# Abstract

In recent years monetary transfers in the form of foreign direct investments, private portfolio investments, foreign aid and workers' remittances, from developed nations to less developed countries have increased manifold. The macroeconomic effects of these flows have been a subject of much discussion. While, on one hand, these flows act as engines of growth for the less developed economies, on the other hand, they impart volatility in the economy, making the economies vulnerable to external shocks and crises. They also create a sense of dependency in the receiving countries. Among all these flows, International Workers' Remittances emerge as the most interesting and least studied flow. Apart from being the second largest monetary transfers in the developing countries, there are certain unique characteristics that differentiate remittances from the rest of the BOP flows. Firstly, all the other flows, except remittances, are received at a macro level and hence their macroeconomic implications are justified. Remittances, on the other hand, are received at a household level, and yet can have huge macroeconomic implications. Secondly, all other flows respond to business cycle fluctuations in a positive way as they are primarily governed by profit incentives. Remittances, however, are counter-cyclical as they are mostly altruistically motivated. And finally, unlike other flows, remittances are unrequited financial flows and have no repayment ties attached to them.

The magnitude of workers' remittances has increased by more than 300% in the past 10 years, from 71 Billion USD in 1997 to 251 Billion USD in 2007. This surge of remittances in the less developed countries in recent times has stirred a debate of whether remittance inflows, like other resource booms, can lead to Dutch Disease type of effects, i.e. whether they can lead to real exchange rate appreciation causing the tradable sector of the economy to collapse and a country to lose its external competitiveness.

Our literature survey reveals that though there are studies on the Dutch Disease effect of remittances, they are often too simplistic. One of the prominent summary indicators used for the measuring the Dutch Disease effect of remittances, is the real exchange rate. A high correlation between an increase in remittances and real exchange rate appreciation is often taken as an indicator of Dutch disease effect. In a macroeconomic context, where there exists inter-linkages and causality between various macroeconomic parameters, such direct relationships might be inadequate. To have a better understanding of the macroeconomic implications of remittances it is important to understand their transmission mechanism in the economy, which is captured by a general equilibrium framework. A general equilibrium framework captures the response of a macroeconomic parameter to an increase in remittances, in the presence of other macroeconomic parameters which might have a causal relationship with the former. Though

there are studies on the general equilibrium analysis of the effects of remittances, not many focus on the Dutch Disease effect of remittances. The existing literature primarily lacks in two aspects: (1) Describing a transmission process of the macroeconomic effects of remittances through the economy, and (2) Incorporating the micro-foundations of remittances in the general equilibrium framework i.e. the household demand and labour decisions, which influence the macro level adjustments in the aggregate price level, consumption and the labour market. This study fills this gap in the existing literature and provides a different approach for examining the Dutch Disease phenomenon due to remittances, by looking at the sectoral adjustments in the economy, i.e., adjustments in sectoral consumption, relative prices of sectors, and sectoral labour allocation. The study has three broad objectives:

- To examine the relationship between remittances and macroeconomic parameters in the context of small open developing economies.
- To identify the underlying macroeconomic channels which transmits the effects of remittances through the economy.
- Develop a general equilibrium model to explain this transmission channel and analytically explain the mechanism through which remittances can give rise to Dutch Disease type of effect.

Empirically we test the interdependencies between various macroeconomic variables and remittances through a causality analysis and the impulse response functions of each of the macroeconomic parameters to a shock in remittances using VAR analysis. Analytically we develop a general equilibrium model that captures the transmission mechanism of the effects of remittances and takes a sectoral approach to examine the effects of remittances on sectoral labour reallocation, output, consumption and the price level.

The results from the empirical model suggest that the effect of remittances on the real exchange rate and economic growth is not as direct as is discussed in the literature. The transmission of these effects are facilitated by various macroeconomic factors and different sectors of the economy. It is observed that remittances received at a household level have a positive impact on the per capita consumption expenditure and a negative impact on the labour supply. High consumption demand coupled with lower labour supply lead to an increase in the domestic price level. But the prices in the tradable sector remain fixed since they are determined at the world market level. This leads to an appreciation of the real exchange rate. This causes the tradable sector output to fall. In the developing economies the tradable sector is often the traditional sector of the economy. The country loses its competitive advantage in its traditional sector hence leading to a fall in its export competitiveness in the world market

The general equilibrium model examined the sectoral adjustments in consumption, price level and labour. We simulated the model for the case of Bangladesh. The results indicate that an increase in remittances increases the consumption in both the sectors, increases the relative price of the traded to non-traded good and reduces the aggregate supply of labour in the economy. At a sectoral level, remittances cause a decline in the traded sector labour while the non-traded sector labour increases. The results also reveal that this fall in the traded sector labour can be

attributed to two factors: first, a fall in the total labour supply and second, labour moving out of the traded sector to the non-traded sector. This fall in the traded sector labour leads to a decline in the traded sector output, while the non-traded output increases.

Though this model is examined for Bangladesh, it holds for most of the small open developing economies, with labour intensive production process, where remittances form a significant proportion of GDP. This study, thus, deviates from the usual exchange rate indicator of Dutch disease effect and looks at the sectoral adjustments in labour and its effect on the sectoral output.

The results of the empirical and analytical model highlight the fact that remittances, if not managed well, would give rise to Dutch Disease type of effect. Until late the policy implications for remittances have been towards increasing the flow, but very less have been done to manage them. To mitigate the negative effects of remittances the focus should be on effective management and absorption of these flows, providing incentives to make sure that these household flows are not only used for consumption, but a part of it is also channeled into productive investments in the country.