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Do Remittances Reduce Poverty? Evidence from Asian Countries

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Abstract: This research delves into the examination of the influence of remittances on poverty alleviation across ten Asian nations spanning the period from 2006 to 2019. The study employs a rigorous analytical framework involving panel data analysis and fixed effects regression models, a methodological approach hitherto unexplored in the context of this research domain. A central theme of this investigation underscores the pivotal importance of tailored policy interventions and support mechanisms aimed at harnessing remittances as a sustainable instrument for mitigating poverty in diverse Asian settings. While existing literature has established a positive correlation between remittances and poverty reduction in several countries worldwide, it is imperative to acknowledge the intricate and varying nature of this relationship across different countries and regions. This study concentrates on dissecting the linkage between remittances and poverty alleviation within the Asian context. Our findings reveal a noteworthy inverse association between the proportion of remittances to Gross Domestic Product (GDP) and the real GDP per capita with the poverty headcount ratio in these nations. These empirical insights affirm the potential of remittances to serve as a poverty alleviation tool in Asian countries. Remittances emerge as a substantial source of income for households and can be strategically channelled towards productive endeavours, such as investments in education or small-scale entrepreneurial ventures. These productive investments possess the capability to augment income levels and consequently contribute to long-term poverty reduction. Thus, advocating for the augmentation of remittance volumes and promoting their utilization in productive activities represent efficacious strategies for combatting poverty in the Asian context.

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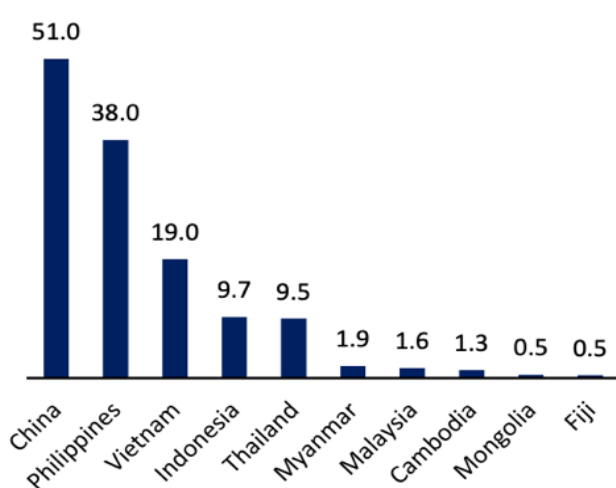
1. Introduction

Remittances, which refer to financial transfers made by foreign laborers to their countries of origin, hold considerable potential for substantial poverty reduction in numerous global economies, particularly those situated in the Asian region. Several Asian nations prominently feature a substantial segment of their population actively engaged in overseas employment, notably in regions such as the Middle East and other parts of Asia. These migrant workers consistently send a portion of their earnings back to their countries of origin. As illustrated in Figure 1, this figure elucidates the primary recipients of remittances within the East Asia and Pacific region, underscoring the substantial magnitude of these remittance flows relative to the Gross Domestic Product (GDP) of each respective nation. Furthermore, remittances assume the role of an

external financing mechanism for developmental purposes, thereby contributing to the reduction of poverty by augmenting household income and fostering increased consumption.

In the year 2020, remittances amounting to \$305 billion were directed towards Asian countries, constituting approximately 37% of the total global remittance flow, as documented in the World Bank's records. Remittances play a pivotal role in fostering economic development and mitigating poverty in the receiving nations, functioning as a vital source of household income that can be channeled into economically productive initiatives. These initiatives encompass investments in human capital and the cultivation of small-scale businesses. This assertion aligns with the research findings put forth by Yang (2008), which assert that remittances exert a more substantial influence in reducing poverty when allocated towards productive objectives, encompassing the enhancement of human or physical capital, as opposed to mere consumption.

(\$ billion, 2022e)



(Percentage of GDP, 2022e)

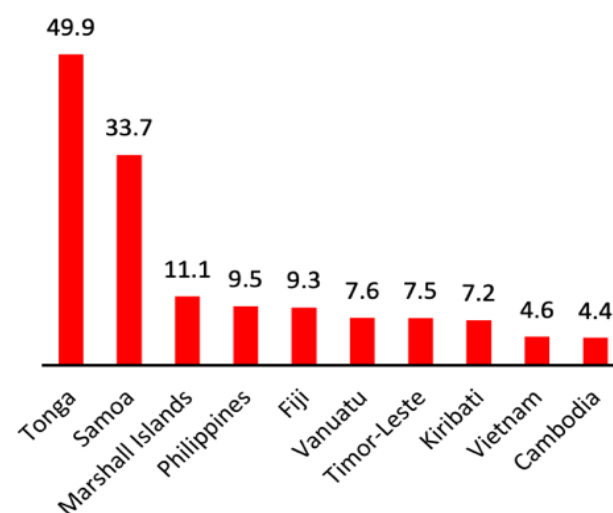


Figure 1. Top Remittance Recipients in the East Asia and Pacific Region, 2022

Source: World Bank-KNOMAD staff estimates; World Development Indicators; IMF Balance of Payments Statistics.

Nonetheless, the impact of remittances on poverty mitigation within the Asian economic landscape is intricate and contingent upon a multifaceted array of factors, encompassing the manner in which remittances are utilized, the level of human capital present, and the effectiveness of institutional structures. Previous investigations into the correlation between remittances and poverty reduction have generated inconclusive results. Certain studies have uncovered a positive correlation (Adams & Page, 2003; Hossain & Ahmed, 2017), while others have observed a significant association only within specific remittance thresholds (Dastidar & Apergis, 2022). In particular, the research by Dastidar and Apergis (2022) delved into the potential nonlinear linkage between remittances and economic growth within the context of India.

Prior investigations conducted in the context of India have, thus far, omitted an exploration of the potential presence of a nonlinear relationship. The present study employs the ARDL model framework as a tool for scrutinizing nonlinearity, leading to the discernment that the influence of remittances on economic growth is inconspicuous when remittance levels are low but gains prominence as remittance volumes increase. This observation implies that there exists a minimum threshold of remittance inflow

requisite for generating a beneficial impact on economic growth. The authors posit that a myriad of factors, encompassing the utilization and mismanagement of remittance resources, trade imbalances, challenges encountered by the industrial sector, restricted entrepreneurial opportunities, deficiencies in financial inclusivity, and the exploitation of migrant laborers within the Indian context, may collectively contribute to the discerned pattern (Dastidar & Apergis, 2022).

An independent research inquiry was conducted to investigate the interrelation between workers' remittances and the economic growth trajectories of four South Asian nations, specifically Bangladesh, India, Pakistan, and Sri Lanka. Employing a panel dataset covering the years 1977 to 2016, the researchers undertook the task of estimating the effects of remittances by employing various econometric models. The resultant findings unveil a counterproductive impact of remittances on the economic growth of Bangladesh, Pakistan, and Sri Lanka, in stark contrast to their beneficial influence on India's economic growth. Furthermore, the study illuminates a conspicuous and adverse association between remittances and economic growth in all four of the aforementioned countries (Sutradhar, 2020).

Nevertheless, drawing from the worker income theory, it is evident that remittances exert a direct influence on the augmentation of household incomes among the recipients. This supplementary income holds the potential to enhance their overall quality of life, facilitate access to essential healthcare and education services, and bolster investments in income-generating endeavours, thus culminating in the reduction of poverty (Bouhga-Hagbe, 2004).

It is worth noting that remittances possess the capability to engender a multiplier effect within the local economy. When remittance recipients allocate these funds towards the procurement of locally available goods and services, a ripple effect ensues. This cascade includes the stimulation of economic activities, the creation of employment opportunities, and the

contribution to poverty alleviation by generating additional income streams for other segments of the population (Bouhga-Hagbe, 2004).

The primary objective of this research endeavour is to conduct a comprehensive analysis of the nexus between remittances and poverty mitigation in Asian nations. This endeavour seeks to contribute significantly to the body of existing scholarly literature. The overarching goal of this study is to scrutinize the influence of remittances on the alleviation of poverty within a carefully selected representative sample comprising ten Asian countries. The criteria guiding the selection of these nations are rooted in considerations such as regional diversity, population size, the notable role of remittances, and the availability of requisite data (HCI).



Figure 2. Selected Asian countries for the studies.

This section offers a comprehensive overview of the study, encompassing key aspects such as the research context, the articulation of the research problem, the underlying rationale, the driving motivations, the specified research objectives, the research questions posed, and the overall significance of the study. Subsequent sections will delve into a thorough exploration of relevant literature, delineate the chosen research methodology, elucidate the procedures employed for data analysis and their corresponding interpretations. Ultimately, the article will conclude by addressing the policy implications that arise from the study's findings.

2. Literature Review

An expanding body of academic literature has been dedicated to investigating the connection between remittances and the reduction of poverty in developing nations. Numerous studies have undertaken the task of scrutinizing the impact of remittances on poverty alleviation, employing diverse methodologies and sources of data. Within this corpus of research, a number of investigations have discerned a positive correlation between remittances and the amelioration of poverty (Abduvaliev & Bustillo, 2020; Adams & Page, 2005). Both Adams and Page (2005) and Abduvaliev and Bustillo (2020) independently noted a constructive and statistically significant relationship between remittances and the reduction of poverty. While Adams concentrated on the context of Asian countries, Abduvaliev and Bustillo (2020) conducted their analysis within a sample comprising ten post-Soviet states in the Commonwealth of Independent States (CIS).

In their research, Abduvaliev and Bustillo (2020) conducted an examination into the relationship between remittances, economic growth, and the alleviation of poverty within a cohort of ten post-Soviet states that constitute the Commonwealth of Independent States (CIS). The outcomes of their investigation reveal that a 1% increase in remittance inflows corresponds to a 0.25% upturn in per capita GDP and a notable 2% reduction in the severity of poverty. This study underscores the capacity of remittances to serve as an effective means of poverty mitigation, as they contribute to the augmentation of income and the stabilization of consumption patterns. Furthermore, the research contrasts these findings with the impacts of other external sources of capital, such as foreign aid and foreign direct investment, on the realms of economic growth and poverty alleviation within these nations.

Ekanayake and Moslares (2020) undertook a comprehensive study encompassing data from 21 countries, spanning the years from 1980 to 2018. The principal objective of their investigation was to scrutinize the repercussions of remittances on both short-term and long-term economic growth, as well as poverty dynamics within these nations. The findings of their study unveil a prevailing trend where remittances generally exert a positive influence on long-term economic growth across the majority of the countries examined, while their impact on short-term growth manifests with notable variability. Furthermore, the research outcomes underscore the propensity of remittances to reduce poverty levels in the Latin American region.

On a related note, [Islam \(2022\)](#) delved into the examination of the association between remittances and economic growth in the economies of South Asia. This study employed annual panel data spanning the period from 1986 to 2019 and diligently considered factors such as trade openness and the inflow of foreign direct investment as control variables in their analysis.

This study employs statistical analyses to examine the data, revealing a positive impact of remittances on economic growth in these economies. The results point to a unidirectional causal link between remittances and economic growth. The author recommends that South Asian economies can boost their economic growth by taking several measures, including promoting international migration, implementing migrant-friendly policies, providing training and assistance to international migrants, diversifying their export portfolio, and thoughtfully managing foreign direct investment inflows.

Research shows that the number and use of remittances affect poverty reduction ([Loxha, 2019](#)). According to [Ratha \(2003\)](#), the number of remittances received positively affects poverty alleviation. The effect is stronger for households with more remittances. Migration, remittances, and poverty in Kosovo also showed this tendency ([Loxha, 2019](#)). The study found that migration and remittances can reduce poverty and help disadvantaged households in Kosovo with few job opportunities. The survey found that most remittances went to consumption and little to investment or entrepreneurship.

Because households depend on remittances, poverty rates would rise without migration and remittance aid. A two-stage Heckman-type selection process was used to reduce selection bias, but no bias was found. The study confirms that remittances improve recipient households' consumption. The statistics also show that without remittances, many households, especially rural ones, would be poorer. The study also found that remittances reduced poverty more when used for constructive purposes like investing in human or physical capital rather than consumption.

Empirical evidence indicates that the impact of remittances on poverty reduction is contingent upon the economic and institutional circumstances of the recipient nation ([Adams & Page, 2005](#); [Loxha, 2019](#)). According to [Adams and Page \(2005\)](#), remittances have a more significant effect on poverty reduction in countries that possess robust institutional frameworks, which encompass secure property rights and efficient contract enforcement. Moreover, nations that possess higher levels of human capital, characterised by advanced educational and healthcare systems, tend to observe a more significant positive impact of remittances on the reduction of poverty.

Human capital is a significant factor in the relationship between remittances and poverty reduction in Asian countries. Human capital, which encompasses the knowledge, skills, and abilities of individuals, significantly influences the effectiveness of remittances as a tool for reducing poverty. The level of human capital directly affects households' ability to effectively use remittances to improve their income and consumption. Households with higher levels of human capital typically prioritise investing remittances in education, health, or other productive endeavours. The allocation of funds has the potential to contribute to the long-term reduction of poverty. In contrast, households with lower levels of human capital tend to use remittances for consumption rather than for long-term poverty alleviation.

Institutional quality, including factors like the regulatory environment and corruption levels, can impact the efficacy

of remittances as a poverty alleviation mechanism. Remittances are more likely to reach their intended recipients and be effectively utilised for poverty reduction in countries with robust institutions. In contrast, in nations with less robust institutions, remittances are prone to corruption or misallocation, resulting in a diminished or adverse impact on poverty alleviation. [Sghaier \(2021\)](#) examined the influence of remittances on the economic growth of seven countries in the Middle East and North Africa (MENA) region, specifically Tunisia, Morocco, Algeria, Egypt, Jordan, Lebanon, and Turkey, during the period from 2000 to 2018.

The study utilised panel data analysis with the system generalised method of moments (GMM) and found a positive association between remittances and economic growth. Additionally, the results suggest that the relationship between remittances and economic growth is positively influenced by financial development. This analysis assesses the capacity of remittance flows to stimulate economic growth in the MENA region. Policymakers may consider implementing policies to promote the growth of the financial system, thereby attracting higher levels of remittance inflows.

In addition to human capital and institutional quality, the impact of remittances on poverty reduction in Asian countries can be subject to various influences. According to [Adams and Page \(2003\)](#), research indicates that remittances are more effective in reducing poverty when they are used for productive purposes, such as investing in education, healthcare, or small-scale enterprises, rather than being used for immediate consumption. Investing in productive endeavours has the capacity to yield sustained income, whereas consumption does not offer a similar assurance.

Other factors that may affect the relationship between remittances and poverty reduction in Asian countries include the level of financial development and the use of formal and informal channels for remittance transfers. Enhanced financial development can facilitate the effective utilisation of remittances for productive purposes, such as investment in small enterprises, leading to more significant outcomes in poverty reduction. The use of informal remittance channels, like informal money transfer systems, may lead to higher transaction costs and therefore have a limited effect on reducing poverty.

[Kajtazi and Fetai \(2022\)](#) examine the relationship between remittances and economic growth in a sample of 10 developing countries in Southeast Europe, including Greece as a developed nation. The study employs various econometric techniques, such as ordinary least squares (OLS), fixed-effects models, random-effects models, and Hausman-Taylor IV estimators. The results indicate a positive relationship between remittances and economic growth in the countries under investigation. Furthermore, a positive association has been identified between foreign direct investment, final consumption expenditure, gross capital formation, exports, and economic growth.

There is no causal relationship between the exchange rate and economic growth. The study suggests that remittances can contribute to economic growth in Southeast European countries. Governments should implement policies that encourage and guide remittance inflows towards investment activities in order to maximise their potential. These measures have the potential to address migration and unemployment concerns. This study highlights the importance of remittance inflows in Southeast European developing countries. This study provides valuable insights for policymakers in these countries, helping them to develop strategies for effectively utilising remittances for investment purposes.

Another study examined the relationship between remittances and economic growth in developing countries, focusing on the impact of financial development. This study examines the impact of remittances on economic growth across multiple countries. It employs two different estimation methods and considers the level of financial development. The study suggests that the degree of financial development in the receiving country plays a role in the relationship between remittances and economic growth. Remittances have a diminished impact on economic growth in countries with greater financial development. The study suggests that while attracting migrants' transfers can lead to immediate poverty reduction, governments may find it more beneficial in the long term to prioritise the development of the financial sector (Sobiech, 2019). Hence, based on the extensive literature discussed above, the following hypotheses are postulated:

H1: There is a positive relationship between remittances and poverty reduction in developing countries, signifying that remittances contribute to poverty alleviation.

H2: GDP growth has a negative impact on poverty.

The literature suggests that remittances significantly contribute to reducing poverty in developing countries. This study introduces a unique methodology that incorporates reliable variables such as poverty head count and the human capital index, while also controlling for other factors. This study is unique in its use of a comprehensive dataset that includes a diverse range of East Asian countries that have not been previously examined in similar academic investigations.

3. Data

The study collected data from multiple sources including the World Bank's World Development Indicators database, the International Monetary Fund's International Financial Statistics database, and the United Nations Human Development Report. The study examines ten Asian nations, namely Indonesia, the Kyrgyz Republic, Pakistan, the Philippines, Sri Lanka, Tajikistan, Thailand, Vietnam, Malaysia, and Mongolia. The selected data collection period spans from 2006 to 2019, primarily determined by the availability of data. The selection of these ten Asian countries is justified for several reasons:

1. Regional diversity: The mentioned countries exhibit a wide array of economic, cultural, and geographical characteristics within the Asian region, thereby providing a comprehensive perspective on the remittance dynamics of the continent.

2. Size and population: The selected countries encompass a range of sizes and population densities, incorporating both prominent nations such as Indonesia and Pakistan, as well as smaller countries like Kyrgyz Republic and Tajikistan. The presence of diversity facilitates a more comprehensive comprehension of the impacts of remittances across various population sizes.

3. Remittance significance: The countries that have been chosen exhibit different degrees of importance in terms of remittances as a form of income. This selection allows for

an examination of the effects of remittances on poverty alleviation in diverse settings.

4. Data availability: The suitability of these countries for longitudinal analysis is ensured by the availability of consistent and reliable data spanning from 2006 to 2019, thereby enhancing the robustness of the study.

In essence, the selection of Asian countries was made with the intention of offering a comprehensive and inclusive viewpoint on the correlation between remittances and the alleviation of poverty. This decision took into consideration a range of factors, including regional variations, economic disparities, and demographic diversity.

The variables used in the analysis include real GDP per capita, remittances as a percentage of GDP, poverty headcount ratio at the national poverty line, and human capital index (HCI). The real GDP per capita variable is measured in constant 2011 international dollars and is used as a measure of economic development. The variable "remittances" is quantified as the aggregate sum of remittances received by the nation, expressed as a proportion of the gross domestic product (GDP). This metric serves as an indicator of the significance of remittances within the economy. The poverty headcount ratio is a metric that quantifies the proportion of the population residing below the poverty line established by the nation. It serves as an indicator to assess the extent of poverty within a given population. The Human Capital Index (HCI) is a comprehensive metric that assesses the collective knowledge and competencies of a given population. It serves as a valuable indicator of human development.

4. Methodology

To investigate the relationship between remittances and poverty reduction in Asian countries, we utilise panel data and employ the Estimated Generalised Least Squares (EGLS) cross-section with fixed-effects approach. Panel data analysis is a statistical method used to analyse data that includes multiple countries or time periods. It takes into account the presence of unobserved differences between countries (Baltagi, 2013). Fixed-effects regression is a technique employed in panel data regression analysis to address the presence of unobserved heterogeneity among countries that remains constant over time. The methodology entails including a dummy variable for each country in the regression model to account for variations in cultural or institutional factors across countries (Baltagi, 2013). Kajtazi and Fetai (2022) utilise a similar fixed-effects model to analyse European countries. Gurbanov (2023) utilised the poverty headcount as a proxy measure in their investigation of impoverished nations in the former Soviet Union.

Before running the regression model, we first test the stationarity of the data using 4 different unit root tests as shown in Table 1 which provides the test statistic and the probability values for each variable. If the data are not stationary, we transform the data using a difference or log transformation to make them stationary before running the fixed effects regression model.

Table 1: Summary of unit root tests for all variables at level.

| Variable | Levin, Lin & Chu t, Im, Pesaran and Shin | ADF - Fisher Chi-square, | | PP - Fisher Chi-square, | |
|----------|--|--------------------------|-----------|-------------------------|--|
| | Statistic | W-stat, Statistic | Statistic | Statistic | |
| P | -6.86*** | -1.55* | 34.18** | 36.91** | |
| R | -3.75*** | -1.98** | 30.22* | 37.45*** | |
| GDP | 6.76 | 8.81 | 1.74 | 2.10 | |
| HCI | -3.84*** | 0.27 | 28.45* | 30.32* | |

Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 1 indicates that only a few variables exhibit stationarity at the 1% level of significance, while the remaining variables do not demonstrate stationarity. The variables are made stationary by applying a first difference transformation. Comprehensive test results for all

variables are presented in the appendix.

To account for the non-stationarity of the data, differencing was applied and an ADF test was conducted again, as presented in Table 2.

Table 2: Summary of unit root tests for all variables at first difference.

| Variable | Levin, Lin & Chu t, Statistic | Im, Pesaran and Shin W-stat, Statistic | ADF - Fisher Chi-square, Statistic | PP - Fisher Chi-square, Statistic |
|----------|----------------------------------|--|---------------------------------------|--------------------------------------|
| P | -17.69*** | -8.65*** | 58.01*** | 54.75*** |
| R | -5.80*** | -5.24*** | 62.65*** | 76.82*** |
| GDP | -4.17*** | -3.37*** | 47.93*** | 56.29*** |
| HCI | -7.00*** | -4.95*** | 59.26*** | 73.60*** |

Note: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 2 demonstrates that all variables display stationary first differences with a significance level of 1%. The initial differences of real GDP per capita, remittances, poverty headcount ratio, and human capital index exhibit stationarity and are appropriate for panel data analysis without requiring additional transformation.

The fixed effects regression model is specified as follows:

$$D(P) = \alpha + \beta_1 * D(R) + \beta_2 * D(GDP) + \beta_3 * D(HCI) + \gamma_i + \epsilon_{it} \quad (1)$$

In the given equation, P represents the poverty headcount ratio, R represents the percentage of GDP derived from remittances, GDP represents real GDP per capita, HCI represents the human capital index, γ_i represents the fixed effect for country i, and ϵ_{it} represents the error term. The inclusion of fixed effects for each country allows for the control of time-invariant, unobserved heterogeneity across countries, such as cultural or institutional factors. To ensure the reliability of our findings, we assess the robustness of our results through two approaches: (1) employing an alternative measure of poverty, specifically the poverty gap, and (2) employing a different methodology i.e., Pooled Ordinary Least Square.

5. Results

Table 3, Model 1, displays the regression results for the EGLS cross-section fixed effects analysis. The regression analysis reveals a significant and negative relationship between remittances and poverty reduction in Asian countries. The coefficient for the remittance's variable is -0.047, indicating that a 1% rise in the proportion of GDP represented by remittances is linked to a 0.047% reduction in the poverty headcount ratio. This suggests that as the proportion of remittances in a nation's GDP rises, there is

a concomitant decline in the poverty rate. This finding supports the notion that international remittances can serve as a form of income for recipient households, potentially alleviating poverty.

The regression analysis indicates a significant and inverse correlation between GDP per capita and poverty reduction in Asian nations. The coefficient for the GDP variable is -0.001, suggesting that a 1% increase in real GDP per capita is associated with a 0.001% decrease in the poverty headcount ratio.

The regression analysis indicates a significant and negative relationship between the human capital index and poverty reduction in the sample of 10 Asian countries. The findings align with previous research conducted by Adams and Page (2003) and Hossain and Ahmed (2017), enhancing the credibility and reliability of the results.

The R-squared value of 0.814 indicates that the independent variables in the model explain around 81.4% of the variation observed in the first difference of the poverty headcount ratio.

The findings of the cross-section fixed effects regression analysis (EGLS) investigating the relationship between remittances and poverty reduction in Asian countries can be categorised into subheadings in Table 3. The report should contain a concise and accurate description of the experimental results, their interpretation, and the resulting conclusions. Table 3, Model 2, displays findings utilising an alternative poverty measure, namely the poverty gap. All independent variables have negative and statistically significant coefficients. This indicates the trustworthiness of the results obtained in Model 1.

Table 4 presents the results of our model, which was re-estimated using Pooled Ordinary Least Squares (POLS). Our results are consistent with our previous findings, indicating the reliability of our results across various methodologies.

Table 3: (EGLS) cross-section Fixed Effects Regression Results for the Relationship between Remittances and Poverty Reduction in Asian Countries.

| | Model (1) Poverty headcount ratio | Model (2) Poverty gap |
|---------------------|--------------------------------------|--------------------------|
| Remittances | -0.047*** (0.017) | -0.123*** (0.021) |
| GDP | -0.001*** (0.000) | -0.034*** (0.001) |
| Human Capital Index | -17.09*** (5.285) | -1.67*** (0.238) |
| _cons | -0.331*** (0.055) | -0.057*** (0.015) |
| R-Squared | 0.814 | 0.733 |
| Adjusted R-Squared | 0.652 | 0.596 |
| F-statistic | 42.835 | 31.382 |
| Prob(F-statistic) | 0.000 | 0.002 |
| Durbin-Watson stat | 2.164 | 2.009 |
| Countries | 10 | 10 |

Table 4: (POLS) Pooled Ordinary Least Square Regression Results for the Relationship between Remittances and Poverty Reduction in Asian Countries.

| | Model (1) | Model (2) |
|---------------------------|-------------------------|----------------------|
| | Poverty headcount ratio | Poverty gap |
| Remittances | -0.125*** (0.267) | -0.003*** (0.236) |
| GDP | -0.034*** (0.003) | -0.056*** (0.029) |
| Human Capital Index | -14.12*** (2.185) | -2.11*** (0.014) |
| _cons | -0.782*** (0.030) | 0.601*** (0.223) |
| <i>R-Squared</i> | 0.433 | 0.540 |
| <i>Adjusted R-Squared</i> | 0.202 | 0.319 |
| <i>F-statistic</i> | 49.017 | 22.667 |
| <i>Prob(F-statistic)</i> | 0.034 | 0.058 |
| Durbin-Watson stat | 2.527 | 2.118 |
| Countries | 10 | 10 |

6. Conclusion

The study findings indicate that remittances have a substantial and beneficial effect on poverty alleviation in Asian countries. The findings suggest that GDP may play a role in reducing poverty in these countries. These findings are consistent with previous studies that have examined the relationship between remittances and the reduction of poverty in developing countries. Previous research has indicated that the effect of remittances on reducing poverty depends on various factors, including the amount and use of remittances, as well as the economic and institutional conditions in the recipient country (Sghaier, 2021).

Remittances in Asian nations contribute positively to poverty alleviation. The main reason for this is their contribution to households by providing extra income, which can be utilised for productive purposes such as education or investments in small businesses. Ultimately, these actions contribute to the long-term growth of income and the alleviation of poverty. GDP positively affects poverty reduction through the correlation between economic growth and diminished poverty. Our findings have important implications for policymakers in Asian countries. Our findings indicate that promoting the inflow of remittances in Asian countries has the potential to effectively alleviate poverty. Possible revision: Potential strategies encompass incentivizing diaspora communities to increase remittance outflows to their countries of origin, alongside endeavours to enhance the efficiency and efficacy of remittance transfers. These measures may involve reducing transaction expenses and refining the regulatory framework governing remittance transactions. Second, policymakers in these countries should devise strategies to promote remittance inflows, including measures to lower transaction costs and enhance the financial literacy of migrants. This approach will help optimise the poverty-alleviating impact of these funds.

Our research suggests that remittances have a substantial impact on poverty reduction in Asian nations. The effect of remittances on reducing poverty depends on various factors, including the amount and use of remittances, as well as the economic and institutional conditions of the recipient country. Further research is needed to better understand how remittances impact poverty reduction in Asian countries and to determine the most effective strategies for maximising the positive effects of remittances on poverty reduction. The reliability of our findings is evidenced by their consistency across multiple

poverty indicators and methodologies, highlighting their robustness.

6.1. Policy implications

Our analysis findings hold significant implications for policymakers in Asian nations aiming to alleviate poverty by utilising remittances. Our findings indicate that increasing remittances in Asian countries could potentially reduce poverty. However, the extent of this effect will vary depending on the economic and institutional conditions of the receiving country.

To enhance the beneficial impact of remittances on poverty alleviation in Asian nations, policymakers should take into account the subsequent recommendations:

- Encourage the use of formal remittance channels: Policymakers should prioritise the promotion of formal remittance channels, such as banks and money transfer companies, over informal channels, such as informal money transfer systems. Formal channels possess characteristics such as transparency, lower transaction costs, and reliability, potentially enhancing their efficacy in poverty reduction.
- Encourage the use of remittances for productive purposes: Policymakers should prioritise promoting the productive utilisation of remittances, such as directing them towards investments in education, health, and small businesses, rather than their consumption. This approach has the potential to enhance the long-term income-generating capacity of remittances and may prove more efficacious in poverty reduction efforts.
- Improve financial development: Policymakers should work to improve the level of financial development in their countries, which may facilitate the use of remittances for productive purposes and may increase their effectiveness in reducing poverty.
- Strengthen institutions: Policymakers should prioritise enhancing the regulatory framework and combating corruption within their nations. These efforts have the potential to enhance transparency and efficacy of remittances as a poverty reduction tool.

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. doi: <https://doi.org/10.1080/14631377.2019.1678094>

- Adams, R. H., & Page, J. (2003). *International migration, remittances, and poverty in developing countries* (Vol. 3179). World Bank Publications. doi: <https://doi.org/10.1596/1813-9450-3179>
- Adams, R. H., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development*, 33(10), 1645-1669. doi: <https://doi.org/10.1016/j.worlddev.2005.05.004>
- Baltagi, B. H. (2013). *Econometric Analysis of Panel Data* (5th ed.). Chichester: John Wiley and Sons. Retrieved from <http://www.sciepub.com/reference/156294>
- Bouhga-Hagbe, J. (2004). A Theory of Workers Remittances with an Application to Morocco. *IMF Working Paper*. Retrieved from <https://ssrn.com/abstract=879019>
- Dastidar, S. G., & Apergis, N. (2022). Do Remittances Promote Economic Growth? New Evidence from India. *Economic Issues*, 27(1), 11-37. Retrieved from https://www.economicissues.org.uk/Files/2022/EI_March2022_dastidar.pdf
- Ekanayake, E. M., & Moslares, C. (2020). Do Remittances Promote Economic Growth and Reduce Poverty? Evidence from Latin American Countries. *Economies*, 8(2), 35. doi: <https://doi.org/10.3390/economies8020035>
- Gurbanov, S. (2023). Remittances, Poverty Reduction and Inclusive Growth in the Resource-Poor Former Soviet Union Countries. Available at SSRN. doi: <https://dx.doi.org/10.2139/ssrn.4450448>
- Hossain, M. Z., & Ahmed, J. U. (2017). Performance of Remittances in Household Investment Behaviour in the Sylhet Region of Bangladesh. *Demography India*, 46(2), 31-43. Retrieved from <https://www.researchgate.net/publication/325809295>
- Islam, M. S. (2022). Do personal remittances influence economic growth in South Asia? A panel analysis. *Review of Development Economics*, 26(1), 242-258. doi: <https://doi.org/10.1111/rode.12842>
- Kajtazi, K., & Fetai, B. (2022). Does the Remittance Generate Economic Growth in the South East European Countries? *Scientific Annals of Economics and Business*, 69(1), 57-67. doi: <https://doi.org/10.47743/saeb-2022-0004>
- Loxha, A. (2019). Do Remittances reduce poverty in Kosovo? - A counterfactual analysis. *South East European Journal of Economics and Business*, 14(2), 117-132. doi: <https://doi.org/10.2478/jeb-2019-0018>
- Ratha, D. (2003). Workers' remittances: an important and stable source of external development finance. *Global development finance*. Retrieved from <https://ssrn.com/abstract=3201568>
- Sghaier, I. M. (2021). Remittances and Economic Growth in MENA Countries: The Role of Financial Development. *Economic Alternatives*, (1), 43-59. doi: <https://doi.org/10.37075/EA.2021.1.03>
- Sobiech, I. (2019). Remittances, finance and growth: Does financial development foster the impact of remittances on economic growth? *World Development*, 113, 44-59. doi: <https://doi.org/10.1016/j.worlddev.2018.08.016>
- Sutradhar, S. R. (2020). The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka. *International Journal of Economic Policy Studies*, 14(1), 275-295. doi: <https://doi.org/10.1007/s42495-020-00034-1>
- Yang, D. (2008). International migration, remittances and household investment: Evidence from Philippine migrants' exchange rate shocks. *The Economic Journal*, 118(528), 591-630. doi: <https://doi.org/10.1111/j.1468-0297.2008.02134.x>

Appendix

Complete findings of diagnostics tests.

Table A1: Panel unit root test for poverty head count

| Panel unit root test: Summary | | | | | |
|--|-----------|---------|----------------|-----|--|
| Series: P | | | | | |
| Date: 06/28/23 Time: 13:20 | | | | | |
| Sample: 2006 2019 | | | | | |
| Exogenous variables: Individual effects | | | | | |
| Automatic selection of maximum lags | | | | | |
| Automatic lag length selection based on SIC: 0 to 2 | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs | |
| Null: Unit root (assumes common unit root process) | | | | | |
| Levin, Lin & Chu t* | -6.86271 | 0.0000 | 10 | 124 | |
| Null: Unit root (assumes individual unit root process) | | | | | |
| Im, Pesaran and Shin W-stat | -1.55373 | 0.0601 | 10 | 124 | |
| ADF - Fisher Chi-square | 34.1842 | 0.0249 | 10 | 124 | |
| PP - Fisher Chi-square | 36.9112 | 0.0120 | 10 | 130 | |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | | |

Table A2: Panel unit root test for the 1st difference of poverty head count

| Panel unit root test: Summary | | | | | |
|--|-----------|---------|----------------|-----|--|
| Series: D(P) | | | | | |
| Date: 06/28/23 Time: 14:02 | | | | | |
| Sample: 2006 2019 | | | | | |
| Exogenous variables: Individual effects | | | | | |
| Automatic selection of maximum lags | | | | | |
| Automatic lag length selection based on SIC: 0 to 1 | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs | |
| Null: Unit root (assumes common unit root process) | | | | | |
| Levin, Lin & Chu t* | -17.6949 | 0.0000 | 10 | 119 | |
| Null: Unit root (assumes individual unit root process) | | | | | |
| Im, Pesaran and Shin W-stat | -8.64715 | 0.0000 | 10 | 119 | |
| ADF - Fisher Chi-square | 58.0143 | 0.0000 | 10 | 119 | |
| PP - Fisher Chi-square | 54.7508 | 0.0000 | 10 | 120 | |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | | |

Table A3: Panel unit root test for the percentage of GDP composed of remittances

| Panel unit root test: Summary | | | | | |
|--|-----------|---------|----------------|-----|--|
| Series: R | | | | | |
| Date: 06/28/23 Time: 14:14 | | | | | |
| Sample: 2006 2019 | | | | | |
| Exogenous variables: Individual effects | | | | | |
| Automatic selection of maximum lags | | | | | |
| Automatic lag length selection based on SIC: 0 to 2 | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs | |
| Null: Unit root (assumes common unit root process) | | | | | |
| Levin, Lin & Chu t* | -3.75367 | 0.0001 | 10 | 127 | |
| Null: Unit root (assumes individual unit root process) | | | | | |
| Im, Pesaran and Shin W-stat | -1.98454 | 0.0236 | 10 | 127 | |
| ADF - Fisher Chi-square | 30.2280 | 0.0662 | 10 | 127 | |
| PP - Fisher Chi-square | 37.4505 | 0.0103 | 10 | 130 | |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | | |

Table A4: Panel unit root test for the 1st difference percentage of GDP composed of remittances.

| Panel unit root test: Summary | | | | |
|--|-----------|---------|----------------|-----|
| Series: D(R) | | | | |
| Date: 06/28/23 Time: 14:15 | | | | |
| Sample: 2006 2019 | | | | |
| Exogenous variables: Individual effects | | | | |
| Automatic selection of maximum lags | | | | |
| Automatic lag length selection based on SIC: 0 to 1 | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs |
| Null: Unit root (assumes common unit root process) | | | | |
| Levin, Lin & Chu t* | -5.79580 | 0.0000 | 10 | 116 |
| Null: Unit root (assumes individual unit root process) | | | | |
| Im, Pesaran and Shin W-stat | -5.23977 | 0.0000 | 10 | 116 |
| ADF - Fisher Chi-square | 62.6525 | 0.0000 | 10 | 116 |
| PP - Fisher Chi-square | 76.8181 | 0.0000 | 10 | 120 |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | |

Table A5: Panel unit root test for real GDP.

| Panel unit root test: Summary | | | | |
|--|-----------|---------|----------------|-----|
| Series: GDP | | | | |
| Date: 06/28/23 Time: 14:15 | | | | |
| Sample: 2006 2019 | | | | |
| Exogenous variables: Individual effects | | | | |
| Automatic selection of maximum lags | | | | |
| Automatic lag length selection based on SIC: 0 to 2 | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs |
| Null: Unit root (assumes common unit root process) | | | | |
| Levin, Lin & Chu t* | 6.76531 | 1.0000 | 10 | 121 |
| Null: Unit root (assumes individual unit root process) | | | | |
| Im, Pesaran and Shin W-stat | 8.81184 | 1.0000 | 10 | 121 |
| ADF - Fisher Chi-square | 1.74070 | 1.0000 | 10 | 121 |
| PP - Fisher Chi-square | 2.10373 | 1.0000 | 10 | 130 |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | |

Table A6: Panel unit root test for the 1st difference of real GDP.

| Panel unit root test: Summary | | | | |
|--|-----------|---------|----------------|-----|
| Series: D(GDP) | | | | |
| Date: 06/28/23 Time: 14:16 | | | | |
| Sample: 2006 2019 | | | | |
| Exogenous variables: Individual effects | | | | |
| Automatic selection of maximum lags | | | | |
| Automatic lag length selection based on SIC: 0 to 1 | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs |
| Null: Unit root (assumes common unit root process) | | | | |
| Levin, Lin & Chu t* | -4.17028 | 0.0000 | 10 | 118 |
| Null: Unit root (assumes individual unit root process) | | | | |
| Im, Pesaran and Shin W-stat | -3.36728 | 0.0004 | 10 | 118 |
| ADF - Fisher Chi-square | 47.9346 | 0.0004 | 10 | 118 |
| PP - Fisher Chi-square | 56.2946 | 0.0000 | 10 | 120 |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | |

Table A7: Panel unit root test for the Human Development Index.

| Panel unit root test: Summary | | | | | |
|--|-----------|---------|----------------|-----|--|
| Series: HDI | | | | | |
| Date: 06/28/23 Time: 14:16 | | | | | |
| Sample: 2006 2019 | | | | | |
| Exogenous variables: Individual effects | | | | | |
| Automatic selection of maximum lags | | | | | |
| Automatic lag length selection based on SIC: 0 to 2 | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs | |
| Null: Unit root (assumes common unit root process) | | | | | |
| Levin, Lin & Chu t* | -3.84715 | 0.0001 | 10 | 125 | |
| Null: Unit root (assumes individual unit root process) | | | | | |
| Im, Pesaran and Shin W-stat | 0.26719 | 0.6053 | 10 | 125 | |
| ADF - Fisher Chi-square | 28.4467 | 0.0992 | 10 | 125 | |
| PP - Fisher Chi-square | 30.3212 | 0.0648 | 10 | 130 | |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | | |

Table A8: Panel unit root test for the Human Development Index.

| Panel unit root test: Summary | | | | | |
|--|-----------|---------|----------------|-----|--|
| Series: D(HDI) | | | | | |
| Date: 06/28/23 Time: 14:17 | | | | | |
| Sample: 2006 2019 | | | | | |
| Exogenous variables: Individual effects | | | | | |
| Automatic selection of maximum lags | | | | | |
| Automatic lag length selection based on SIC: 0 to 1 | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | |
| Method | Statistic | Prob.** | Cross-sections | Obs | |
| Null: Unit root (assumes common unit root process) | | | | | |
| Levin, Lin & Chu t* | -7.00226 | 0.0000 | 10 | 119 | |
| Null: Unit root (assumes individual unit root process) | | | | | |
| Im, Pesaran and Shin W-stat | -4.95089 | 0.0000 | 10 | 119 | |
| ADF - Fisher Chi-square | 59.2633 | 0.0000 | 10 | 119 | |
| PP - Fisher Chi-square | 73.5991 | 0.0000 | 10 | 120 | |
| ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. | | | | | |