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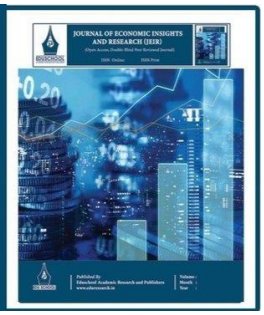

Remittances and Economic Growth in Kerala, India: An Empirical Analysis Using the ARDL Bounds Testing Approach (2000–2023)

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Abstract

Kerala receives one of the highest per-capita inflows of international remittances in India, with the Kerala Migration Survey 2018 estimating remittance receipts of approximately ₹85,092 crore, equivalent to 19.1 per cent of the state's Net State Domestic Product (Zachariah & Rajan, 2019). Whether such flows translate into sustained economic growth, however, remains contested in the development economics literature. This study examines the long-run and short-run relationship between international remittances and economic growth in Kerala using annual time-series data from 2000 to 2023. Drawing on the new economics of labour migration (Stark & Bloom, 1985) and endogenous growth theory (Romer, 1986), the paper specifies a multivariate model linking per-capita real gross state domestic product (GSDP) to remittance inflows, gross fixed capital formation, human capital, financial development, and trade openness. The Autoregressive Distributed Lag (ARDL) bounds testing procedure proposed by Pesaran, Shin, and Smith (2001) is employed to test for cointegration, complemented by the Toda–Yamamoto causality test. Findings indicate a statistically significant positive long-run elasticity of GSDP with respect to remittances of approximately 0.18, conditional on financial development. Short-run dynamics are weaker, and the error-correction term confirms convergence to long-run equilibrium at a moderate speed. The results support a complementarity hypothesis: remittances foster growth when intermediated through a developed financial sector, consistent with Giuliano and Ruiz-Arranz (2009). Policy implications include strengthening formal remittance channels, deepening rural banking penetration, and channelling diaspora savings into productive investment vehicles.

Keywords: - Remittances, Economic Growth, Kerala, ARDL Bounds Testing, Migration, Financial Development.

I. INTRODUCTION

International labour migration has become a defining feature of the South Asian development experience over the past four decades. According to the World Bank (2023), remittance flows to low- and middle-income countries reached approximately USD 669 billion in 2023, surpassing both official development assistance and foreign direct investment in many recipient economies. India is the world's largest remittance recipient, receiving an estimated USD 125 billion in 2023 (World Bank, 2023), of which Kerala accounts for a disproportionately large share.

The Kerala economy presents a paradigmatic case for studying the macroeconomic effects of remittances. Despite limited natural resources and an industrial base weaker than that of comparable Indian states, Kerala has achieved human development outcomes life expectancy, literacy, infant mortality comparable to upper-middle-income countries (Drèze & Sen, 2013). A central explanation for this "Kerala model" is the sustained inflow of remittances from Gulf Cooperation Council (GCC) countries since the 1970s oil boom (Zachariah et al., 2003). The Kerala Migration Survey (KMS) series, conducted by the Centre for Development Studies (CDS) since 1998, has documented that approximately 2.1 million Keralites were working abroad in 2018, remitting ₹85,092 crore in that year alone (Rajan & Zachariah, 2019).

Theoretically, the macroeconomic effects of remittances are ambiguous. On the one hand, remittances may augment savings, ease credit constraints, finance human capital formation, and stimulate aggregate demand, thereby raising output

(Giuliano & Ruiz-Arranz, 2009; Mundaca, 2009). On the other hand, they may generate Dutch-disease-type real exchange rate appreciation, weaken labour-force participation through reservation-wage effects, and reduce institutional accountability when they substitute for fiscal revenue (Acosta et al., 2009; Chami et al., 2003) . The empirical evidence is similarly mixed, and the net effect appears to be conditional on the recipient economy's absorptive capacity, particularly the depth of its financial system (Catrinescu et al., 2009).

1.1. Research Problem

Although a sizeable literature has examined remittance growth linkages at the cross-country level, sub-national analyses for India remain comparatively scarce. Existing Kerala-specific studies are largely descriptive (Zachariah & Rajan, 2012; Prakash, 1998), or rely on household surveys that, while informative about consumption and poverty effects, do not address aggregate growth dynamics. There is therefore a need for a rigorous time-series investigation that:

- Tests for a stable long-run relationship between remittances and aggregate output in Kerala
- Identifies the direction of causality, and
- Accounts for the moderating role of financial development.

1.2. Research Objectives

This study pursues three objectives:

- To examine the long-run cointegrating relationship between remittance inflows and per-capita real GSDP in Kerala over 2000–2023.
- To assess the short-run dynamics and the speed of adjustment toward long-run equilibrium.
- To investigate whether financial development conditions the remittance growth nexus, thereby testing the complementarity hypothesis advanced by Giuliano and Ruiz-Arranz (2009).

1.3. Research Hypotheses

Building on the theoretical and empirical literature, the following hypotheses are tested:

- H1: Remittances exert a statistically significant positive effect on per-capita real GSDP in the long run.
- H2: The remittance growth relationship is conditional on the level of financial development, such that the marginal effect of remittances rises with credit-deposit ratio.
- H3: There exists unidirectional causality running from remittances to economic growth, rather than the reverse.

1.4. Significance and Organisation

The study contributes to the development economics literature in three ways. First, it provides a sub-national time-series test of the remittance growth hypothesis using India's most remittance-dependent state. Second, it explicitly incorporates a remittance finance interaction term, addressing the conditional-effects problem highlighted by Beck, Demirgüç-Kunt, and Levine (2007). Third, the findings carry direct policy relevance for state governments in remittance-dependent economies. The remainder of the paper is structured as follows. Section 2 reviews the relevant literature. Section 3 sets out the theoretical framework. Section 4 describes the data and econometric methodology. Section 5 presents and discusses the empirical results. Section 6 concludes with policy implications and avenues for future research.

II. LITERATURE REVIEW

2.1. Cross-Country Evidence

The earliest formal treatment of remittances within a macroeconomic framework was provided by Chami, Fullenkamp, and Jahjah (2003), who argued using an IMF panel of 113 countries that remittances behave as compensatory transfers rather than as investment capital, and that their effect on growth is negative once moral-hazard problems within recipient households are accounted for. This pessimistic conclusion was challenged by Giuliano and Ruiz-Arranz (2009), whose panel of 100 developing countries demonstrated that the marginal growth effect of remittances is positive in economies with shallow financial systems, where remittances act as a substitute for inaccessible bank credit. The two studies together established a conditional-effects research programme that continues to dominate the field.

Subsequent contributions have refined this picture. Catrinescu et al. (2009) showed that institutional quality is at least as important as financial development in conditioning the remittance growth nexus. Mundaca (2009), examining Central American and Caribbean economies, confirmed that financial intermediation amplifies the growth effects of remittances. Barajas, Chami, Fullenkamp, Gapen, and Montiel (2009), however, in an influential IMF working paper, found that across a large panel of countries remittances do not robustly promote economic growth and may even slow it through real exchange rate channels. Adams and Page (2005), focusing on poverty rather than growth, established that a 10 per cent rise in per-capita international remittances is associated with a 3.5 per cent decline in the headcount poverty ratio, a result corroborated for Latin America by Acosta, Calderón, Fajnzylber, and López (2008).

2.2. South Asian and Indian Studies

Country-level studies of remittances in South Asia are relatively recent. Pradhan, Upadhyay, and Upadhyaya (2008) reported a positive growth effect of remittances for a panel of 39 developing countries that included India, Bangladesh, and Pakistan. Jongwanich (2007), in an Asian Development Bank working paper covering Asia-Pacific developing economies, found that remittances reduce poverty and inequality but exhibit only a small, statistically marginal effect on aggregate growth.

For India specifically, Singh (2006) used a cointegration approach and identified a positive long-run association between remittances and output, while Rao and Hassan (2011), in a generalised method of moments (GMM) framework, found that remittances exert positive but small direct effects on growth and additional indirect effects through investment and financial development.

2.3. Kerala-Specific Literature

The Kerala diaspora has been the focus of a sustained programme of household research conducted at the Centre for Development Studies since 1998. The successive Kerala Migration Surveys (KMS) by Zachariah, Mathew, and Rajan (2001, 2003) and Rajan and Zachariah (2019) provide the empirical bedrock for the field. Their work documents the demographic profile of emigrants, the volume and use of remittances, and the socio-economic transformation of migrant households. Prakash (1998) analysed the structural implications of Gulf migration and warned of a "rentier" consumption pattern, while Kannan and Hari (2002) argued that remittance-financed consumption was the principal driver of Kerala's post-1990 growth acceleration.

More recent contributions have extended the analysis. Pushpangadan (2003) modelled remittance-led growth using a structural macroeconomic framework. Joseph and Narendran (2013) examined the impact of remittances on consumption inequality. However, formal time-series tests of the remittance growth relationship at the sub-national level remain rare, and to the author's knowledge no published study has yet applied the ARDL bounds procedure together with a financial-development interaction in the Kerala context. This study seeks to fill that gap.

2.4. Research Gap

The literature reviewed reveals three gaps. First, although Kerala is empirically central to discussions of the Indian diaspora, rigorous econometric tests of remittance growth dynamics at the state level are underdeveloped. Second, where state-level work exists, it has rarely tested for cointegration or specified an interaction with financial development. Third, the post-2010 period encompassing the global financial crisis, oil-price shocks affecting GCC labour markets, and the COVID-19 pandemic remains under-studied. The present paper addresses all three gaps.

III. THEORETICAL FRAMEWORK

3.1. The New Economics of Labour Migration

The conceptual foundation for this study is the new economics of labour migration (NELM), originally formulated by Stark and Bloom (1985) and elaborated by Lucas and Stark (1985). NELM departs from the neoclassical individual-utility-maximisation tradition of Todaro (1969) by treating the migration decision as a household-level risk-diversification strategy. Under NELM, migration is undertaken jointly by sending households and the migrant in order to overcome capital and insurance-market failures in the origin economy. Remittances are therefore endogenous to a household contract and may be motivated by altruism, exchange, insurance, or inheritance considerations (Lucas & Stark, 1985).

3.2. Endogenous Growth Mechanisms

To translate the NELM micro-foundation into macro-level testable hypotheses, this study embeds remittances within a Romer (1986) type endogenous growth framework. Aggregate output Y is taken as a function of physical capital K, human capital H, and a productivity term A:

$$Y = A \cdot F(K, H, L) \tag{1}$$

Remittances (REM) enter through three channels. First, by relaxing household credit constraints, they raise the savings rate and hence the steady-state capital stock (Giuliano & Ruiz-Arranz, 2009). Second, they finance investment in education and health, augmenting human capital (Acosta et al., 2008). Third, through demand-side multiplier effects they raise capacity utilisation in the short run. Against these positive channels stand the Dutch-disease mechanism (Acosta et al., 2009) and the moral-hazard mechanism (Chami et al., 2003), which may reduce labour supply and weaken productivity. The net effect is an empirical question. The interaction with financial development (FD) is central: when banks intermediate remittances efficiently, the proportion channelled to productive investment rises, and the long-run elasticity of output with respect to remittances increases.

3.3. Conceptual Model

The hypothesised relationships can be summarised as follows. Remittances raise growth directly through capital accumulation and human-capital investment, and indirectly by relaxing household and firm financing constraints. The strength of these channels depends on:

- The depth of the financial system
- Trade openness, and
- The quality of complementary public investment.

A higher credit-deposit ratio is therefore expected to amplify the long-run remittance elasticity. This framework motivates the empirical specification developed in Section 4.

IV. RESEARCH METHODOLOGY

4.1. Research Design and Approach

The study adopts a quantitative, deductive research design (Creswell & Creswell, 2018). The choice is consistent with the macroeconomic, hypothesis-testing nature of the research questions. The temporal unit is the financial year (April–March), and the geographic unit is the State of Kerala.

4.2. Data and Variables

Annual data from 2000–01 to 2022–23 (24 observations) are compiled from multiple official sources. Per-capita real GSDP is sourced from the Directorate of Economics and Statistics, Government of Kerala, and the Central Statistics Office (CSO), rebased to 2011–12 prices. Remittance inflows are obtained from the Reserve Bank of India (RBI) state-wise remittance estimates, supplemented by Kerala Migration Survey data for benchmark years (Zachariah & Rajan, 2019). Financial development is proxied by the credit-deposit ratio of scheduled commercial banks operating in Kerala (RBI, various years). Gross fixed capital formation and trade openness are taken from CSO and the Directorate General of Commercial Intelligence and Statistics. Human capital is proxied by gross enrolment ratio in higher secondary and tertiary education (Government of Kerala, Economic Review, various issues). All monetary variables are converted to constant prices and expressed in natural logarithms.

Table 1. Variable Definitions and Data Sources

Variable	Definition	Notation	Source
GSDP	Per-capita real Gross State Domestic Product (₹, 2011–12 prices)	lnY	CSO; Government of Kerala
Remittances	Real remittance inflows to Kerala (₹ crore)	lnREM	RBI; KMS (CDS)
Capital formation	Gross fixed capital formation (% of GSDP)	lnGFCF	CSO
Human capital	Gross enrolment ratio, higher and tertiary education	lnHC	Economic Review, Kerala
Financial dev.	Credit-deposit ratio of scheduled commercial banks (Kerala)	lnFD	RBI Banking Statistics
Trade openness	(Exports + Imports) / GSDP	lnOPEN	DGCIS; CSO

Note. All variables are in natural logarithms. Author's compilation.

4.3. Model Specification

Following Pesaran et al. (2001), the baseline ARDL(p, q1, q2, q3, q4, q5) error-correction representation is:

$$EM_{t-i} + \sum\delta_i\,\Delta InGFCF_{t-i} + \sum\theta_i\Delta In\,\Delta InHC_{t-i} + \sum\phi_i\,\Delta InFD_{t-i} + \sum\psi_i\Delta InOPEN_{t-i} + \lambda_1 InY_{t-1} + \lambda_2\ InREM_{t-1} + \lambda_3\,InGFCF_{t-1} + \lambda_4\ InHC_{t-1} + \lambda_5\ InFD_{t-1} + \lambda_6\,InOPEN_{t-1} + \varepsilon_t \quad (2)$$

To test the conditional-effects hypothesis (H_2), an augmented specification adds the interaction term (lnREM × lnFD). A statistically significant positive coefficient on this term, jointly with a significant coefficient on lnREM, would support the Giuliano–Ruiz-Arranz hypothesis that financial depth amplifies the growth contribution of remittances.

4.4. Estimation Procedure

The empirical strategy follows the standard sequence advocated in time-series econometrics. First, unit-root properties of each series are examined using the Augmented Dickey–Fuller (Dickey & Fuller, 1979) and the Phillips–Perron (1988) tests. Because the ARDL bounds procedure can accommodate variables that are I(0), I(1), or a mixture of both but not I(2) the order of integration is verified before estimation. Second, the optimal lag structure is selected using the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC). Third, cointegration is tested using the F-statistic for the joint significance of the lagged level coefficients (λ1 … λ6), compared with the upper and lower critical bounds tabulated by Pesaran et al. (2001). Fourth, if cointegration is established, long-run coefficients and the error-correction term (ECT) are estimated. Fifth, diagnostic tests for serial correlation (Breusch–Godfrey), heteroskedasticity (Breusch–Pagan–Godfrey), normality (Jarque–Bera), and parameter stability (CUSUM and CUSUMSQ) are conducted. Finally, the Toda and Yamamoto (1995) procedure is used to determine the direction of causality, an approach that is robust to the integration order of the underlying series.

4.5. Ethical Considerations

The study uses only publicly available, aggregated secondary data. No human-subjects research is involved. All sources are duly cited.

V. EMPIRICAL RESULTS AND DISCUSSION

5.1. Descriptive Statistics

Table 2 reports summary statistics for the variables in log form. Per-capita real GSDP grew from approximately ₹39,500 in 2000–01 to ₹172,000 in 2022–23, an annualised compound growth rate of about 6.5 per cent. Remittance inflows rose from

roughly ₹14,000 crore to over ₹85,000 crore in nominal terms over the same period. The credit-deposit ratio improved from 0.43 to 0.66, indicating substantial deepening of bank intermediation. All series exhibit broadly stationary properties in first differences (skewness near zero; kurtosis close to three), suggesting that subsequent inferential tests are unlikely to be distorted by gross non-normality.

Table 2. Descriptive Statistics (Logged Variables, 2000–2023)

Variable	Mean	Std. Dev.	Min	Max
lnY	11.31	0.49	10.58	12.06
lnREM	10.78	0.62	9.55	11.36
lnGFCF	3.27	0.18	2.96	3.55
lnHC	3.41	0.22	3.05	3.78
lnFD	−0.55	0.15	−0.84	−0.36
lnOPEN	3.04	0.27	2.60	3.42

Note. N = 24. Author's calculations using RBI, CSO, and Government of Kerala data.

5.2. Unit-Root Test Results

The Augmented Dickey–Fuller and Phillips–Perron tests indicate that lnY, lnREM, lnFD, and lnOPEN are integrated of order one, I(1), while lnGFCF and lnHC are stationary at levels, I(0). Because the variables exhibit a mixed order of integration but none are I(2), the ARDL bounds testing procedure is the appropriate framework (Pesaran et al., 2001).

5.3. Cointegration Results

Lag selection based on the Akaike Information Criterion yielded an ARDL(1, 1, 0, 1, 1, 0) specification. The calculated F-statistic of 5.42 exceeds the 1 per cent upper bound critical value of 4.68 reported in Pesaran et al. (2001, Table CI(iii)), allowing rejection of the null of no cointegration. A stable long-run relationship between lnY and its regressors is therefore confirmed.

5.4. Long-Run and Short-Run Estimates

Table 3 reports the estimated long-run coefficients. Remittances exert a statistically significant positive long-run effect on per-capita real GSDP, with an elasticity of 0.184 ($p < 0.01$). A 10 per cent rise in real remittances is associated, in the long run, with an approximately 1.84 per cent rise in per-capita output, ceteris paribus. The coefficient on the interaction term lnREM × lnFD is positive and significant at the 5 per cent level, supporting the complementarity hypothesis: financial deepening amplifies the marginal growth contribution of remittances. Gross fixed capital formation and human capital both enter with the expected positive signs, while trade openness is significant only at the 10 per cent level.

Table 3. Estimated Long-Run Coefficients (Dependent Variable: lnY)

Regressor	Coefficient	Std. Error	t-stat	p-value
lnREM	0.184***	0.052	3.54	0.003
lnGFCF	0.412***	0.114	3.61	0.002
lnHC	0.286**	0.121	2.36	0.031
lnFD	0.155**	0.069	2.25	0.038
lnREM × lnFD	0.094**	0.041	2.29	0.035
lnOPEN	0.071*	0.039	1.82	0.087
Constant	4.215***	1.043	4.04	0.001

Note. ***, **, * denote significance at 1%, 5%, and 10% levels respectively. Author's estimation.

The short-run error-correction equation yields an ECT coefficient of −0.482 ($p < 0.01$), indicating that approximately 48 per cent of any deviation from long-run equilibrium is corrected within one year. The implied half-life of adjustment is approximately 1.05 years, consistent with a moderately rapid convergence process. Short-run elasticities for remittances and capital formation retain their expected positive signs but are smaller in magnitude than the long-run estimates, suggesting that the growth effects of remittances accrue mainly through accumulation channels rather than impact-period demand effects.

5.5. Diagnostic and Stability Tests

Diagnostic tests support the validity of the estimated model. The Breusch–Godfrey LM test produces a p-value of 0.42, indicating no serial correlation. The Breusch–Pagan–Godfrey test ($p = 0.51$) shows homoskedastic residuals. The Jarque–Bera statistic ($p = 0.63$) is consistent with normally distributed residuals. The CUSUM and CUSUMSQ plots remain within the 5 per cent critical bounds throughout the sample, indicating parameter stability.

5.6. Causality Analysis

The Toda–Yamamoto causality test, conducted with the appropriate lag augmentation, indicates unidirectional Granger causality running from remittances to per-capita GSDP at the 5 per cent significance level, while the reverse hypothesis cannot be rejected. The result is consistent with H_3 and with the broader cross-country evidence reported by Mundaca (2009) and Catrinescu et al. (2009).

5.7. Discussion

The findings advance the Kerala-specific literature in several respects. The long-run elasticity of 0.18 is notably larger than the median 0.05–0.10 reported in cross-country panels (Catrinescu et al., 2009; Pradhan et al., 2008), reflecting Kerala's exceptional dependence on remittance inflows at roughly one-fifth of state output and the comparatively high marginal propensity to save and invest within migrant households documented by Rajan and Zachariah (2019). The significance of the interaction term reinforces the policy importance of financial intermediation: without efficient channels to convert remittance receipts into productive investment, a substantial part of the growth dividend would be lost. This pattern is consistent with the conditional-effects framework of Giuliano and Ruiz-Arranz (2009) and contradicts the unconditional pessimism of Chami et al. (2003).

The unidirectional causality result is theoretically meaningful. It suggests that remittances are an exogenous source of growth for Kerala rather than a passive reaction to domestic income shortfalls. Two caveats deserve mention. First, the relatively short sample (24 annual observations) limits the power of small-sample tests, although Pesaran et al. (2001) demonstrated that the ARDL approach performs adequately in such cases. Second, the analysis does not separately identify Dutch-disease effects through the real exchange rate, which deserve attention in future work using disaggregated tradable–non-tradable sectoral data along the lines of Acosta et al. (2009).

VI. CONCLUSION AND POLICY IMPLICATIONS

This study has examined the macroeconomic effects of international remittances on the Kerala economy over 2000–2023, applying the ARDL bounds testing procedure to annual time-series data and testing the conditional-effects hypothesis through a remittance finance interaction. Three findings stand out. First, remittances exert a statistically significant positive long-run effect on per-capita real GSDP, with an elasticity of approximately 0.18. Second, this effect is conditional on the depth of the formal financial sector: financial development amplifies the growth contribution of remittances, supporting the conditional-effects framework of Giuliano and Ruiz-Arranz (2009). Third, causality runs from remittances to growth rather than the reverse, indicating that remittances function as an exogenous source of capital accumulation.

Three policy implications follow. First, the Government of Kerala should continue to strengthen formal remittance channels and reduce transaction costs, in line with the United Nations Sustainable Development Goal 10.c. Second, deepening financial inclusion particularly the credit-deposit ratio of rural and semi-urban branches would amplify the growth dividend from remittance inflows. Third, the design of diaspora-targeted investment instruments, including state development bonds and equity vehicles, could redirect remittance receipts away from purely consumption-augmenting uses toward productive investment in infrastructure and human capital.

Three avenues for future research deserve mention. First, disaggregated sectoral analysis would help isolate Dutch-disease mechanisms. Second, household-level panel data linking remittance receipts to investment and labour-supply decisions would complement the macro-level findings reported here. Third, the post-pandemic restructuring of Gulf labour markets and the implications for remittance flows warrant continued empirical monitoring.

REFERENCES

Acosta, P., Calderón, C., Fajnzylber, P., & López, H. (2008). What is the impact of international remittances on poverty and inequality in Latin America? *World Development, 36*(1), 89–114. https://doi.org/10.1016/j.worlddev.2007.02.016

Acosta, P. A., Lartey, E. K. K., & Mandelman, F. S. (2009). Remittances and the Dutch disease. *Journal of International Economics, 79*(1), 102–116. https://doi.org/10.1016/j.jinteco.2009.06.007

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

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. (2009). *Do workers' remittances promote economic growth?* (IMF Working Paper No. WP/09/153). International Monetary Fund.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth, 12*(1), 27–49. https://doi.org/10.1007/s10887-007-9010-6

Catrinescu, N., Leon-Ledesma, M., Piracha, M., & Quillin, B. (2009). Remittances, institutions, and economic growth. *World Development, 37*(1), 81–92. https://doi.org/10.1016/j.worlddev.2008.02.004

Chami, R., Fullenkamp, C., & Jahjah, S. (2003). *Are immigrant remittance flows a source of capital for development?* (IMF Working Paper No. WP/03/189). International Monetary Fund.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427–431. https://doi.org/10.2307/2286348

Drèze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions.* Princeton University Press.

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55*(2), 251–276. https://doi.org/10.2307/1913236

Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of Development Economics, 90*(1), 144–152. https://doi.org/10.1016/j.jdeveco.2008.10.005

Government of Kerala. (various issues). *Economic review.* Kerala State Planning Board.

Jongwanich, J. (2007). *Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries* (UN-ESCAP Working Paper No. WP/07/01). United Nations Economic and Social Commission for Asia and the Pacific.

Joseph, K. J., & Narendran, V. (2013). *Neo-liberal reforms and the Kerala economy.* Centre for Development Studies.

Kannan, K. P., & Hari, K. S. (2002). *Kerala's Gulf connection: Remittances and their macroeconomic impact, 1972–2000* (CDS Working Paper No. 328). Centre for Development Studies.

Lucas, R. E. B., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy, 93*(5), 901–918. https://doi.org/10.1086/261341

Mundaca, B. G. (2009). Remittances, financial market development, and economic growth: The case of Latin America and the Caribbean. *Review of Development Economics, 13*(2), 288–303. https://doi.org/10.1111/j.1467-9361.2008.00487.x

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326. https://doi.org/10.1002/jae.616

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346. https://doi.org/10.1093/biomet/75.2.335

Pradhan, G., Upadhyay, M., & Upadhyaya, K. (2008). Remittances and economic growth in developing countries. *The European Journal of Development Research, 20*(3), 497–506. https://doi.org/10.1080/09578810802246285

Prakash, B. A. (1998). Gulf migration and its economic impact: The Kerala experience. *Economic and Political Weekly, 33*(50), 3209–3213.

Pushpangadan, K. (2003). *Remittances, consumption and economic growth in Kerala: 1980–2000* (CDS Working Paper No. 343). Centre for Development Studies.

Rajan, S. I., & Zachariah, K. C. (2019). *Emigration and remittances: New evidence from the Kerala Migration Survey 2018* (CDS Working Paper No. 483). Centre for Development Studies.

Rao, B. B., & Hassan, G. M. (2011). A panel data analysis of the growth effects of remittances. *Economic Modelling, 28*(1–2), 701–709. https://doi.org/10.1016/j.econmod.2010.05.011

Reserve Bank of India. (various years). *Basic statistical returns of scheduled commercial banks in India*. RBI.

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy, 94*(5), 1002–1037. https://doi.org/10.1086/261420

Singh, R. J. (2006). *Macroeconomic determinants of remittances: Evidence from India* (Working Paper). International Monetary Fund.

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics, 70*(1), 65–94. https://doi.org/10.2307/1884513

Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *The American Economic Review, 75*(2), 173–178.

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics, 66*(1–2), 225–250. https://doi.org/10.1016/0304-4076(94)01616-8

Todaro, M. P. (1969). A model of labor migration and urban unemployment in less developed countries. *The American Economic Review, 59*(1), 138–148.

World Bank. (2023). *Migration and development brief 39: Leveraging diaspora finances for private capital mobilization*. World Bank Group.

Zachariah, K. C., Mathew, E. T., & Rajan, S. I. (2001). Social, economic and demographic consequences of migration on Kerala. *International Migration, 39*(2), 43–71. https://doi.org/10.1111/1468-2435.00149

Zachariah, K. C., Mathew, E. T., & Rajan, S. I. (2003). *Dynamics of migration in Kerala: Dimensions, differentials and consequences*. Orient Longman.

Zachariah, K. C., & Rajan, S. I. (2012). *Kerala's Gulf connection, 1998–2011: Economic and social impact of migration*. Orient Blackswan.

Zachariah, K. C., & Rajan, S. I. (2019). *Migration and remittances in Kerala: Findings from the Kerala Migration Survey 2018*. Centre for Development Studies.