

Remittances and Growth in Small States of Oceania

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Abstract

This study examines the effect of remittances on economic growth of small states in the Oceania region. Countries in Oceania region have received remittances for several years and the level of remittances has increased over the last ten years. A model following the general aggregate production function framework incorporating data for the period 1985–2006 for six Oceania countries: Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu, is used to determine the effects of remittances on growth. The empirical findings reveal positive but statistically insignificant coefficient of remittances. The empirical findings also confirm that exports and government spending have significant positive effect on growth while inflation has a significant regressive effect on growth.

Keywords: Remittances, Growth, Small States

JEL Classification Codes: F32, F43, O16

1. Introduction

The small island states of Oceania region have received remittances for several years largely originating from high-income countries: Australia, New Zealand, United States of America, United Kingdom, Canada, France and Japan. The countries in Oceania are some of the most remittance-dependent among the small island developing states. The growing trends in migration from Oceania to neighboring high-income countries, Australia and New Zealand, has contributed towards increasing levels of remittances to Oceania. In general, remittances can have direct positive effects in the origin countries domestic economic activity, for example through an increase in domestic financial resources required for investment and consumption, among others. In the small states of Oceania, remittances are one aspect of the inflow of foreign funds, amongst other forms, for example, foreign aid and foreign direct investment and has become an important aspect of foreign exchange earnings. Remittances in the small states of Oceania region have largely provided family support (food, education and medical expenses) as well as asset accumulation and investment. While several countries in Oceania experienced an increase in remittances received in recent times, the global economic crisis is likely to constrain remittance inflows as a result of deterioration in economic conditions in most of the source countries. However, in light of continuing permanent and long-term migration as well as opening up of labor markets for unskilled workers by Australia and New Zealand, the countries of Oceania are likely to receive remittances for many years to come. Given the rising importance of remittances to the small states of Oceania, this paper examines the effects of remittances on their economic growth. A model incorporating panel data for the period 1985–2006 for six countries: Fiji, Papua New Guinea, Samoa,

Solomon Islands, Tonga and Vanuatu is used to determine the effects of remittances on growth. The next section outlines the analytical model. Section three presents the findings. A conclusion follows.

2. The Model

Remittances can influence economic growth in two main ways. First, financial capital that is transferred to home country can contribute to domestic private investment required for economic development. Second, the growth effect can be looked at from the monetary side. The theoretical argument is that remittance increases the supply of money and an expanded supply of money in circulation increases the availability of loanable funds, which lowers the interest rates. If the transfers are deposited in the destination country currency accounts, the banking system is likely to experience an increase in liquidity and domestic credit will probably expand. This can aid economic growth as more liquidity in the banking sector encourages borrowing, which then gets invested.

Keynes (1929) and Ohlin (1929) were first to initiate the discussion on remittances, then known as the *transfer problem* of the receiving economies. Over time, the discussion on remittances have expanded and focused on its microeconomic related aspects (for example, Knowles and Anker, 1981 and Lucas and Stark, 1985); macroeconomic aspects (for example, Lipton, 1980; Elbadawi and Rocha, 1992; Alleyne, Kirton, McLeod and Figueroa, 2008; and Balderas and Nath, 2008); financial market aspects (Calero, Bedi and Sparrow, 2009; Gupta, Patillo and Wagh, 2009); and social and family welfare aspects (for example, Glytsos, 1993; Adams, 1993; Liu and Reilly, 2004; Adams Jr and Page, 2009).

The analysis of the effects of remittances on growth in Oceania is based on a theoretical framework that follows a general aggregate production function framework. Specifically this theoretical framework is based on the conventional neo-classical one-sector aggregate production function in which remittances constitutes an input. Equation (1) presents this general specification.

$$Y_t = f(L_t, K_t, R_t, X_t, G_t, P_t) \quad (1)$$

where Y is the real aggregate output; L is the labour force; K is the capital stock; R is the level of remittances; X is the level of exports; G is government expenditure; and P is prices. The subscript t denotes the time period. By taking the total differential of equation (1), the partial derivative form of Y can be expressed in equation (2).

$$dY_t = Y_{tL}dL_t + Y_{tK}dK_t + Y_{tR}dR_t + Y_{tX}dX_t + Y_{tG}dG_t + Y_{tP}dP_t \quad (2)$$

where Y_i is the partial derivative of Y with respect to the i th functional argument as expressed above. Dividing equation (2) by Y and appropriately rearranging the expression, gives the following growth equation.

$$\dot{Y}_t = \tau_L \dot{L}_t + \tau_K \dot{K}_t + \tau_R \dot{R}_t + \tau_X \dot{X}_t + \tau_G \dot{G}_t + \tau_P \dot{P}_t \quad (3)$$

where a dot on top of the variable signifies that the variable is now in a growth rate form and τ_L , τ_K , τ_R , τ_X , τ_G , and τ_P are the elasticity's of output with respect to labour, capital, remittances, exports, government expenditures and prices respectively. For a number countries in Oceania region, K (the rate of growth of capital) is not available and hence it is replaced by $\Delta K/Y$ which is the share of real gross investment in real gross domestic product or the investment-income ratio. The inclusion of the investment-income ratio term allows equation (3) to be re-written as follows:

$$\dot{Y}_t = \tau_L \dot{L}_t + \frac{\partial Y}{\partial K} \frac{K}{Y} \frac{dK}{K} + \tau_R \dot{R}_t + \tau_X \dot{X}_t + \tau_G \dot{G}_t + \tau_P \dot{P}_t \quad (4)$$

Replacing dK by I in equation (4) gives equation (5) as follows.

$$\dot{Y}_t = \tau_L \dot{L}_t + \alpha \frac{I}{K} + \tau_R \dot{R}_t + \tau_X \dot{X}_t + \tau_G \dot{G}_t + \tau_P \dot{P}_t \quad (5)$$

In equation (5), α is the marginal product of capital. Including an intercept and an error term in equation (5) yields the empirical growth model, equation (6).

$$\dot{Y}_t = \zeta_0 + \zeta_1 \dot{L}_t + \zeta_2 \frac{I}{K} + \zeta_3 \dot{R}_t + \zeta_4 \dot{X}_t + \zeta_5 \dot{G}_t + \zeta_6 \dot{P}_t + \varepsilon_t \quad (6)$$

It is equation (6) that forms the basis for the estimates reported in Table 1.

In terms of variable measures, the rate of growth of \dot{Y} is measured by the average annual rate of growth of gross domestic product (GDP); I/Y is the average gross domestic investment as a percentage of GDP; \dot{L} is the average annual growth rate of the labour force; \dot{R} is the average annual rate of growth of remittances; \dot{X} is the average annual rate of growth of exports; \dot{G} is the average annual rate of the growth of government expenditures; and \dot{P} is the consumer price inflation. Data for the government expenditure variable is taken from *Key Indicators* (Asian Development Bank, various issues) while data for the remaining variables are taken from *World Development Indicators CD ROM 2008* (World Bank, 2008). The choice of the sample years and countries in Oceania was determined by the availability of data on variables in equation (6).

3. Findings

The estimation methodology here follows the pooled or combined time series and cross-sectional form using the annual data. In essence the model combines the assumptions about the cross-sectional observations with those made when dealing with time series data. This method subjects the entire data to two transformations: the first to eliminate the possible autoregression, and second, to eliminate heteroscedasticity. In this case it happens that if ε_{it} is a general error term with i indexing the countries of the sample and t the years, then the assumptions made about errors are that $E(\varepsilon_{it}^2) = \sigma_i^2$ (heteroscedasticity) and $\varepsilon_{it} = \rho_i \varepsilon_{i,t-1} + v_{it}$ (autoregression). In addition to these assumptions, the possibility of cross-sectional dependence is allowed by assuming that $E(\varepsilon_{it} \varepsilon_{jt}) = \sigma_{ij}$ (mutual correlation). Equation (6) is estimated in combined time series and cross-sectional form over the period 1985 to 2006 for the following six countries: Fiji, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. The results are reported in Table 1.

Table 1: Estimated coefficients of the effect of remittances on growth.

Variables	Estimated coefficients of pooled model with cross sectional independence	Estimated coefficients of pooled model with cross sectional dependence
Constant	1.985 (1.732)***	1.529 -0.848
\dot{L}	-0.651 (2.405)*	-0.525 (2.166)**
I/K	0.032 -0.319	0.106 -1.333
\dot{R}	0.001 -0.175	0.0006 -0.011
\dot{X}	0.020 (1.754)***	0.025 (2.362)**
\dot{G}	0.065 (2.780)*	0.072 (3.229)*
\dot{P}	-0.195 (2.849)*	-0.131 (2.026)**
N	110	110
Buse R ²	0.20	0.18

t- statistics are in parentheses.

*, **, and *** indicates significance at the 1, 5 and 10 percent levels respectively.

It can be seen from Table 1 that the fit of the model, as measured by the *Buse* R^2 is low but a low R^2 is common for models of this nature. Turning to the results, the regression coefficient of remittances has the expected positive sign. However, it is statistically insignificant. The statistically insignificant effect might be explained by the fact that the remittances received by the Oceania countries are largely used for consumption goods such as meeting family expenses (food, shelter, medical and education). It is to be noted that for workers and migrants who remit their earnings from abroad, several members of their immediate family remain unemployed and have weak income earning and generating capacities. Anecdotal evidence suggests that much of the remittances are used up by households in home country to meet family expenses. While remittances to Oceania have increased in the last decade, migrant remittances could be also used for investment back home. These investments are likely to be on small scale particularly in terms of establishing small businesses where the effect on growth is at this stage likely to be weak. However, the investment to growth transmission is a matter of future empirical investigation as the findings here reveal very weak effect of remittances on growth. The empirical findings here confirm that exports and government spending have significant positive effect on growth while inflation has a significant regressive effect on growth.

4. Conclusion

This paper has empirically examined the role of remittances in the economic growth of small states in Oceania for the period 1985-2006. A theoretical framework based on the conventional neo-classical one-sector aggregate production function is used where remittances constitutes as an input. The empirical findings indicate the remittances while having a positive effect on growth is found to be statistically insignificant. Exports and government spending are found to have a positive and significant effect on growth while inflation is found to have a significant regressive effect on growth. While the small states of Oceania continue to depend on remittances, recipient countries need to set appropriate financial and economic policies and develop structures that may allow remittances for productive investment that can translate into growth with larger magnitudes.

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