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Do Migrant's Remittance Inflow Affects the Dutch Disease: Evidence from Indonesia

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ABSTRACT

Purpose: Remittances have grown in measurement and importance. While such inflows can improve economic growth, they may additionally also reason domestic foreign money to respect and hurt exports – an aspect of impact generally referred to as the Dutch disease. Statistics exhibit that remittances influx to Indonesia grew from 1% of GDP in 1984 to over 9% of GDP in 2020. Theoretically, such a massive influx of overseas foreign money into an economy may lead to Dutch diseases.

Methodology: For this purpose, they learn about employing the Autoregressive Distributed Lag Model (ARDL) to observe the impact of migrant remittances on the actual fantastic exchange charge spanning the duration from 1984 to 2020.

Findings: In the long run, they find out about finds an effective relationship between migrants' remittances and the real high-quality change rate, which means that evidence of Dutch Disease risk in Indonesia. This grasp of the Indonesia rupiah relative to different competing countries encourages import and discourages export, leading to the Dutch disease effect.

Originality/Value: This study, therefore, investigated whether the large inflow of remittances into the economic system reasons Dutch disease.

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1. Introduction

Numerous recent papers have attempted to describe the determinants and characteristics of these financial flows. International switch of remittances has been playing an essential function in the socio-economic development in many ways in growing nations across the world. Although remittances have a sizable tremendous effect on more than a few socio-economic improvement indicators at both micro and macro level, it is no longer past adversities. Dutch Disease is one of the famous adversities. There is a massive body of literature dealing with the effect of remittances on various socio-economic improvement indicators in South Asia. However, a few studies are searching into the difficulty of Dutch Disease resulting from the international transfers in this region. This paper attempts at analyzing the phenomenon in the context of Indonesia's economy, looking for proof of the Dutch disease [1]. We have a look at the effect of worker remittances on the country's actual alternate rate, from the 1984s, when Indonesia first started receiving remittances in a substantial quantity till the 2005s, tighter controls on money transfers led to a rapid increase in worker remittances sent via official channels. Given that the State Bank of Indonesia manages the legit trade rate, preserving the Rupee in a managed float, our find out about remittances inflows have to take into account the authentic exchange fee policy [2]. Therefore, we employ non-informative Bayesian analysis to introduce this information. Unlike others, this study will emphasize untimely deindustrialization in Indonesia as one of the penalties of Dutch Disease ensuing from migrant‘s remittances [3]. There is a developing body of work on the high-quality effects of remittances such as poverty alleviation, family welfare, and economic development. While, there is research on the negative elements such as actual understanding of alternate fees and thereby loss of exterior competitiveness, premature deindustrialization, contraction of the manufacturing sector, inequality, etc. At the individual country level, there are some studies on the link between workers' remittances and actual appreciation of alternate rates [4].

According to the facts amassed from the World Bank, in 12 months of 2020, Indonesia's remittances receipt as a share of GDP is 9%. Whereas Indonesia solely has a complete population of 2.7 billion. Therefore, remittance inflow will have a large impact on the financial system like Indonesia. Temporary migrants encompass contract workers, inter-agency transferees, students, and businessmen whilst irregular people are those who continue to be in remote places illegally or on an expired visa on traveling. From Figure (1), we can see an inclining vogue of laborers' remittances and compensation of employees, which received a share of GDP from 12 months 1984 (1%) until it reached the peak in 2005 (19%). Since then, it diminished to 8% in 2011. From here, we can see that remittances are contributing a larger and larger portion to the GDP of Indonesia.

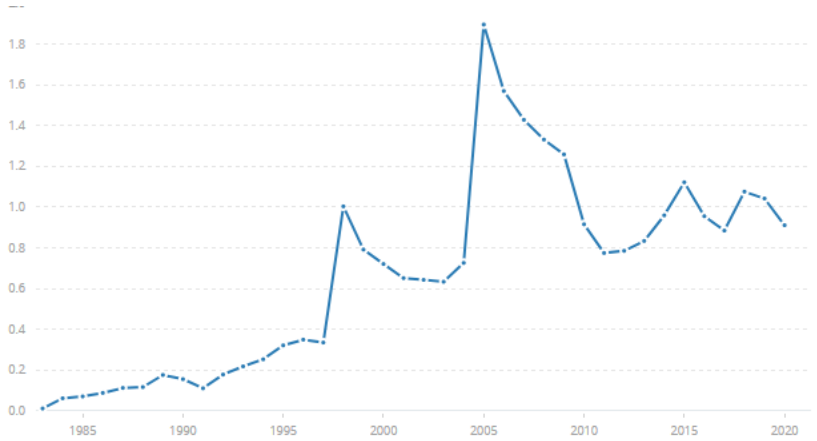

Fig.1. Remittance Inflows in Indonesia (% of GDP)

Source: Author's Computation from World Bank

2. Literature Review

"Dutch Disease" has been used as a common term to express the problems caused by a booming sector of the economy on the rest of it when this particular sector is responsible for significant growth in the country's income [5], this could also be the case in the remittances receiving countries too. The booming export sector of the economy is a country's labor force, which is exported as immigrant workers and as for the capital inflows, which immigrants are responsible for, these are the remittances, which usually cause such problems in an economy, if not properly managed. However, Bourdet and Falck [6] performed multivariate Engle and Granger co-integration tests suggest that the impact of remittances on domestic Savings and investment will enhance capital accumulation. This increases the Production of both tradable and non-tradable goods, in the long run. Factor accumulation by remittances will affect the relative non-tradable to tradable prices. Amuedo-dorantes and Pozo find the Dutch Disease symptom that remittances appreciate the actual exchange rate in 13 Latin American and Caribbean countries [7]. Bourdet and Falck in a study of the linkage between remittances and RER understanding in Cape Verde at the mixture level instead of the micro level also identified the existence of the Dutch disease [6]. Chowdhury and rabbi used the Co-integration and Error Correction mannequin to show that the inflow of worker's remittances extensively appreciates the real change charge by way of decreasing the relative expenditures of tradable to untradeable items from the United States compared with its predominant buying and selling partners [8]. Hassan and Holmesused a panel co-integration approach to affirm the existence of Dutch ailment in chosen excessive remittance receiving economies through the substantial long-run relationship between remittances and the real high-quality alternate rate [9]. Blouchoutzi and Nikas concluded different results in the case of Albania and Moldova via making use of the OLS constant effect. The effects showed remittances of Dutch ailment impact in Albania however the absence of this impact in Moldova [10]. Furthermore, Roy and Dixon examined the Dutch ailment argument by employing constant results panel statistics mannequin for the four nations (Bangladesh, India, Pakistan, and Sri Lanka) that obtained the largest element of remittances from 2012, again confirming the existence of the Dutch sickness phenomenon in these At the same time, they argued that while changing openness leads to a depreciation in the RER, the REER grasp due to the large flows of remittances can also be weakened by alternate liberalization [11]. Osigwe and Obi used the Error Correction Model and data masking the 1980–2012 period to show that acquired remittances impacted

positively on the exchange charge in the long Unlike the above research confirming that massive remittances influx causes Dutch diseases in the recipient countries, some research had mixed consequences whilst others had fully opposite results. Using the panel co-integration technique [12]. Current work is carried out using the [13] studied the relationship between remittances and the RER in Fiji by using the Vector Error Correction Model (VECM) technique. They failed to locate any effect of remittances on the RER in the lengthy run and accordingly rejected the 'Dutch disease' effect of remittances. Nevertheless, they established local forex understanding due to giant flows of remittances in the quick run. At the stop of the study, they concluded that massive flows of remittances have been directed to funding to raise home capacity, inserting little or no stress on the home trade fee in the long run. Faheem et al., the study employs the Autoregressive Distributed Lag Model (ARDL) to observe the impact of migrant remittances on the actual positive alternate fee spanning the duration of 1975 to 2018. In the long run, the study finds a tremendous relationship between migrants' remittances and the real positive alternate rate, which means that proof of Dutch Disease danger in They find out about additional assessments of the moderating effect of inflation on remittances and actual positive change charge relationship and discover a poor effect [14]. López-Marmolejo and Ventosa-Santaulària evaluate the existence of Dutch disease in that vicinity on a country-by-country basis. To do so, we rent heterogeneous panel information models with cross-sectional dependence to estimate the determinants of the real alternate price and calculate the impact of net remittance flows in the location with the aid of the country [15]. In this context, several countries' future monetary development has to address this manageable loss of competitiveness.

3. Methodology

This article aims to test the Remittances-Dutch disease effect in Indonesia. The fundamental notion of the Dutch disease theory is that large inflows of foreign money from the boom in a specific zone lead to immoderate demand for the domestic exchange rate in the overseas alternate market, thereby appreciating the nearby exchange rate relative to the currencies of other nations. Testing if the found large influx of remittances into USA causes Dutch disease, therefore, entails ascertaining if there is a big extent in the real value of area relative to different currencies due to the massive influx of foreign currencies to the country. Quantitatively, this includes going for walks a regression with the exchange rate as the dependent variable and remittances as one of the explanatory variables and ascertaining the signal and magnitude of the coefficient. To capture the real impact of the financial drift and be capable to link it to export competitiveness, they learn about using the real high-quality trade price (REER). Unlike the nominal or actual exchange rate that relates the fee of the country's foreign money to that of every other single country, the REER is calculated as the geometric weighted average of bilateral nominal trade rates, which are deflated using relative fee or fee measures. In other words, the actual positive trade price is the weighted average value of a country's forex relative to an index or basket of other essential currencies, adjusted for the outcomes of inflation. It, therefore, serves as an indicator of international price and price competitiveness. This study used records on the real positive alternate charge from the World Banks' World Development Indicators (WDI). Given the computation method, an extension in the REER index ability appreciation of the domestic currency relative to that of the competing partners can translate to a worsening change balance. This takes place because the consumption of its exports will be discouraged as they grow to be greater steeply-priced relative to the exports of the competing countries. Furthermore, it will additionally make bigger the country's imports, as these will be tremendously cheaper. A mixture of these effects, therefore, a capability that an increase

in the REER shows a loss in change competitiveness. The fundamental goal of the learned is to capture the usage of the model of Equation (1) below.

The following Equation (1) suggests the econometric model. $LREER_t = \alpha_0 + \alpha_1 LREMIT_t + \alpha_2 X_t + \mu_i$

Where,

LREER = Log of real effective exchange rate

LREMIT = Log of migrant remittances

x_i = Control variables like (GDP per capita, ODA and inflation and (LREMIT*LINFL) in case of interaction model to check the moderating effect of inflation in relation of remittances and real effective exchange rate).

μ_t = Error Term $t = 1,2 \ldots 44$

The ARDL bounds approach specification adopted by using the following specified models (without interaction and with interaction term):

$$\Delta \text{ LREER }_t = \alpha_+ + \sum_{i=1}^{n-1} a_{ti}\Delta\text{LREER}_{t-1} + \sum_{i=1}^{n-1} \alpha_{ri}\Delta\text{LREMIT}_{t-1} + \sum_{i=1}^{n-1} \alpha_{ri}\Delta\text{LGDPPC}_{t-1} + \sum_{i=1}^{n-1} \alpha_{ri}\Delta\text{LODA}_{i-1} + \sum_{i=1}^{n-1} \alpha_{\Delta i}\Delta\text{LINFL}_{t-1} + \beta_1\text{LREER}_{t-1} + \beta_r\text{LREMIT}_{t-1} + \beta_r\text{LGDPPC}_{t-1} + \beta_r\text{LODA}_{t-1} + \beta_\Delta\text{LINFL}_{t-1} + \mu_t$$

The presence of the lagged values of the based variable, as nicely as that of the regressions in the model, made it an Autoregressive mannequin and limits the applicability of OLS in its estimation, as such a result will be biased and inconsistent. To identify the right autoregressive estimation procedure, knowledge of the stationary or otherwise of the variables is required to keep away from spurious regression. Given this background information, the only estimation manner to generate non-spurious effects is the Autoregressive Distributed Lag (ARDL) Bound Test methodology. According to Pesaran, the ARDL co-integration technique (Bound Test), in contrast to other multivariate co-integration methods, enables the co-integration relationship to be estimated via the OLS after deciding the lag order of the model [16]. The model can accommodate a mixture of variables that are stationary at degree and first difference. Moreover, the long-run and short-run parameters of the model can be simultaneously estimated. The ARDL illustration of the relationship between the actual positive change charge and remittance inflows is targeted in a compact form as follows:

$$\Delta \text{ LREER }_t = \alpha \cdot + \sum_{i=1}^{n-1} a_1\Delta\text{LREMIT}_{t-1} + \sum_{i=1}^{n-1} \alpha_r\Delta \text{ GDPPC }_{t-1} + \sum_{i=1}^{n-1} \alpha_r\Delta \text{ LODA }_{t-1} + \sum_{i=1}^{n-1} \Delta \text{ LINFL } + \lambda ECT - 1 + v_t$$

Similarly, the specification for with interaction model interaction term of remittances and inflation (LREMIT*LINFL) included in the above specification in the long run and short run.

The ARDL model has been utilized underneath some key assumptions that are; there is no serial correlation which means error term ought to be free from serially impartial [16]. To take a look at the serial correlation Breusch-Godfrey Serial Correlation (LM) take a look at is used in this study. Other

checks additionally include residual diagnostic tests related to normality, heteroscedasticity, and the Ramsey reset test. As the mannequin is the autoregressive structure, the CUSUM test is used for the dynamic steadiness of the model.

4. Results and Discussions of Findings

The study employed unit root exams such as Augmented [17, 18]. Table (1) offers the results of unit root checks that all variables are nonstationary at the level and become stationary.

- ***Results of Unit Root Tests***

Table 1. Results of Unit Root Tests

Level				First Difference
Variable	ADF	PP	ADF	PP
Migrant Remittances	-1.9753	-1.9253	-7.4571***	-7.3986****
GDP per Capita	-2.9853	-5.4762	-4.9254***	-4.8253***
Inflation	-3.8653	-4.1835	-7.4825***	-7.3194***

Note: ***, * denotes significance level at 1% and 5% respectively.

The computed fee of F-statistic indicates the confirmation of the association between real superb alternate charge and the rest of the independent variables like migrant remittances, inflation, and GDP per capita exists in the lengthy run because the computed cost is higher than the upper certain values in each model with and barring the interaction term. The resolution of this mannequin proves the Dutch Disease hypothesis.

Table 2. ARDL Bound Testing Co-Integration Analysis

Model	F-Statistics		Results
Migrant Remittances	5.01		Co-integration
GDP Per Capita	3.65		Co-integration
Inflation	1.03		Co-integration
	1%	5%	10%
Lowe bound 1(0)	3.02	2.47	2.14
Upper bound 1(1)	4.73	4.14	3.24
(Migrant Remittances *Inflation)	3.18	3.04	2.47

Further, for the estimation of the short-run and long-run parameters, the ARDL estimation technique after the confirmation of co-integration must be used. For the optimal lag selection, the AaIC criterion is used. To learn about retains the following ultimate lag orders ARDL (1,1,1,1,0) that are based totally on the above criteria.

- ***ARDL Estimation and Diagnostic Checks***

Tables (3) and (4) exhibit the long-run and short-run dynamics. The diagnostic residual assessments end result exhibit that there is no evidence of serial correlation, heteroscedasticity, specification, and normality issues in our model. The ARDL mannequin (without interplay term) result expresses the effective hyperlink between migrant remittance and real positive exchange. The remittances coefficient values are 0.81 which is widespread at a 5 percent level in the long run whilst insignificant in the brief run. This result confirms the existence of Dutch disorder in India in the long run. The other variables like L (GDP Per Capita), and L (Inflation) are massive in the quick and long run.

Table 3. Long-run Coefficients and Diagnostic Checks

Regressions	Coefficients (With Interaction Term)	Coefficients (With Interaction Term)
D(GDP Per Capita)	0.69**[0.26]	0.38***[0.11]
D(Inflation)	-0.19***[0.06]	-0.23***[0.06]
(Migrant Remittances *Inflation)	-0.0T**[0.02]	
Intercept	-8.28***[2.64]	-12.63***[4.72]
R-squared	0.93	
F-statistic	207.745(0.00)	
J.B Test	2.14 (0.58)	1.87 (0.65)
Serial Correlation	2.06 (0.46)	1.41 (0.35)
Functional Form	0.02 (0.65)	0.20(0.34)
Heteroscedasticity	1.43(0.32)	1.81(0.21)
CUSUM	Stable	Stable
CUSUMSQ	Stable	Stable

Note: Shows 10%, 5% and 1% significance level.

The ARDL model (with interaction term) result provides the fantastic affiliation between migrant remittance and real advantageous exchange. The remittances coefficient values are 2.36 and 0.28 which is big in LR and SR. This result confirms the existence of Dutch disease in India in LR. The other variables like L (GDP Per Capita) and L (Inflation) are significant. The interplay period is significant, with a negative signal that indicates the negative effect on the actual positive trade rate. The coefficients -0.19 and -0.18 of the error correction period (ECT) are bad and giant defined the surety of adjustment of variables closer to long-run dynamics. The findings are akin to the learning of Urama et al., [1] that conclude migrant remittances lead to Dutch disease.

Table 4. Short-run Coefficients

Regressions	Coefficients (With Interaction Term)	Coefficients (With Interaction Term)
D(GDP Per Capita)	0.67**[0.28]	0.36***[0.11]
D(Inflation)	-0.18***[0.02]	-0.21***[0.04]
(Migrant Remittances *Inflation)	-0.0T**[0.01]	
ECT(-1)	-0.17***[0.04]	-0.15***[0.03]

Note: *,**,*** shows 10%, 5% and 1% significance level; the values in [], () are std error and p-values.

Table 5. Marginal Effect

Indonesia	Minimum	Average	Maximum
	Inflation Rate	1.98	2.98
Marginal Effect	2.1	2.02	1.54

Table 6. Results of the Diagnostic Test

Indonesia	Diagnostic Tests		
	Obs* R-squared	Prob Value	Conclusion
Jarqyue-Bera Normality Test	0.5824	0.6298	Normally Distributed
Breusch-Godfrey Serial Correlation	6.2874	0.04924	No Serial Correlation
R-squared – 0.9734	Adjusted R-Squared – 0.9762		

4. Conclusion

The Indonesian economic system was famous for signs of the Dutch disease as an end result of the remittances inflows. Their effect on the country's export sector seems to be detrimental, even though many households benefit at once from them. Remittances have in general been directed towards family consumption, and the section of this amplification that has gone to the non-tradable offerings has pushed up the expenses of these services with recognition of the tradable merchandise and services. The effects affirm that the huge influx of migrant remittances responds to Indonesia's financial system towards the Dutch Disease threat in terms of understanding of the actual effective alternate rate. To that extent, the competitiveness of the tradeable sector has suffered due to a proportional upward spike in the real trade rate. This fall in competitively can be mitigated to a certain extent through economic measures. However, more attention is required towards channeling the remittances inflows in extra productive directions. In the absence of sufficient investment opportunities, much of the remittances are spent on conspicuous consumption. By offering investment schemes for remote places Indonesians, and advertising small-scale enterprises, these remittances can be harnessed in a way that improves the country’s productivity. Development of the economic zone can also play a useful role in this regard.

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