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| Postgraduate programme | PhD Candidate in Economics at the University of Waikato |
| Title of research | The impact of remittances on monetary transmission mechanisms in remittance-recipient countries: with focus on credit and exchange rate channels |
| Location of research | A panel study of 51 countries |

**Abstract**

Several small economies in the Asia Pacific region experience an increasing inflow of remittances in recent years, therefore, it is necessary to evaluate all possible impacts of remittances to formulate appropriate policies to achieve stable and sustainable economic growth. This study finds that remittances may cause obstacles in achieving monetary policy targets which are necessary for stable economic growth. The findings of this study have broad policy implications revealing that policymakers in the small economies in the Asia Pacific region, which record increasing inflows of remittances, have to pay attention to the possible effects of remittances on intermediate monetary transmission channels in achieving the monetary policy targets to ensure stable economic growth. The findings of this study also provide guidance to the policymakers, especially, in small economies in the Asia Pacific region to formulate effective policy measures to achieve stable and sustainable economic growth.

**Research context**

Remittances help poverty reduction and economic growth objectives in many remittance-recipient economies. They form a major part of the balance of payment (BOP) among many developing economies, thus helping these countries relax their BOP constraints. Every day, thousands of migrant workers living in different parts of the world send a small amount of money home, primarily for altruistic reasons. However, the accumulated amount of remittances the migrant workers send home has become a very significant amount which surpassed the official development assistance (ODA) and Foreign Direct Investment (FDI) in Low and Middle-Income countries (LMICs) in recent years. According to World Bank (2019), the inflow of remittances into LMICs reached US$ 529 billion in 2018 with an increase of 9.6 per cent compared to the previous year, and it reached nearly US$ 554 billion in 2019 (World Bank, 2020). However, the value of remittance inflows into remittance-recipient countries is expected to be more than the reported figures (Barajas et al., 2008; Ratha, 2005).

Remittances lead to macroeconomic challenges (Jansen et al., 2012) despite their benefits in reducing poverty levels and improvement in economic and social welfare (Acosta et al., 2008; Olowa et al., 2011); therefore, remittance-recipient countries have to be cautious about the remittance-driven challenges, especially, real exchange rate appreciation (Hassan & Holmes, 2013), inflation, deteriorating terms of trade (Amuedo-Dorantes & Pozo, 2004), income inequality (Howell, 2017) and disturbance to monetary transmission mechanism

(Barajas et al., 2018). Although most of these macroeconomic impacts of remittances are widely researched, the impact of remittances on individual monetary policy transmission channels is not given sufficient focus. Very few studies have been undertaken to analyse the effects of remittances on monetary transmission mechanisms leaving room for further investigation into the implication of remittances on individual transmission channels. Vacaflores (2012) uses a limited participation model to examine the relationship between the share of remittances and monetary policy in a small open economy model. Ruiz and Vargas-Silva (2010) analyse the effect of remittance on Mexico's monetary policy variables. And Barajas et al. (2018) examine the relationship between the remittances and pass-through of the policy rate into the bank lending rate in a panel study. However, the question of the effect of remittances on other transmission channels in the remittance-recipient wider cluster of economies still needs answers.

Bank credit and exchange rate channels are operative monetary transmission channels in most developing countries, where remittances play a significant role in the economy. These countries are heavily dependent on remittance inflows. The inflow of remittances may significantly alter the functioning of these intermediate monetary transmission channels; therefore, policymakers have to consider the effect of remittances on these channels in remittance-recipient countries. The credit market is important for credit growth and consequent production and consumption during the expansionary monetary policy. Likewise, policymakers expect a decline in credit through contractionary monetary policy measures to achieve the inflation target. The influence of remittances may alter the expected policy outcome when remittances delink the banks and interbank credit market by accumulating loanable funds available with banks. Likewise, the inflow of remittances directly contributes to monetary aggregates and consequent inflationary pressure in the economy. This may trigger the alarm to introduce contractionary monetary policy measures to control inflation in the economy; therefore, remittance-driven monetary aggregates may result in the appreciation of the domestic currency. The policymakers in remittance-recipient economies will have to assess their inflation-targeting monetary policy decisions considering the fluctuations in remittance inflows in their economies.

This study examines the implications of remittances investigating

1. Whether remittances affect credit and exchange rate channels in remittance-recipient economies.
2. How does the effect of remittances on credit and exchange rate channels vary across the remittance-recipient economies?
3. What factors contribute to the varying effect of remittances on these transmission channels?

To answer these questions, a two-stage approach is used in this study. In the first stage, the impulse responses (IRs) of bank credit and exchange rate to a shock in remittances are estimated using the methodology introduced by Pedroni (2013). In the second stage, the IRs are regressed

on a set of other variables, explained in the previous empirical literature, to describe how remittances affect these monetary transmission channels.

**Findings of the study**

The initial empirical evidence shows that both the responses of bank credit and nominal exchange rates to a shock in remittances are heterogeneous among remittance-recipient economies. The empirical results, in particular, reveal that the remittances to GDP ratio has a significant effect on nominal exchange rates. The previous empirical findings show that the impact of remittances in an economy varies based on the exchange rate regimes and other macroeconomic conditions in remittance-receiving economies. Ball et al. (2013) find that the impact of remittances on money supply and inflation varies depending on the exchange rate regimes whereas Narayan et al. (2011) conclude that remittances have a pronounced effect on inflation in remittance-receiving economies. At the same time, Lartey et al. (2012) in their study on developing and transition economies find that an exogenous shock in remittances results in the appreciation of the nominal exchange rate in the flexible exchange rate regimes. However, this study finds that remittances lead to the appreciation of the nominal exchange rate in remittance-receiving economies thus affecting the smooth functioning of the monetary transmission mechanism. In addition, the empirical findings also reveal that the effect of remittances on the exchange rate channel is dependent on the magnitude of remittance inflows in an economy. The plausible reason behind this is that the increasing remittance inflows lead to inflationary pressure (Narayan et al., 2011); therefore, monetary authorities increase the interest rates to contain inflation. This contractionary monetary policy measure results in exchange rate appreciation in the remittance-recipient economies.

The empirical results also indicate that the effect of remittances on the credit channel is dependent on the savings to GDP and remittances to GDP ratios. The bank credit in countries with higher levels of savings to GDP responds stronger than those countries with low savings to GDP ratio on average to the same remittances shock. This result is in line with the empirical literature, which emphasises that remittance-driven fund flow into commercial banks would influence the commercial banks' lending capacity (Aggarwal et al., 2011; Barajas et al., 2018). This finding reiterates that when migrants' remittances contribute to savings in their home countries, the banking sector will increase its capacity to provide more credit facilities to their borrowers. At the same time, the fluctuation in the inflow of remittances would significantly affect the lending capacity of the banks as long as remittances dominate the composition of their lending capital. The bank credit in countries with higher remittances to GDP ratio responds stronger to remittances shock than the countries with low remittances to GDP ratio on average. This finding is also in line with the previous empirical work. Brown and Carmignani (2015) provide evidence that at the higher level of remittances, the effect on bank credit becomes positive than at the low level. This reveals that migrants' remittances initially flow into their home countries for altruistic purposes, and then migrants transfer more remittances for savings and investment purposes. At the higher level of remittance inflows, a part of remittances is

deposited at banks; therefore, they become one of the lending sources of banks. This ultimately influences the banks' lending capacity thus the functioning of the bank credit channel.

## Conclusion and policy recommendations

Existing literature reveals that the underdeveloped financial market and poor institutional qualities that prevail in many developing countries affect the monetary transmission mechanism. In this literature, a vast majority of these countries are identified as remittance-recipient economies, and remittances occupy a significant proportion of their balance of payments. In particular, remittances exceed capital flows and export revenues in many of these economies. This study finds remittances as a significant contributing factor affecting the monetary transmission mechanism in these remittance-recipient economies. The initial empirical evidence of this study suggests that the responses of bank credit and nominal exchange rates to a shock in remittances are heterogeneous among remittance-recipient economies. The empirical results, in particular, reveal that the remittances to GDP ratio has a significant effect on nominal exchange rates.

The empirical findings also indicate that the savings to GDP ratio and the higher level of remittance inflows, on average above five per cent of GDP, have significant explanatory power on the response of bank credit to a shock in remittance inflows. This result may be interpreted as in countries where savings to GDP ratio and remittance inflows are high; remittances may significantly affect the bank credit channel. Increasing remittance inflows through banks would expand the lending capacity of banks; therefore, the banks in countries receiving higher levels of remittances are likely to lend more even under tightening monetary policy measures. In particular, when remittances contribute to savings at banks, the banks may not be dependent on the interbank market; therefore, the linkage between the policy rate and bank lending may deteriorate. This has implications for the operation of the credit channel by decreasing the dependency of banks on the interbank market.

Remittance inflows in the small economies in the Asia Pacific region have been growing over the last two decades with significant fluctuations. According to World Bank (2022), remittance inflows have significantly increased in Fiji, Samoa, Tonga, and Vanuatu in the Asia Pacific region. The inflow of remittances in Fiji, Samoa, Tonga, and Vanuatu were 4.7%, 16.9%, 29.2%, and 7.1% of their GDPs, respectively, in the year 2001 and these countries recorded 7.8%, 25.3%, 39% and 10.9% of remittances to their GDPs, respectively, in 2020 (World Bank, 2022). The growth and fluctuations in remittance inflows, especially, in the small economies in the Asia Pacific region may have a significant impact on their monetary policy targets. These economies have to consider mitigating the impact of remittance inflows on the intended price stability and employment growth policy targets.

The remittance-recipient small economies in the Asia Pacific region may not be able to pursue independent monetary policy as remittances may weaken the monetary transmission

channels. In particular, central banks in small island countries in the Asia Pacific region may find it difficult to achieve their credible target to control inflation through their changes in the policy rate to the real economy; therefore, these small economies may fail to implement their policy framework. such as inflation targeting. At the same time, the countries with an increasing amount of remittances would possibly opt for a fixed exchange rates regime (Singer, 2010) rather than flexible exchange rates. The measures to follow a fixed exchange rate regime would restrict the pass-through of interest rate shock to exchange rates, thereby affecting the functioning of the exchange rate channel, especially, in the small island economies in the Asia Pacific region.

The empirical findings suggest that the small economies in the Asia Pacific region need to effectively implement policies to handle the excess funds built by remittances to allow central banks to achieve their targets through monetary policy measures. **Firstly, it is proposed to insulate the monetary base by providing government bonds with a premium for remittance-based deposits. Issuing bonds for remittance-based deposits would help maintain the inflow of remittances and shield the monetary base against remittances.** This measure would prevent immediate inflationary pressure on the economies, thereby minimizing the necessity for contractionary monetary policy measures. This may also reduce the excess stress on nominal exchange rates. **Secondly, it is recommended to increase the reserve requirement of banks; therefore, excess reserve funds built by remittances can be eliminated from the banking system.** This would make banks in small island economies in the Asia Pacific region more reliant on borrowings from the interbank market; therefore, the changes in policy rates would effectively change bank landings and borrowing patterns. However, it is necessary to assess the effect of the initial credit crunch due to the decline in bank lending because of this policy measure.

There is a necessity to have a balanced policy approach in mitigating the impact of remittances in dealing with the macroeconomic challenges as remittances play a crucial role in welfare enhancement and poverty elevation in small economies in the Asia Pacific region. The policies purely targeting the mitigation of macroeconomic challenges caused by remittances may undermine the beneficial effects of remittances particularly, in remittance-recipient small islands in the Asia Pacific region. Moreover, sustainable economic development requires appropriate policies and strategies to achieve price stability and employment growth. Failure to formulate suitable policies may lead to prolonged macroeconomic challenges and undermine sustainable growth targets. The findings of this study provide guidance to policymakers, especially, in the small economies experiencing an increasing inflow of remittances in the Asia Pacific region to assess all possible impacts of remittances on various economic variables including monetary policy targets. The assessment of all possible consequences of remittance inflows would assist policymakers in strengthening their economic governance by formulating effective policies by weighing up the pros and cons of remittance inflows in small Asia Pacific economies.

**Limitations and considerations for future research**

The initial focus of this research was intended to cover 120 countries however the availability of data limits the scope of this research covering 51 countries. In addition, the availability of data limits this study with quarterly data from 2000 to 2019. Increasing the number of countries with monthly data may present the opportunity to perform better statistical analysis. This opens avenues for further research in the future.

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