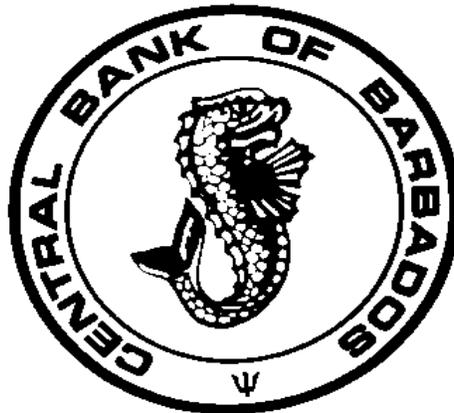# EXCHANGE RATE TARGETTING THROUGH AGGREGATE DEMAND MANAGEMENT

BY

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Exchange Rate Targetting through Aggregate Demand Management

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Abstract

In their 2010 IMF policy paper, Blanchard, Dell'Ariccia and Mauro[1] observed that central banks of smaller economies were well advised to manage their exchange rates, as well as to contain inflation. They admitted that many countries did in fact pursue both inflation and exchange rate objectives. The present paper takes this argument one step further, demonstrating that the management of aggregate demand, using fiscal policy, is an effective means of achieving an exchange rate target, whether that target is an unchanged exchange rate anchor to a single currency or a basket of currencies, or a stable rate with low volatility. The key insight is that the foreign exchange markets of small economies are very insensitive to relative price changes, and that a balance of inflows and outflows can be achieved only by adjustment of quantities. Both the exchange rate anchor and the inflation target are attained through the management of aggregate demand: fiscal policy anchors the exchange rate through its effects on the demand for imports, and by avoiding money creation the central bank eliminates domestic inflationary pressure, which is the best it can do.

Introduction

Exchange rate targeting has obvious advantages for trading economies, because it lends predictability to foreign transactions and thereby facilitates trade, finance and investment planning. This is especially important for small states, where the value of foreign transactions, receipts and payments, typically exceeds GDP. In recognition of this, a recent IMF policy paper recommends jointly targeting inflation and the exchange rate for countries with significant currency mismatches, a high pass through of devaluation to inflation, or limited inter-sectoral factor mobility.[2] Until relatively recently, a majority of small countries targetted the exchange rate, either by use of a peg to a reserve currency, or by guiding changes in the exchange rate in some way. However, exchange rate targetting has been abandoned by many countries, not by choice, but because central banks' attempts to defend the exchange rate by intervening in the interbank market were defeated by massive capital outflows.

The failure of exchange rate targetting has rendered impotent the anti-inflationary policies of the central banks of small economies. Inflationary pressure derives from money creation (typically through central bank credit to government) and from foreign sources, through import prices and capital and financial inflows. In the small very open economies (SVOEs) with which this paper is concerned, the domestic element (credit to government) is usually very small, relative to the foreign elements. Most consumption is imported, and domestic production uses imported inputs very heavily. It is therefore very difficult to set a credible inflationary target which is below the rate of imported inflation. It becomes even more problematic to do so if the exchange rate is not targetted, because any depreciation in the rate will aggravate the effect of imported inflation.

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[1] Blanchard, Olivier, G Della'Arricia and Paolo Mauro, "Rethinking macroeonomic policy," IMF staff position note Feb 10, 2010.

[2] Ostry, Johnathan, Atish Ghosh and Marcos Chamon, "Two targets, two instruments: monetary and exchange market policies in emerging market countries," IMF Policy paper, February 2012.

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This paper argues that successful exchange rate targetting is essential to the stabilisation of SVOEs. However, to be effective, the underlying demand for foreign exchange in the economy must not exceed the available supply, so macroeconomic policy must be directed to ensure this balance. This has to be achieved through the management of aggregate demand and supply, because foreign exchange rationing and changes in the relative price of foreign exchange will not produce the changes in volumes needed to equilibrate the external market. It is now generally accepted that the demand for foreign exchange may not be contained by controls or rationing on the current account, and I have argued elsewhere that the same is true of the capital and financial account.[3] The elasticity conditions are not satisfied for a devaluation to bring about an equilibrium of foreign exchange demand and supply, and the current account responses to devaluation are invariably overwhelmed by capital flight.

It follows that the demand for foreign exchange in the SVOE can be brought into equilibrium with the supply only by way of aggregate demand management. The foreign exchange markets are fixed price markets in the Hicksian sense: the quantities must be adjusted to achieve a balance, not the prices. The tool that remains to the authorities for aggregate demand management is the size of the fiscal deficit and the extent of money creation to finance it. SVOEs should therefore target the exchange rate, using fiscal policy to manage aggregate expenditure and the consequent spending on imports. This paper explains the rationale, and suggests some institutional mechanisms for effective exchange rate targeting. What is different in this new exchange rate targetting framework is that the target is sustained by ensuring fundamental external balance, and an adequate reserve of foreign currency at the central bank, which thereby maintains its capacity for intervention to defend the target rate. An added benefit is that the adequacy of foreign exchange reserves provides an accessible and easily understood signal of the appropriateness of the overall policy stance.

The main objective of policy in the SVOE is to stabilise the external accounts, with the control of inflation of necessity a secondary consideration, since inflation is mostly imported. In the SVOE, if the demand for foreign exchange exceeds the supply, the economy will eventually contract, because the elasticities of substitution, of domestic production for imports and exportables, are very low. As is readily shown, the resource base of the SVOE allows it to reach internationally competitive production costs in only a limited range of commodities, compared to the range of imports for production and consumption. There is therefore almost no scope for import substitution, or for switching from exports to domestic consumption.[4] The overarching policy concern is to maintain an underlying balance between the fundamental demand and supply of foreign exchange over time. In the short run that implies aggregate demand management, keyed on the expected availability of foreign exchange, to ensure that the import requirement is not in excess of that availability. In order to grow the economy, there must be investment and productivity increases in the sectors that earn and save foreign exchange, to satisfy the need for the additional imports which the growing economy will require. Focusing on the exchange rate anchor, and ensuring that the central bank maintains adequate reserves by managing aggregate demand, keeps the SVOE on a sustainable growth path over time.

Anchoring the exchange rate also provides appropriate incentives and market information for foreign exchange led investment. When the exchange rate is not managed, the underlying trend in relative prices is often obscured by exchange rate depreciation, and investment is diverted to nontradables

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[3] See Worrell, DeLisle, "Monetary policy in small open economies," Central Bank of Barbados *Economic Review*, xxiv:2, September 1996.

[4] Frequently, the domestic production of substitutes for final goods imports requires imported inputs whose value exceeds that of the imports being displaced.

because of the greater volatility of tradable prices. A consequence of this is a reduction in the overall potential rate of growth, because slower growth of the foreign exchange sectors slows results in a lower foreign exchange constraint on the overall rate of growth.

As a practical matter, the SVOE cannot achieve a sustainable inflation target which is below the imported contribution to inflation. Because the financial account is open, the sole source of domestic inflation (apart from discrete tax policy changes) is money creation by the central bank, either to finance a portion of the public sector's borrowing needs or (very rarely) to fund commercial bank credit to the private sector. Public sector financing is almost always the factor which provokes money creation, because the private sector always has access to foreign finance, through the open financial account. Inflation control in the SVOE is reduced to ensuring there is no money creation by the central bank.

Recent views on exchange rate targetting
Targetting the exchange rate enjoyed a brief resurgence of popularity in the 1990s, in response to the evident vulnerability of the exchange rate to speculative attacks and other behaviour triggered by information asymmetries, in circumstances where the fundamentals of the economy were considered to be sound. The consensus of international opinion among policy makers at the time seemed to have been drifting towards a combination of monetary targetting for inflation control, and exchange rate targetting with an open current account, supported where necessary by controls on the capital and financial account, to avoid excessive exchange rate volatility.

However, exchange rate targetting fell out of favour around the turn of the century, probably because of the failure of high-profile exchange rate targetters such as Argentina. Since then the focus has been on monetary and inflation targetting regimes with market-determined exchange rates, almost exclusively.[5] These have not been a demonstrable success in the majority of cases,[6] and much of the international and intellectual debate of the past decade has been about exchange rate manipulation and over and undervalued exchange rates. It was widely acknowledged that exchange volatility made the exercise of inflation targeting problematic. Ho and McCauley (2003)[7] observed that emerging market economies, being more exposed to the influence of the exchange rate, are likely to accord the exchange rate a bigger role in policy assessment and decision-making.

Only recently is the importance of stable exchange rates being recognized once more, reflected in Blanchard, Dell'Ariccia and Mauro (2010), and Ostry, Ghosh and Chamon (2012).[8] The authors of the first paper admit that the established orthodoxy - that policy should focus strictly on stable, low inflation,

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[5] For a discussion of the evolution of thinking on exchange rate targeting, see Frankel, Jeffrey A., Monetary Policy in Emerging Markets: A Survey (June 2010). NBER Working Paper Series, Vol. w16125, 2010.

[6] An assessment of the monetary frameworks for managing inflation in a variety of countries at various stages of development may be found in IMF, "Monetary policy implementation at different stages of market development," Occasional Paper, October 2004, *www.imf.org*. In a majority of cases the evidence on the use of monetary policy is inconclusive.

[7] Ho, Corinne and Robert McCauley, "Living with flexible exchange rates: issues and recent experience in inflation targeting emerging market economies," BIS Working Paper No. 130, February 2003.

[8] References previously cited. See also Stone el al (Mark Stone, Scott Roger, Seiichi Shimizu, Anna Nordstrom, Turgut Kisinbay, and Jorge Restrepo "What Role for the Exchange Rate in Inflation Targeting for Emerging Market Countries?" IMF draft occasional paper, May 2008) whose message is that an important role for the exchange rate can improve macroeconomic performance under certain circumstances if done in a measured way and implemented in an open and market-friendly manner.

using the policy rate - has proved inadequate. They recommended that small open economies should ensure that the impact of inflation targeting monetary policy does not destabilise the exchange rate, an admission that the exchange rate is "part of [these countries'] objective function". The second paper recommends a combination of inflation targeting and exchange rate targeting for countries with significant currency mismatches, a high pass through of devaluation to inflation, or limited inter-sectoral factor mobility. The latter conditions apply to all SVOEs, and many are also characterized by currency mismatches. They argue as follows: if target inflation is consistent with a zero output gap, under an inflation targeting policy, the policy interest rate would fall if there is capital inflow (and the exchange rate would appreciate) or a negative aggregate demand shock (in which case the exchange rate should depreciate). However, policymakers may want to avoid exchange rate appreciation which makes exports less competitive, or which moves the exchange rate out of their comfort zone. Therefore, they would lower the policy rate in case of a negative demand shock, but in case of the capital inflow they would intervene instead.

Why target the exchange rate ahead of inflation?
A principal focus on the control of inflation trivializes the central banks of SVOEs because of the very high import content of consumption and production.[9] The domestic contribution to inflation, from money creation, is very small, and the authorities do not gain significant credibility from controlling that element. If international inflation is muted the central bank can claim little credit; when international inflation is high, the central bank cannot achieve an acceptably low rate of inflation, even if there is no money creation.

The central bank in the SVOE has a far more important role, to stabilise the exchange rate. Exchange rate volatility is undesirable under any circumstance, and it is particularly undesirable in SVOEs, where changes in the exchange rate reverberate in prices throughout the economy. Volatility increases the risks of long term commitment, and is therefore a disincentive for domestic investment and an inducement to capital flight. Exchange rate volatility increases uncertainty of prices in all domestic markets and therefore reduces the information content of price signals. A characteristic of SVOEs is the underdevelopment of financial markets for sophisticated products for hedging the risks of volatility, because their small size means there is insufficient business for providers of such services to attain a minimum economic size. The invariable result is that most SVOEs where the exchange rate is not aggressively managed are quite heavily dollarised, as economic agents take advantage of this avenue to reduce their risk exposure.

In markets with these characteristics there are serious adverse effects on the credibility of official economic policy. Whenever there are significant economic changes affecting the economy, whether external shocks such as sharp increases in commodity prices or domestic events such as an increase in the government budget, there are varying expectations of the impact on the external accounts, the appropriateness of government actions or reactions, and the prospect for a depreciation of the currency. In the absence of a single indicator which gives a clear signal that government policy is appropriate and the fundamentals are sound, market uncertainty invariably is manifested in the form of increased dollarisation and capital flight.

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[9] The average ratios of imports to GDP for SVOEs range from about one-third to over 100%, compared with a range for large countries from 10% to one-third Carter, Adrian, "Economic size, openness and export diversification: a statistical analysis," Central Bank of Barbados *Economic Review*, December 1997.

In contrast, the policy framework which is anchored on an exchange rate which is maintained by intervention on the interbank market, without any attempt at official rationing of foreign exchange, provides a transparent signal of underlying market fundamentals, in the form of the official foreign reserves. So long as reserves evolve along an expected path, with low volatility and changes that are in line with normal seasonalities, market agents can have reassurance that the fundamental balance of external receipts and payments is being maintained. However, if there is a severe loss of foreign reserves, the authorities need to take decisive corrective measures. The recovery of the foreign reserve levels provides clear evidence of the success of the policy adjustment.
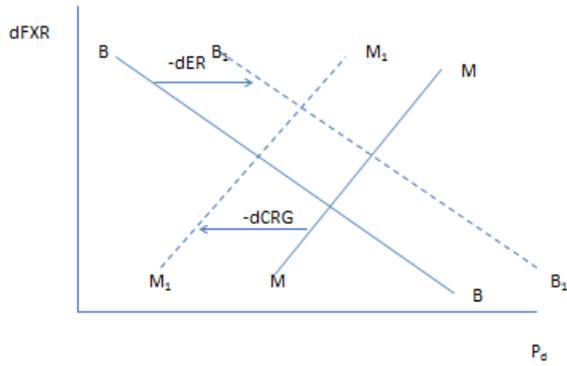
Why the exchange rate changes do not equilibrate the balance of payments
In circumstances where the demand for imports exceeds the supply of foreign exchange in SVOEs, a devaluation will not lead to a restoration of equilibrium, because the devaluation affects neither the demand nor the supply. Devaluation does not increase the supply of foreign exchange because SVOEs are price takers; they are able to sell to the full extent of their productive capacity at the ruling international prices, and they are unable to access the market in the first place if their prices are above what competitors charge for comparable quality of product or service. In economies that are less open, devaluation may improve the profitability of investment in the foreign exchange sectors, because the local currency price of exports will increase, but in SVOEs this incentive is swamped by 1) capital flight because of the exchange rate uncertainty, and 2) an expectation that domestic production costs will rise in line with the devaluation. Devaluation does not reduce the demand for foreign exchange, because there are no substitutes for most imported products. Demand for imports will fall only when real income contracts as a result of devaluation.

The reason devaluation does not "work" may be illustrated using a model from Agenor (2004)[10], a well known macroeconomics text that is focused on the policy framework. Agenor's Figure 9.1, which is reproduced as Figure 1, shows the picture of possible tradeoffs between changes in foreign reserves and changes in domestic prices (relative to an unchanged price of foreign goods) that are characterised by a balance of money demand and supply (MM), and a balance of the external accounts (BB). In Agenor's presentation, a devaluation shifts the BB line to the right, providing a new equilibrium which features higher levels of foreign reserves and higher relative domestic prices. However, the realistic picture for SVOEs is shown in Figure 2, because the slope of BB is the negative of the elasticity of imports with respect to relative prices, which is approximately equal to zero. What is more, the factor which moves the BB line to the right in Agenor's model is an increase in exports, which it is unrealistic to expect.
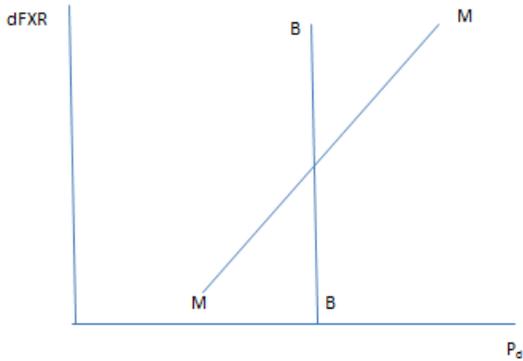
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[10] Agenor, Pierre-Richard, *Economics of Adjustment and Growth,* 2000, 2nd Ed 2004.

Figure 1. Monetary and External Balance in Large Economies

Symbols: BB, external balance; dCRG, money creation; dER, exchange rate change; dFXR, foreign reserves change; MM, monetary balance.

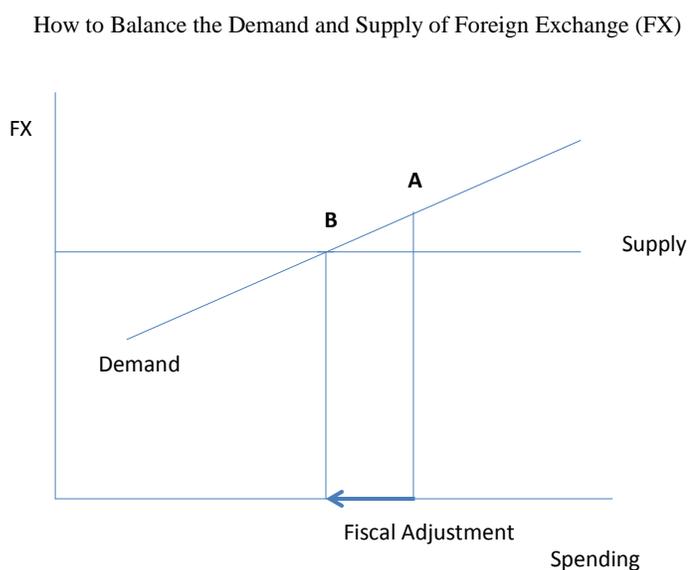Figure 2. Monetary and Exchange Balance in SVOEs

A framework for demand management

This paper makes the case that the most appropriate framework for the SVOE is an exchange rate target, achieved through the management of aggregate demand. There are two models that seem to work well:

- The Barbados model, where fiscal policy is the sole instrument used;[11]
- The Singapore model, where fiscal policy is combined with the use of the exchange rate as a monetary instrument.

The main elements of the Barbados exchange rate targetting framework are a forecast of foreign exchange availability and the demand for foreign exchange, and a monitoring and feedback mechanism which guides policy adjustments and corrections whenever they may be needed. The forecast of foreign exchange availability is derived from an in-depth analysis of the prospects for each of the major foreign exchange sectors, taking account of investment in the sectors, productivity changes, changes in tastes and technology, marketing budgets, changes in market structures, and qualitative factors such as the elements of the Global Index of Competitiveness.[12] This is compared with the forecast of import and other foreign exchange demand, derived from a macroeconomic model which projects imports as a function of aggregate demand. If the projected demand may be fully accommodated by the expected supply, any surplus will add to the foreign exchange reserves of the central bank. However, if the demand is forecast to be in excess, policy adjustment must be made in order to reduce aggregate demand. For reasons explained above, fiscal contraction is the only tool that will achieve this in a dependable fashion. The process is illustrated in Figure 3.

Fig 3. Foreign Exchange Demand and Supply

How to Balance the Demand and Supply of Foreign Exchange (FX)

The second element in the framework is the monitoring and feedback mechanism, to compare the actual evolution of economic performance with the forecasts. The monitoring schema takes into account seasonalities and one-off events, so that one may readily identify when actual performance is deviating from the forecast. If it appears that a foreign exchange shortage may emerge, corrective

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[11] Alternatively, one may describe the Barbados inflation target as equal to the rate of imported inflation, sustained by avoiding money creation.

[12] See World Economic Forum, *The global competitiveness report 2012-13*, www3.weforum.org.

action may be taken in a timely fashion, to allow for any lead time for the implementation of corrective measures, and any lags between implementation and their effects on aggregate demand and imports.

The institutional arrangements for managing the exchange rate targetting framework involve close collaboration between the Central Bank of Barbados and the Government ministries responsible for finance, budgeting, investment and economic affairs. Together they make decisions about tax and expenditure policy and about the amount and sources of finance, all with a view to tailor Government spending and its effects on aggregate expenditure and imports to a level that does not exceed the inflow of foreign exchange. This policy group receives daily updates on the foreign balances, as reflected in the Central Bank's foreign exchange reserves, and it meets regularly to review economic performance against the forecast, and to make policy changes whenever necessary.

The Singapore Monetary Authority uses a trade-weighted exchange rate target with a view to containing inflation.[13] This is an explicit acknowledgement that imports are the primary source of inflation, and the policy has been followed since the early 1980s. The target rate is set within a narrow band which is adjusted from time to time, and it is maintained within the band by intervention by the Monetary Authority. The evident success of this approach[14] suggests that aggregate and external demand and supply were maintained throughout.

A number of other SVOEs have maintained unchanged exchange rates for decades, including The Bahamas, Bermuda, the Cayman Islands and the member countries of the Organisation of Eastern Caribbean States (OECS). The central banks and monetary authorities of these countries do not actively use the exchange rate as an anti-inflationary policy, nor have they sought to actively manage aggregate demand in the way the Barbadian authorities do. As for Singapore, the success of these countries in sustaining the exchange rate peg indicates that the aggregate and external demand and supply have been kept in balance. The difference in choice of peg between Singapore and Caribbean countries no doubt reflects geographic circumstances; external transactions in the Caribbean are overwhelmingly in US dollars, whereas Singapore has a more diversified pattern of external linkages.

A comparison of the experiences of these countries with SVOEs which have experienced episodes of exchange rate devaluation serves to illuminate the role of fiscal policy in achieving aggregate and external balance. SVOEs typically maintained exchange rate pegs many years after larger countries had adopted more flexible exchange rate strategies, and devaluation came, in every case, after a prolonged period during which attempted defense of the exchange peg was defeated by a combination of excess demand for foreign exchange and capital flight.[15] A failure to reduce aggregate demand and the demand for imports exhausted the country's foreign exchange reserves, and a recognition by economic agents that this fundamental imbalance was not being addressed led to capital flight, which aggravated the foreign exchange deficit. The appropriate management of aggregate demand is the characteristic which distinguishes between those SVOEs which have maintained an exchange rate anchor, and those which have not.

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[13] See http://www.mas.gov.sg/.

[14] See Parrado, Eric, "Singapore's unique monetary policy: how does it work?" IMF WP/04/10, January 2004.

[15] An analysis of the failure of exchange rate pegs in the English speaking Caribbean appears in Worrell, DeLisle, *Small Island Economies: Structure and Performance in the English-speaking Caribbean Since 1970*, New York: Praeger, 1987.

Competitiveness and the exchange rate anchor
It can be demonstrated that the popular belief that SVOEs may improve the competitiveness of their exports by devaluing the exchange rate is without foundation. Because these economies are so small, their supply of commodities in the markets in which they sell is miniscule, however those markets are defined, and they may sell to the limit of their capacity at existing prices and exchange rates, without materially affecting the sales of others. For example, The Bahamas, the largest tourism-based SVOE in the Caribbean, accounts for about 0.1 percent of global cross border tourist travel, and an even smaller percentage of tourism in the US, The Bahamas' main tourist market.[16] If exporters in SVOEs are not at full capacity it cannot be as a result of high prices, because at above-market prices the small producer can sell nothing; the problem must lie elsewhere, with product quality, marketing or other factors. These problems will not be addressed by devaluing the currency.

Over time, the ruling international price changes with inflation, changes in technology, the development of new products and services, the introduction of new market niches, changes in consumer preferences, etc. Suppliers, including SVOEs, must respond in appropriate ways to these changes, if they are not to be forced out of the market. In addition, there are invariably domestic cost pressures, including increasing wages, to which the SVOE must adjust. The appropriate response is usually multi-faceted and specific to the circumstances of the product or service offered, but it must result in increasing productivity and efficiency, and may include a move up the value chain. Once again, a devaluation of the exchange rate is unhelpful.

There is a further reason why exchange rate devaluation is undesirable in SVOEs: because of the high import content of consumption, either directly through final goods imports, or indirectly through the high proportion of imported inputs in domestic production, exchange rate devaluation reduces the domestic standard of living. If suppliers pass through the full amount of devaluation to consumers, the real earnings of wage earners will decline by the full amount of the devaluation. In the event that the full amount of the devaluation is not passed through, investors will share in the real income loss, along with wage earners, but the loss of national income remains the same. In sum, the national income will fall in real terms unless domestic prices fully adjust to the extent of devaluation. The logic of this argument applies to so-called "internal devaluation", through reductions in nominal wages and benefits. Devaluation amounts to an acceptance of the failure to address the sources of declining competitiveness which mean that the country's output will continue to fall, and is a way to accommodate to the economic contraction that results from that failure.

This result is a consequence of small size, and would not apply to countries or producers whose output is large enough to affect the world market price. In such cases a devaluation may well stimulate an increase in output sufficient to increase total earnings, measured in foreign exchange. Devaluation may also provide an incentive to large countries to reduce their foreign spending by substituting domestically produced commodities for imports that are now more costly in local currency. Small economies do not have an import substitution option, because their limited human and resource endowments restrict them to a handful of commodities in which they can be internationally competitive.

An argument has been made that devaluation may be an instrument of structural change, increasing the profitability of an export manufacturing sector relative to a domestic agricultural sector, and thereby drawing investment and human resources into the development of manufactured exports. However,

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[16] Because The Bahamas is so close to the US mainland, it competes with US domestic tourism (by far the largest proportion of US tourism) as well as cross border travel by US residents.

this would happen only if the exchange rate pass-through to the agricultural sector (wages and imported inputs) were less than complete. Only in this case would there be a change in the relative prices of agriculture and manufacturing. Moreover, in cases when a correlation is observed between the growth of manufacturing and the relative prices of traded and domestic goods, it is more likely that the relative price change would have resulted from the faster growth of manufacturing, than the other way round. Manufacturing typically attracts workers from rural areas because product prices and labour productivity are higher than in agriculture to begin with.[17] In any event, using the exchange rate to adjust inter-sectoral relative prices is an unpredictable and roundabout way to address this issue.

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[17] These relative price effects may partly wear off over time. See ''Exchange rate flexibility is in Asia's interest,'' By Raghuram Rajan and Arvind Subramanian Source: FT.com Date: September 26, 2004.