IJDI-04-2018-0054

Meyer, D., & Shera, A. (2017). The impact of remittances on economic growth: An econometric model. *EconomiA, 18*(2), 147–155. https://doi.org/10.1016/j.econ.2016.06.001

Musakwa, M. T., & Odhiambo, N. M. (2019). The impact of remittance inflows on poverty in Botswana: An ARDL approach. *Journal of Economic Structures, 8,* 1–13. https://doi.org/10.1186/s40008-019-0175-x

Okolo, C. (2017). Remittances and fiscal sustainability in Nigeria: Is there any link? *Journal of Economics and Sustainable Development, 8*(13), 146–159.

Peković, D. (2017). The effects of remittances on poverty alleviation in transition countries. *Journal of International Studies, 10*(4), 37–46. https://doi.org/10.14254/2071-8330.2017/10-4/2

Ratha, D. (2013). The impact of remittances on economic growth and poverty reduction. *Policy Brief, 8*(1), 1–13.

Wagle, U. R., & Devkota, S. (2018). The impact of foreign remittances on poverty in Nepal: A panel study of household survey data, 1996–2011. *World Development, 110,* 38–50. https://doi.org/10.1016/j.worlddev.2018.05.019

World Bank (2023). *Migration and development brief, 38.* Washington DC.

Yang, D. (2008). International migration, remittances and household investment: Evidence from Philippine migrants' exchange rate shocks. *The Economic Journal, 118*(528), 591–630. https://doi.org/10.1111/j.1468-0297.2008.02134.x

Yoshino, N., Taghizadeh-Hesary, F., & Otsuka, M. (2017). International remittances and poverty reduction: Evidence from Asian developing countries. *Asian Development Bank Institute Working Papers, 759.*

Zellner, A. (1962). An efficient method of estimating seemingly unrelated regressions and tests for aggregation bias. *Journal of the American statistical Association, 57*(298), 348–368. https://doi.org/10.1080/01621459.1962.10480664

Premošćivanje granica, ublažavanje siromaštva: uloga inozemnih doznaka

Zeynep Gizem CAN
Sveučilište znanosti i tehnologije Adana
Alparslan Türkeş, Adana, Turska

Ufuk CAN
Središnja banka Republike Turske,
Adana, Turska

Ovaj rad istražuje utjecaj inozemnih doznaka na siromaštvo. Metodom trostupanjskog modela najmanjih kvadrata ispituje se postoji li dvosmjerna veza između siromaštva i inozemnih doznaka. Sve veće razine siromaštva potiču migraciju u inozemstvo, pri čemu imigranti šalju doznake natrag u svoju zemlju podrijetla, smanjujući siromaštvo. Viši prihodi kućanstava povezani su sa smanjenjem siromaštva, dok ga sve veća nejednakost u prihodima pogoršava. Osim toga, otvorenost trgovine pozitivno utječe na inozemne novčane doznake, a u financijski razvijenim gospodarstvima službene doznake teku lakše kako transakcijski troškovi opadaju. Usmjeravanjem inozemnih novčanih doznaka, koje su prepoznate kao stabilan izvor financijske potpore, u akumulaciju fizičkoga i ljudskoga kapitala, one pridonose gospodarskom razvoju i pojačavaju svoj utjecaj na smanjenje siromaštva. Ovaj rad daje značajan doprinos literaturi upotrebom najnovijeg sveobuhvatnog skupa podataka i ekonometrijske metodologije te razlikuje utjecaje inozemnih doznaka na siromaštvo služeći se razmatranjima specifičnim za dohodovnu skupinu i regiju.

Ključne riječi: inozemne doznake, analiza panel-podataka, siromaštvo