Ready (or not) to get engaged or get married? Co-movement towards a Monetary or Currency Union amongst Pacific Island Countries

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THE RESEARCH PROBLEM

In recent years, Pacific Island Countries (PICs) and development partners in the region have began developing new and consolidating past strategies aimed towards closer regional economic integration and growth in the region (Forum Economic Ministers Meeting, 2000; Asian Development Bank, 2005). Long run sluggish economic growth, unsustainable population growth, high levels of poverty, unemployment, poor governance, political instability (like the recent coup in Fiji and riots in Tonga), and the unforeseen externalities like devastating cyclones and climate change are major challenges confronting the Pacific like never before in her history. The trade agenda with Australia and New Zealand particularly the Pacific Islands Trade Agreement (PICTA) and Pacific Agreement on Closer Economic Relations (PACER) signed in 2002, and the Melanesian Spearhead Group (MSG) Preferential Trade Agreement of 1993 are promising initiatives aimed at bringing about increased trade and regional growth. Forum PICs have called for greater labour mobility within Australia and New Zealand as one way to curb growing youth unemployment in the Pacific. Recently, the new Australian Prime Minister reiterated that Australia will increase its development assistance to Papua New Guinea (PNG) and the Pacific in order to help PICs meet the United Nations Millennium Development Goals (Post Courier, 7 March 2008). Moreover, the Economic Partnership Agreement (EPA) with the European Union (EU) is becoming more complex as PICs negotiate fair trade with

the EU. With PNG and Fiji breaking ranks and signing the EPA and abandoning their other Pacific members, this has again brought disunity amongst the PICs (Island Business, 2007). With the Pacific Plan endorsed in 2005 to address a number of these challenges, a number of PICs see this as an ambitious undertaking.

2. OBJECTIVES AND SCOPE OF STUDY

This study attempts to contribute to the current efforts towards greater regional integration and rekindles the debate with respect to prospects for a Pacific Islands monetary or currency union. The general aim is to evaluate the potential for a Pacific Islands currency or monetary union. There are few studies undertaken particularly on economic integration and currency union (dollarizing) of the Pacific. Many of these studies lack rigorous application of modern econometric techniques. This study would reduce this gap and contribute new information in this area by employing econometric techniques like cointegration, decomposition of shocks (permanent and transitory), impulse response and variance decomposition analysis to examine linkages in co-movement (a key condition for monetary union) in key economic variables over time. Determining the forces underlying these movements and the arguments on possible policy dominance are critical for evaluating the state of readiness for a possible monetary or currency union. The specific objectives of this work are twofold: firstly, I assess the co-movement of macroeconomic variables and the readiness of Pacific Island Countries to form a currency or monetary union. This follows from similar studies (as outlined in section 4). Secondly, I examine business cycle common trends and transitory behaviour of the innovations by applying permanent and transitory decomposition methods (following Gonzalo and Ng's (2001) method). I also apply impulse response analysis to assess the magnitude and persistence of these shocks and to observe whether or not a country or groups of countries react similarly to certain types of shocks. These have

implications for the prospects of a monetary/currency union. This aspect of my analysis draws from work by Littau and Ludvigson (2004) on consumption and wealth but is applied instead to analysis of monetary or currency unions.

The countries to be covered in this research include PNG, Fiji, Solomon Islands, Vanuatu, Samoa and Tonga. From the 22 Pacific Island Countries and Territories (PICTs) all the four countries in Melanesia (PNG, Fiji, Solomon Islands and Vanuatu) and only two countries (Samoa and Tonga) in Polynesia are fully independent. These six countries have their own legal tender (and exchange rate system), their own central banks and determine their own monetary policies, unlike all the other PICTs that are still under colonial administration and/or are self governing under free association treaties. According to the IMF (2006), these six countries generally share many common economic and physical characteristics like smallness in terms of GDP and population, narrow productive sectors, limited export diversification, high trade penetration shares, vulnerability to terms of trade fluctuations, and frequent natural disasters. A number of these features are consistent with prescriptions for a possible common monetary or currency union.

3. GENERAL HYPOTHESIS

The general hypothesis is that Pacific Islands are not ready to form a currency or monetary union amongst themselves and/or with Australia and/or New Zealand. The specific hypotheses are: firstly, PICs show differences in the co-movement of major macroeconomic variables within Melanesia and Polynesia and also with Australia or New Zealand or both. My analysis will include unit root and cointegration tests. Secondly, PICs show differences in the permanent and transitory shocks amongst the

major macroeconomic variables within Melanesia and Polynesia, and also with Australia or New Zealand or both.

4. METHOD OF ANALYSIS AND DATA

Structural Vector Autoregressive (VAR) and Vector Error Correction (VECM) models will be mainly used in this study. This will include the application of cointegration analysis, involving decomposition of shocks (permanent and transitory) and impulse response and variance decompositions analysis (Gonzalo and Ng, 2001) to investigate the impact of macroeconomic shocks. Time series data will be used from 1980Q1 to 2006Q4. The main data source is the IMF's International Financial Statistics (IFS).

Whilst the traditional Optimal Currency Area (OCA) theory (Mundell, 1961) provided earlier arguments for currency or monetary union studies, it was limited. Other researchers argued in support for the degree of openness (McKinnon, 1963), product diversification (Kenen, 1969), political integration (Tower and Willett, 1970), and fiscal integration (Flemming, 1971). A cost and benefit approach was also considered in the literature (Ishiyama, 1975). The application of these theories would appear less relevant in my study due to the theoretical focus and limiation of detailed data required for some of these studies. Instead my work will follow the 1991 Maasstrict Criteria[1] which provided a framework for EU membership. These are

[1] The five Maastricht Treaty of 1991 preconditions are referred to as the convergence criteria (European Parliament, 2007). There are as follows: A country's budget deficit to GDP ratio should not exceed 3% per annum; a country's total public sector debt to GDP ratio should not exceed 60% per annum; a country's exchange rate must be contained within required fluctuation margins of the EU's exchange rate mechanism (ERM); a country's rate of inflation must not exceed 1.5% above the average rate in the three lowest inflation EU countries; a

easily conductible and verifiable empirically (Haug, 2001). My study follows related research regarding interest rate convergence in Europe (Hafer, Kutan and Zhou, 1994), co-movement of economic variables in Australia and New Zealand (Haug, 2001), regional industrial cycles (Grimes, 2005), price level convergence (Rogers, 2006), and common cycles analysis (Sato and Hang, 2007), amongst others.

DATA LIMITATIONS AND DISAGGREGATING QUARTERLY GDP FROM ANNUAL GDP

In this study, the reliability of the analysis depends on the quality and frequency of available quarterly output data. Quarterly GDP, production and/or employment time series data (1980:Q1 to 2006:Q4) were not available for many of the PICs. In cases where some of the data were available, they were typically of short frequency, had data gaps in the series and some were of poor quality. Hence, quarterly GDP was constructed from annual GDP figures, using a combination of the Chow and Lin (1971), Fernandez (1991), Marcellino (1999) and Litterman (1983) methods. Abeysinghe and Rajaguru (2004) have also used similar methods to derive China's and ASEAN countries' GDP. These methods involve the use of relevant quarterly predictor variables to disaggregate annual GDP to obtain quarterly GDP estimates. I used this approach to construct quarterly GDP series from 1980Q1 to 2006Q4.

5. ANALYSIS AND RESULTS

A key prerequisite for monetary or currency union is that there is co-movement amongst major economic variables in line (but not restricted) to the EU Maastricht Treaty variables but applied to PICs relative to Australia and New Zealand. My analysis is

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country's long-term (government bond) interest rates should not exceed 2% above the average of those in the three lowest rate countries.

performed for the following potential currency or monetary union groupings based on current regional trade groups, culture, language and historical connections: Group 1: Australia, NZ and the Pacific (PICs); Group 2: All PICs; Group3: Melanesia (PNG, Fiji, Solomon Islands and Vanuatu); Group 4: Polynesia (Samoa and Tonga); Group 5: Australia and Melanesia; Group 6: NZ and Polynesia. To assess co-movement, unit roots and the Johansen cointegration tests are undertaken initially for the following key variables: real GDP as a measure of economic performance; the consumer price index (CPI) for price movements in countries and also the effect of monetary and fiscal policy on inflation; interest rates (long term government bonds) to assess monetary policy effects; exchange rates, both nominal exchange rates (converted to Australian dollars) and real effective exchange rates (REER) as a measure of international economic competitiveness and terms of trade effects. Other key indicators, like the money supply, will also be analysed.

For real GDP, unit root tests show that all the countries' real GDPs are $I(1)$, except for New Zealand (NZ), using the ADF tests. However, NZ is assumed to be $I(1)$ in this study because the DF-GLS, PP and KPSS tests all clearly favour $I(1)$. The unit root results show similar stochastic behaviour amongst the countries' real GDPs. The Johansen (1995) cointegration tests performed using the Schwarz (SBC) criterion (Schwarz, 1978) showed that there were cointegrating relationships (CE) (a linear deterministic trend in the data generating process only is specified for all cointegrating tests forthwith). I use maximum eigenvalue tests. For Group 1 there were five CE. For Group 2 and Group 5, there were four CE; Group 3 shows three CE; Group 4 shows no CE and Group 6 showed one CE. These results suggest that there are similarities in real GDP. Particularly, there is strong co-movement in real

GDP amongst Group 3 (Melanesian countries) and in the connection of these countries with Australia (Group 5). Group 3 countries share one common stochastic trend. When a group of countries share one common stochastic trend, this meets a key condition for currency or monetary union because the most co-movement possible in the system is reached as the maximum number of cointegrating vectors is reached.

In the CPI analysis, unit roots show that all countries have CPIs that are *I*(2), using the ADF test. This implies that inflation is *I*(1). The cointegration tests show that Group 1 and Group 3 have two CE; Group 2 and Group 4 have no CE, and Group 5 and Group 6 have one CE. This shows that there are dissimilar characteristics of the cost of living over time within these economies and possible differences in monetary and fiscal policies. The exchange rates (in Australian dollar terms) are *I*(1), excluding Vanuatu which is *I*(0). Cointegration tests show that Group 1 has 3 CE; Groups 2, 3, 4and 5 have no CE, and Group 6 has 1 CE. However, the REER, which is *I*(1), for all countries (except Vanuatu and Tonga that do not have data available in the IFS) show that all respective country groupings have no CE; This shows major variability and volatility differences amongst these country groupings. In terms of long term interest rates (government bonds), excluding PNG and Tonga which do not have adequate data, and Samoa which is *I*(0), all respective country groups have no CE, similar to the REER results. Again, this reflects the major differences in interest rates amongst these country groupings, and the varying nature of fiscal and monetary policy across countries. The analyses of the later two variables in particular suggest strong preconditions for not forming a currency or monetary union.

In connection to the above analysis, I applied the Gonzalo and Ng (2001) decomposition and the impulse response function analysis for real GDP for Group 3 countries.[2] The results show three permanent and transitory shocks with one associated common trend amongst them. Following a 1% shock to the system, a unique feature observed is a positive effect on real GDP for PNG for the three permanent system-shocks with initial effects of 0.6%-0.8% that decrease and stabilise at about 0.4% after 6 quarters; for other countries the effects are within -0.2% to 0.5%. For the transitory shocks, the results show a positive effect for Fiji between 0.02% to 0.04% and a negative effect of about -0.01% to -0.15% for Samoa, for all the three transitory shocks in the system. The transitory effect on countries fades away after about 6 quarters. This analysis attempts to show the persistence and magnitude of the shocks alone affecting the countries and not the source of shocks.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The findings in this study are so far indicative only and are insufficient to form any firm conclusions of whether or not the PICs are ready (or not) to form a currency or monetary union amongst themselves and/or with Australia and New Zealand. However, it is noteworthy to observe that whilst many of the variables within the respective proposed union groups diverge rather than converge, and are different in many aspects, Group 3 (Melanesian countries) appear to share common real GDP features that make them stand out for consideration.

I hope that this work will contribute to renewing the debate on the proposed regional currency or monetary union in light of the discussions and failed implementation of

[2] This application will also be expanded to the other country groups.

the recommendation by the Australian Senate Committee in 2003 that called for a Pacific Union. It is hoped that my work will contribute towards the current efforts for greater regional integration and growth in the Pacific, particularly regarding the Pacific Islands Trade Agreement and Pacific Agreement on Closer Economic Relations. Furthermore, this study should be seen as a proposition that aims to bring development to Pacific Island economics and contribute to increasing knowledge and reducing ignorance about the costs and benefits of forming a currency or monetary union.

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