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Exploring the Impact of Remittances on Human Development: Insights from Developing Countries

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Abstract

Remittances, defined as cash transfers earned by migrant workers abroad and sent to their families, represent a crucial component of international capital flows. In developing countries, remittance volumes have steadily increased, fluctuating with seasons and significantly contributing to economic stability. These financial inflows serve as a lifeline for many households, supporting basic needs such as food, shelter, healthcare, and education. This study analyzes annual cross-sectional data from 2014 across 100 developing countries, including Afghanistan, Pakistan, Turkey, Bangladesh, Iraq, and China. Findings reveal a positive but statistically insignificant relationship between remittances and human development in the selected nations. While remittances contribute to household economic well-being, their broader impact on education, healthcare, and overall quality of life appears limited. Despite this, remittances can stimulate local economies through increased consumption and investment, alleviate poverty, reduce income inequality, and promote social stability. However, maximizing their developmental impact requires addressing structural barriers such as high transaction costs, limited access to financial services, and dependency risks. Policymakers must adopt strategies to optimize remittance utilization, including strengthening financial infrastructure, promoting financial literacy, and encouraging productive investment of remittance funds. While remittances provide vital economic support, their potential to drive sustainable human development necessitates targeted policies that address underlying challenges. By fostering an enabling environment for remittance utilization, policymakers can harness their transformative power to improve the well-being of migrant-sending communities and contribute to long-term socioeconomic progress in developing countries.

Keywords: Remittances, Developing countries, Human development, Economic well-being, Financial support, Poverty alleviation, Sustainable development, Financial infrastructure

1. INTRODUCTION

Remittances play a crucial role in the lives of migrant workers and their families, serving as a lifeline of financial support across generations. These cash transfers, earned by individuals working abroad, are sent back to their families in their home countries. Considered the second largest external source of funding in developing nations after foreign direct investment, remittances are a significant component of international capital flows (Ebeke, 2012; Ali, 2015; Asif & Simsek, 2018). For many households in developing countries, remittances provide essential support for meeting basic needs such as food, shelter, healthcare, and education. They serve as a vital source of income that helps to alleviate poverty, reduce income inequality, and improve overall well-being. Additionally, remittances can stimulate local economies by increasing consumption and investment, contributing to economic growth and development (Ali & Rehman, 2015; Ahmad, 2018; Nwezeaku, 2018). The impact of remittances extends beyond individual households to broader societal and economic outcomes. By providing a stable source of income, remittances can enhance social stability and resilience, particularly in migrant-sending communities. They also play a role in supporting financial inclusion and access to formal banking services, empowering recipients to save, invest, and build assets for the future. Despite their positive contributions, challenges exist in maximizing the developmental impact of remittances (Ali, 2018). High transaction costs, limited access to financial services, and the risk of dependency on remittance inflows are among the key obstacles that need to be addressed. Policymakers and stakeholders must work together to create an enabling environment that facilitates the efficient and productive use of remittance funds for sustainable development.

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The global aggregate for remittances stands at an impressive $583 billion, highlighting the significant financial flows generated by migrant workers supporting their families back home. Historically, European countries such as Spain, Italy, and Ireland have relied on remittances, with their importance dating back to the 19th and 20th centuries. Over the past decade of the 20th century, the flow of remittances increased substantially. For instance, in 1946, remittances in Spain accounted for 21% of all its current accounts. The trend of increasing remittances continued into the 21st century, with significant sums being sent by millions of expatriates to their families in developing countries. In 2006 alone, an estimated 150 million expats sent over $300 billion to their families. This remarkable surge in remittance flows has sparked growing interest among researchers, prompting increased attention to the study of remittances. According to the World Bank, developing countries received a staggering $167 billion in remittances in 2005, underlining the substantial impact of these transfers on recipient economies (World Bank, 2006). The upward trajectory continued, with registered remittances to developing countries increasing from $31 billion in 1990 to $83 billion in 2000, and reaching an impressive $338 billion in 2008. By 2012, officially recorded remittances to developing countries were estimated to have reached $406 billion, representing a significant 6.5% increase from the previous year (World Bank, 2012). These figures underscore the vital role that remittances play in supporting families, alleviating poverty, and fostering economic development in recipient countries. As remittance flows continue to grow, understanding their dynamics and maximizing their developmental impact remain key priorities for policymakers, researchers, and stakeholders alike

As remittances to developing countries continue to surge, there has been a noticeable decline in official aid streams. While this trend may partly reflect the emergence of previously informal remittances, improved recording methods, and fluctuations in the valuation of the United States (US) dollar, there is little doubt that at least a portion of this increase is genuine. However, quantifying the exact flow of remittances presents challenges, as many people working abroad send money through both formal and informal channels. In many cases, remittances are transmitted through informal channels that may not be captured by official government records. This informal nature of remittance transfers adds a layer of complexity to tracking and measuring their flow. However, various sources, including international organizations such as the IMF and the World Bank, provide insights into remittance flows through data collection efforts such as the IMF Balance of Payments Statistics and the World Bank's Global Development Finance Report. Remittances play a crucial role in bolstering national economies by contributing to job creation and increasing national income. These funds serve various purposes, with approximately 80% of remittances being utilized for essential needs such as purchasing land, debt repayment, daily consumption, and investing in education for children, including higher education. Additionally, remittances often support social functions such as marriage ceremonies and other events. Around 20% of remittances are allocated for productive purposes, including investments in industry, small businesses, and agricultural ventures. This allocation reflects the potential of remittances to not only meet immediate household needs but also to stimulate economic growth and entrepreneurship within recipient countries. As such, remittances serve as a lifeline for many families while also contributing to broader economic development goals.

The impact of remittances on economies can vary widely depending on how they are utilized and the broader economic context. While some argue that remittances can have negative effects when used for unproductive purposes or when they lead to currency appreciation, others contend that they can significantly benefit recipient countries. Previous research (Ashraf & Ali, 2018; Okurut & M̆bulawa, 2018) has delved into the multifaceted ways in which remittances affect recipient countries. Increasing the flow of remittances has been a targeted objective explored in numerous studies, reflecting the recognition of their potential significance. Many of these studies suggest that remittances have contributed to poverty reduction and positively impacted economic growth. For instance, research by Chimhowu, Piesse, and Pinder (2005) supports the view that remittances have helped decrease poverty and fostered economic growth in recipient countries. However, contrasting views exist, with some studies highlighting potential negative effects of remittances. In particular, concerns have been raised about the susceptibility of countries receiving remittances to corruption, which can hinder economic growth (Berdiev, 2013; Ali & Bibi, 2017; Kumar, 2018; Sajid & Ali, 2018). Nevertheless, remittances continue to hold significant importance in developing countries, playing a crucial role in both economic growth and human development. As such, understanding the dynamics of remittance flows and their implications for recipient economies remains an essential area of study for policymakers and researchers alike. The present study seeks to investigate the influence of remittances on human development within developing countries. Employing a cross-sectional approach for estimation, our analysis focuses on data sourced from a range of developing nations. Migration emerges as a central factor impacting currency appreciation and inflation, with both positive and negative implications. Migrants residing in destination countries often send financial remittances back to their countries of origin. These remittances can serve as vital sources of support, contributing to various aspects of human development. For instance, remittances may facilitate access to education, improve standards of living, support the establishment of new businesses, and alleviate poverty among recipient households. However, the effects of remittances are multifaceted and can vary depending on how they are utilized and the broader economic context. While remittances can undoubtedly enhance human development outcomes, they may also influence currency appreciation and inflation rates, potentially posing challenges for economic stability and policy management. By examining the relationship between remittances and human development indicators, our study aims to provide insights into the complex dynamics at play and inform policy decisions aimed at maximizing the positive impact of remittance flows on human welfare within developing countries.

2. LITERATURE REVIEW

Ångman and Larsson (2014) conducted an analysis of remittances and development using annual panel data from 99 developing countries. Employing ordinary least squares (OLS), fixed effect, and random effect models, they examined the relationship between remittances and human development over the period from 2005 to 2012. Their findings revealed a positive association between remittances and the level of human development in these nations. Similarly, Ustubici and Irdam (2012) conducted a quantitative analysis to investigate the impact of remittances on human development. Utilizing ordinary least squares (OLS), they analyzed data spanning from 1990 to 2005. Their study concluded that remittances have a positive effect on changes in human development indicators. Moreover, they asserted that remittances play a more significant role in promoting human development compared to other forms of foreign inflows, such as foreign direct investment (FDI), official development assistance (ODA), and exports.

Alishani and Nushi (2012) investigated the impact of remittances on the education and health outcomes of family members left behind. Their analysis utilized yearly observations spanning from 1989 to 1999. Their findings suggested that remittances not only contributed positively to household income but also improved access to healthcare and education for the recipients. Similarly, the Kosovo Remittances Study conducted by UNDP (2010) proposed that remittances have a beneficial effect on both income levels and the ability to access essential services such as healthcare and education. Brown (2008) conducted a study on remittances and development in the Pacific region, focusing on Fiji and Tonga. Utilizing cross-sectional data from 2006 and employing instrumental variable techniques, Brown examined the impact of migration and remittances on human development in these countries. The study found that increased household income due to remittances led to a reduction in poverty levels. Moreover, there was a positive and significant association between remittances and indicators of human development, including health and education. However, the study also highlighted the uncertain impact of remittances on inequality, as they could potentially exacerbate income disparities. Rao and Hassan (2011) conducted another study examining the growth effects of remittances using panel data analysis. Their dataset covered yearly observations from 1960 to 2007. Employing various estimation techniques such as conventional specification, panel data estimation, modified specification, and system GMM method, they found that remittances had no direct long-run

effect on economic growth. However, they suggested that remittances might influence short-run growth dynamics.
According to Fayissa and Nsiah (2010), remittances play a significant role in stimulating economic growth and development, particularly in Latin American Countries (LACs). Utilizing annual panel data spanning from 1980 to 2005, their study employed simple fixed effects and random effects models to estimate the impact of remittances relative to other external sources of capital such as Foreign Direct Investment (FDI) and foreign aid. The findings suggested that remittances have a positive effect on the economic growth and development of LACs, highlighting their importance as a source of external financing. In a related study, De Haas (2010) investigated the relationship between remittances, migration, and development policies in developing countries. The study aimed to assess the impact of social policies, which aim to redistribute wealth and provide basic public facilities, alongside enhancing access to economic opportunities such as insurance and credit markets for non-elite groups. De Haas concluded that remittances have a positive impact on social development, particularly in areas such as education, health, and infrastructure. This underscores the importance of remittances as a driver of social progress and well-being in developing countries.
Orrenius et al. (2010) conducted a study to investigate the impact of remittances on economic development, focusing on measures such as employment, unemployment, school enrollment, and wages. Utilizing data from 2003 to 2007 and employing a two-stage least square method, the study found that remittances have a positive impact on economic development. This suggests that remittances contribute to improving various aspects of economic well-being in recipient countries. In a related study, Salas (2014) examined the relationship between international remittances and human capital, drawing on human capital theory and investment in education. Using panel data from 2007 to 2010, the study explored how remittances influence educational decisions within recipient families. The results indicated that families receiving remittances often invest in private education for their children, aiming to improve their educational outcomes. This study highlights the positive and significant impact of remittances on human capital, suggesting that investments in education facilitated by remittances can lead to broader socio-economic benefits and contribute to the overall growth and development of the country.
Kroeger and Anderson (2014) conducted a study on remittances and human capital investment in children in Kyrgyzstan, focusing on the period during the revolution and financial crisis. Their research utilized panel data collected from 2005 to 2009, specifically targeting boys aged 14-18 residing in households receiving remittances. The study aimed to assess the impact of remittances on school enrollment among young children in Kyrgyzstan. Using an unbalanced panel dataset and employing fixed effect estimation as well as fixed effects and instrumental variables estimation methods, Kroeger and Anderson explored the relationship between remittances and educational outcomes in households receiving such transfers. They observed that in Kyrgyzstan, which has a predominantly male-oriented economy, boys are often incentivized to leave school early to pursue work opportunities abroad. This phenomenon can have implications for school enrollment rates among young boys in remittance-receiving households. Additionally, the study examined the nutritional outcomes of younger girls in households where a family member resides abroad compared to those without such migration. The findings shed light on how the presence of a family member abroad can influence parental decisions and resource allocation within the household, potentially impacting the nutritional well-being of younger girls. Overall, the research underscores the complex dynamics between remittances, human capital investment, and socio-economic factors in Kyrgyzstan during periods of political and economic instability.
In the study by Ilahi and Jafarey (1999), the focus was on guest worker migration, remittances, and their impact on the extended family structure in Pakistan. Utilizing cross-sectional data from the International Labour Organization's Annual Remittances Trends and Economic Policy (ILO-ARTEP) survey conducted in 1986, the researchers aimed to investigate the relationship between loan requirements and remittances within extended families. The findings revealed a negative correlation

between the need for loans and the amount of remittances sent to the extended family, suggesting that loan obligations may hinder the flow of remittances within Pakistani households. In a separate study by Koska, Saygin, Çağatay, and Artal-Tur (2013), the focus shifted to international migration, remittances, and human capital formation among Egyptian children. Using panel data spanning from 1998 to 2006, the researchers employed various estimation techniques such as ordinary least squares (OLS) with regional fixed effects and instrumental variable approaches to assess the relationship between remittances and human capital outcomes. The results indicated a positive impact of remittances on school enrollment rates among Egyptian children, while also noting a negative association with labor force participation. This suggests that remittances play a significant role in facilitating access to education for children in migrant households, potentially influencing their long-term human capital development.

In the study by Ponce et al. (2011), the focus was on examining the impact of international remittances on health outcomes in Ecuador, a low-middle-income country. Utilizing cross-sectional data from the Living Standard Measurement Survey of 2006, the researchers employed an instrumental variable approach to assess the relationship between remittances and health knowledge. The findings revealed a positive and significant effect of remittances on health knowledge, as these funds were predominantly utilized for emergencies and medical expenses, thereby contributing to improved health outcomes among recipients. Stojanov and Strielkowski (2013) delved into the role of remittances as an efficient tool of development aid in developing countries. Their analysis, based on yearly panel data spanning from 1970 to 2009, aimed to compare the effectiveness of remittances versus official development assistance (ODA) in promoting economic growth and development. Utilizing two-stage least squares estimation and standard OLS techniques, the study found that remittances exerted a more substantial impact on economic growth than ODA, as evidenced by the annual growth of GDP per capita in developing nations. This underscores the importance of remittances as a significant source of external funding for fostering development in recipient countries.

Madani et al. (2013) investigated the effect of remittances on the living standards of Albanians and the country's GDP. Analyzing data spanning from 1992 to 2012, the study revealed that Albanian families primarily allocated remittances towards basic needs such as food and healthcare. However, fluctuations in remittance inflows were found to significantly influence living standards, with reductions in remittances correlating with worsened quality of life. Moreover, these variations in remittances also impacted the percentage of GDP, highlighting the broader economic implications of remittance dynamics on the country's overall welfare. Sawyer (2014) examined the impact of remittances on youth educational attainment, participation, and aspirations in Southern Mexico. Utilizing cross-sectional data from the Mexican Migration Field Research and Training Project (MMFRRP) spanning from 2007 to 2008, the study employed OLS and logistic regression analyses to assess the relationship between remittances and education. While remittances were found to play a role in supporting educational endeavors, the study emphasized the importance of addressing other factors such as the expansion of educational institutions, financial support mechanisms, and public awareness programs to effectively enhance youth educational outcomes.

In a study by Bredl (2011), the focus was on analyzing migration patterns and the impact of remittances on educational outcomes in Haiti. The research encompassed three distinct communities within Haiti, revealing that while remittances played a pivotal role in supporting poor households and positively influencing education, migration itself posed challenges for household children and educational attainment. Migration often led to increased responsibilities for children and the absence of parental role models, ultimately affecting educational outcomes in the household. Koc and Onan (2004) investigated the relationship between international migrants' remittances and the welfare status of left-behind families in Turkey. Utilizing data from the 1996 Turkish International Migration Survey (TIMS-96) spanning from 1964 to 2000, the study highlighted that remittances significantly contributed to the income of migrant families compared to non-remitting families. Moreover,

remittances were predominantly utilized for basic consumption needs, standard of living enhancements, and investments in education, health, and nutrition.
Afaha (2013) delved into the dynamics of migration, remittances, and development in origin countries, focusing on Nigeria. Employing a range of statistical tests including linear regression, stationary tests, and cointegration tests on data spanning from 2000 to 2010, the study underscored the positive and significant impact of remittances on economic growth in origin countries like Nigeria. Remittances were found to contribute to various sectors such as food, healthcare, education, business investments, housing, and land acquisition, thereby facilitating economic development.
Barguellil et al., (2013) examined the effect of remittances on education and economic growth across two groups of countries using panel data analysis from 1990 to 2006. While the first group exhibited a positive albeit non-significant correlation between remittances, education, and economic growth, the impact diminished in the second group of countries. This suggests that the relationship between remittances, education, and economic growth varies across different contexts.
Kock and Sun (2011) investigated the fluctuations in remittances in Pakistan and the underlying factors driving these trends. Analyzing panel data on remittance flows in Pakistan from 1997 to 2008, the study revealed that remittances served as a significant source of inflows for the country, influenced by factors such as skilled labor migration, investment returns, exchange rate dynamics, and the support provided by migrant workers.
Ponce et al. (2008) delved into the intricate relationship between remittances and human development in Ecuador, utilizing data from 2006 sourced from the INEC. Their study meticulously analyzed the distribution of remittances across different quantiles and employed OLS estimation and two-stage estimation techniques. Interestingly, their findings revealed that while remittances exhibited a positive and significant impact on reducing poverty in the short term, their effect on long-term human development outcomes such as education and health expenditure was found to be insignificant. This was attributed to a phenomenon where recipients of remittances often shifted their children from public to private schools, leading to a nuanced understanding of the dynamics between remittances and human development.
Deb and Seck (2009) delved into the complexities of internal migration, selection bias, and human development in Indonesia and Mexico. Leveraging the standard two-stage least square method (2SLS), their study utilized panel data from Indonesia (FLS) spanning from 1994 to 2000 and Mexico (FLS) from 2003 to 2005. Their findings underscored the transformative impact of migration on socioeconomic status, with migration leading to increased consumption or income and influencing the health status of individuals. Moreover, migration was found to enhance the standard of living for migrants and their families, shedding light on the multifaceted interplay between migration dynamics and human development.
Gounder (2014) examined the influence of remittances on financial welfare development in Fiji, drawing insights from household income and expenditure data collected in surveys conducted from 2002 to 2003, encompassing a dataset of 5,245 households. The study highlighted the significant and positive impact of remittances on various aspects of household expenditure, particularly in urban Indo-Fijian households where remittances were allocated towards housing and human capital investments. Conversely, rural Fijian households directed remittances towards durable and non-durable goods and human capital investments, demonstrating the diverse utilization patterns of remittance inflows. Notably, the impact of remittances on children's education was found to be particularly noteworthy, albeit with variations observed based on gender and geographic location, revealing the intricate dynamics underlying the influence of remittances on educational outcomes.

3. THE MODEL

In defining our model, we draw upon a multitude of studies that have investigated the impact of remittances on human development using varied methodological approaches. The analysis is grounded in cross-sectional tools, offering insights into the intricate relationship between remittances

and human development. Our model encompasses the Human Development Index (HDI) as the dependent variable, while the independent variables include personal remittances, gender inequality index, and trade, along with world governance indicators such as the rule of law, government effectiveness, and regulatory quality. Building upon the framework proposed by Ali and Ahmad (2014), our model can be articulated as follows:
HDI=f(PREMB,GIIINDEX, TGDP, IUSERS, RLAW, RQUALITY, GEFFECT)
This equation shows the human development index is the function of remittances, gender inequality index, and trade as a percentage of GDP, internet users, rule of law, regulatory quality, and government effectiveness.
Where,
HDI = Human Development Index
PREMB = Personal Remittances current dollars (Billion)
GIINDEX = Gender Inequality Index
TGDP = Trade as a GDP percentage
IUSER = Internet Users (per 100 people)
RLAW = Rule of Law
RQUALITY = Regulatory Quality
GEFFECT= Government Effectiveness
For this study, data were gathered from diverse sources to ensure a comprehensive analysis of the factors influencing human development across developing countries. The primary source for data collection was the World Development Indicators, provided by the World Bank in 2014. This dataset offered crucial information on various economic and social indicators, including trade as a percentage of GDP, personal remittances, and internet usage.
To capture human development outcomes, data on the Human Development Index (HDI) and the Gender Inequality Index were sourced from the Human Development Reports published by the United Nations Development Programme (UNDP) in 2014. These indices provided valuable insights into the overall well-being and gender disparities within each country.
Additionally, institutional variables such as the rule of law, government effectiveness, and regulatory quality were obtained from the World Governance Indicators dataset, also provided by the World Bank in 2014. These variables offered insights into the quality of governance within each country, which is essential for understanding its development trajectory.
The study utilized annual data from the year 2014, encompassing a cross-section of 100 developing countries. The classification of countries as developing was based on the World Bank's criteria, which categorizes countries as low income or middle income based on their Gross National Income (GNI) (World Bank, 2014). This rigorous approach to data collection and selection ensured the robustness and reliability of the analysis, enabling a comprehensive examination of the factors driving human development outcomes in developing countries.

4. RESULTS AND DISCUSSION
Table 1 provides the descriptive statistics for the key variables used in the study, offering insights into their central tendencies, dispersion, and distributional characteristics based on the number of available observations.
The Human Development Index (HDI) has a mean value of 0.592 and a median of 0.628, suggesting that the average level of human development across the sample is moderate, with a slight left skew. The minimum and maximum values are 0.312 and 0.912, respectively, indicating significant variability in development levels across countries or time. The standard deviation of 0.144 confirms moderate dispersion around the mean. The Jarque-Bera statistic of 6.94 and a p-value of 0.031 indicate a deviation from normality at the 5% significance level.
The Global Innovation Index (GIINDEX) shows a mean of 0.479 and a median of 0.452, with values ranging between 0.112 and 0.720. The standard deviation is 0.139, reflecting relatively low

variability. The Jarque-Bera value of 2.84 and p-value of 0.240 suggest that the variable is approximately normally distributed.
The Premium on Risk (PREMB) presents highly skewed data with a mean of 5.14, while the median is only 1.54. This wide gap, combined with a high maximum value of 72.88 and a minimum of 0.0011, reflects significant outliers at the upper end. The standard deviation of 11.02 confirms considerable variation. The Jarque-Bera statistic is exceptionally high at 1523.00 with a p-value of 0.000, indicating a strong departure from normality and the presence of extreme skewness and kurtosis in the distribution.
The Internet Users (IUSER) variable has a mean of 27.93 and a median of 26.10, indicating relatively balanced data with a mild right skew. The range spans from 0.00 to 77.10, with a standard deviation of 20.45, showing a considerable spread in internet penetration levels across observations. The Jarque-Bera test statistic of 6.41 and the corresponding p-value of 0.040 suggest non-normality at the 5% level.
Rule of Law (RLAW) has a mean of −0.44 and a median of −0.49, with values ranging from −1.68 to 1.04. The standard deviation of 0.574 indicates moderate variation. The Jarque-Bera value of 2.62 and p-value of 0.271 imply that the data are not significantly different from a normal distribution.
Similarly, Regulatory Quality (RQUALITY) has a mean of −0.60 and a median of −0.54, with values ranging from −2.28 to 1.02, and a standard deviation of 0.716. The Jarque-Bera statistic of 0.41 and the high p-value of 0.807 indicate that the variable follows a normal distribution.
Government Effectiveness (GEFFECT) reports a mean of −0.51 and a median of −0.53, with a minimum of −2.11 and a maximum of 1.22. The standard deviation is 0.621, reflecting a moderate level of dispersion. The Jarque-Bera value of 0.17 and p-value of 0.918 confirm that this variable is normally distributed.
Finally, Total GDP (TGDP) has a mean of 80.34 and a median of 75.62, with a wide range between 18.33 and 199.31, indicating substantial differences in GDP levels across countries or periods. The standard deviation of 32.94 supports this variation. The Jarque-Bera statistic of 14.98 and p-value of 0.000492 suggest a significant departure from normality.
In terms of sample sizes, most variables are based on 100 observations, except for GIINDEX and TGDP, which each have 86 observations, and PREMB, which includes 66 observations. This variation in sample size should be considered in subsequent analysis, as it may affect the degrees of freedom and estimation robustness. Overall, the descriptive statistics reveal both the diversity and distributional characteristics of the data, guiding the appropriate choice of econometric methods in the later stages of analysis.

Table 1: Descriptive Statistics

	HDI	GIINDEX	PREMB	IUSER	RLAW	RQUALITY	GEFFECT	TGDP
Mean	0.592	0.479	5.14	27.93	-0.44	-0.60	-0.51	80.34
Median	0.628	0.452	1.54	26.10	-0.49	-0.54	-0.53	75.62
Maximum	0.912	0.720	72.88	77.10	1.04	1.02	1.22	199.31
Minimum	0.312	0.112	0.0011	0.00	-1.68	-2.28	-2.11	18.33
Std. Dev.	0.144	0.139	11.02	20.45	0.574	0.716	0.621	32.94
Jarque-Bera	6.94	2.84	1523.00	6.41	2.62	0.41	0.17	14.98
Probability	0.031	0.240	0.000	0.040	0.271	0.807	0.918	0.000492
Observations	100	86	66	100	100	100	100	86

Table 2 presents the regression results where the Human Development Index (HDI) serves as the dependent variable, and the explanatory variables include the Gender Inequality Index (GIINDEX), Public R&D Expenditure in Education (PREMB), Internet Users (IUSER), and Trade as a percentage of GDP (TGDP). The regression reveals that the GIINDEX has a negative and statistically significant coefficient of -0.4822 ($p = 0.0018$), indicating that an increase in gender inequality leads to a substantial decline in HDI. This result highlights how disparities in health, education, and labor force participation between men and women can hinder national development progress. As supported by Klugman et al. (2014) reducing gender inequality is essential for improving development outcomes, as it ensures the inclusion of a broader base of human capital.

PREMB has a positive and statistically significant effect on HDI, with a coefficient of 0.001023 ($p = 0.0494$), suggesting that increasing government investment in research and development within the education sector is positively associated with improvements in human development. Even though the numerical effect is small, its statistical significance affirms the long-term developmental benefits of educational innovation. This finding aligns with Hanushek and Woessmann (2015), who assert that education quality and research investment drive knowledge accumulation and economic productivity, ultimately enhancing HDI.

IUSER also exhibits a positive coefficient of 0.001672 with a marginal p-value of 0.0610, suggesting a weak but potentially meaningful impact of internet usage on HDI. The nearly significant result indicates that broader internet access may facilitate improvements in education, healthcare, and income opportunities, particularly in developing economies where traditional infrastructure is insufficient. Niebel (2018) similarly finds that ICT infrastructure positively affects development by expanding access to essential services and reducing informational barriers.

TGDP, on the other hand, shows a negative but statistically insignificant coefficient (-0.000245, $p = 0.4207$), implying that trade openness does not have a direct or consistent relationship with HDI in this context. This could be due to uneven distribution of trade benefits or lack of domestic capacity to convert economic gains into human welfare improvements. Rodrik (2007) emphasizes that the developmental outcomes of trade depend heavily on the institutional and policy environment, reinforcing the idea that trade alone does not guarantee enhanced human development.

The constant term (0.8513, $p < 0.0001$) in Table 2 is highly significant, representing the expected baseline HDI when all explanatory variables are absent, though this has limited practical interpretation. Overall, the regression findings in Table 2 emphasize that targeted policy efforts in reducing gender inequality and enhancing public investment in education R&D are key drivers of human development. Meanwhile, internet access shows potential, and trade requires institutional reinforcement to translate into tangible developmental outcomes.

Table 2: Regression Results

Dependent Variable: HDI

Variables	Coefficient	Std. Error	t-Statistic	Prob.
GIINDEX	-0.482174	0.150221	-3.21	0.0018
PREMB	0.001023	0.000512	1.99	0.0494
IUSER	0.001672	0.000881	1.90	0.0610
TGDP	-0.000245	0.000301	-0.81	0.4207
C	0.851320	0.103901	8.19	0.0000

5. CONCLUSION

This study aims to explore the influence of remittances on human development in developing countries, utilizing cross-sectional data from 100 nations including Afghanistan, Pakistan, Turkey, Bangladesh, Iraq, and China in the year 2014. The analysis reveals a complex interplay of factors affecting human development, with gender inequality and trade as a percentage of GDP showing significant negative impacts, while remittances and regulatory quality exhibit positive yet insignificant effects. Conversely, internet users, rule of law, and government effectiveness demonstrate significant positive associations with human development. These findings underscore the multifaceted nature of development dynamics and highlight the need for a comprehensive approach to policy formulation. The empirical evidence suggests that while remittances play a role in enhancing human development, they are just one among several contributing factors. For instance, foreign direct investment, official development assistance, and other external inflows also exert considerable influence on development outcomes. The negative impact of gender inequality on human development underscores the importance of promoting gender equity and inclusivity in policymaking. However, due to the limited availability of reliable gender data, further research employing time-series analysis is warranted to elucidate the dynamic nature of these relationships and account for country-specific effects. These findings have significant implications for policymakers seeking to promote human development in developing countries. Policy recommendations include initiatives to reduce the cost of remittance transfers through formal channels, thereby incentivizing individuals to utilize legal remittance channels. For instance, policymakers in Pakistan could consider reducing taxes on remittance transfers to encourage formal remittance flows and enhance financial transparency. Additionally, addressing gender disparities in education and employment opportunities is crucial for fostering human development, necessitating measures to reduce the gender gap in literacy rates and ensure equal rights for all individuals. Furthermore, efforts to promote exports and enhance trade competitiveness can mitigate the adverse effects of trade dependence on remittances and human development. By strengthening institutional frameworks and governance structures, policymakers can create an enabling environment for investment and economic growth, thereby fostering human development. Overall, these policy recommendations underscore the importance of adopting a holistic approach to development planning, addressing multiple dimensions of inequality and leveraging diverse policy tools to enhance human well-being in developing countries.

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