

Article

# The Effectiveness of Remittances from Migrant Workers in Overcoming Poverty in Developing Asian Countries

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**Abstract:** This study explores the effect of remittances on poverty in developing Asian countries. This study aims to examine the effect of remittances on poverty by developing the Swamy and Arora model. There are relative influences in understanding the effect of remittances in alleviating poverty in developing Asian countries, namely geographical location and destination country income. Identify and understand the key variables that significantly affect poverty. This paper is the first to address the risk of poverty by utilizing poor migrants to increase household consumption and reduce poverty in the country of origin. We use Generalized Least Square (GLS) and Generalized Method of Moment (GMM) models to explore and understand the conditions of the poor who are sent money by migrants. The findings reveal a significant difference between poverty as measured through consumption expenditure and the income of the remitted poor. These insights are reassuring in that remittances can increase household consumption and do little to increase the income of the poor. remittances of 5% of GDP can help in alleviating poverty conditions in the home country, and directly benefit the country's economy, and alleviate domestic policies for poverty alleviation.

**Keywords:** Remittance; Household Consumption Expenditure; Poverty Headcount; Cross-sectional Dependence; and System GMM keyword

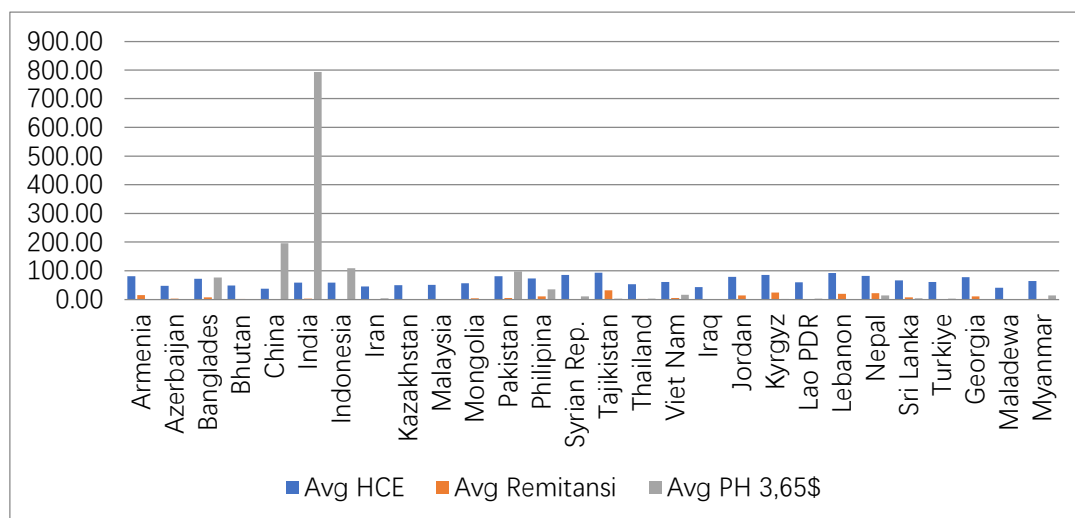
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## 1. Introduction

The rise in international remittances to the global south has received serious attention over the years. People widely recognize remittances as a stable source of external capital, particularly during economic crises, and as a crucial source of finance for households in recipient countries [45]. According to the World Bank [60], remittances are a source of household income and play a very important role for low- and middle-income countries in increasing GDP growth. In addition, the importance of international remittances can be very helpful in improving the economy both fiscal and monetary [5, 23, 43, 35].

It is known that migrants sending remittances from their destination countries to their countries of origin globally were recorded at around \$831 billion in 2022, compared to the previous year, which was recorded at \$791 billion in 2021. This significantly increased from the previous year, which was

recorded at \$717 billion in 2020. In addition, remittances to East Asia and the Pacific are expected to remain stable, increasing by 3% to reach \$133 billion in 2023 [60].



**Figure 1.** Average growth of remittances, household income and household consumption in developing Asia over two decades.

Judging from Figure 1 above, it explains the average household consumption, average remittances, and average household income of less than \$3.65 per day in several classifications of developing countries in Asia. Based on Figure 1, we know that the World Bank's 2024 data predictions indicate that India has a high population rate and a significant impact on poverty in Asia, with China and Indonesia following closely behind. Alkire et al., [9] explain that the high poverty rate that occurs in various parts of the world, especially in India, is due to multidimensional factors that are classified into 10 indicators, which are divided into 3 categories, including child mortality and nutrition as health indicators; years of schooling and school enrollment as indicators of education; and consumption of water, fuel, assets, electricity, and environmental sanitation as indicators of living standards. Sen [50] evaluated this opinion that poverty that falls into two of the categories described previously has entered into multidimensional poverty factors.

Multidimensional poverty factors provide external factors that can be rooted in other problems, such as high purchase prices for goods and services, making it difficult for households to meet their basic daily needs [42]. In addition, other external factors, such as untimely symptoms that hit a country or region, have a major impact on household consumption itself, such as the emergence of Covid-19 symptoms that have an impact on the whole world or natural disasters that make consumption of goods difficult to obtain [41]. Therefore, consumption or more precisely household consumption expenditure obtained from overseas remittances, has a very large influence on household prosperity and can help with other basic needs such as health needs, household equipment, energy consumption [39], clothing, food sufficiency, and facilitating adequate education [47].

Ultimately, the study's analysis of various factors influencing poverty reveals that sending money to support household finances and implement state policies can effectively reduce poverty rates in these countries. Given the large flow of remittances from migrants to their home countries. it is a significant source of income for many countries and especially for developing countries [34, 56, 38]. Additionally, there are numerous remittance treatments that have the potential to boost

household consumption and state income. This literature has a significant impact on both the micro and macroeconomic levels. Examples include the emergence of increasing population disparities [58], the symptoms of inflation [28], and the weakening of monetary policy on money (deflation) [51]. Thus, the high level of remittances that are continuously carried out by a migration that involves increasing non-labor income makes individuals or households receiving the money reluctant to look for work because their daily needs have been met [54, 9].

Several studies classify remittances into optimistic and pessimistic scenarios, namely based on an optimistic approach, remittances made by migrants from rural areas to urban areas with higher incomes can directly help in increasing capital accumulation and meeting basic needs. Meanwhile, a pessimistic view is the state of poor households who want to migrate abroad is limited, this is due to the inability to meet migration costs and being trapped in the risk of living expenses in the destination country [45]. In general, the state of remittances has been widely discussed by several previous studies, both research on remittances carried out by migrants who contribute domestically (internally), namely assistance sent across regions or provinces, as well as from an international aspect (externally), namely remittances made across national borders [20]. In addition, the classification of migration for remittances was expanded by Chowdhury and Wadood [19], by classifying migration into voluntary migration and forced migration. Voluntary migration is migration that involves the willingness of the migrants themselves, such as labor migration, family reunification, and high-skilled migration. On the other hand, forced migration encompasses the migration of refugees and asylum seekers [4].

The magnitude of the aspect and impact of the influence of remittances for countries in Asia is as an important role in driving economic growth. The editorial data obtained from Bank Indonesia recorded that Armenia in West Asia reached 23 percent per year from 2000 to 2003, and reached 10 percent of GDP in 2004, Kyrgyzstan reached 15.4% of GDP in 2009, and Tajikistan reached 35.1% of GDP in 2009 [59]. Other Asian countries that involve little remittances in increasing economic growth, allow for involvement in aspects of trade, investment and others. Therefore, remittances for developing Asian countries play a very important role in poverty alleviation and can indirectly help in driving the economy and development [1].

Bhat and Rather [16] also explained that statistics of countries in South and Southeast Asia in 2000 and 2009 recorded that the Indian economy grew by an average of 6.6% per year, GDP per capita doubled, and extreme poverty rates also decreased from 40% in 2004 to 13.2% in 2019. India also recorded that remittances in 2013 were in the top 10 list of the highest remittance countries of US\$ 71 billion. India's increasing integration into the global economy through a business environment and wise macroeconomic management supports this development [57]. India ranks first with a remittance of US\$ 55.0 billion, while Indonesia ranks 17th with a remittance of US\$ 7.1 billion in 2010 [51]. Since most migrants come from the middle to upper quintile of income distribution, remittances will only benefit truly poor households to a limited extent [45]. Based on this view, empirical studies such as research by Ekanayake and Moslares, found that workers' remittances have a positive and very significant role in economic growth and a negative role in poverty rates, indicating that remittances tend to play a role in reducing poverty rates in Latin America in the period 1980 - 2018. Meanwhile, research by Anyanwu and Erhijakpor [6], states that a point estimate for the poverty gap and the squared poverty gap of 10 percent as a share of GDP in the amount of international remittances would

lead to a decrease of 2.9 percent and 2.8 percent, respectively, in poverty rates and poverty severity in African countries in 1990 - 2005.

empirical study by Barai [15] in his research on the influence of remittances on community development. The low level of economic development in Bangladesh makes the country will become a labor-exporting country in the future. Also, indicators such as nutrition, living conditions, housing, education, health services, social security, and household investment will be positively affected by the remittance. Meanwhile, Khan et al., [36] showed that international remittances negatively impact poverty in MENA. A 10 percent point increase in total GDP remittances reduced the number of poverty (\$1.90 per person/day) by an average of 8.3%. As for Gupta et al., [29] stated that remittances have a direct impact on poverty alleviation, and a positive impact on financial development. Transfers from remittances are very helpful in easing the constraints of the recipient's household budget, as well as providing opportunities for small savers to gain a foothold in the formal financial sector. Although, remittances have a positive impact on poverty and help financial development. However, this is not a panacea for sustainable development in Sub-Saharan African countries.

Ahasan Ul Haque et al., [4] demonstrated that remittances positively influence household savings but do not affect future investment. According to this finding, a 10 percent rise in remittances in South Asia leads to a 1.6 percent increase in savings for household spending, whereas the OLS estimate indicates a 1.7 percent increase when employing 2-SLS. Research from Adams [3] found that international remittances in general have a positive impact on poverty and health in developing countries. Meanwhile, on other indicators, remittances can have a negative impact on the workforce, education, and economic growth.

The opinion of Bhat and Rather [16] assert that remittances have a substantial impact on the yearly GDP per capita of South Asian nations. Moreover, remittances positively influence welfare, directly contributing to poverty reduction, assisting recipient households in overcoming credit limitations, and enhancing consumption, particularly in food and housing expenditures. Ibukun Ojeyinka and Ibukun [45] demonstrated that 14 nations had remittances exceeding 5% of GDP, whilst 24 countries had remittances below 5% of GDP. Remittances significantly influence household consumption and the poverty headcount of \$2.15 per day, exhibiting both positive and negative effects. This indicates that remittance inflows play a crucial role in alleviating poverty in the 38 highest remittance-receiving countries across Africa, Asia, and Latin America. We believe it is essential to undertake more and more thorough research to obtain conclusive conclusions.

## **2. Literature Review**

### *2.1. Household Consumption Expenditure Theory*

Discussing household consumption involves discussing all types of goods and services that can directly meet human needs. Determinants of consumption expenditure have been an object since Keynes, Deussenberry, and Friedman in the 19th century. They emphasized that "income levels determine individual and societal consumption" [10].

In terms Macklem [42], explains that income that can be spent in the form of goods and services used directly or indirectly (in the future) is a significant determining factor for consumer spending on goods and services. Consumption or rather household consumption expenditure is an

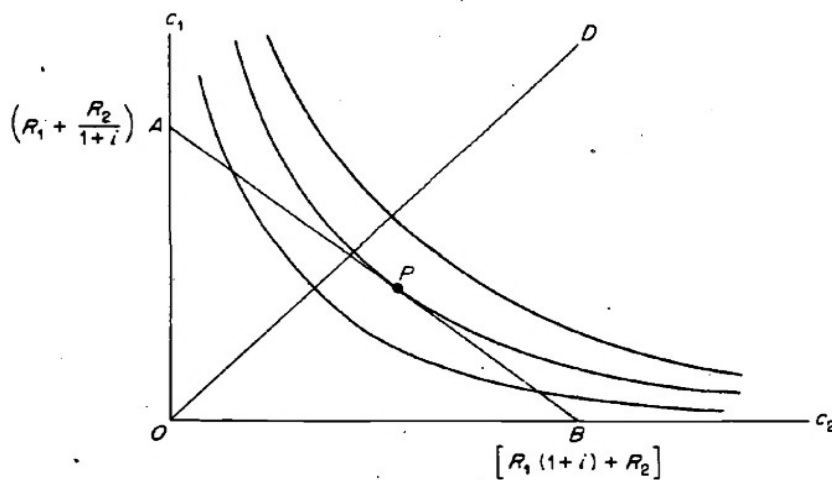
expenditure that is issued to obtain health needs, household equipment, clothing, food adequacy, and facilitate adequate education [47].

According to the proposition explained by Keynes, there are three factors of current household consumption, namely 1) dependence on absolute income or income earned by a person for his or her work, 2) the positive function of current income, and 3) the higher the income obtained at this time, the higher the consumption expenditure [53]. Meanwhile, according to Modigliani and Ando [44] in their idea with the Modigliani–Brumberg model (M-B) that one of the functions of saving is to allow households to redistribute the resources obtained throughout their daily needs, and also to secure constant consumption patterns in the future.

Schumpeter and Keynes [52] assumed that the economy in general was in a state of normalcy and tended to change consumption influenced by secondary demand. After Keynes, Duesenberry [24] put forward a new theory of consumption called the "theory of relative income consumption" and stated that the current theory is not only influenced by the current absolute and relative income levels, but also obtained by the income of the previous period. Duesenberry also proposed a theory of consumer behavior that emphasizes the relative income of an individual rather than the income earned from work (absolute income) as a determinant of individual consumption [32, 22].

Friedman [27] assumes that a person who consumes will know for sure that they will receive a certain amount of income/income in each given period of time; they will know the price that will apply to the consumer goods in each period and the interest rate that the borrower can lend. In this condition there are only two motives for spending less or more consumption than it receives in a given period of time. The first is to "straighten" the flow of expenditure—with the right timing in making loans, the unit can keep its expenditures relatively stable even though the receipts vary from time to time. The second is to earn interest on the loan, if the interest rate is positive, or to receive payment on the loan, if the interest rate is negative. People will behave under the influence of these motives, namely by relying on consumer tastes.

To simplify the presentation above, Milton Friedman considers cases in two different periods, as explained in the consumption curve graph below:



Source: Friedman [27].

Figure 2. Indifferent Curve Graph and Consumer Unit Budget Line.

From the graph of the curve above, the development of the formula according to the theory of Milton Friedman, is as follows:

$$R_1 + \frac{R_2}{1+i} \text{ and } R_1(1+i) + R_2$$

Write down the consumption function, as follows:

$$C_2 = R_1 - \frac{iR_2}{1+i} + R_2 = R_1 + \frac{R_2}{1+i} = C_1$$

Suppose  $R_1$  and  $R_2$  are the expected receipts of the consumer unit in the 1st and 2nd years, respectively, and  $i$  is the interest rate. The maximum amount that a consumer unit can spend in year 1 if the consumer does not issue units in year 2 is  $R_1 + \{R_2/(1+i)\}$ , i.e. its receipts in year 1 plus the maximum loan that can be repaid with its receipts in year 2. Whereas the maximum amount that can be spent in the 2nd year if it does not spend anything in the 1st year is  $R_1(1+i) + R_2$  or its receipts in the 1st year plus the interest that will be earned, if it lends the entire receipts in the 1st year, plus its receipts in the 2nd year. If it is assumed that the two years are the future for  $D$ . Then, if there is no profit to be made from the unit or if the consumer does not spend all that it receives, then the chosen combination will be in the budget line  $AB$ . Thus, the optimal combination is the point where the budget line intersects with the indifference curve, what is at point  $P$  [27].

Meanwhile, modern theories regarding the implications of pure life-cycle permanent income on macroeconomic forecasting and policy analysis by Hall [30], state that only unexpected policy changes affect consumption. However, unexpected policy changes will only affect consumption to the extent that they affect permanent incomes. In other words, policies that have a temporary impact on income will not be able to have a temporary impact on consumption. The consideration of the life cycle consumption model is adjusted to the following formula:

$$\sum_c^{T-t} (1+\delta)^{-c} u(C_{t+c} - w_{t+c}) = A_t$$

The notation used is  $\sum_t$ ; mathematical expectation dependent on all information,  $t$ ; period,  $\delta$ ; subjective time preference rate,  $\tau$ ; rill interest rate (assumed to be constant all the time),  $T$ ; length of economic life (fixed assets),  $u$ ; utility function of a period,  $C_t$ ; consumption,  $w_t$ ; income,  $a_t$ ; assets other than human resources [30].

## 2.2. Annual Remittance

Discussions about the relationship between remittances have been a hot topic for decades, especially in developing countries in Asia, where most of the poor are domiciled in their home countries and the active workforce is migrating abroad [45]. The role of remittances is often considered to increase household consumption income capacity and reduce poverty [5]. According to Ranjan Kumar, Dash remittances can have a direct impact on investment and facilitate household consumption [23]. However, remittances will have a negative impact if there is a financial crisis in developed countries, especially migrants who work in foreign countries affected by the financial crisis. As a consequence, income inequality and poverty rates increase, and social sectors as a whole are adversely affected [6].

Several studies reveal that household consumption, which receives more income from remittances, tends to allocate the data to human capital investment, but the elasticity of income is

lower for direct consumption of needs [43]. The general but simple view is that remittance income is channeled for household consumption (routine household expenses). Although, household consumption is highly dependent on remittances, some experts argue that the use of remittances should be viewed from a broader perspective to cover other areas, which do not only focus on household consumption needs [49].

People will tend to spend more money on human resources when incomes are higher [17]. According to the theory expressed by Michael P. Todaro stated that there are two proportional factors of household consumption, including: First, the income earned by a household will spend on its needs by buying other items besides food and, Second, some households are more proportional to their household consumption by increasing the variety of food needs without having to increase calorie consumption [55].

### 3. Materials and Methods

#### 3.1. Data Specification

**Table 1.** Measurement and descriptive statistics of variables.

Variables	Symbol	Unit of measurement	Source
Household consumption expenditure	HCE	Household Consumption Expenditure (% GDP)	WorldBank
Poverty headcount	PH \$3.65	The percentage of the population living on less than \$3.65 (constant 2017 US\$ adjusted for PPP) a day	WorldBank
Remittance	REM	Personal remittances received (% GDP)	WorldBank
Real gross domestic product per capita	RGDP / LogRGDP	US dollar (2010 constant price)	WorldBank
Degree of openness	DOP	Total trade (% GDP)	WorldBank
Consumer price index (Inflation)	CPI	Consumer Price Index (%)	WorldBank
Consumer energy index (Inflation)	CEI	Consumer Energy Index (%)	WorldBank
School enrolment	SEN	Tertiary (% gross)	WorldBank

**Source:** author compilation.

The study aimed to investigate the impact of remittances on poverty measured through two categories: household consumption levels and household opinion below \$3.65 per day in developing Asia using annual data from 2003 to 2022. Based on the availability of data, the study focuses heavily on 28 low- to middle-income countries in Asia. The Asian region was chosen because it is a country that is vulnerable to the entry of world remittances. In addition, countries classified as developing countries have high poverty rates. In terms of value, the countries included in the world's largest remittances totaled \$647 billion in 2022, up from \$599 billion in 2021 and \$542 in 2020. The list of countries that we attach to Table 1 is based on the attachment of geographical location, the number of vulnerable populations and low- and middle-income countries. However, because there are some blank/missing data, especially in the livelihood section of the ratio of the number of poor people, and

the number of educations in tertiary, this study uses average data on the balance from the base year.

Basically, Table 1 and Table 2 explain the core variables of the poverty relationship with several important variables such as: Poverty is assessed from household consumption, which is characterized by low consumption in low- and middle-income countries. Poverty is assessed by household income, which is characterized by a household income of \$3.65 per day using purchasing power parity in 2017. In addition, as variables that affect it such as remittances, which are marked by remittances abroad using Personal remittances received (% GDP), domestic product per capita, which is a share measured from US constant prices in 2010, trade openness as measured through total trade at an annual percentage, inflation as measured through the consumption price index and energy consumption index [40]. As well as tertiary education which is measured by how many children are enrolled in school. In connection with the literature presented, it can be useful macroeconomically, namely it is hoped that remittances can help in improving the economy and sustainable development. Also, micro can improve community welfare both in the education needed and other needs [45]. In addition, we present a list of:

**Table 2.** List of country names.

<b>List of names of developing Asian countries</b>			
<b>No</b>	<b>Southeast and Central Asia</b>	<b>No</b>	<b>East and Central Asia</b>
1	Viet Nam	16	China
2	Azerbaijan	17	Mongolia
3	Bangladesh	18	Kyrgyz
4	Myanmar	19	Tajikistan
5	Thailand	<b>No</b>	<b>West Asia</b>
6	Indonesia	20	Georgia
7	Lao PDR	21	Armenia
8	Philipina	22	Iraq
9	Malaysia	23	Turkiye
<b>No</b>	<b>South Asia</b>	24	Jordan
10	Bhutan	25	Lebanon
11	India	26	Iran
12	Maladewa	27	Kazakhstan
13	Nepal	28	Syrian Rep.
14	Pakistan		
15	Sri Lanka		

**Source:** author compilation.

### 3.2. Explain the Theory and Specifications of the Model

This research aims to have a better impact on developing countries in Asia in the coming year that rely on sustainable remittances [45]. Theoretically, remittances can contribute to poverty alleviation in the world, especially for developing Asian countries. This is based on remittances can help to increase household income, increase household consumption, help social activities, health services, and so on. In addition, there are several studies that support that remittances can increase

consumption and household income sent money and will directly help reduce poverty in the country [3, 23, 5, 34].

Based on the previous theoretical framework, this study follows the Generalized Least Square (GLS) specification model according Hansen et al., [30], namely the modeling technique used to estimate unknown parameters from the OLS model and the Generalized Method of Moment (GMM) model is a model applied to determine and analyze the existence of non-linearity data and avoid heteroscedasticity and autocorrelation problems in the data [50] and Ullah et al., [56]. The GLS and GMM models were applied by Banga and Sahu [12], Azizi [11], and Ojeyinka and Ibukun [45] in analyzing remittances against poverty, as follows:

Poverty in GLS model estimation: HCE and PH (I)

$$HCE_{it} = \beta_0 + \beta_1 REM_{it} + \beta_2 LRGDP_{it} + \beta_3 DOP_{it} + \beta_4 CPI_{it} + \beta_5 CEI_{it} + \beta_6 SEN_{it} + \varepsilon_{it} \dots \dots \dots (I)$$

$$PH_{it} = \beta_0 + \beta_1 REM_{it} + \beta_2 LRGDP_{it} + \beta_3 DOP_{it} + \beta_4 CPI_{it} + \beta_5 CEI_{it} + \beta_6 SEN_{it} + \varepsilon_{it} \dots \dots \dots (II)$$

Poverty in GMM model estimates:

$$Poverty_{it} = \beta_0 + \beta_1 Poverty_{it-1} + \beta_2 REM_{it} + \beta_3 LogRGDP_{it} + \beta_4 DOP_{it} + \beta_5 CPI_{it} + \beta_6 CEI_{it} + \beta_7 SEN_{it} + \varepsilon_{it} \dots (III)$$

Where equations (I) and (II) explain that the measure of poverty is measured using two indicators, namely household consumption expenditure and the number of people with an income of \$3.65 per day as a percentage of GDP or poverty rate. Remittances (REM) explain remittances as the ratio of GDP, while Real GDP per capita (RGDP) explains real GDP per capita as the annual GDP ratio, trade openness (DOP) shows total trade as the annual GDP ratio, the consumer price index (CPI) and consumer energy index (CEI) show inflation as the ratio, and tertiary education (SEN) shows children who enroll in tertiary schools to capture the influence of human resources on poverty. Meanwhile, equation (III) in the GMM test shows that  $POV_{it-1}$  shows the poverty level in the previous period. This is explained in Table 7 and Table 8. All variables are presented in the form of percentages, except for the real variable GDP per capita which is presented in the form of logarithms.

### 3. Results And Discussion

#### 3.1. Descriptive Statistics

Furthermore, this study presents the descriptive statistics listed in Table 3. It displays the deprecatve statistics of the full sample variables on the sub-sample of developing Asian countries. Based on Table 3, the average household consumption expenditure for all samples was 64.3% (percentage of GDP). Meanwhile, the maximum and minimum values for household income are around 935.2% and 18.16%, respectively. Meanwhile, 50.9% of the population chose migrant migrants to work to meet domestic labor in their home countries. This is also related to research conducted by Ojeyinka and Ibukun [45] which documented the average value of household consumption expenditure of 68.6% and the maximum and minimum income of \$2.15 of 119.4% and 12.7%, respectively. As for other variables, the maximum total Real GDP is 4.14% (logarithm in dollar currency) and the minimum value is 2.6%. As for other variables, such as inflation and tertiary education, the average CPI and CEI are 8.4% and 8.25, while tertiary education is 31.3% of the population. In addition, the values of the skewness and kurtosis coefficients show that the whole series of studies has positive values, and all are leptokurtic. Therefore, from all observations and

Jarque Bera's values for all research series are significant, thus showing the hypothesis of normality in terms of probability.

**Table 3.** Summary and descriptive statistics.

	HCE	PHC \$3.65	REM	RGDP	DOP	Inflation		SEN
						CPI	CEI	
Mean	64.324	49.477	6.859	3.461	80.222	8.434	8.221	31.363
Median	61.153	2.320	2.893	3.500	73.305	5.797	4.630	29.497
Max	128.633	935.201	50.948	4.148	210.374	189.436	557.500	125.764
Min	31.263	-18.168	-0.260	2.613	0.175	-3.753	-47.200	-86.416
Std. Dev.	17.560	155.074	9.051	0.356	39.083	13.735	27.658	21.982
Skewn.	0.477	4.366	1.817	-0.136	0.634	7.602	14.891	0.323
Kurtosis	3.039	21.654	6.172	2.009	2.940	83.310	283.380	6.726
Jarque-Bera	21.273	9899.019	542.810	24.664	37.604	155886.6	1854993	333.673
Prob	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sum	36021.69	27707.11	3840.988	1938.375	44924.1	4723.149	4603.501	17563.46
Sum Sq. Dev.	172364.2	13442871	45792.80	71.007	853868.4	105449.5	427604.0	270112.4
Obs	560	560	560	560	560	560	560	560

**Notes:** HCE is household consumption expenditure (% GDP), PHC \$3.65 is the number of poor people with an income of \$3.65 per day, REM is the accumulation of international remittances (%GDP), RGDP is gross domestic product per capita, DOP is trade openness, Inflation is inflation measured through the consumption price index and energy consumption index, and SEN is tertiary school enrollment. **Source:** author compilation.

Therefore, from the classification of Table 3 contains 28 developing countries in Asia that show the results of poverty with other variables being mutually sustainable. In accordance with the theory expressed by Friedman [27] and Hall [30], which states that income or capital has a great influence on household expenditure and consumption. Meanwhile, the development of this theory takes remittances as an increase in individual and household income. This result shows that the lowest value of remittances in developing Asian countries is 0.26%.

Therefore, it is important for every policy in a country to increase remittances by increasing migrants working abroad and reducing the cost of transportation, vehicles, and other activity services to meet the conditions in the destination country. Meanwhile, for the intended country, it is more affordable to send capital transfers to their home country. The benefits for this policy are that it can help in improving the economy and can reduce poverty alleviation.

### 3.2. Literature Correlation Relationship

In Table 4 above illustrates the strength of the relationship between variables in the correlation model which is useful to avoid the problem of multicollinearity in model estimation. The results of DOI: <https://doi.org/10.54560/jracr.v14i4.557>

the correlation analysis above show the correlation between household consumption expenditure and household income below \$3.65 per day with other explanatory variables. The results of the table above show that the highest correlation level is in the variable energy consumption index (CEI) and poverty in household consumption expenditure (HCE) of -0.080. Meanwhile, the highest moderate in income poverty was aimed at energy consumption index (CEI) and income poverty (PH \$3.65) of -0.021. In addition, to strengthen the findings of the correlation between variables, we chose the variance inflation factor (VIF) as an additional test. From the results of the VIF, the highest value is found in trade openness (DOP) of 1.51% and the lowest in the energy consumption index (CEI) of 1.12%. This research is in line with [12, 48, 11, 45]. Therefore, we can conclude that overall, the variables of the estimation model are derived from the problem of multicollinearity.

**Table 4.** Correlation Analysis.

Variables	HCE	REM	RGDP	DOP	Inflation		SEN	VIF
					CPI	CEI		
HCE	1.000							
REM	0.704	1.000						1.237
RGDP	-0.510	-0.364	1.000					1.510
DOP	-0.167	0.037	0.309	1.000				1.152
CPI	0.244	0.032	-0.058	-0.114	1.000			1.142
CEI	-0.080	-0.052	-0.012	-0.014	-0.311	1.000		1.121
SEN	0.116	0.048	0.331	0.109	0.076	-0.058	1.000	1.186

Variables	PH \$3.65	REM	RGDP	DOP	Inflation		SEN	VIF
					CPI	CEI		
PH 3.65	1.000							
REM	-0.122	1.000						1.237
RGDP	-0.198	-0.364	1.000					1.510
DOP	-0.267	0.037	0.309	1.000				1.152
CPI	-0.043	0.032	-0.058	-0.114	1.000			1.142
CEI	-0.021	-0.052	-0.012	-0.014	-0.311	1.000		1.121
SEN	-0.121	0.048	0.331	0.109	0.076	-0.058	1.000	1.186

**Source:** author compilation.

### 3.3. Cross-sectional and Level Dependence

After conducting a correlation test between variables, this study then conducted a cross-sectional dependency (CD) test to see whether the residuals in the model are independent or not [31]. The test results are presented in the Table 5 showed that the cross-sectional results were rejected at a significant level of 0.01 from the many variables in this study [46]. In addition, there were two insignificant variables based on the cross-sectional dependence test of Pesaran CD, namely remittances and household consumption expenditure of 1,639 and 1,596, respectively. These results reinforce the conclusion of Ojeyinka and Ibukun [45] which states that there is evidence of dependence in remittance and poverty relations in 38 developing countries in Africa, America, and Asia.

**Table 5.** Cross-sectional dependence tests.

Variables	B-P LM		P-S LM		B-CS LM		P CD	
	Stats	Prob	Stats	Prob	Stats	Prob	Stats	Prob
HCE	1616.263***	0.000	45.035***	0.000	44.298***	0.000	1.596	0.110
PH \$3.65	2960.727***	0.000	93.933***	0.000	93.196***	0.000	27.718***	0.000
REM	1945.057***	0.000	56.993***	0.000	56.256***	0.000	-1.639	0.101
Log.RGDP	5430.767***	0.000	183.767***	0.000	183.030***	0.000	56.862***	0.000
DOP	1886.763***	0.000	54.872***	0.000	54.136***	0.000	10.235***	0.000
CPI	1213.534***	0.000	30.388***	0.000	29.652***	0.000	23.146***	0.000
CEI	567.458***	0.000	6.891***	0.000	6.154***	0.000	11.489***	0.000
SEN	2709.422***	0.000	84.793***	0.000	84.056***	0.000	34.818***	0.000

**Notes:** (\*\*\*, \*\* and \*) represent 1%, 5%, and 10% significant levels, respectively, B-P is Breusch Pagan LM test, P-S is Pesaran Scale LM test, B-CS is Bias-corrected Scale LM test, P-CD captures Pesaran cross-sectional dependence test. **Source:** author compilation.

**Table 6.** Correctional unit root test.

Variable	Pesaran cross-sectional ADF		Keterangan
	Level	First Difference	
HCE	-0.810	-9.149***	I(1)
PH \$3.65	-2.910***		I(0)
REM	-1.773**		I(0)
LogRGDP	-1.716**		I(0)
DOG	-2.168**		I(0)
CPI	-2.517***		I(0)
CEI	-5.333***		I(0)
SEN	1.525	-9.842***	I(1)

**Notes:** (\*\*\*, \*\* and \*) denote 1% ,5% and 10% levels significant. **Source:** author compilation.

In the next stage, this study conducted a traditional panel unit root test and a Fisher-based test using the ADF and PP test models that produced inconsistent and biased values. As for the root test of the root unit in Table 6 shows the root of the unit at the level and the first difference, meaning that the series in the selection of this model shows the consistency of the research model with the standards met. Table 6 presents the results that HCE, PH \$3.65, REM, RGDP, GOP, CPI, CEI, and

SEN have stationary level levels. Meanwhile, there was a difference in HCE and SEN which showed results at the stationary level at different levels (first difference), while other variables followed at the stationary level.

### 3.4. The Effect of Remittances on Poverty (Part I)

In the tests conducted previously on the root test of the panel unit, it was revealed that estimation techniques in the form of Pooled OLS, random, and fixed effects will produce biased estimation effects due to the existence of cross-part dependencies that make the estimation inconsistent and unacceptable [10]. As has been applied by previous research Banga and Sahu [12], Azizi [11], and Ojeyinka and Ibukun [45]. The test in this study uses the Generalized Least Square (GLS) model based on Arora [10], a coefficient confidence interval (CII) of 95% based on the application developed by Liu [41], and uses the GMM test as applied by previous research by [12, 11, 45]. As the results of the model estimation have been explained in the Table 7 below:

**Table 7.** The link between remittances and poverty.

Variables	GLS (Swamy and Arora)		System GMM		95% CI	
	HCE (I)	PH \$3.65 (II)	HCE (III)	PH \$3.65 (IV)	Low	High
POV (-1)			0.476*** (0.021)	-0.060*** (4.00E-05)	0.435	0.516
Remittance (Std. Error)	0.629*** (0.076)	0.295 (0.537)	0.614*** (0.108)	-0.979*** (0.072)	0.401	0.826
LogRGDP (Std. Error)	-24.598*** (2.350)	-91.867*** (17.520)	-3.348 (3.010)	-380.926*** (1.732)	-9.262	2.566
DOP (Std. Error)	-0.079*** (0.015)	0.124 (0.104)	0.044* (0.026)	1.599*** (0.013)	-0.007	0.094
CPI (Std. Error)	0.186*** (0.022)	-0.003 (0.145)	0.085*** (0.023)	-0.866*** (0.013)	0.040	0.131
CEI (Std. Error)	-0.041*** (0.010)	-0.006 (0.066)	-0.083*** (0.005)	0.702*** (0.007)	-0.093	-0.073
SEN (Std. Error)	0.061*** (0.062)	-0.286** (0.139)	-0.004 (0.005)	-0.747*** (0.027)	-0.013	0.005
Constant	148.348*** (8.191)	364.516*** (66.891)	5.880 (22.671)	51.974 (21.633)		
F-statistics	52.918***	9.276***				
AR (1) test (rho)			-8251.9	-567618.3		
AR (2) test (rho)			1570.9	50660.9		
Countries	28	28	28	28	28	28

**Notes:** \*\*\* (p<0.01), \*\* (p<0.05), and \* (p<0.1). Standard errors in parentheses. **Source:** author compilation.

In Table 7 above shows the results of the comparison between the GLS tests developed by Arora [10], GMM and CII 95% in equations (I) to (VI). The GLS test presented in equations (I) and (II) shows the results that an increase in remittances of 0.629 can increase poverty in household consumption

expenditure, and continue with other variables. However, in equation (II) the increase in remittances of 0.295 has no effect on the opinion of poverty, this is also followed by trade openness and inflation which have no effect on the consumption price index and the consumption energy index.

Apart from that, the GMM test presented in equations (III) and (IV) explains that the model passes all diagnostic tests. These results show that remittances with values of 0.614 and -0.979 have a positive and negative effect on HCE poverty and income of \$3.65 per day. This states the importance of international remittances in reducing poverty in household expenditure which can help reduce poverty rates in the country of origin. Followed by additional needs followed by inflation which has a significant effect on shipments made by migrants working abroad. In addition, the CII numbers in equations (V) and (VI) indicate the lower and upper thresholds that are important in measuring how much delivery is made with an average confidence value between 0.401 and 0.826. These results conclude that the higher remittances made by migrants working abroad can affect in reducing the poverty rate in their home countries. This thinking is in line with the results of Ekanayake and Moslares [25] who stated that remittances can reduce poverty in 21 countries in Latin America. Research by Yoshino et al., [62] stated the results that remittances can reduce poverty in 10 developing Asian countries. Similarly, research by Ojeyinka and Ibukun [45] states that remittances can help in increasing household consumption expenditure and increase income by \$2.15 per day and can directly reduce poverty in 38 developing countries in the Americas, Africa, and Asia.

**Table 8.** Impact of remittances on poverty.

Variables	Asian developing countries		Remittances (above 5% of GDP)		Remittances (below 5% of GDP)	
	HCE	PH \$3.65	HCE	PH \$3.65	HCE	PH \$3.65
	(I)	(II)	(III)	(IV)	(V)	(VI)
REM	1.097*** (0.053)	-3.158*** (0.759)	1.173*** (0.053)	-3.957*** (0.899)	-2.079 (4.578)	-52.279 (39.829)
LogRGDP	-16.172*** (1.494)	-86.455*** (21.288)	-7.681*** (1.761)	-129.763*** (29.945)	-31.793*** (3.704)	-14.594 (32.225)
DOP	-0.037*** (0.012)	-0.820*** (0.170)	-0.063*** (0.014)	-0.954*** (0.237)	0.015 (0.023)	-0.541*** (0.200)
CPI	0.280*** (0.034)	-0.738 (0.480)	-0.205*** (0.043)	0.316 (0.737)	0.344*** (0.086)	-1.214 (0.746)
CEI	-0.072*** (0.017)	-0.096 (0.236)	-0.149*** (0.054)	-1.156 (0.917)	-0.063*** (0.019)	0.025 (0.162)
SEN	0.147*** (0.021)	-0.144 (0.306)	0.116*** (0.030)	0.296 (0.506)	0.194*** (0.035)	-0.357 (0.303)
Constant	109.401*** (4.935)	447.727*** (70.302)	84.272*** (5.691)	598.929*** (96.779)	161.578*** (12.631)	171.904 (118.581)
F-stats	181.370***	12.950	130.586***	11.602***	41.777***	2.600**
R-sq.	0.663	0.123	0.655	0.144	0.652	0.104
Countries	28	28	21	21	7	7

**Notes:** \*\*\* (p<0.01), \*\* (p<0.05), and \* (p<0.1). Standard errors in parentheses. **Source:** author compilation.

### 3.5. *The Effect of Remittances on Poverty (Part II)*

After the remittance analysis on poverty in part (II), the additional analysis in the next study was carried out with the development of remittances presented in Table 8. The results in Part II show that remittances made by remittances above 5% of GDP can help reduce poverty in HCE and Income by 1,174 and -3,957 of the population, respectively.

Apart from that, other variables also show significant results in household consumption expenditure. Meanwhile, the population of \$3.65 had no effect on the variables of inflation and tertiary education enrollment in the 27 developing Asian countries that have been presented in the Table 9 and 10. Likewise, with remittances below 5% of GDP, the results show that remittances have no effect on increasing household consumption expenditure and reducing poverty. However, it can increase the country's per capita income as measured by public spending and has an effect on inflation and tertiary school enrollment of 0.194. The result of the population with an income of \$3.65 per day only affects the openness of trade. This shows that the opinion of the residents of \$3.65 per day only meets the standard of purchasing goods or producing goods needed for use or sale. This research is in line with the results of Banga and Sahu [11] and Ojeyinka and Ibukun [45] who stated that international remittances at 5% of GDP can help in reducing poverty in the home country.

## 4. **Conclusions**

Obstacles and obstacles to poverty have become a world anxiety, especially for every low- and middle-income country. Apart from that, the goal of a country's development is to improve the economy and be sustainable and stable for the next decade. This research has identified remittances as one of the development goals in a country and can alleviate poverty. In addition, remittances are not only a helper in reducing poverty fundamentally but can help improve the economy on a macro level. Meanwhile, micro can affect consumers by increasing spending to meet basic needs and other needs such as access costs for capital services, health, education, housing, food, social, and so on. On this basis, this study examines the importance of remittance policies in developing Asian countries in reducing poverty in available countries. As for the indicators that are adopted, there are two approaches to poverty, namely seen from household consumption and household income of \$3.65 per day. On the availability of data, this study focuses on 28 developing countries in Asia by understanding their geographical location, population density, vulnerability, and the number of countries receiving remittances.

This empirical finding finds that there are factors that greatly affect remittances to poverty in Asia using static and dynamic estimation models. In addition, the proxy of external indicators shows that they are interrelated and affect poverty, especially in the economic field of people's per capita income, tertiary education figures, and inflation measured from the consumption price index and the consumption energy index which have a great influence on poverty.

The important thing in this empirical for policy is the importance of a policy that pays attention to development, not only in terms of increasing domestic productivity and adequate rule of law. However, remittances can also improve the economy and greatly help ease public policies in dealing with poverty alleviation, which will then achieve the planned gold development in 2030 (SDGs). In addition, low-income countries ease costs for migrants who want to work abroad, by conditioning the destination area and equipping them with the capacity to take the desired job. Meanwhile, the country with a high opinion (the host country) needs to help in reducing the cost of remittances

abroad (the country of origin) with this the migrants will provide remittances of considerable value. So that with this, countries with high poverty levels will feel helped in reducing poverty and increasing income both micro and macro.

This research discussion uses a model with a GLS approach and GMM modification that takes into account linear effects or from available variables. We see a significant impact if remittances, which are always increasing, will be able to affect poverty reduction and increase in household consumption. The worry that will happen is the reluctance of people to work because of the high remittance of remittances from abroad to the country of origin, which causes unemployment to be unresolved. Therefore, the need for further policies in looking forward with various models such as VECM, ARDL, and Causality in considering remittances can be more supportive in reducing poverty in low- and middle-income countries.

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## Appendix A

**Table 9.** Variable estimation.

Measure of poverty	Household consumption expenditure	Poverty headcount \$3.65 a day
B <sub>1</sub>	Positive	Negative
B <sub>2</sub>	Positive	Negative
B <sub>3</sub>	Negative	Negative
B <sub>4</sub>	Positive	Positive
B <sub>5</sub>	Positive	Negative
B <sub>6</sub>	Negative	Positive
B <sub>7</sub>	Negative	Negative

**Source:** Author compilation.

**Table 10.** List of countries with a remittance rate of 5% of GDP.

No.	Remittances (5% of GDP)			
	Above		Below	
1	Armenia	Mongolia	Kyrgyz	China
2	Azerbaijan	Pakistan	Lao PDR	Kazakhstan
3	Bangladesh	Philippina	Lebanon	Syrian Rep.
4	Bhutan	Tajikistan	Nepal	Iraq
5	India	Thailand	Sri Lanka	Maladewa
6	Indonesia	Viet Nam	Georgia	Malaysia
7	Iran	Jordan	Myanmar	Turkiye

**Source:** Author compilation.

## References

- [1] Abdurazakova, D. (2011). Social impact of international migration and remittances in Central Asia. *Asia-Pacific Population Journal*, 26(3), 29–54. <https://doi.org/10.18356/e5944c36-en>
- [2] 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>
- [3] Adams, R. H. (2011). Evaluating the economic impact of international remittances on developing countries using household surveys: A literature review. *Journal of Development Studies*, 47(6), 809–828. <https://doi.org/10.1080/00220388.2011.563299>
- [4] Ahasan Ul Haque, M., Kibria, M. G., & Muhaiminul Islam Selim, M. (2021). Effects of Foreign Aid and Remittances Flows on Saving and Investment in Developing South Asia: Panel Data Study. *International Journal of Economics and Financial Research*, 7(72), 21–27. <https://doi.org/10.32861/ijefr.72.21.27>
- [5] Ahmed, S. S., Farooq, S., Ali, R. M., & Iqbal, S. (2020). Remittance and Economic Growth: South Asian Perspective. *International Journal of Management*, 11(12). <https://doi.org/10.34218/ijm.11.12.2020.075>
- [6] Anyanwu, J. C. (2011). International Remittances and Income Inequality in Africa. *Review of Economic and Business Studies*, 4(1), 117–148.
- [7] Anyanwu, J. C., & Erhijakpor, A. E. O. (2010). Do international remittances affect poverty in Africa? *African Development Review*, 22(1), 51–91. <https://doi.org/10.1111/j.1467-8268.2009.00228.x>
- [8] Arapova, E. (2018). Determinants of household final consumption expenditures in Asian countries: A panel model, 1991-2015. *Applied Econometrics and International Development*, 18(1), 121–140.
- [9] Aronu, C. O. (2024). The Nexus Between Unemployment Rate and Some Macroeconomic Variables In Nigeria. *Force*, 12(5). <https://www.forcejournal.org/index.php/force/article/view/106/72>
- [10] Arora, P. A. V. B. S. and S. S. (1971). The Exact Finite Sample Properties of the Estimators of Coefficients in the Error Components Regression. 40(2), 261–275. <https://doi.org/10.2307/1909405>
- [11] Azizi, S. S. (2021). The impacts of workers' remittances on poverty and inequality in developing countries. *Empirical Economics*, 60(2), 969–991. <https://doi.org/10.1007/s00181-019-01764-8>
- [12] Banga, R., & Sahu, P. K. (2010). Impact of Remittances on Poverty in Developing Countries. <https://thefinancialexpress.com.bd/national/climate-change-to-cause-2-9pc-gdp-loss-for-bangladesh-ipcc-report-1646065166>
- [13] Bank Indonesia. (2024). Remittances Of Indonesian Migrant Workers (Imws) By Host Country (Millions of USD) Indonesian Economic and Financial Statistics. 31, 182–183.
- [14] Bank, W. (2011). *Migration And Remittances Factbook 2011 (2nd)*. Disclosure Authorized. [www.worldbank.org](http://www.worldbank.org)
- [15] Barai, M. K. (2012). Development dynamics of remittances in Bangladesh. *SAGE Open*, 2(1), 1–13. <https://doi.org/10.1177/2158244012439073>
- [16] Bhat, M. A., & Rather, T. A. (2016). International Worker Migration and Remittances in South Asia: A Landscape of India's Emerging Scenario. *Indian Journal of Labour Economics*, 59(3), 397–417. <https://doi.org/10.1007/s41027-017-0068-1>
- [17] Chani, M. I., Jan, S. A., Pervaiz, Z., & Chaudhary, A. R. (2014). Human capital inequality and income inequality: Testing for causality. *Quality and Quantity*, 48(1), 149–156. <https://doi.org/10.1007/s11135-012-9755-7>
- [18] Chea, V. (2023). Effects of remittances on household poverty and inequality in Cambodia. *Journal of the Asia Pacific Economy*, 28(2), 502–526. <https://doi.org/10.1080/13547860.2021.1905200>
- [19] Chowdhury, M., & Wadood, S. N. (2023). Internal and Forced Migration and Economic Development in South Asia. *IMISCOE Research Series, Part F802*, 17–35. [https://doi.org/10.1007/978-3-031-34194-6\\_2](https://doi.org/10.1007/978-3-031-34194-6_2)
- [20] Cirillo, M., Cattaneo, A., Miller, M., & Sadiddin, A. (2022). Establishing the link between internal and international migration: Evidence from Sub-Saharan Africa. *World Development*, 157, 105943. <https://doi.org/10.1016/j.worlddev.2022.105943>
- [21] Coon, M. (2012). The Effect of Workers' Remittances on Poverty in Mexico. *A Regional Analysis.*, 65728. <https://mpira.ub.uni-muenchen.de/id/eprint/61388>
- [22] Coskun, Y., Atasoy, B. S., Morri, G., & Alp, E. (2018). Wealth effects on household final consumption: Stock and housing market channels. *International Journal of Financial Studies*, 6(2). <https://doi.org/10.3390/ijfs6020057>

- [23] Dash, R. K. (2020). Impact of Remittances on Domestic Investment: A Panel Study of Six South Asian Countries. *South Asia Economic Journal*, 21(1), 7–30. <https://doi.org/10.1177/1391561420903199>
- [24] James S. Duesenberry. (1949). Income, Saving, and the Theory of Consumer Behavior. *The Review of Economics and Statistics*, 33(3), 255–257. <https://doi.org/10.2307/1926590>
- [25] Ekanayake, E. M., & Moslares, C. (2020). Do remittances promote economic growth and reduce poverty? evidence from Latin American countries. *Economies*, 8(2), 1–26. <https://doi.org/10.3390/ECONOMIES8020035>
- [26] Elizabeth, Q. (2023). Global MPI Country Briefing 2023: India (South Asia). 2021, 1–14.
- [27] Friedman, M. (1918). The Implications of the Pure Theory of Consumer Behavior. *Theory of the Consumption Function*, 7–19. <https://doi.org/10.2307/j.ctv39x7zh.5>
- [28] Ghodke, M., & Giri, P. (2023). Consumer Price Index (CPI) – Types & Sources.
- [29] 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>
- [30] Hall, R. E. (1978). Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence. *Journal of Political Economy*, 86(6), 971–987. <https://doi.org/10.1086/260724>
- [31] Halunga, A. G., Orme, C. D., & Yamagata, T. (2017). A heteroskedasticity robust Breusch–Pagan test for Contemporaneous correlation in dynamic panel data models. In *Journal of Econometrics* (Vol. 198, Issue 2). <https://doi.org/10.1016/j.jeconom.2016.12.005>
- [32] Ho, T. W. (2001). The government spending and private consumption: A panel cointegration analysis. *International Review of Economics and Finance*, 10(1), 95–108. [https://doi.org/10.1016/S1059-0560\(00\)00073-3](https://doi.org/10.1016/S1059-0560(00)00073-3)
- [33] Jagannath Adhikari, Mahendra Kumar Rai, Chiranjivi Baral, M. S. (2023). Migration in South Asia: IMISCOE Regional Reader. *Journal springer*. <https://doi.org/10.1007/978-3-031-34194-6>
- [34] Khan, I. (2023). An Impact Analysis of Remittance Inflows on Reducing Income-based Poverty in South Asia. *Journal of Interdisciplinary Economics*. <https://doi.org/10.1177/02601079231200939>
- [35] Khan, M. N., Jan, A. A., Asif, M., Lai, F. W., Shad, M. K., & Shadab, S. (2023). Do domestic innovations promote trade openness? Empirical evidence from emerging economies. *Heliyon*, 9(12). <https://doi.org/10.1016/j.heliyon.2023.e22848>
- [36] Khan, R., Zeeshan, Haque, M. I., Gupta, N., Tausif, M. R., & Kaushik, I. (2022). How does foreign aid and remittances affect poverty in MENA countries? *PLoS ONE*, 17(1), 1–20. <https://doi.org/10.1371/journal.pone.0261510>
- [37] Kusnandar, V. B. (2022). This is the country of origin of the largest remittances of Indonesian migrant workers in the first semester of 2022. *Databoks*, 1. <https://databoks.katadata.co.id/datapublish/2022/08/23/ini-negara-asal-remitansi-pekerja-migran-indonesia-terbesar-semester-i-2022>
- [38] Kuziboev, B., Saidmamatov, O., Khodjanizayov, E., Ibragimov, J., Marty, P., Ruzmetov, D., Matyakubov, U., Lyulina, E., & Ibadullaev, D. (2024). CO2 Emissions, Remittances, Energy Intensity and Economic Development: The Evidence from Central Asia. *Economies*, 12(4), 1–12. <https://doi.org/10.3390/economies12040095>
- [39] Le, V. T., & Pitts, A. (2019). A survey on electrical appliance uses and energy consumption in Vietnamese households: Case study of Tuy Hoa city. *Energy and Buildings*, 197(2019), 229–241. <https://doi.org/10.1016/j.enbuild.2019.05.051>
- [40] Liu, N., Li, Y., Jiang, M., & Liu, B. (2024). Trade shocks and trade diversion due to epidemic diseases: Evidence from 110 countries. *PLoS ONE*, 19(5), 1–20. <https://doi.org/10.1371/journal.pone.0301828>
- [41] Liu, S. (2012). Confidence Interval Estimation for Coefficient of Variation. *Georgia State University*, 1–36. <https://doi.org/10.57709/2785351>
- [42] Macklem, R. T. (1998). Wealth, Disposable Income and Consumption: Some Evidence for Canada. <https://doi.org/10.34989/tr-71>
- [43] Manazir, M., Rahman, M. U., & Anjum, M. N. (2023). Unveiling the Catalysts of Economic Developments: Exploring Dynamic Link Between Foreign Remittances and Key Indicators in South Asia. *Journal of Social Research Development*, 4(2), 480–488. <https://doi.org/10.53664/jsrd/04-02-2023-21-480-488>
- [44] Modigliani, F., & Ando, A. K. (1957). Tests of the Life Cycle Hypothesis of Savings: Comments and Suggestions. *Bulletin of the Oxford University Institute of Economics & Statistics*, 19(2), 99–124. <https://doi.org/10.1111/j.1468-0084.1957.mp19002002.x>

- [45] Ojeyinka, T. A., & Ibukun, C. O. (2024). Do remittances mitigate poverty? Evidence from selected countries in Africa, Asia and Latin America. *Economic Change and Restructuring*, 57(3). <https://doi.org/10.1007/s10644-024-09666-1>
- [46] Pesaran, M. H., Ullah, A., & Yamagata, T. (2008). A bias-adjusted LM test of error cross-section independence. *Econometrics Journal*, 11(1), 105–127. <https://doi.org/10.1111/j.1368-423X.2007.00227.x>
- [47] Petrescu, I. E., Lombardi, M., Lădaru, G. R., Munteanu, R. A., Istudor, M., & Tărășilă, G. A. (2022). Influence of the Total Consumption of Households on Municipal Waste Quantity in Romania. *Sustainability (Switzerland)*, 14(14). <https://doi.org/10.3390/su14148828>
- [48] Pradhan, B. K., & Mahesh, M. (2016). Impact of remittances on poverty: An analysis of data from a set of developing countries. *Economics Bulletin*, 36(1), 108–117. <https://econpapers.repec.org/RePEc:ebl:ecbull:eb-15-00346>
- [49] Rahman, M. M., & Fee, L. K. (2012). Towards a Sociology of Migrant Remittances in Asia: Conceptual and Methodological Challenges. *Journal of Ethnic and Migration Studies*, 38(4), 689–706. <https://doi.org/10.1080/1369183X.2012.659129>
- [50] Sahu, R. B. P. K. (2011). Impact of Remittances on Poverty in Developing Countries. 4(1), 41–66.
- [51] Salisu, T. Q. (2023). Sources of Growth in the Nigerian Economy From 1970 to 2018. <https://doi.org/10.21203/rs.3.rs-2429255/v1>
- [52] Schumpeter, J. A., & Keynes, J. M. (1936). The General Theory of Employment, Interest and Money. *Journal of the American Statistical Association*, 31(196), 791. <https://doi.org/10.2307/2278703>
- [53] Sugiarto, S., & Wibowo, W. (2020). Determinants of Regional Household Final Consumption Expenditure in Indonesia. *Jejak*, 13(2), 332–344. <https://doi.org/10.15294/jejak.v13i2.25736>
- [54] Taylor, J. E., Mora, J., Adams, R., & Org, E. (2005). UC Davis Agriculture and Resource Economics Working Papers Title Remittances, Inequality and Poverty: Evidence from Rural Mexico Publication Date. <https://escholarship.org/uc/item/9s14452d>
- [55] Todaro, M. P., & Smith, S. C. (2012). *Economic Development Twelfth Edition (12th ed.)*. Pearson.
- [56] Tuncsiper, D. C. (2023). Modelling the Gross Domestic Product and the Per Capita Income of Türkiye using Autoregressive Deep Learning Networks. *International Journal of Social Science and Human Research*, 06(03), 1837–1848. <https://doi.org/10.47191/ijsshr/v6-i3-59>
- [57] Visconti, G. (2018). Recent developments. *Springer Climate*, 15(3), 117–132. [https://doi.org/10.1007/978-3-319-65669-4\\_8](https://doi.org/10.1007/978-3-319-65669-4_8)
- [58] Wafa, M. I., & Narendra, A. (2022). The Effect of Transportation Infrastructure on Gross Domestic Product (GDP) Per Capita in ASEAN Member Countries. *REKONSTRUKSI TADULAKO: Civil Engineering Journal on Research and Development*, 7(2), 1–6. <https://doi.org/10.22487/renstra.v3i1.416>
- [59] World Bank. (2011). *Employment Report in Indonesia Towards the creation of better jobs and guaranteed protection for workers*.
- [60] WorldBank. (2023). *Remittance Flows Continue to Grow in 2023 Albeit at Slower Pace*. World Bank Group. <https://www-worldbank-org>.
- [61] Wouterse, F. (2010). Remittances, poverty, inequality and welfare: Evidence from the central plateau of Burkina Faso. *Journal of Development Studies*, 46(4), 771–789. <https://doi.org/10.1080/00220380903019461>
- [62] Yoshino, N., Taghizadeh-hesary, F., & Otsuka, M. (2017). *International Remittances and Poverty Reduction: Asian Development Bank Institute*. 759. <https://hdl.handle.net/10419/179215>



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