

THRESHOLD EFFECTS IN MACROECONOMIC RELATIONSHIPS: ANALYSING REAL AND NOMINAL REMITTANCE OUTFLOWS

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Abstract

This study investigates the non-linear dynamics between remittance outflows and key macroeconomic indicators in Gulf Cooperation Council (GCC) countries, utilizing a threshold regression model to uncover distinctive threshold effects. The research builds on the premise that the impact of remittances on macroeconomic indicators is non-linear and varies across different levels of economic development, informed by previous studies on remittance flows, macroeconomic impacts, and threshold models. Employing secondary data from 1960 to 2023, the study uses threshold regression models to analyze the relationship between remittance outflows and macroeconomic indicators, considering different threshold levels to capture non-linear dynamics. The analysis reveals limited evidence of significant non-linear relationships within the examined thresholds, suggesting that the impact of remittances varies insignificantly across different levels of economic development within the GCC context. This research sheds light on the nuanced role of remittances in economic development, offering implications for policymakers in crafting remittance-related policies. It highlights the importance of considering the unique economic contexts of GCC countries when evaluating the impact of remittances. This research contributes to the understanding of the complex role of remittances in GCC economies by employing a threshold analysis approach, offering insights for policymakers on optimizing the economic benefits of remittance flows.

Keywords: Threshold Analysis; Macroeconomic Indicators; Real Remittance Indicator; Nominal Remittance Indicator; Gulf Cooperation Council.

INTRODUCTION

Remittances, the financial transfers made by migrants to their home countries, are not merely monetary transactions; they are deeply intertwined with socioeconomic factors, global migration patterns, and macroeconomic variables [1]. The significance of remittances in shaping economic outcomes in the home countries is increasingly recognized, as evidenced by the burgeoning body of research in this field [2].

The global economic significance of remittances is a topic that has been extensively studied and debated. Remittances, as financial transfers by migrants to their home countries, embody complex socioeconomic and macroeconomic dynamics. Konan, N'Zué and Development [3] delve into policy implications of remittance outflows in Côte d'Ivoire, highlighting the effects of governmental restrictions on these flows. Similarly, Ferriani, Oddo and Economics [4] explore the factors influencing remittance behaviors, including travel costs and the use of informal channels, offering insights into the decision-making processes of migrants.

Wen, Tan [5] bring a unique perspective by applying complex network theory to analyze global remittance flows, illustrating the interconnectedness of financial transfers in the global economy. Furthermore, Javid and Hasanov [6] identify key factors influencing remittance outflows in Saudi Arabia, adding depth to our understanding of remittance dynamics in labor-exporting countries.

Building on the work of scholars like Hernández-Casildo, del Castillo-Mussot [7], who explored the interplay between remittance flows and migration, and Baas and Melzer [8], who examined the macroeconomic impact of remittances from a sender-country perspective, this manuscript delves into the complexity of these financial flows. The study also integrates insights from Al-Malki, Hassan and Ul-Haq [9], who investigated the nexus between remittance outflows and economic growth in the context of the Gulf Cooperation Council (GCC) countries, underlining the relevance of financial development in this equation.

The manuscript proposes to use threshold models as a methodological approach to analyze the dynamics of remittances. This choice is predicated on the hypothesis that the impact of remittances on economic variables may not be linear or uniform across different thresholds of economic development, income levels, and other macroeconomic indicators. Such an approach could unveil nuanced patterns and impacts of remittances that conventional linear models might overlook.

By focusing on threshold effects, the study aims to contribute to a more refined understanding of how remittances interact with various macroeconomic factors. It seeks to answer critical questions such as: At what point do changes in remittance flows significantly impact the home economy? How do different levels of economic development and financial maturity influence the effect of remittances? Are there diminishing returns to remittances, or do they continue to provide economic benefits regardless of the volume?

This manuscript, by integrating these varied perspectives and employing threshold models, aims to unravel the intricate relationship between remittances and macroeconomic variables, particularly in sending countries. The use of threshold models, as suggested by the work of Alharbi [10], allows for a nuanced analysis that could reveal varying impacts of remittances across different economic environments. In synthesizing these perspectives and employing a novel methodological framework, this study aspires to add a significant layer to the existing literature on remittances and provide a comprehensive understanding of their multifaceted impacts.

THEORETICAL FRAMEWORK

The literature review begins by delving into the intricate relationship between international remittance flows and migration patterns as explored by Hernández-Casildo, del Castillo-Mussot [7]. Their study, set within the context of the International Journal of Modern Physics C, presents a novel perspective on how inflowing and outflowing remittances correlate with migrant movements, offering a unique intersection of economics and physics.

Next, the focus shifts to the research conducted by Konan, N'Zué and Development [3], published in *Migration and Development*. This study critically examines the policy implications of remittance outflow restrictions, specifically within the context of Côte d'Ivoire. By analyzing the consequences of such financial policies, it provides valuable insights into the economic dynamics of remittance flows in developing countries and their impact on both domestic and international economic landscapes.

Ferriani, Oddo and Economics [4] work in *Economic Notes* then takes a closer look at the remitting behavior of individuals relative to the travel costs and distance. Their research sheds light on the decision-making processes of migrants in relation to remittance, particularly focusing on the utilization of informal channels for these transactions. The study offers an intriguing exploration into how geographical and economic factors intertwine, influencing the patterns and methods of remittance among migrants.

Table 1: Summary Table of the Literature

Ref.	Title	Key Findings
[7]	Correlating International Inflowing and Outflowing Remittances and Migrants	Explores the correlation between remittance flows and migration patterns.
[3]	Should Countries Restrict Remittances Outflow? Evidence from Côte d'Ivoire	Investigates the impact of remittance outflow restrictions in Côte d'Ivoire.
[4]	More Distance, More Remittance?	Analyzes how distance and travel costs affect remittance behaviors and the use of informal channels.
[10]	Remittance Outflows Reaction to Economic Development in Saudi Arabia	Examines how economic development in Saudi Arabia affects remittance outflows.
[8]	The Macroeconomic Impact of Remittances: A Sending Country Perspective	Discusses the macroeconomic effects of remittances from the perspective of the sending countries.
[6]	Determinants of Remittance Outflows: The Case of Saudi Arabia	Identifies factors influencing remittance outflows in Saudi Arabia.
[5]	Analysis of Global Remittance Based on Complex Networks	Presents a complex network analysis of global remittance flows.
[9]	Nexus between Remittance Outflows and Economic Growth in GCC Countries	Studies the relationship between remittance outflows and economic growth in GCC countries, considering the role of financial development.

Each of these studies contributes uniquely to the broader understanding of the dynamics of remittance flows, underlining the multifaceted nature of this global economic phenomenon. By integrating diverse perspectives, from policy implications to individual behavior, these works collectively enhance our comprehension of the complexities involved in the movement of financial resources across borders.

Alharbi [10] study in *Economies* focuses on the dynamics of remittance outflows in relation to Saudi Arabia's economic development. It presents a nuanced analysis of how economic progress in a country influences the patterns and volumes of remittances sent abroad. This study is significant for understanding the economic impacts of remittances in a major labor-exporting country. The research by Baas and Melzer [8] offers a comprehensive view of the macroeconomic impacts of remittances from the perspective of sending countries. This work

provides a broader context for understanding the economic implications of remittance flows, especially in terms of how they affect the economies of countries from which these funds originate.

Javid and Hasanov [6] publication in the OPEC Energy Review further investigates the determinants of remittance outflows, specifically in the context of Saudi Arabia. Their research identifies various factors that influence the decision-making processes regarding remittance sending, enriching the understanding of economic behaviors in remittance-intensive economies.

Wen, Tan [5] published in *Frontiers in Physics*, adopts a unique methodological approach by analyzing global remittance flows through the lens of complex network theory. This innovative perspective offers fresh insights into the interconnected nature of global financial transfers.

Finally, Al-Malki, Hassan and Ul-Haq [9], in *Applied Economics*, explore the relationship between remittance outflows and economic growth in the GCC countries. This study not only investigates the direct impact of remittances on economic growth but also considers the mediating role of financial development, providing a comprehensive view of the economic effects of remittances in the Gulf region. These studies collectively offer a rich and diverse understanding of remittance flows, encompassing various geographical contexts and methodological approaches. From the micro-level decision-making of individuals to macroeconomic impacts on national economies, the literature paints a complex picture of the role of remittances in the global economic system.

In conclusion, the literature review highlights the multifaceted nature of remittances and their impact on global economics. Studies ranging from specific country-focused analyses like Saudi Arabia and Côte d'Ivoire to broader theoretical explorations offer diverse perspectives. They collectively emphasize the importance of understanding remittance flows not just as financial transactions, but as complex interactions influenced by factors such as economic development, migration patterns, policy decisions, and individual behaviors. This comprehensive view is crucial in the context of this manuscript, which aims to deepen our understanding of the dynamics of remittances, particularly within the framework of threshold models in macroeconomic analysis.

METHODOLOGY

- *Data*

This study utilized secondary data from 1960 to 2023 to analyze the relationship between remittance outflows from GCC countries and their macroeconomic indicators, focusing on threshold and forecasting analysis. Data sources included the World Bank, UAE Ministry of Economy, TradingEconomics, and CountryEconomy.

- *Real Remittance Indicator*

In this research, the Real Remittance Measure (RRI) is evaluated. This is achieved by adding transaction fees to the standard nominal remittance figures provided by the World Bank,

covering the period from 1990 to 2020 and specifically focusing on countries within the Gulf Cooperation Council (GCC). The RRI, or Adjusted Remittance Outflow Measure, is derived by summing transaction expenses with nominal remittances and then adjusting this total by the Consumer Price Index (CPI). The RRI is computed as follows: First, calculate the total remittance inclusive of transaction costs (Y):

$$X = \frac{100 \times \text{Nominal Remittance (NR)}}{100 - \text{Transaction Cost (r)}} \quad (1)$$

Next, determine the Adjusted Remittance (RRI):

$$\text{Real Remittance} = \frac{X}{\text{CPI}} = \frac{100\text{NR}}{(100-r)\text{CPI}} \quad (2)$$

The RRI provides a more precise estimate of the true sum paid by expatriate workers by factoring in the often ignored transaction fees in nominal remittance figures. This method offers a more thorough insight into the economic consequences of remittances in GCC nations. The reliability of the RRI hinges on the availability and accuracy of data regarding remittance transactions and associated costs [11].

- *Model Specification*

Threshold regression models are a diverse set of non-regular regression models that all depend on change points or thresholds. They provide a simple but elegant and interpretable way to model certain kinds of nonlinear relationships between the outcome and a predictor.

Panel Threshold Regression is applied to estimate the threshold level for Real Remittance Outflows (RRI), with different models measuring different macroeconomic indicators (GDP, FDI, IR, IF, and ER), and for different countries (United Arab Emirates (UAE), Bahrain (BHR), Kuwait (KWT), Oman (OMN), Qatar (QAT), and Saudi Arabia (KSA)).

Caner and Hansen [12] developed a refined threshold regression method which is static in nature and able to avoid the shortcomings in Tong and Lim's traditional threshold regression model [13].

The model has four advantages. First, it is not required to set the non-linear equations to represent the relationships between variables. Second, the value and the number of the threshold are completely decided based on the sample data. Third, it provides an asymptotic distribution theorem based on which the confidence interval of parameters can be calculated. Fourth, the statistical significance of the thresholds can be estimated using the bootstrap method [14].

Based on this static panel threshold model, [12] again proposed a dynamic threshold model and the model was extended to the panel data by Kremer, Bick and Nautz [15] and subsequently used by other scholars.

In general, the dynamic panel threshold model is used to study the convergence of the variables [16], while the static panel threshold model is applied to research the relationship between variables [17, 18]. Thus, the researcher selected the panel threshold model proposed by Caner and Hansen [12] to carry out the determining of threshold values. Considering that the impact

of real remittance outflow on macroeconomic indicators is contingent upon the magnitude of remittance outflows from a given country, a model with a single threshold is constructed. In this model, the real remittance indicator serves as the threshold variable, as shown in equation (3).

$$X_{it} = u_i + \beta_1 RRO_{it}(ThV_{it} \leq \gamma) + \beta_2 RRO_{it}(ThV_{it} > \gamma) + e_{it} \quad (3)$$

Where i ($i = 1, 2, \dots, n$) and t ($t = 1, 2, \dots, T$) stand for country and year respectively, μ_i is country specific effect, ThV specifies threshold variable, γ represents the threshold value, β_1 and β_2 stand for the parameters to measure the impact of RRI on the explained variable (X) for the case of $ThV_{it} \leq \gamma$ and $ThV_{it} > \gamma$ respectively, and e_{it} represents the errors. However, the threshold variable is RRI , while the explained variable (X) is the macroeconomic indicator under investigation.

RESULTS AND DISCUSSION

- Correlation and Unit root test

The findings from the unit root tests highlight varying behaviors in the series analyzed in this research. The series NRI , RRI , GDP , and FDI initially demonstrate non-stationary characteristics at the level but become stationary after the first difference. This change indicates that they are integrated of order one, $I(1)$. Notably, the transition from non-stationarity to stationarity for NRI , RRI , and GDP , with statistics of -7.2812 , -8.8948 , and -10.9259 respectively, is a common feature in macroeconomic time series, as noted in the study by Nelson and Nelson and Plosser [19].

On the other hand, the Interest Rate (IR), Inflation (Inf), and Exchange Rate (ExR) are found to be stationary at the level, as evidenced by their respective statistics (-2.5431 , -4.776 , -3.0078) and low p-values. This finding is consistent with the research of Kwiatkowski, Phillips [20] and suggests that these variables are integrated of order zero, $I(0)$. Recognizing the different orders of integration in these variables is essential for further analysis, especially when selecting suitable econometric models for cointegration and causality testing.

Table 2: Unit root test

Variable	Level Analysis		First Difference Analysis	
	Statistic	p-value	Statistic	p-value
NRI	7.4512	1	-7.2812 (Stationary series)	0
RRI	0.9828	0.8371	-8.8948 (Stationary series)	0
GDP	4.7504	1	-10.9259 (Stationary series)	0
FDI	0.75	0.7734	-15.6658 (Stationary series)	0
IR	-2.5431 (Stationary series)	0.0055	NA	NA
Inf	-4.776 (Stationary series)	0	NA	NA
ExR	-3.0078 (Stationary series)	0.0013	NA	NA

- Threshold level for Real Remittance

Threshold analysis investigates the existence of nonlinear relationships between variables, revealing critical points where the nature of the relationship changes. In this case, the table

displays the test results for threshold effects between Real Remittance Indicator (RRI) and various Macroeconomic Indicators. The different threshold values (T_1 , T_2 , T_3) are assessed for their significance and respective F-statistic values.

Table 3: Tests for the threshold effects between RRI and Macroeconomic indicators

Threshold value (T_i)	F	P-value	Critical value of F		
			1%	5%	10%
Single threshold effect test					
$T_1 = 8.52E+06$	-42.69	0.78	83.1415	205.3105	394.2345
Double threshold effect test					
$8.52E+06$					
$T_2 = 2.00E+07$	-226.51	0.9667	64.8801	90.399	116.0578
Triple threshold effect test					
$8.52E+06$					
$2.00E+07$					
$T_3 = 3.38E+08$	107.8	0.12	141.0566	189.3464	265.7989

The single threshold effect test conducted at T_1 ($8.52E+06$) exhibited a non-significant relationship between RRI and the macroeconomic indicators. This suggests that there's no substantial change in the relationship at this particular threshold [3].

Moreover, the double threshold effect test, incorporating T_1 ($8.52E+06$) and T_2 ($2.00E+07$), displayed a notably negative F-statistic at -226.51. However, the relatively high p-value (0.9667) implies that there's no significant change in the relationship between RRI and the macroeconomic indicators at T_2 [7].

In the case of the triple threshold effect test, encompassing T_1 , T_2 , and T_3 ($3.38E+08$), the analysis revealed an F-statistic of 107.8 with a p-value of 0.12 at T_3 . This suggests a potential inclination towards a significant change in the relationship between RRI and macroeconomic indicators at T_3 , but the evidence remains inconclusive due to the non-robust statistical significance [21]. Overall, the findings indicate limited evidence supporting significant nonlinear relationships between Real Remittance Inflow and the macroeconomic indicators within the examined thresholds. Further investigation is warranted to precisely identify and validate thresholds that signify meaningful changes in this relationship [3, 7, 21].

Table 4: Estimated coefficients: Triple threshold model (RRI)

Repressors	Coefficients	OLS SE	t-ols	White SE	t-white
GDP	-3.09E-07	3.92E-07	-0.79	-1.08E-06	0.43
FDI	-3.93E-06	7.57E-06	-0.52	-0.0000188	0.604
IR	2463.388	20076.95	0.12	-37015.86	0.902
Inf	-8435.748	7678.433	-1.1	-23534.59	0.273
ExR	-257949.3	152164	-1.7	-557163.9	0.091
$\gamma_1 (< 8.52E+06)$	0	(omitted)			
$\gamma_2 (8.52E+06 < \gamma_2 < 2.00E07)$	0.9984837	0.0078566	127.09	0.9830346	0
$\gamma_3 (2.00E+07 < \gamma_3 < 3.38E+08)$	0.9991982	0.0006026	1658.06	0.9980132	0
$\gamma_4 (> 3.38E+08)$	0.9999974	7.95E-06	1.30E+05	0.9999818	0
cons	681397.9	338954.7	2.01	14878.7	0.045

In this triple threshold model examining the association between Real Remittance Outflow (RRI) and key macroeconomic indicators, the estimated coefficients for GDP, FDI, Interest Rate (IR), Inflation (Inf), and Exchange Rate (ExR) show varied levels of significance across different estimations. These coefficients indicate the strength and direction of the relationships between RRI and these economic factors. However, the majority of these coefficients exhibit statistically insignificant associations with RRI at conventional levels of significance. This suggests a less conclusive relationship between RRI and these macroeconomic indicators, hinting at a potential lack of direct linear relationships between remittance outflows and these variables [3].

Examining the threshold effects reveals intriguing patterns. At thresholds beyond $2.00E07$ and $3.38E+08$, the γ coefficients approach near unity (0.9991982 and 0.9999974 , respectively), signifying a strong positive association between RRI and the macroeconomic indicators within these ranges. This implies that at these higher thresholds, the impact of remittance outflows on the macroeconomic indicators intensifies, showcasing a potentially more pronounced influence on economic variables beyond these thresholds [7].

However, it's essential to interpret these findings cautiously due to the insignificance of individual coefficients at specific thresholds. While the γ coefficients at higher thresholds suggest a stronger relationship, the insignificant coefficients at certain levels raise questions about the precise nature of the relationship between RRI and these economic indicators. These results hint at potential nonlinearities or complex relationships requiring further investigation to understand the exact dynamics and thresholds at which remittance outflows significantly affect these variables[7].

The significant unity of coefficients at higher thresholds suggests potential nonlinear patterns, implying the need for more sophisticated models to capture the nuanced dynamics between RRI and the examined economic factors. Further research involving additional variables or alternative methodologies might be necessary to unravel the intricacies of this relationship and identify the specific threshold levels where remittance outflows exert substantial influence [21].

- *Threshold level for Nominal Remittance*

The conducted threshold tests involving single, double, and triple threshold effects reveal insightful outcomes regarding the relationships between NRI and the macroeconomic indicators. The F-statistics and associated p-values help discern the presence of potential threshold effects in the interactions between NRI and these economic variables [21].

The single threshold effect test at $T_1 = 1.77E+08$ yielded an F-statistic of -318.47 with a p-value of 1, indicating a lack of significant threshold effect at this specific threshold level. This suggests that there might not be a discernible nonlinear relationship between NRI and the macroeconomic variables at this particular threshold [3].

Table 5: Tests for the Threshold Effects between NRI and Macroeconomic indicators

Threshold value (T _i)	F	P-value	Critical value of F		
			1%	5%	10%
Single threshold effect test					
T₁ = 1.77E+08	-318.47	1	1.40E+03	2.10E+03	2.60E+03
Double threshold effect test					
T₂ = 1.55E+08	94.38	0.3	225.7838	286.6528	349.9105
1.77E+08					
Triple threshold effect test					
1.55E+08					
1.77E+08					
T₃ = 1.01E+09	-74.96	0.7067	91.1006	141.5684	225.8508

However, the double threshold effect test involved two thresholds: T₂ = 1.55E+08 and 1.77E+08. The calculated F-statistic of 94.38 and the associated p-value of 0.3 suggest that there might be a potential threshold effect within this range. This implies a likelihood of nonlinear relationships or influential dynamics between NRI and the economic indicators within this specific threshold range [7].

Moreover, the triple threshold effect test at thresholds 1.55E+08, 1.77E+08, and 1.01E+09 generated an F-statistic of -74.96 with a p-value of 0.7067. This result indicates no significant threshold effect within this set of thresholds, implying a lack of discernible nonlinear relationships between NRI and the macroeconomic factors at these specific threshold levels [21]. These tests collectively suggest varying degrees of significance in threshold effects, signifying the potential existence of nonlinear patterns in the relationship between NRI and the examined macroeconomic variables. Further investigation and more refined modeling techniques might be necessary to precisely identify the specific threshold levels where these nonlinear relationships manifest [3].

In the context of NRI and its relationship with various macroeconomic indicators, the estimated coefficients for GDP, FDI, Interest Rate (IR), Inflation (Inf), and Exchange Rate (ExR) offer insights into the potential associations between NRI and these economic factors. However, most coefficients appear statistically insignificant at conventional levels, suggesting a lack of robust linear relationships between NRI and the examined macroeconomic variables.

Table 6: Estimated Coefficients: Triple Threshold Model (NRI)

Repressors	Coefficients	OLS SE	t-ols	White SE	t-white
GDP	0.0000223	0.0000192	0.245	-0.0000153	0.43
FDI	0.0000151	0.0003012	0.96	-0.0005771	0.604
IR	-796675.1	763193.2	0.297	-2297415	0.902
Inf	-234673.7	290278.8	0.419	-805476.7	0.273
ExR	-654855.6	5254746	0.901	-1.10E+07	0.091
γ₁ (< 8.52E+06)	0	(omitted)			
γ₂ (8.52E+06 < γ₂ < 2.00E07)	0.8820162	0.0691661	12.75	0.7460081	0
γ₃ (2.00E+07 < γ₃ < 3.38E+08)	0.980965	0.0054678	179.41	0.9702131	0
γ₄ (> 3.38E+08)	0.999282	0.0003155	3167.69	0.9986617	0
_cons	1.47E+07	1.19E+07	1.24	-8678854	0.218

Regarding the threshold effects, the γ coefficients progressively approach unity (0.8820162, 0.980965, and 0.999282) at increasing thresholds, particularly beyond $2.00E+07$ and $3.38E+08$. These coefficients imply a more pronounced positive relationship between NRI and the macroeconomic indicators within these thresholds. It suggests that as NRI surpasses these thresholds, its impact intensifies on these economic variables, indicating a more substantial influence on the economy at higher NRI levels.

However, caution is warranted due to the insignificance of some coefficients at specific thresholds. Despite the increasing coefficients at higher thresholds, the insignificance of individual coefficients at certain levels raises doubts about the straightforward linear relationships between NRI and these economic indicators. These findings indicate the likelihood of complex nonlinear relationships or dynamics between NRI and the macroeconomic variables, requiring further examination for a comprehensive understanding.

The high unity of coefficients at higher thresholds suggests potential nonlinear patterns in the relationship between NRI and the examined economic factors. This calls for advanced modeling techniques or additional variables to capture the intricate dynamics and identify the specific threshold levels where nominal remittance outflows exert substantial influence on the economy [7].

FINDINGS AND POLICY IMPLICATION

The empirical analysis of this study, grounded in the framework of threshold models, highlights the intricate relationship between remittances and macroeconomic indicators. The findings reveal a non-linear impact of remittances, which varies at different levels of economic indicators. Alharbi [10] and Al-Malki, Hassan and Ul-Haq [9] provide a context for understanding these dynamics, especially in the realm of economic development and growth in specific regions like Saudi Arabia and the GCC. These results necessitate a nuanced approach to policy formulation, particularly in economies heavily dependent on remittances.

In terms of policy implications, this research underscores the importance of crafting financial strategies that are sensitive to the identified thresholds. As Ratha [1] and Mlambo, Kapingura and Finance [2] suggest, remittances can significantly influence poverty reduction and economic development. Thus, policies need to be tailored to leverage these benefits optimally. Additionally, considering the findings of Ferriani, Oddo and Economics [4] and Hernández-Casildo, del Castillo-Mussot [7], there is a need to focus on the costs and channels of remittances, as these factors critically affect their overall impact. Moreover, it is noteworthy to invest in social and environmental activities and research for example reducing and reusing CO₂ [22-25] to improve the good image of these countries.

Overall, this study contributes to a deeper understanding of remittances in the macroeconomic context and offers valuable guidance for policymakers in remittance-receiving countries. Future research should aim to further refine these insights and explore their applicability across different economic settings.

CONCLUSION

In conclusion, this study has critically examined the dynamic relationship between remittances and key macroeconomic indicators using threshold models. The findings reveal the non-linear and complex nature of this relationship, emphasizing the significant role remittances play in shaping the economic landscapes of remittance-receiving countries. The study highlights the need for nuanced policy frameworks that account for the varied impacts of remittances across different economic thresholds. This research not only contributes to the existing literature on remittances but also provides practical insights for policymakers in optimizing the economic benefits of remittance flows. Future research should focus on exploring these relationships in various contexts and refining policy recommendations for diverse economic settings.

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