Investigating the Relationship between Remittances, Institutional Quality, and Labour Supply in India

Namita Motha[a]
Sharon G.M. Koh[b]
Audrey K.L. Siah[c]
Monash University Malaysia

Abstract: India is one of the world's top remittance recipient countries. However, there is an ongoing debate on whether workers' remittances serve as a 'political curse or cure.' Additionally, remittances influence the domestic labour supply left behind by migrant workers. Our study aims to utilise the ARDL bounds test and Granger causality to examine the long-run and short-run relationship between remittances, institutional quality, and labour supply from 1990 to 2018 in India. The results from the ARDL bounds test indicate a cointegrating relationship when institutional quality is treated as the dependent variable. The Granger causality test further supports unidirectional causality from remittances and labour supply to institutional quality in India. In the short run, findings indicate bidirectional causality between remittances and labour supply. The study contributes to the literature by constructing a composite index for a more accurate measure of institutional quality. Furthermore, the study includes relevant break dates as dummy variables, as it allows for country-specific structural breaks to be considered. Contrary to prior studies, we find no evidence of a public moral hazard problem created by India's remittances. We argue that inbound remittances improve the well-being of recipients and pressure policymakers for more political accountability and better governance.

Keywords: Institutional quality, remittances, labour force
JEL classification: J2, O5

1. Introduction

Prior studies have acknowledged that good institutions are fundamental in attracting foreign direct investment (Masron et al., 2018) and fostering economic growth (Jude & Levieuge, 2017). Studies have emphasised the mediating role of institutional quality,

---

[a] Department of Economics, School of Business, Monash University Malaysia. Email: namitamotha@gmail.com

[b] Department of Economics, School of Business, Monash University Malaysia. Email: koh.geokmay@monash.edu / orcid: 0000-0002-6439-6193 (Corresponding author)

[c] Department of Economics, School of Business, Monash University Malaysia. Email: audrey.siah@monash.edu / orcid: 0000-0003-4093-4505

whereby well-governed institutions boost remittances and help promote economic growth[1] (Chitambara, 2019; Nepal, et al., 2020).

The early literature initiated by Hirschman's (1970) theory of accountability implies that migrants and remittance recipients could utilise foreign resources to increase government accountability and improve the quality of democratic institutions in their home country (Williams, 2017). Accordingly, workers' remittances enhance the well-being of migrant families, which in turn pressure policymakers for more political accountability and better governance. Migrants can exploit their remittance incomes to manipulate their home country's political reforms (Orozco & Lapointe, 2004). Remittance recipients utilise foreign incomes to purchase public goods and services in private markets, which may mitigate the government's inefficiency in allocating these goods and services. The remittance recipients can influence the government for more political accountability and better governance (Deonanan & Williams, 2017).

There has been evidence that workers' remittances play an important role in determining the quality of institutions (Ahmed, 2013; Tyburski, 2012; Williams, 2017). The literature on the direction of causality between remittances and institutional quality provided mixed evidence (Ahmed, 2012; Tyburski, 2012; Williams, 2017), leading to an ongoing debate on whether workers' remittances serve as a 'political curse or cure.'

Inbound remittances may serve as a 'political cure' since it enhances the capability of the migrants' immediate kin to hold the government accountable for transparency and exert more political pressure to gain reforms. Remittances lessen the economic impediments to political participation and increase government accountability (Burgess, 2005). By reducing political patronage, remittances motivate households to support opposition parties, which might better reflect their interests (Kurtz, 2004). This increased accountability incentivises the government to initiate reforms as democratic institutions expect governments to draw comparatively more political support, rendering them more likely to respond to political pressure.

Inbound remittances may also act as a 'political curse' as it induces public moral hazard. The increase in remittances reduces the responsibility of governments to provide public goods (Abdih et al., 2012; Grabel, 2009). The rationale is that left-behind households spend their remittance income on public-good substitutes, which reduces government responsibility for public provisions such as health care and education (Ebeke, 2012). As such, more government revenues could be channelled to political patronage (Abdih et al., 2012).

The remittances–institutional quality relationship and its interdependence to labour supply indicate an area that needs to be further scrutinised in the context of India, a large and rapidly developing country. India tops the number of migrants living abroad in the *World Migration Report 2020* (International Organization for Migration, 2019), with international remittances valued at US$78.6 billion. Over the past few years, labour-abundant India has dominated the supply of skilled, semi-skilled, and unskilled migrant workers to high-income countries (Abbas, 2019). As a result, India has been facing

---

[1] Many economic problems are often caused by dysfunctional institutions (Rothstein & Teorell, 2008). For instance, even though productivity levels and the existing physical capital play an essential role in a country's growth, labour policies are also important considerations.

declining domestic labour force participation rates (World Bank, 2020). Nonetheless, India is making considerable progress in terms of political and legal institutional quality. Figure 1 presents the level of institutional quality measures for India from 1990–2018.[2] The graphs indicate variations in institutional quality measurements during the sample period. Generally, Figure 1 shows improvements in all six indicators of India's institutional quality since the 1990s.

Our study's contributions are as follows. First, we expand the discussion on the relationship between remittance–institutional quality–labour supply. Much of the extant literature on remittances focuses on the mediation effect of institutional quality in enhancing and strengthening the impact of remittance on economic growth (Borja,
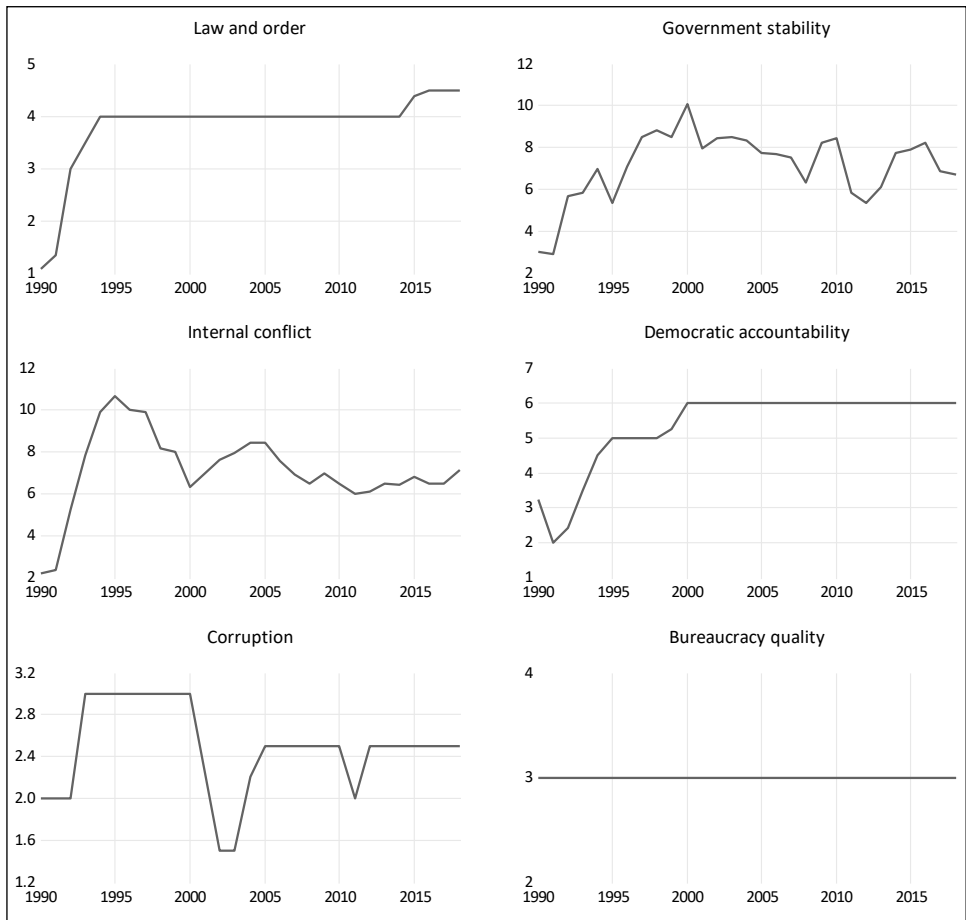

Figure 1. Institutional quality measurements from 1990–2018

---

[2] The minimum score for all the measures is zero, while the maximum score differs across the measures; for government stability and internal conflict, it is 12 points, while for corruption, law and order, and democratic accountability, it is 6 points and bureaucracy quality is 4 points. A higher measurement score implies better governance.

2020; Kadozi, 2019; Nepal et al., 2020). Past studies tend to investigate the relationship between the variables separately or rely on cross-country analysis. Analysing time series data adds value to policy development, as it provides a better understanding and more specific insights than cross-sectional data analysis (Chandran & Tang, 2013; Koh et al., 2020).

Secondly, measuring the quality of institutions specific to India is not a simple task since there is heterogeneity in the measurement of institutional quality (as seen in Figure 1). The study constructs a composite index by following the standard measurement employed in the literature (Chong & Gradstein, 2007). First, six indicators, namely government stability, law and order, corruption, democratic accountability, bureaucracy quality and internal and external conflict, are identified. Next, a confirmatory factor analysis (CFA) is used to establish country-specific institutional quality indicators to account for intercorrelations between the six institutional quality indicators (Brown, 2015) and avoid multicollinearity. The purpose of using the CFA is to test the ability of a single factor to account for intercorrelations between the six institutional quality indicators and verify how strongly the six indicators are related to the factor (Brown, 2015). If not strongly related to the factor identified, the series would not be considered when computing the single institutional quality measurement.

Finally, with regard to the choice of the econometric strategy used, the auto-regressive distributed lag (ARDL) bounds test approach has several advantages. This approach is a dynamic and autoregressive process (Ang & McKibbin, 2007) that considers past behaviours (Koh et al., 2020; Siddique et al., 2012). It also has better small sample properties (Narayan & Smyth, 2006) and is suited for studies with small sample sizes as per this study (29 observations). Potential endogeneity between the variables is also accounted for within the framework through the inclusion of the lags of dependent and independent variables. Moreover, irrespective of the order of integration of each variable, i.e., regardless of the variables being I(0) or I(1), this approach can be used (Pesaran & Shin, 1999). In the presence of structural breaks, the robustness of the standard unit root test may be questioned (Siah & Lee, 2015). Therefore, this study utilises a breakpoint unit root test that identifies and accounts for a structural break while determining the order of integration of each series. The structural break is also included in this chosen estimation technique.

The following section reviews prior research studies investigating all three variables. Section 3 details the methodological steps employed, followed by a discussion of the findings and conclusion.

2. Empirical Literature

2.1 Remittances and Institutional Quality

Remittances allow governments to free-ride and reallocate resources for their best personal interests. This is because remittances can act as a buffer between the government and its citizens; as remittance recipients can afford goods that are substitutable for public services, the government is held less accountable. Ahmed (2012) examined the relationship between remittances and institutional quality, employing a 30-year

time series (1975–2004), and found evidence of a negative impact of remittances on institutional quality. In a later study, Ahmed (2013) found that the increase in remittances increases corruption and reduces institutional quality. According to Berdiev et al. (2013), increases in remittances will promote corruption since remittance recipients can tolerate rent-seeking behaviours, and unfavourable government practices become affordable to remittance recipients, which leads to the deterioration of institutional governance.

Williams (2017) explored the impact of remittances on democratic institutions in Sub-Saharan African countries by employing time-series data. Findings suggest that higher remittances improve democratic institutional quality via investments in education and poverty reduction. In line with Williams (2017), Tyburski (2012) argued that remittances can change structural conditions by increasing government accountability through freedom of expression. This paves the way to initiate corruption reforms.

2.2 Remittances and Labour Supply

Azizi (2018) investigated the effect of remittances on human capital and labour supply by employing time series data from 122 developing countries (1990–2015). Findings reveal that remittances help increase investments in health and education. The author explains that the investments consequently create a healthier and more educated individual who is better able to work, leading to increased labour force participation. Additionally, remittances as a source of non-labour income can promote voluntary unemployment, decreasing labour participation.

Country-level studies yield mixed results. In line with Azizi (2018), Vadean et al. (2019) found similar results for Tajikistan. However, Jadotte and Ramos (2016) posited that remittances decrease the labour supply in Haiti. The authors highlight that workers' remittances led to a decrease in male labour supply compared to female labour supply. They contend that women in developing countries mostly have low-income work opportunities and, despite receiving remittances, they continue to work. Similarly, according to Kim (2007), in Jamaica remittances have a significant negative impact on labour force participation. Acosta (2007) discovered evidence in line with Kim (2007) when investigating the relationship between remittances and labour force participation in El Salvador.

While some researchers note a negative relationship between remittances and labour, Cox-Edwards and Rodriguez-Oreggia (2009) found evidence of remittances having a neutral effect on labour participation in Mexico. The authors suggested that remittances sent by the migrants are substitutes for their lost household contribution share. Urama et al. (2017) obtained similar results for Nigeria.

Amuedo-Dorantes and Pozo (2006) identified that the effect of remittances on labour supply in Mexico is dependent on the remittance recipient's gender, household location and type of employment. Specifically, the researchers found that for self-employed males in urban areas and who worked in the formal sector, remittances had a significant adverse effect on labour supply. In contrast, they argued that female remittance recipients who work in the informal sector or non-paid jobs in rural areas reduced their labour supply.

Prior studies on the relationship between remittances and labour force participation mainly highlight the negative impact of remittances on labour supply. A few studies find evidence of a neutral effect of remittances on labour supply.

2.3 Institutional Quality and Labour Supply

Agovino et al. (2019) employed time-series data (2004–2012) from Italian provinces to analyse the institutional quality–labour force relationship at a local level. The authors found that better institutional quality positively impacts labour supply. Agovino et al. (2019) posited that well-governed institutions have a higher likelihood of attracting firms, increasing jobs and encouraging individuals to enter the workforce.

Similarly, Lasagni et al. (2015) contended that better institutional quality will increase productivity, boosting production and growth, particularly in the industrial sector, and increasing job opportunities due to a positive spillover effect. Cooray and Dzhumashev (2018) also found evidence in line with Agovino et al. (2019) and Lasagni et al. (2015). The authors show a significant positive relationship between regulatory quality and labour force participation rate, suggesting that well-governed institutional quality increases labour supply. Additionally, Cooray and Dzhumashev (2018) posited that good institutional quality lessens the adverse impact of corruption on labour force participation. The authors noted that the unfavourable effect of corruption predominantly outweighs the positive impact of institutional quality on labour force participation.

3. Data and Methodology

3.1 Data Description and Preliminary Tests

The study utilises annual time-series data from the *World Development Indicators* (WDI) and International Country Risk Guide[3] (ICRG) database from 1990 to 2018 for the empirical analysis. The labour force participation rate is used as a proxy for 'labour' and remittances to the gross domestic product (GDP) ratio as a proxy for 'remittance.'

The construction of the institutional quality index requires the calculation of factor loadings. If the institutional quality series indicators are strongly related to one factor, then the relevant indicators will be considered when computing the institutional quality measure.[4] Table 1 presents the results (factor loadings) of the CFA (component matrix). To be chosen as a relevant country-specific indicator, the factor loading value given in Table 1 should be ideally 0.7 or higher (Hair et al., 2014). Appropriately, only government stability, internal conflict, law and order, and democratic accountability are used to compute institutional quality measures.

---

[3] Several recent papers, such as Law et al. (2020), Law et al. (2021) and Koh et al. (2022) have used this dataset in their work.

[4] When conducting the confirmatory factor analysis or CFA, since bureaucracy quality takes a constant value in India from 1990 to 2018, including it in the CFA leads to a computational error.

Table 1. Confirmatory factor analysis (CFA) results – factor loading values

India	Component 1	Indicators chosen
Government stability	**0.842**	✓
Internal conflict	**0.790**	✓
Corruption	0.447	−
Law and order	**0.942**	✓
Democratic accountability	**0.791**	✓

Additionally, education measured by the total primary school enrolment rate (% gross) taken from the WDI database is used as a control variable since it is likely to affect the study's dependent variable.

Before starting the empirical analysis, the breakpoint unit root test is employed to identify a structural break and integration order for each variable. Additionally, it helps establish whether the ARDL bounds test requirement that none of the variables are integrated to order two is met (Pesaran & Shin, 1999). This study performs the breakpoint unit root test,[5] incorporating Zivot and Andrews (1992) structural break unit root test.

Based on Table 2, for the Labour series, at level there is strong evidence against the null hypothesis at the 1% significance level. At first difference, for the INST and REM variables, the unit root null hypothesis is rejected at 1% significance levels. The results suggest that the Labour series follow an I(0) process, while the INST and REM series follows an I(1) process. The breakpoint unit root test identifies the structural break for INST as 1994, REM as 2010 and Labour as 2000. The structural breaks are included in the estimation models as control variables.

Table 2. Breakpoint unit root test results

Series	Level		1st difference	
	T-statistic	Time break	T-statistic	Time break
INST	-2.934	1993	-7.908***	1994
REM	-3.843	2012	-6.190***	2010
LABOUR	-7.012***	2000	-8.228***	2001

Notes: *** indicates that the null hypothesis of a unit root is rejected at the 1% level, with trend and intercept included. If the null hypothesis is rejected – the corresponding structural break is chosen.

The structural break for the INST can be linked to the bubonic and pneumonic plague faced by India (Mehta, 2020) in the mid-1990s that caused political instability, jeopardised destabilisation of the country, and disrupted the domestic and national economy (Mehta, 2020; Price-Smith, 2001). The structural break for REM corresponds

---

[5] Perron (1989) highlighted that structural breaks are interrelated to the data, therefore, detecting a structural break endogenously is advantageous. The inclusion of structural breaks is crucial as it contributes to developing country-specific policies.

to the post-financial crisis (2008) recovery of remittances (Afram, 2012; Mohapatra et al., 2010). Finally, the structural break for Labour coincides with the commencement of a plan to change the Indian labour market in the early 2000s, which created additional employment opportunities, mainly in the self-employment category (Thomas, 2012).

3.3 Cointegration Tests

In the next step, the study investigates the presence of a long-run relationship between the variables by utilising a bounds test procedure within an ARDL (autoregressive distributed lag) approach. The unrestricted error correction model (UECM) within a bounds test framework is estimated to establish the existence of a long-run relationship as follows:

$$\Delta INST_t = a_{0INST} + \sum_{i=1}^{n} b_{iINST} \Delta INST_{t-i} + \sum_{i=1}^{n} c_{iINST} \Delta Labour_{t-i} + \sum_{i=1}^{n} d_{iINST} \Delta REM_{t-i} +$$

$$\sigma_{1INST} INST_{t-1} + \sigma_{2INST} REM_{t-1} + \sigma_{3INST} Labour_{t-1} + \sigma_4 control +$$

$$\sigma_5 Dinst + \alpha t + \varepsilon_{1t} \tag{1}$$

$$\Delta REM_t = a_{0REM} + \sum_{i=1}^{n} b_{iREM} \Delta REM_{t-i} + \sum_{i=1}^{n} c_{iREM} \Delta Labour_{t-i} + \sum_{i=1}^{n} d_{iREM} \Delta INST_{t-i} +$$

$$\sigma_{1REM} INST_{t-1} + \sigma_{2REM} REM_{t-1} + \sigma_{3REM} Labour_{t-1} + \sigma_4 control +$$

$$\sigma_5 DRem + \alpha t + \varepsilon_{2t} \tag{2}$$

$$\Delta Labour_t = a_{0Labour} + \sum_{i=1}^{n} b_{iLabour} \Delta Labour_{t-i} + \sum_{i=1}^{n} c_{iLabour} \Delta REM_{t-i} + \sum_{i=1}^{n} d_{iLabour} \Delta INST_{t-i} +$$

$$\sigma_{1Labour} INST_{t-1} + \sigma_{2Labour} REM_{t-1} + \sigma_{3Labour} Labour_{t-1} + \sigma_5 DLabour +$$

$$\sigma_4 control + \alpha t + \varepsilon_{3t} \tag{3}$$

where ε_{1t}, ε_{2t} and ε_{3t} are serially uncorrelated error terms, Δ is the first difference, $INST_t$ is the institutional quality index, REM_t is the ratio of remittances to GDP, $Labour_t$ is the labour supply, *control* is the education control variable, *t* is the time trend, and *i* is the number of lags used. The relevant structural breaks are included as dummy variables. Following the estimations of Equations[6] (1) – (3), an *F*-test for joint significance of the lagged levels of coefficients or bounds test is conducted, followed by a diagnostic and stability analysis.

Table 3 presents the bounds test results corresponding to Equations (1) – (3). The lag order for the bounds test was determined using the Schwarz Bayesian Criteria (SBC). A Lagrange multiplier (LM) test is applied to assure the long-run cointegration relationship is free from autocorrelation as per the ARDL bounds test requirement

---

[6]   In Equation 1, when *INST* is the dependent variable, the null hypothesis of no cointegration is H_0: σ_{1INST} = σ_{2INST} = σ_{3INST}, and the alternative hypothesis of cointegration is H_0: $\sigma_{jINST} \neq 0$ for at least one value of *j*. A similar exercise is conducted for Equations 2 and 3.

Table 3. Bounds test and Lagrange multiplier (LM) test (Trend and intercept included)

	F-stat	Cointegration	LM test (4)
(INST |Labour, REM)	8.401***	Cointegrated	2.369 [0.212]
(REM |Labour, INST)	2.276	Not cointegrated	–
(Labour |REM, INST)	0.801	Not cointegrated	–
Narayan & Smyth (2005) F-test critical values (Case IV)	*I*(0)	*I*(1)	
1%	6.428	7.505	
5%	4.535	5.415	
10%	3.770	4.535	

Notes: *** Significant at 1%. If the estimated *F*-stat is higher than the upper bound, *I*(1) – the null hypothesis of no cointegration can be rejected. If the estimated *F*-stat is below the lower bound *I*(0) – the null hypothesis of no cointegration cannot be rejected. If it falls in between the lower bound and upper bound – the result is inconclusive.

(Pesaran et al., 2001). With reference to the LM test results in Table 3, the null hypothesis of no autocorrelation (up to 4 lags) can be rejected at the 1% significance level. Therefore, the long-run cointegration relationship found satisfies the condition of no autocorrelation.

To check for the model's parameter stability the CUSUM and CUSUMSQ tests are also performed. Accordingly, the stability analysis (Figure 2) indicates that the model has been correctly specified, estimates are stable, and the structural breaks have been correctly accounted (Shabaz et al., 2012) since the CUSUM and CUSUMSQ plots fall with the 5% significance level critical value bound.
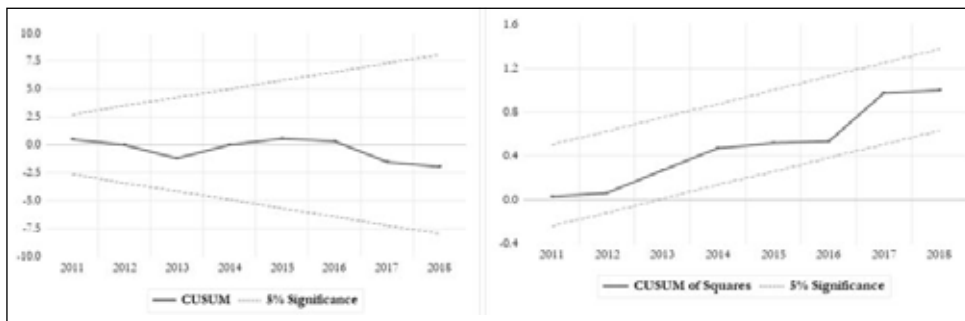

Figure 2. Plot of CUSUM and CUSUM of squares

If a cointegration relationship is present, it suggests that among the cointegrated variables, one long-run Granger causality relationship exists (Siah & Lee, 2015). Next, this study employs Granger causality tests to investigate the long-run and short-run relationships between the variables.

3.4 Granger Causality and ARDL Models

If there is no evidence of a long-run relationship when the bounds test is applied, the short-run relationships between the variables ($INST_t$, REM_t, $Labour_t$) are modelled using a vector autoregressive (VAR) framework as follows:

$$\Delta INST_t = \upsilon + \sum_{i=1}^{m}\psi_i \Delta INST_{t-i} + \sum_{i=1}^{n}\vartheta_i \Delta Labour_{t-i} + \sum_{i=1}^{p}\varphi_i \Delta REM_{t-i} + \varepsilon_{1t} \qquad (4)$$

$$\Delta REM_t = \upsilon + \sum_{i=1}^{m}\varphi_i \Delta REM_{t-i} + \sum_{i=1}^{n}\vartheta_i \Delta Labour_{t-i} + \sum_{i=1}^{p}\psi_i \Delta INST_{t-i} + \varepsilon_{2t} \qquad (5)$$

$$\Delta Labour_t = \upsilon + \sum_{i=1}^{m}\vartheta_i \Delta Labour_{t-i} + \sum_{i=1}^{n}\varphi_i \Delta REM_{t-i} + \sum_{i=1}^{p}\psi_i \Delta INST_{t-i} + \varepsilon_{3t} \qquad (6)$$

To model the short-run structure of the variables, the dependent variable is regressed against its lagged values and lagged values of the independent variables in Equations (4) – (6).

If a long-run relationship exists, then a vector error correction model (VECM) is applied. A VECM model includes a VAR model and a lagged error correction term (ECT_{t-1}). A lagged ECT term captures short-run deviations from the long-run equilibrium. Since a long-run cointegrating relationship was found when INST is treated as the dependent variable, the following VECM model is applied:

$$\Delta INST_t = \upsilon + \sum_{i=1}^{m}\psi_i INST_{t-i} + \sum_{i=1}^{n}\vartheta_i \Delta Labour_{t-i} + \sum_{i=1}^{p}\varphi_i \Delta REM_{t-i} + \pi ECT_{t-1} + \varepsilon_{1t} \qquad (7)$$

where ε_{1t} is the serially uncorrelated error term, and the other variables are as defined for Equations (1) – (6). After Equation 7 is estimated, the Wald Chi-square tests are conducted to identify the long-run and short-run causal relationships. The VECM approach is advantageous as it helps differentiate between long-run and short-run Granger causality. However, Granger causality tests cannot provide an effect (positive or negative) for each causal relationship. Table 4 reports the short-run and long-run Granger causality results.

Table 4. Short-run and long-run Granger causal relationships

Dependent variable	ΔINST	ΔREM	ΔLabour	ECT_{t-1} [t-statistic]
ΔINST	–	31.680*** [0.000]	23.449*** [0.000]	-0.889*** [-6.439]
ΔREM	3.631 [0.3042]	–	16.427*** [0.001]	–
ΔLabour	0.646 [0.886]	7.282* [0.063]	–	–

Notes: *** Significant at 1%, ** significant at 5%, * significant at 10%. Figures in parentheses are p-values unless specified. When *INST* is the dependent variable, the t-statistic on the coefficient of the lagged error-correction term (ECT_{t-1}) indicates the statistical significance of the long-run causal effect.

In the short-run, a bi-directional causal relationship between remittances and India's labour supply exists. In the long-run, the coefficient of the lagged ECT_{t-1} (lagged error-correction term) should be negative and significant for the long-run cointegrating

relationship to be valid. With reference to Table 4, the result shows that causality runs through lagged ECT_{t-1} from remittances and labour supply to institutional quality at 1% level. Since the ECM result indicate the speed of adjustment back to the long-run equilibrium after a short-run shock, the coefficient value of −0.889 suggests that if institutional quality deviates from its equilibrium, in the long-run, 88.9% of the deviations will be corrected in the subsequent period.

Finally, the long-run elasticities of institutional quality, remittances, and labour supply are estimated using the ARDL approach, and the results are presented in Table 5. To explore the long-run elasticities between institutional quality, remittances, and labour supply, we apply the following equation:

$$INST_t = k_0 + \sum_{i=1}^{p} a_i INST_{t-i} + \sum_{i=1}^{m} b_j Labour_{t-j} + \sum_{i=1}^{q} c_k REM_{t-k} + \varepsilon_{1t} \qquad (8)$$

where ε_{1t} is the serially uncorrelated error term, and the other variables are as defined earlier.

Table 5: ARDL long-run elasticities treating institutional quality as the dependent variable

Independent variable	Coefficient	t-stat [p-value]
REM	5.681***	3.578 [0.007]
Labour	-0.745***	-2.931 [0.019]

Note: *** Significant at 1%. The ARDL (4,3,4) is selected using SBC to estimate the long-run coefficients.

The long-run statistics show that both remittances and labour supply determine India's institutional quality. The coefficient of remittances impacting institutional quality at 5.681 is positive and statistically significant at the 1% level. Similarly, the coefficient of the labour force participation at -0.745 is negative and statistically significant at the 1% level. Our estimates reveal that in the long-run, an increase in remittances would improve institutional quality while a higher labour supply would dampen institutional quality.

4. Discussion on the Causal Relationship between India's Remittance, Labour and Institutional Quality

The empirical results in Table 4 indicate bidirectional Granger causality between India's remittances–labour supply in the short run. There are two possibilities whereby remittances can affect India's labour supply. First, the country's massive remittances inflow may help Indian households to increase investments in human capital such as health and education (Mahapatro et al., 2017; Parida et al., 2015), increasing their job opportunities that stimulate labour force participation rate (Azizi, 2018). Another possibility is that remittances raise a significant income source for recipient families and thus may create a moral hazard problem by weakening their incentive to work (Chami et al., 2005). Empirical evidence by Dey (2022) indicates that India's international remittances have culminated in a reduction in labour supply and the intensity of work done. At the same time, the increase in India's domestic labour force participation can also affect the amount of remittances received in the short run.

Since Granger causality tests cannot provide an effect (positive or negative) for each causal relationship, we analyse the results in Table 5 further. The long run ARDL results indicate that remittance has a positive effect on institutional quality, while labour has a negative effect on institutional quality. To put this result into perspective, a survey-based measure of accountability perceptions undertaken by Brulé (2015) reported that India's short-term migrant workers were found to have greater perceived leverage than non-migrants in holding local officials accountable. The author argues that this type of transitory migration enhances individuals' income, and the exposure to foreign power structures enables them to have better strategies for negotiating them. As such, remittances enhance the prospect of democratic transition by weakening electoral support for incumbent autocrats (Escribà-Folch et al., 2015) and improve the country's institutional quality.

These findings are also in line with Williams (2017), who highlighted that when the government uses remittances to finance economic goals – they become more accountable to their citizens. Remittance recipients can help in the increase in government accountability by voicing changes and transferring support against the government. These would, in turn, help formulate policy reforms which would improve institutional quality (Tyburski, 2012). According to Bearce and Park (2019), remittances have created a positive multiplier effect which helped alleviate many Indians out of poverty within the last decade. As a result, there is a growing number of middle-class citizens who support change and democratic values in institutions.

The negative effect of labour supply on institutional quality could be possibly attributed to the restrictive and inflexible labour regulations in India's formal sector where these regulations are often considered comparable to those rich countries – at least on paper that act as a deterrent to employment generation (Amirapu & Gechter, 2020). India's labour laws are among the most restrictive in the world (Sapkal, 2016). Due to the rigid labour regulation, approximately 90.7% of the workers were in informal sectors as recorded in 2017–2018 (Murthy, 2019). Countries with high informality tend to face unprecedented development challenges and are less likely to progress. Hence, lower domestic labour force participation rate in India's formal sector may indicate the prevalence of 'red tape' as the rules and regulations are often considered excessive and rigid leading to employers and small business owners preferring to employ from the informal sector. Unlike Dey (2022), our empirical results reveal no evidence of remittances affecting labour supply in the long-run for India.

5. Conclusion

This paper examines the short-run and long-run equilibrium relationships and causality between institutional quality, remittances and labour supply in India. The ARDL bounds test result shows the existence of a long-run relationship when institutional quality is treated as the dependent variable. We summarise our main results as follows.

The long-term effects of remittances and labour supply are statistically significant, and the coefficient value of the lagged ECT term indicates that if institutional quality deviates from its equilibrium in the long-run, 88.9% of the deviations will be corrected in the subsequent period. Granger causality results indicate bidirectional causality

between remittances and labour supply in the short-run. In the long run, our findings demonstrate that remittances precipitate better institutional quality while labour supply deteriorates institutional quality.

Based on our results, it is suggested that policymakers look towards developing less restrictive labour regulations to increase labour force participation in the formal sectors. As India is the world's largest democratic country, policymakers should focus on ensuring better regulations and stability, higher accountability, and lower internal conflicts so that remittances can be properly channelled to have a positive multiplier effect on the overall economy.

References

Abbas, S. (2019). Workers' remittances and domestic investment in South Asia: A comparative econometric inquiry. *International Migration, 57*(5), 89–104. https://doi.org/10.1111/imig.12612

Abdih, Y., Chami, R., Dagher, J., & Montiel, P. (2012). Remittances and institutions: Are remittances a curse? *World Development, 40*(4), 657–666. https://doi.org/10.1016/j.worlddev.2011.09.014

Acosta, P. (2007). Entrepreneurship, labour markets and international remittances: Evidence from El Salvador. In M. Schiff & C. Ozden (Eds.), *International migration, economic development & policy: Studies across the Globe*. World Bank. https://doi.org/10.1596/978-0-8213-6935-7

Afram, G.G. (2012). *The remittance market in India: Opportunities, challenges, and policy options*. The World Bank. https://doi.org/10.1596/978-0-8213-8972-0

Agovino, M., Garofalo, A., & Cerciello, M. (2019). Do local institutions affect labour market participation? The Italian case. *B.E. Journal of Economic Analysis & Policy, 19*(2), 1–21. https://doi.org/10.1515/bejeap-2018-0077

Ahmed, F.Z. (2012). The perils of unearned foreign income: Aid, remittances, and government survival. *American Political Science Review, 106*(1), 146–165. https://doi.org/10.1017/S0003055411000475

Ahmed, F.Z. (2013). Remittances deteriorate governance. *Review of Economics and Statistics, 95*(4), 1166–1182. https://doi.org/10.1162/REST_a_00336

Amirapu, A., & Gechter, M. (2020). Labor regulations and the cost of corruption: Evidence from the Indian firm size distribution. *Review of Economics and Statistics, 102*(1), 34–48. https://doi.org/10.1162/rest_a_00837

Amuedo-Dorantes, C., & Pozo, S. (2006). Migration, remittances, and male and female employment patterns. *American Economic Review, 96*(2), 222–226. https://doi.org/10.1257/000282806777211946

Ang, J.B., & McKibbin, W.J. (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics, 84*(1), 215–233. https://doi.org/10.1016/j.jdeveco.2006.11.006

Azizi, S. (2018). The impacts of workers' remittances on human capital and labor supply in developing countries. *Economic Modelling, 75*, 377–396. https://doi.org/10.1016/j.econmod.2018.07.011

Bearce, D.H., & Park, S. (2019). Why remittances are a political blessing and not a curse. *Studies in Comparative International Development, 54*(1), 164–184. https://doi.org/10.1007/s12116-018-9277-y

Berdiev, A.N., Kim, Y., & Chang, C.-P. (2013). Remittances and corruption. *Economics Letters, 118*(1), 182–185. https://doi.org/10.1016/j.econlet.2012.10.008

Borja, K. (2020). Remittances, corruption, and human development in Latin America. *Studies in Comparative International Development, 55*, 305–327. https://doi.org/10.1007/s12116-020-09299-1

Brown, T.A. (2015). *Confirmatory factor analysis for applied research*. Guilford Publications.

Brulé, R. (2015). Accountability in rural India: Local government and social equality. *Asian Survey, 55*(5), 909–941. https://doi.org/10.1525/as.2015.55.5.909

Burgess, K. (2005). Migrant philanthropy and local governance in Mexico. In B.J. Merz (Ed.), *New patterns for Mexico: Remittances, philanthropic giving, and equitable development* (pp. 35–41). Harvard University Press.

Chami, R., Fullenkamp, C., & Jahjah, S. (2005). *Are immigrant remittance flows a source of capital for development?* (IMF Staff Paper, Vol. 52, Issue 1). https://go-gale-com.ezproxy.lib.monash.edu.au/ps/i.do?p=AONE&u=monash&id=GALE%7CA133132978&v=2.1&it=r

Chandran, V.G.R., & Tang, C.F. (2013). The impacts of transport energy consumption, foreign direct investment and income on CO_2 emissions in ASEAN-5 economies. *Renewable and Sustainable Energy Reviews, 24*, 445–453. https://doi.org/10.1016/j.rser.2013.03.054

Chitambara, P. (2019). Remittances, institutions and growth in Africa. *International Migration, 57*(5), 56–70. https://doi.org/10.1111/imig.12542

Chong, A., & Gradstein, M. (2007). Inequality and institutions. *Review of Economics and Statistics, 89*(3), 454–465. https://doi.org/10.1162/rest.89.3.454

Cooray, A., & Dzhumashev, R. (2018). The effect of corruption on labour market outcomes. *Economic Modelling, 74*, 207–218. https://doi.org/10.1016/j.econmod.2018.05.015

Cox-Edwards, A., & Rodríguez-Oreggia, E. (2009). Remittances and labor force participation in Mexico: An analysis using propensity score matching. *World Development, 37*(5), 1004–1014. https://doi.org/10.1016/j.worlddev.2008.09.010

Deonanan, R., & Williams, K. (2017). The effect of remittances on democratic institutions. *Applied Economics, 49*(5), 403–416. https://doi.org/10.1080/00036846.2016.1200180

Dey, S. (2022). Impact of remittances on labour supply and occupational choice in rural India. *International Journal of Rural Management, 18*(1), 78–102. https://doi.org/10.1177/0973005221994371

Ebeke, C.H. (2012). Do remittances lead to a public moral hazard in developing countries? An empirical investigation. *Journal of Development Studies, 48*(8), 1009–1025. https://doi.org/10.1080/00220388.2011.615918

Escribà-Folch, A., Meseguer, C., & Wright, J. (2015). Remittances and democratization. *International Studies Quarterly, 59*(3), 571–586. https://doi.org/10.1111/isqu.12180

Grabel, I. (2009). Remittances: Political economy and developmental implications. *International Journal of Political Economy, 38*(4), 86–106. https://doi.org/10.2753/IJP0891-1916380405

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate data analysis* (7th ed.). Pearson.

Hirschman, A.O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states*. Harvard University Press.

International Organization for Migration. (2019). *World migration report 2020*. https://publications.iom.int/system/files/pdf/wmr_2020.pdf

Jadotte, E., & Ramos, X. (2016). The effect of remittances on labour supply in the Republic of Haiti. *Journal of Development Studies, 52*(12), 1810–1825. https://doi.org/10.1080/00220388.2016.1156089

Jude, C., & Levieuge, G. (2017). Growth effect of foreign direct investment in developing economies: The role of institutional quality. *World Economy, 40*(4), 715–742. https://doi.org/10.1111/twec.12402

Kadozi, E. (2019). Remittance inflows and economic growth in Rwanda. *Research in Globalization, 1*, Article 100005. https://doi.org/10.1016/j.resglo.2019.100005

Kim, N. (2007). *The impact of remittances on labor supply: The case of Jamaica* (World Bank Policy Research Working Paper No. WPS4120). https://ssrn.com/abstract=960183

Koh, S.G.M., Lee, G.H.Y., & Bomhoff, E.J. (2020). The income inequality, financial depth and economic growth nexus in China. *World Economy, 43*(2), 412–427. https://doi.org/10.1111/twec.12825

Koh, S.G.M., Lee, G.H.Y., & Siah, A.K.L. (2022). The resurgence of income inequality in Asia-Pacific: The role of trade openness, educational attainment and institutional quality. *Jurnal Ekonomi Malaysia, 56*(3), 11–27. https://doi.org/10.17576/JEM-2022-5603-01

Kurtz, M.J. (2004). *Free market democracy and the Chilean and Mexican countryside*. Cambridge University Press. https://doi.org/10.1017/CBO9780511510236

Lasagni, A., Nifo, A., & Vecchione, G. (2015). Firm productivity and institutional quality: Evidence from Italian industry. *Journal of Regional Science, 55*(5), 774–800. https://doi.org/10.1111/jors.12203

Law, S.H., Sarmidi, T., & Goh, L.T. (2020). Impact of innovation on economic growth: Evidence from Malaysia. *Malaysian Journal of Economic Studies, 57*(1), 113–132. https://doi.org/10.22452/MJES.vol57no1.6

Law, S.H., Naseem, M.N., Roslan, A., & Singh, N. (2021). Business credit, household credit and economic performance in Malaysia: A quantile regression approach. *Malaysian Journal of Economic Studies, 58*(2), 293–314. https://doi.org/10.22452/MJES.vol58no2.6

Mehta, B. (2020). Wuhan 2020 and Surat 1994 – "déjà vu all over again." World Bank Group. https://blogs.worldbank.org/eastasiapacific/wuhan-2020-and-surat-1994-deja-vu-all-over-again

Mahapatro, S., Bailey, A., James, K.S., & Hutter, I. (2017). Remittances and household expenditure patterns in India and selected states. *Migration and Development, 6*(1), 83–101. https://doi.org/10.1080/21632324.2015.1044316

Masron, T.A., Naseem, N.M., & Wahab, E.A.A. (2018). Institutional quality in attracting foreign direct investment to small countries. *Malaysian Journal of Economic Studies, 55*(2), 267–284. https://doi.org/10.22452/MJES.vol55no2.7

Mohapatra, S., Ratha, D., & Silwa, A. (2010). Impact of the global financial crisis on migration and remittances. *Economic Premise, 2*. https://openknowledge.worldbank.org/entities/publication/57a46380-b40c-5803-8cf4-238b0beeae8d

Murthy, S.V.R. (2019, November). *Measuring informal economy in India – Indian experience*. Paper presented at the IMF 7th Statistical Forum, Washington DC. https://www.imf.org/-/media/Files/Conferences/2019/7th-statistics-forum/session-ii-murthy.ashx

Narayan, P.K. (2005). The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics, 37*(17), 1979–1990. https://doi.org/10.1080/00036840500278103

Narayan, P.K., & Smyth, R. (2006). Female labour force participation, fertility and infant mortality in Australia: Some empirical evidence from Granger causality tests. *Applied Economics, 38*(5), 563–572. https://doi.org/10.1080/00036840500118838

Nepal, S., Park, S.W., & Lee, S. (2020). Impact of remittances on economic performance in consideration of institutional quality. *Journal of Economic Studies, 47*(3), 479–507. https://doi.org/10.1108/JES-09-2018-0316

Orozco, M., & Lapointe, M. (2004). Mexican hometown associations and development opportunities. *Journal of International Affairs, 57*(2), 31–51.

Parida, J.K., Mohanty, S.K., & Raman, K.R. (2015). Remittances, household expenditure and investment in rural India: Evidence from NSS data. *Indian Economic Review, 50*(1), 79–104.

Perron, P. (1989). The great crash, the oil price shock, and the unit root hypothesis. *Econometrica, 57*(6), 1361–1401. https://doi.org/10.2307/1913712

Pesaran, M.H., & Shin, Y. (1999). An autoregressive distributed lag modeling approach to cointegration analysis. In S. Strom (Ed.), *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium* (pp. 1-33). Cambridge University Press.

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

Price-Smith, A.T. (Ed.) (2001). *Plagues and politics: Infectious disease and international policy*. Palgrave Macmillan. https://doi.org/10.1057/9780230524248

Rothstein, B., & Teorell, J. (2008). What is quality of government? A theory of impartial government institutions. *Governance, 21*(2), 165–190. https://doi.org/10.1111/j.1468-0491.2008.00391.x

Sapkal, R.S. (2016). Labour law, enforcement and the rise of temporary contract workers: Empirical evidence from India's organised manufacturing sector. *European Journal of Law and Economics, 42*, 157–182. https://doi.org/10.1007/s10657-015-9514-z

Shahbaz, M., Zeshan, M., & Afza, T. (2012). Is energy consumption effective to spur economic growth in Pakistan? New evidence from bounds test to level relationships and Granger causality tests. *Economic Modelling, 29*(6), 2310–2319. https://doi.org/10.1016/j.econmod.2012.06.027

Siah, A.K.L., & Lee, G.H.Y. (2015). Female labour force participation, infant mortality and fertility in Malaysia. *Journal of the Asia Pacific Economy, 20*(4), 613–629. https://doi.org/10.1080/13547860.2015.1045326

Siddique, A., Selvanathan, E.A., & Selvanathan, S. (2012). Remittances and economic growth: Empirical evidence from Bangladesh, India and Sri Lanka. *Journal of Development Studies, 48*(8), 1045–1062. https://doi.org/10.1080/00220388.2012.663904

Thomas, J.J. (2012). India's labour market during the 2000s: Surveying the changes. *Economic and Political Weekly, 47*(51), 39–51.

Tyburski, M.D. (2012). The resource curse reversed? Remittances and corruption in Mexico. *International Studies Quarterly, 56*(2), 339–350. https://doi.org/10.1111/j.1468-2478.2012.00721.x

Urama, N.E., Nwosu, E.O., Yuni, D.N., & Aguegboh, S.E. (2017). International migrant remittances and lsupply in Nigeria. *International Migration, 55*(1), 37–50. https://doi.org/10.1111/imig.12289

Vadean, F., Randazzo, T., & Piracha, M. (2019). Remittances, labour supply and activity of household members left-behind. *Journal of Development Studies, 55*(2), 278–293. https://doi.org/10.1080/00220388.2017.1404031

Williams, K. (2017). Do remittances improve political institutions? Evidence from Sub-Saharan Africa. *Economic Modelling, 61*, 65–75. https://doi.org/10.1016/j.econmod.2016.12.004

World Bank. (2020). *Labor force participation rate*. https://data.worldbank.org/indicator/SL.TLF.ACTI.ZS

Zivot, E., & Andrews, D.W.K. (1992). Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business & Economic Statistics, 10*(3), 251–270. https://doi.org/10.2307/1391541