The Effectiveness of Exchange Rate Adjustments as a Policy Instrument to Promote Growth in Jamaica

Empirical studies on exchange rate devaluation/depreciation effectiveness in promoting growth have often adopted a partial analysis focusing almost exclusively on the trade channel. In particular, they often fail to incorporate the financial and supply side channels through which the exchange rate can impact growth which can lead to these policy interventions being insignificant to growth outcomes or being contractionary. The complex set of interactions and feedback effects between the exchange rate, economic fundamentals, and other policy instruments have often been ignored in highly stylized models that often do not capture these details. These studies therefore often conclude and recommend flawed policies that can worsen and entrench economic problems. This study therefore attempts to fill this gap in the literature by incorporating some of the dimensions mentioned above in the empirical analysis of the effectiveness of devaluation/depreciation for growth outcomes in Jamaica using a Bayesian Vector Autoregression (BVAR) framework.

JEL Classification: F31; F4; E63

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1.0 Introduction

In Caribbean countries, foreign exchange (FX) is the lifeblood of the economy. This is because of our high import intensity in all facets of economic activity, from consumer goods to intermediate inputs in the manufacturing sector to industries and the tourism sector. The twin challenge of low levels of economic diversification and few FX-earning sectors predispose these economies to have an imbalance in the FX market where demand almost always exceeds supply. This is accentuated by a tendency to hoard FX amongst agents in the market. The availability and cost of FX (the exchange rate) is therefore a key policy issue in all open economies but particularly so in Caribbean countries. The primacy of this policy issue is also driven by the fact that what happens in the FX market in terms of price and liquidity has serious implications for the cost of living and poverty, equity (including intergenerational equity), and international competitiveness.

Long-lived structural problems and chronic low growth in Caribbean countries in the wake of the international financial crisis of 2007/2008 and more recently during and after the COVID-19 pandemic have again re-focused the attention of the region on the best ways for countries to adapt and grow out of their current problems. In this environment, the policy discussions have invariably turned to the issues of what role exchange rate policy should play have again come to the fore of the policy discussion in the Caribbean. The structural problems faced by Caribbean countries such as small size, low international competitiveness, vulnerability to natural disasters, and high levels of indebtedness mean that the best policy mix, and, particularly the role of the exchange rate, is a critical issue for all Caribbean countries.

The structural features of developing countries imply that the traditional trade-based inferences about how the exchange rate impacts growth have come under increased scrutiny based on research in Latin America in particular. Specifically, exchange rate devaluation/depreciation may not lead to better economic growth outcomes for a variety of reasons. Firstly, the prices for these economies' exports are set in US dollars in international markets and domestic currency adjustments generally do not change the foreign currency price paid for developing countries' exports. The fact that many of the exports of the region are primary commodities entrenches this dynamic. In particular, energy sector output from these jurisdictions is generally already committed to buyers via long-term contracts and, as such, changes in domestic relative prices have little or no change in the volumes being exported.

Another structural feature mitigating against domestic currency adjustment effectiveness is high import intensity, even in the tradable sector. This fact means devaluations or managed depreciations have a limited impact on overall domestic production costs as any cost advantage gained from devaluation is dampened by the fact that most inputs are imported. Very importantly, the adverse income distribution consequences of devaluation observed in many countries can hurt growth prospects as recent research shows that countries with higher income inequality generally record lower growth.

On the policy front, there is another dilemma associated with the use of devaluation for economic adjustment and growth. The exchange rate is a very important nominal anchor for macroeconomic policy. It sets the base for price and interest rate expectations for countries with fixed exchange rate regimes. This is also the case for countries that are now classified as stabilized arrangements but whose exchange rates have some flexibility such as Guyana and Trinidad and Tobago. If you intend to use the exchange rate more actively in your

macroeconomic policy mix like Jamaica, then you need to find another nominal anchor in the form of interest rates and/or monetary aggregates. However, the effectiveness of these policy variables as nominal anchors in the Caribbean has been called into question because of underdeveloped financial markets. Also, the high pass-through from exchange rates to inflation complicates this arrangement as some countries have found out. Moreover, if these monetary anchors are significantly influenced by developments in the domestic foreign exchange markets, then this further complicates their use and limits their effectiveness.

Another structural feature that limits the effectiveness of exchange rate adjustments is the relatively high degree of currency substitution and dollarization in the form of higher amounts of US dollars in circulation and the growing share of us dollar deposits in total deposits. Devaluations tend to increase currency substitution and the expected rates of return on foreign assets (asset substitution or capital flight). These structural features make it more difficult for central banks to control the money supply and use monetary anchors (Bhattacharya 2003).

Whenever capital is mobile, the global financial cycle constrains national monetary policies in small, open 'periphery' economies regardless of the exchange rate regime. Thus, countries on the 'periphery' can only pursue independent monetary policy if they impose capital controls (Rey 2013). Moreover, as Montiel and Pedroni (2019) argue, even if small, open economies can pursue an independent monetary policy and set domestic interest rates, they may not wish to do so. This is because greater financial integration significantly increases the magnitude of exchange rate movements caused by asymmetric monetary policy shocks in 'periphery' economies; that is, global financial integration significantly increases the exchange rate volatility associated with the pursuit of an independent monetary policy and greater autonomy in the setting of domestic interest rates.

It is also relevant to note that the short-term response of trade flows to exchange rate movements can be asymmetric, reducing imports but exerting little immediate effect on exports due to trade pricing in dominant currencies (Gopinath 2015, Adler et. al., 2020). Also, the relationship between exchange rate adjustment and trade flows may have been weakened over time by the buildup of global value chains. Indeed, there is empirical evidence to suggest that dollar dominance has significantly weakened the effectiveness of exchange rate flexibility as an instrument for absorbing shocks (IMF 2019). These factors suggest that devaluation/depreciation may be contractionary in developing countries.

In this context, this paper seeks to evaluate the effectiveness of exchange rate policy in promoting growth in Jamaica, one of the countries in the region that has used exchange rate changes in the form of devaluation/depreciation to facilitate economic adjustment and get the economy on a more stable growth path. In particular, it seeks to determine whether devaluations/depreciations are contractionary or whether they are useful in increasing growth in Jamaica using a Bayesian Vector Autoregression (BVAR) framework. It also seeks to understand how other policy measures may hinder or support the role of the exchange rate in achieving stable growth.

2.0 Literature Review

The traditional view of how devaluation/depreciation impacts growth is that it is expansionary as it causes expenditure to switch from foreign to domestic substitutes and increases net exports (Dornbusch 1980, Obstfeld and Rogoff 1996, Frankel, 1988). There is, however, an alternative narrative centered around the theoretical possibility that devaluation/deprecation can be contractionary because of factors operating on the demand and supply sides (Diaz-Alejandro 1963, Cooper 1971, Krugman and Taylor 1978, Kamin and Rogers (2000) and Upadhyaya et al. 2000, Auclert et al., 2021).

On the demand side, if the price elasticities of imports and exports are too low (Marshall learner condition) then devaluations can be contractionary (Krugman and Taylor 1978). In a monetarist framework, devaluation can also lower output by increasing domestic prices which reduces real money balances, increasing interest rates and in turn aggregate demand (Frenkel and Johnson 1976). Additionally, devaluation can lower growth by redistributing income from low savings/high spending groups (workers) to high savings/low spending groups (businesses) and increasing the economy's aggregate propensity to save (Diaz-Alejandro 1963). If the devaluation worsens the distribution of income this is also likely to lower growth in the long run because many recent studies have shown that countries with more unequal distributions of income grow more slowly (Alesina and Rodrik 1994; Easterly 2007).

On the supply side, especially when the import intensity is high, devaluation can increase the cost of imported intermediate inputs and lower production and growth (Lizondo and Montiel 1989). This dynamic can also work through the indexation of wages to domestic prices, which also increases the cost of production leading to supply problems and lower growth.

Very importantly, economies are also linked by financial flows and increasing financial integration has led to the increasing importance, some will say dominance, of the financial channel (balance sheet/risk-taking channel) through which the exchange rate can impact growth. This channel covers how exchange rate changes affect the cost and supply of foreign funding and normally works in the opposite direction to the trade channel. In particular, the increasing proportion of foreign currency liabilities on the balance sheet of domestic financial and non-financial firms means that devaluation will tend to increase the debt servicing obligations of those firms, weakening their balance sheet and financial health leading to lower investment and growth generally. Of course, the same dynamic affects the sovereign (Hoffman et. al. 2020, Georgiadis and Zhu 2021, Banerjee et, al. 2022). This issue also suggests that a more traditional focus on the impact of devaluations on the current account of the balance of payments is misplaced. This is due to the observation by some (Dornbursch 2001) that the extent of the negative impact of devaluations is unlikely to be due only to current account dynamics. Specifically, the magnitude of the impact on growth is likely to be caused by the impact of devaluations operating through the capital account (Bird and Rajan 2004).

In terms of the literature on the Caribbean, the evidence is mixed. Some suggest that devaluation had a positive impact on growth through the trade channel (Rhodd 1995; Conrad and Jagessar 2018) while others argued that devaluations may be contractionary (Moore, Beckles and Worrell 2015; Acevedo, Cebotari, Greenidge and Keim 2015; Wilson and Mclean 2014; Kandil 2015; Bobb and Sonnylal 2021). Negative income effects operating through inflationary pressures seemed to be the main factor driving the contractionary dynamic. The

research also suggests that supply-side problems created by devaluations were important to the net effect being contractionary (Kandil 2015).

3.0 Empirical Methodology

Estimating the impact of policy is often difficult because you must isolate the impact of the policy variable from all the other factors that contribute to the evolution of the target variable. You also must control for variables that drive both the policy variable and the target variable. Issues related to reverse causation and spurious correlation plague empirical work on the impact of macroeconomic policies. It is also important to separate exchange rate changes that are the result of deliberate policy from those that are simply reactions to the macroeconomic environment. This requires that you account for the inherent endogeneity in the relationships between policy variables, target variables, and variables reflecting macroeconomic developments. Vector Autoregression (VAR) models are very useful in this setting. However, since VARs frequently require the estimation of numerous parameters, a common problem is that estimates, forecasts, and impulse responses are imprecise.

We therefore use the Bayesian vector autoregression (BVAR) model to examine the impact of devaluation/depreciation on output in Trinidad and Tobago. The Bayesian version of the VAR was developed by Waggoner and Zha (2000), Zha (1999), and Sims and Zha (1998). The BVAR can improve the accuracy of estimates by introducing prior information in the model from which a posterior density function which when derived provides better estimates and inferences. Additionally, when using many series, estimating the model using traditional VAR methods runs the risk of over-parametrization, resulting in the model being unreliable due to overfitting. The Bayesian approach helps deal with this problem by automatically selecting the degree of shrinkage and using tighter priors when the number of coefficients to be estimated is high relative to the amount of data available for estimation.

We outline briefly the BVAR framework below. First, we outline a VAR as:

$$y_t = \sum_{j=1}^{p} \Pi_j y_{t-j} + \varepsilon_t \qquad (1)$$

where

$y_t = (y_{1t,} y_{2t,} \dots \dots, y_{mt})'$ is an M vector of endogenous variables

Π_j are M x M matrices of lagged coefficients

ε_t is an M vector of errors where we assume that $\varepsilon_t \sim N(0, \Sigma)$

If we define $x_t = (y'_{t-1}, \dots, y_{t-p})$ stack variables to form $Y = (y_1, \dots, y_T)'$ and let $y = vec(Y')$, then the multivariate normal assumption on ε_t produces:

$$(y|\beta) \sim N((X \otimes I_m)\beta, I_T \otimes \Sigma) \qquad (2)$$

Bayesian estimation of VAR models then centers around the derivation of posterior distributions of β and Σ based upon the above multivariate distribution, and prior distributional assumptions on the vector of coefficients β and the covariance matrix Σ. Priors are then specified for the model parameters, and this can be done via several methods that have been developed. These include the Litterman/Minnesota prior, the normal-flat prior, the normal-

Wishart prior, the independent normal-Wishart prior, the Sims-Zha normal-flat, the Sims-Zha normal-Wishart prior, and the Giannone, Lenza and Primiceri prior.

we use the independent normal-Wishart prior in this paper. For the choice of $\tilde{\beta}$ we used

$$\beta_{l,ij} = \begin{cases} \delta_i, i = j, L = 1 \\ 0, otherwise \end{cases} \quad (3)$$

This implies that setting values for δ_i for own first lag (i=j, L=1, where i is for equation, j is for variable, L is for lag considered by the coefficient) coefficients, and 0 for cross variable and exogenous coefficients. Because most macroeconomic variables are I(1), Litterman (1986) suggests that δ_i = 1 for its first lag. If your model includes some I(0) variables it may be prudent to set $\delta_i < 1$.

In terms of the covariance matrix, we have the following:

$$\Sigma_{l,ij} \begin{cases} \left(\frac{\lambda_1}{L^{\lambda_3}}\right)^2, i = j \\ \left(\frac{\sigma_i^2}{\sigma_j^2}\right)\left(\frac{\lambda_1\lambda_2}{L^{\lambda_3}}\right)^2, Otherwise \end{cases} \quad (4)$$

where λ_1 is the overall tightness parameter, λ_2 represents a cross-variable specific variance parameter, λ_3 is a scaling coefficient controlling the speed at which coefficients for lags greater than 1 converge to 0 with greater certainty, and σ_i^2 and σ_{ij}^2 denote the OLS residual variance of the autoregressive models estimated for variables i and j. For our model we set λ_1, λ_2, λ_3 and δ_i equal to 0.1, 0.99, 1, and 0.9 respectively.

Two other hyperparameters govern the weight given to the possibility that the model should be estimated in differences. The higher it is the greater the probability that the model should be expressed in differences. Sims and Zha (1998) advocate the use of these parameters to allow for unit roots and cointegration between variables in the BVAR.

4.0 Data, BVAR Estimation Strategy and Analysis of Results

4.1 Data

In this section, we outline the data used, how the BVAR was implemented, and analyze the empirical results. The data used is annual data from 1980 to 2023. The period was chosen to include periods when different exchange rate regimes were in place to capture the impact of the exchange rate on growth under different regimes in the empirical analysis. The use of the annual frequency also facilitated the use of a wider range of variables important to the way exchange rate policy impacted the economy. The variables included include the two primary variables the exchange rate (proxied by the nominal effective exchange rate (*ER*)) and GDP at market prices (*GDP*). Foreign variables such as the GDP of the US (*USGDP*), the Federal Funds Rate (*FFR*), and the energy price index (*EPI*) are also included.

These variables are included to reflect the impact of external demand on economic growth in Jamaica and the influence of foreign interest rates, and the related importance of external financing conditions to growth in the domestic economy. Other variables such as the consumer price index (*CPI*), domestic policy interest rate as a proxy for the monetary policy stance (*MP*), and total government expenditure included as a proxy for the fiscal policy stance (*FP*), for its

a priori importance to short-term growth in the Caribbean and its interplay with exchange rate changes.

4.2 Identification Strategy

The BVAR model used is based on the stylized way in which macroeconomic policy implementation impacts economic performance in small open economies. In particular, the BVAR comprises the target variable economic growth, and the primary policy variable the exchange rate, as well as important control variables that affect growth in Jamaica and the policy reaction functions for fiscal and monetary policies. The model includes both foreign and domestic variables with the foreign variables affecting all domestic variables contemporaneously or through lags but the domestic variables not affecting the foreign variables through either channel. In this context, we adopt the block exogeneity assumption for the BVAR model being used for the empirical analysis (Cushman and Zha 1997 and Manalo *et. al*. 2015). This means that a simple recursive ordering of variables in the BVAR is used for shock identification, with the most exogenous variables placed first and the most endogenous last. The ordering of the domestic variables was also informed by economic theory. For example, Phillips curves explain why GDP comes before CPI and the Taylor rule suggests that policy rate should be placed after GDP and CPI, while uncovered interest rate parity suggests that exchange rates should be placed last in the recursive ordering.

The final model therefore consisted of an 8-variable BVAR outlined below.

$$y_t = (EPI, USGDP, FFR, GDP, CPI, FP, MP, ER) \quad (5)$$

We also include BVAR models with the agriculture sector (*AGRI*), manufacturing industry (*MAN*), construction sector (*CONS*) and the services sector (*SER*) as a measure of output instead of GDP to determine the impact of devaluation/depreciation on these important sectors, recognizing that the impact of devaluation/depreciation can vary across sectors. The recursive ordering for this experiment is the same with *AGRI*, *MAN*, *CONS and SER* respectively, placed at the top of the domestic variables instead of GDP as in (5). We also check to see whether the financial channel of depreciation is in play by replacing *ER* in (5) with a proxy for the financial exchange rate (*FER*) comprising the interaction of *ER* and the proportion of external debt to total external reserves, a crude proxy for the financial exchange rate used in other studies (Banerjee *et. al*. 2022, Doojav *et. al*. 2024).

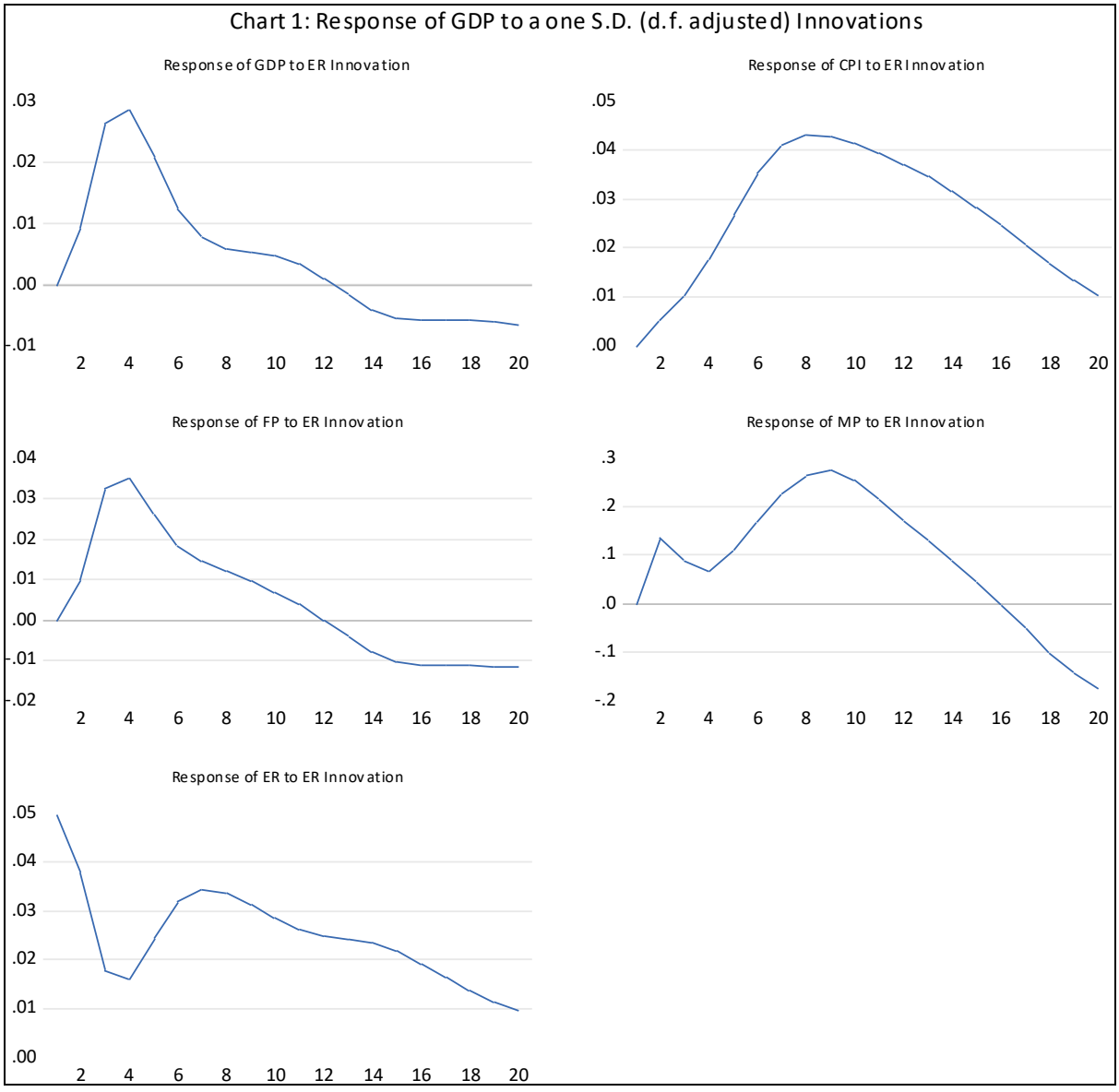
The BVAR is estimated with the interest rates in levels and all other variables in log levels. We use the nominal exchange rate instead of the real exchange rate because we want to observe the interplay between the exchange rate and the evolution of domestic prices and interest rates. This is important for the central issue being addressed by the paper of whether a *nominal* devaluation/depreciation will be effective in improving growth. Variables in the BVAR are entered in levels because differencing or detrending the data eliminates important information (Doojav *et. al*. 2024)[1]. Moreover, the modeling strategy should be dependent on the purpose of the empirical analysis. If the purpose is to determine how structural shocks affect the economy the BVAR should be estimated in levels, if the purpose is the accuracy of forecasting

[1] "While Bayesian and classical analyses have many common aspects, they dramatically differ when unit roots are present. While the classical asymptotic distribution of coefficient estimates under unit roots is nonstandard, the posterior distribution is unchanged. Therefore, if one takes a Bayesian perspective to testing, no adjustment for non-stationarity is required" (Canovo 2007).

or the estimation of long-run equilibrium relationships then the model can be estimated in difference (Canova 2007, section 4.2.4, Sims, Stock and Watson 1990).

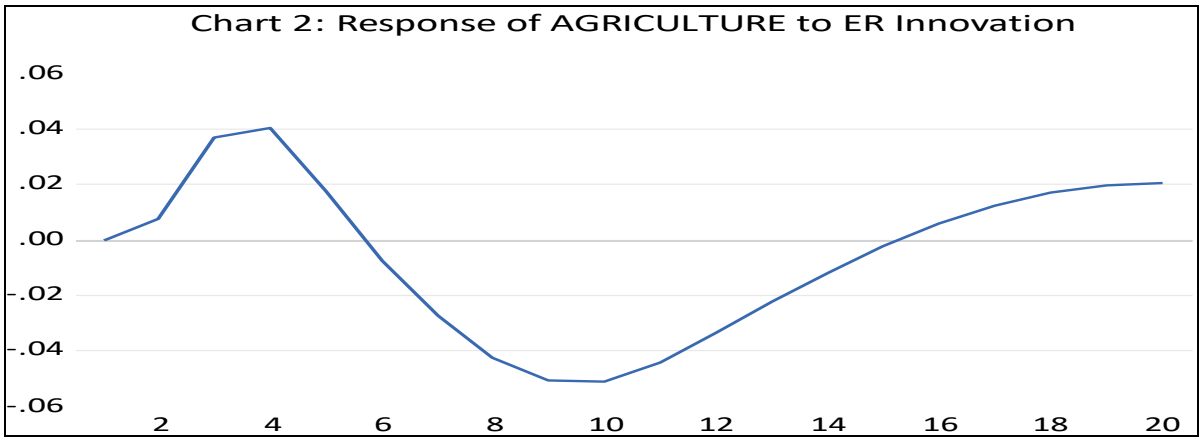
4.3 Empirical Results

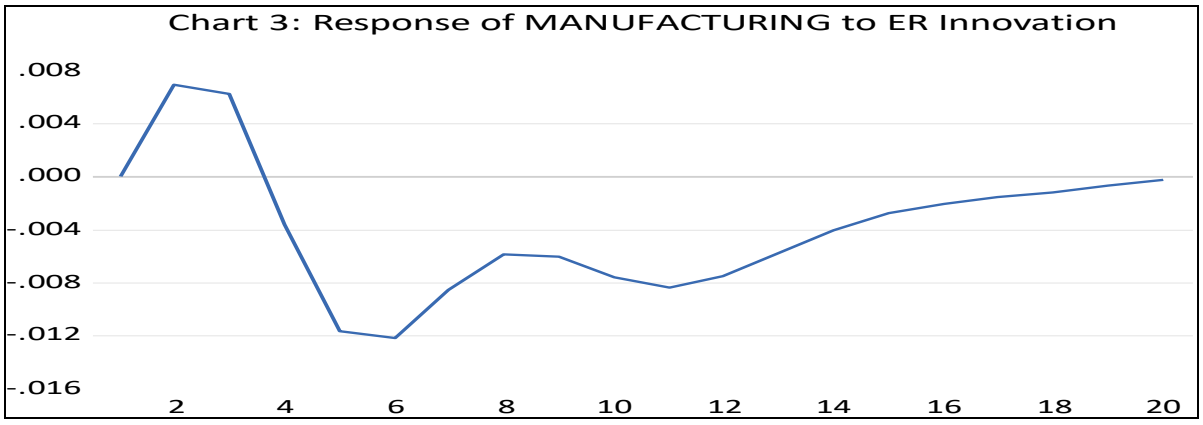
The results of our baseline model in (5) indicate that an exchange rate depreciation increases nominal economic growth in Jamaica, with the trough in the 4th year, falling thereafter with the impact dissipating in the 12th year after the shock. The depreciation is also inflationary and the effect is long-lived with consumer prices increasing to a peak in the 8th year and only returning to the pre-shock level in the 25th year after the shock. Monetary and fiscal policy seems to have been calibrated to the exchange rate changes with government expenditure increasing in tandem with the increase in nominal growth but accompanied by monetary tightening to deal with the inflationary effect of the exchange rate shock. The effect of the depreciation is also long-lived, with the exchange rate only returning to its original level approximately 25 years after the shock.



This long-lived nature of depreciations is due to the fact that this period in Jamaica is characterized by persistent depreciations over the review period. The fact that nominal growth is accompanied by significant inflation in the period up to the peak in the 4th year suggests that real growth is likely to have been muted. In fact, average real economic growth for Jamaica was 1.2% for the period 1980 to 2022[2].

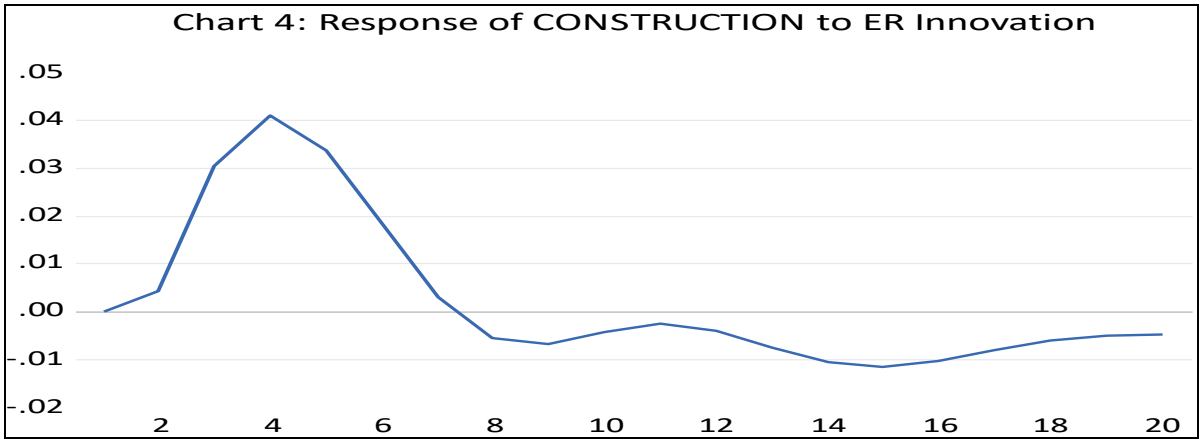
BVAR models were also used to look at the impact of the depreciations on separate sectors, recognizing that exchange rate changes can have differential impact in different sectors. These models in the broadest sense generally reflected the results from the aggregate baseline model with growth in those sectors initially increasing in response to a positive shock to the exchange rate (See Charts 2-5). There were, however, some important differences. In the agriculture and manufacturing sectors, the duration of the growth in response to exchange rate innovations was shorter than in the aggregate model. Moreover, after the increase in growth occasioned by the initial exchange rate shock, increasing prices led to negative growth for significant periods in both sectors.

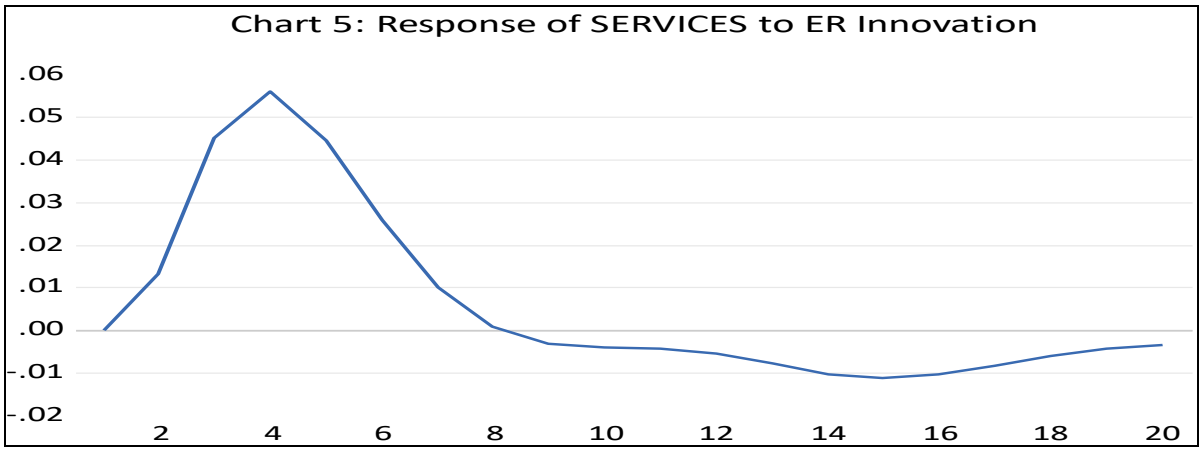




These two sectors were the ones most likely to be negatively impacted by inflation caused by the pass-through from exchange rate shocks. It appears as the inflationary intensified growth declined in these sectors. The impact of depreciations on growth in these sectors is therefore mixed.

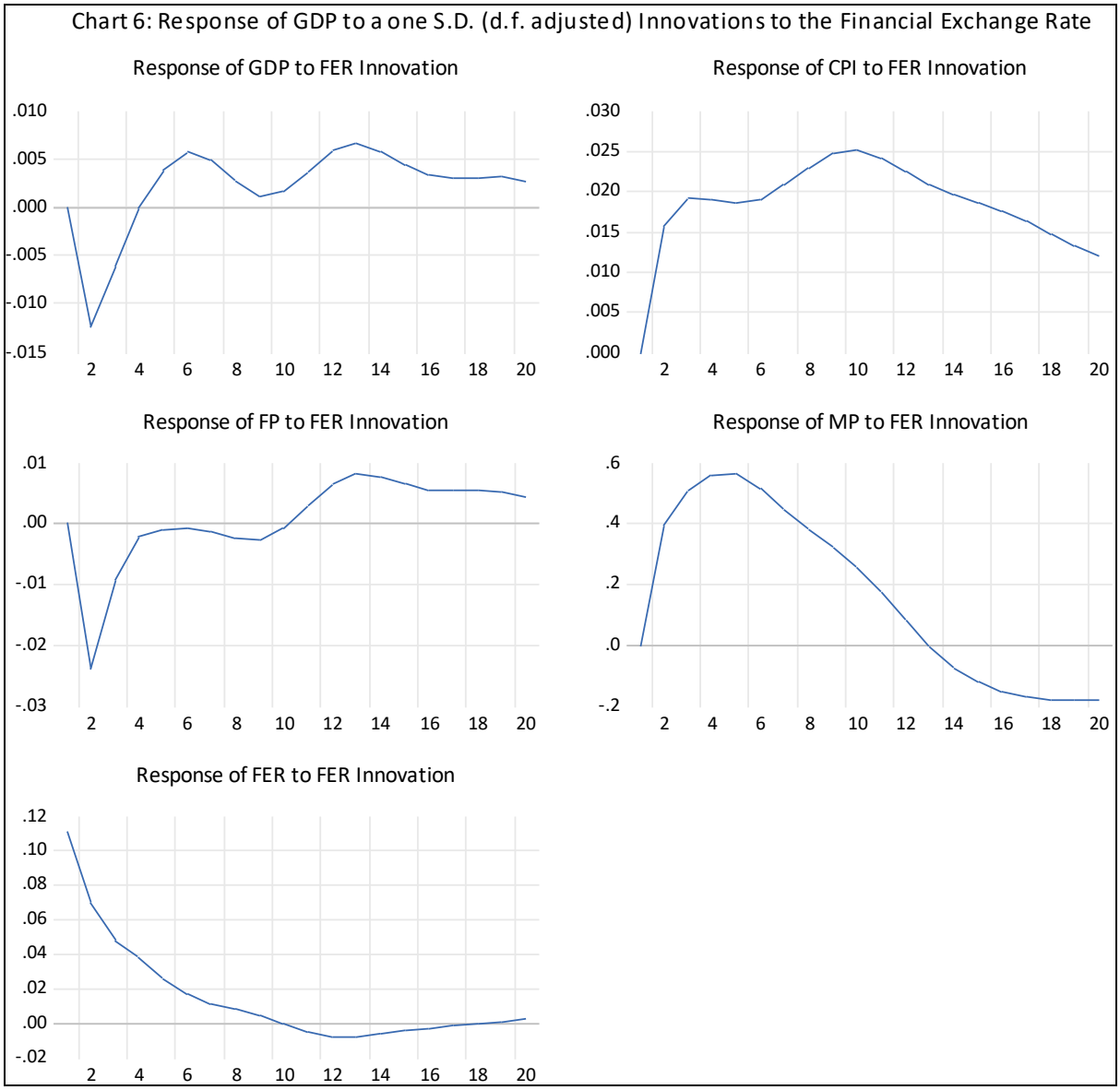
[2] Average real economic growth for emerging and developing economies for the period was 4.3%.





In terms of the construction and services sectors, growth peaked in the 4th year after the exchange rate shocks and broadly returned to pre-shock levels by the 8th year after the shock. This is most likely due to the fact that these sector are not as sensitive to innovations in domestic prices relative to agriculture and manufacturing. These results highlight the complicated set of direct impact and feedback effects across sector in the wake of exchange rate shocks caused by depreciations. In all the individual sectoral models fiscal policy expands while monetary policy tightens in response to the depreciation of the exchange rate.

Very importantly, we assess how growth responds to exchange rates when the financial channel of the exchange rate is explicitly incorporated. We do this by modifying the nominal exchange rate by weighing it by the proportion of external debt to total reserves. The results are shown in Chart 6 below.



Using this proxy for the financial exchange rate, there is an immediate contractionary response of GDP, the trough is deepest in the 2nd year after the shock and it only recovers to pre-shock levels by the 5th year. The impact of the financial exchange rate on growth is therefore completely different compared to the simple nominal exchange rate. The impact on consumer prices is also materially different. Specifically, consumer prices increased to a peak 10 years after the shock as in the case with the nominal exchange rate in Chart 1 but the peak in the case of the financial exchange rate. When external debt is high relative to reserves it seems that the contraction in output helps to drive prices down to lower levels at its peak (Doojav *et. al*. 2024). Additionally, while the response of monetary policy is similar, the response of the fiscal policy proxy is completely different to the baseline. That is instead of increasing it declines in tandem with growth. Also, the financial exchange rate returns faster to its pre-shock level compared to the simple nominal exchange rate.

The results of the BVAR model also allow us to determine how important the exchange rate is to growth outcomes relative to other determinants. It is clear from Tables 1 and 2 that exchange rate innovations generally account for a small percentage of the variation of variables in the

system. In particular, for the BVAR model where *ER* is used as the exchange rate, innovations in GDP, fiscal policy and USGDP accounts for the most of the variation in GDP. In contrast, on average shocks to ER account for only small proportions of the variations in GDP, consumer price index, fiscal policy, and monetary policy. It is also evident that foreign variables are driving what happens with prices which in turn impacts on the reaction of monetary policy. Fiscal policy shocks do appear to have a significant impact on the variance of GDP.

Table 1: Average Variance Decomposition Summary ER

	EPI	USGDP	FFR	GDP	CPI	FP	MP	ER
GDP	6.31	8.88	7.54	51.32	5.50	15.58	2.25	2.61
CPI	18.38	6.10	18.41	6.96	39.23	5.09	3.20	2.62
FP	2.98	4.87	13.69	27.84	4.68	43.74	0.84	1.38
MP	7.92	11.72	15.96	4.73	27.86	8.27	23.34	0.20
ER	5.01	7.20	20.38	23.80	23.51	14.45	2.52	3.13

The pattern of how various shocks affect fluctuations in the domestic variables when the financial exchange rate *FER* is used in the BVAR model is broadly similar to the model when the *ER* is used. The FER does have a materially bigger impact on GDP, CPI and MP. It also drives most of its own variance. Therefore, when the financial channel is incorporated, the results suggest that the impact of depreciations would be stagflationary.

Table 2: Average Variance Decomposition Summary FER

	EPI	USGDP	FFR	GDP	CPI	FP	MP	FER
GDP	13.23	1.64	4.95	51.26	8.63	14.53	1.94	3.82
CPI	10.63	0.52	16.92	8.31	34.62	14.62	5.62	8.76
FP	7.19	2.12	8.97	28.72	5.20	42.68	1.45	3.67
MP	3.49	0.89	12.88	4.25	24.19	10.99	31.75	11.55
FER	5.25	2.14	2.95	15.23	4.19	7.26	9.99	52.99

The pattern of shock propagation suggests that external economic conditions drive fluctuations in GDP and CPI which in turn drive what is going with other domestic variables in the system. This is in keeping with the literature on small open economies which generally argues that devaluation/depreciation is contractionary.

5.0 Conclusions

This study sought to determine how depreciation affects the Jamaican economy. The results suggest that the impact of depreciation on nominal growth is not strong enough to push up real growth significantly, in large part due to the inflationary impact of depreciation. This policy instrument also causes stagflation when the financial channel is incorporated in the analysis because in this case nominal growth decreases when the financial exchange rate depreciates, while the increases in prices, while slightly lower, are long-lived. The stagflation caused by depreciation also forces fiscal and monetary policy to be more restrictive, accentuating the decline in growth.

The results suggests that any increases in nominal growth is overshadowed by inflation which restricts real growth. When a more comprehensive analysis, which use the financial exchange rate, is considered, depreciation appears to be stagflationary, since nominal growth drops significantly while the increase in consumer prices are long-lived. Therefore, this policy instrument does not appear to be effective in increasing real economic growth. In fact, when the financial channel is incorporated into the analysis this policy instrument appears to actually worsen economic growth.

The structural economic features of Jamaica, especially the high pass-through from exchange rate changes to domestic prices, seem to predispose this economy to react negatively to exchange rate devaluation or depreciation. Unless these structural features change, different approaches will have to be found to deal with weak economic growth. These must include policies that deal with underlying problems related to productivity, the cost and availability of development finance, economic diversification, and a more nuanced policy strategy that takes account of the interconnectedness of policies in different areas and the structural impediments to different policy instruments.

List of References

Acevedo, S., A. Cebotari, K. Greenidge and G. Keim. 2015. External Devaluations: Are Small States Different? IMF Working Papers No. 240.

Adler, G., C. Casas, L. Cubeddu, G. Gopinath, N. Li, S. Meleshchuk, C. Buitron, D. Puy and Y. Timmer. 2020. Dominant Currencies and External Adjustment. IMF Staff Discussion Note 05.

Alesina, A., and D. Rodrik. 1994. Distributive politics and economic growth. The Quarterly Journal of Economics, 109(2), 465–490.

Alesina, A., and D. Rodrik. 1994. Distributive Politics and Economic Growth. The Quarterly Journal of Economics, 109(2), 465–490.

Auclert, A., M. Roglnie, M. Souchier, And L. Straub (2021b): "Exchange Rates and Monetary Policy with Heterogeneous Agents: Sizing Up the Real Income Channel," NBER Working Paper No. 28872.

Banerjee, R., B. Hofmann and A. Mehrotra. 2022. Corporate Investment and the Exchange Rate: The Financial Channel. International Finance 25 (3), pp. 296–312.

Barro, R. J. 2000. Inequality and Growth in a Panel of Countries. Journal of Economic Growth, 5(1), 5–32.

Bernanke, B. 1986. Alternative Explanations of the Money-Income Correlation. NBER Working Paper No. 1842.

Bhattacharya, R. 2003. Exchange Rate Regime Considerations for Jordan and Lebanon. IMF Working Paper, No. 137.

Bobb, A. and L. Sonnylal. 2021. The Dynamics of the Trade Balance: An Empirical Investigation of the Marshall-Lerner Condition and J-curve Hypothesis in Trinidad and Tobago. Central Bank of Trinidad and Tobago Working Paper No. 06/2021.

Canova, F. 2007. Methods for Applied Macroeconomic Research. Princeton University Press, Princeton.

Conrad, D. and J. Jagessar. 2018. Real Exchange Rate Misalignment and Economic Growth: The Case of Trinidad and Tobago. Economies, 6(4), p.52.

Cooper, R., 1971. Currency depreciation in developing countries. In: Princeton Essays in International Finance, 86. Princeton University.

Cushman, D. and T. Zha. 1997. Identifying Monetary Policy in a Small Open Economy Under Flexible Exchange Rates. Journal of Monetary Economics 39 (3), 433–448.

Diaz Alejandro, C. F. (1963): "A Note on the Impact of Devaluation and the Redistributive Effect," Journal of Political Economy, 71, 577–580.

Diaz-Alejandro, C.F. 1963. A Note on the Impact of Devaluation and the Redistributive Effect. Journal of Political Economy 71, pp. 577-580.

Doojav, G., M. Purevdorj and A. Batjargal. 2024. The macroeconomic effects of exchange rate movements in a commodity-exporting developing economy. International Economics, 177, pp. 1-21.

Dornbusch, R. (1980): Open Economy Macroeconomics, New York, NY: Basic Books.

Dornbusch, R. 2001. Fewer Monies, Better Monies. American Economic Review, 91 (2): pp. 238–242.

Easterly, W. 2007. Inequality Does Cause Underdevelopment: Insights from a New Instrument. Journal of Development Economics, 84(2), 755–776.

Easterly, W. 2007. Inequality Does Cause Underdevelopment: Insights from a New Instrument.

Frankel, J.A., 1988. Ambiguous Policy Multipliers in Theory and in Empirical Models. In: Bryant, R.C., et al. (Eds.), Empirical Macroeconomics for Interdependent Economies. Brookings Institution, Washington, DC, pp. 17-26.

Frenkel, J.A. and H. C. Johnson. 1976. The Monetary Approach to the Balance of Payments: Essential Concepts and Historical Origins. In: Frenkel, J.A. and H. A. Johnson (Eds.), The Monetary Approach to the Balance of Payments. University of Toronto Press, Allen & Unwin, pp. 21-45.

Frenkel, J.A. and H. C. Johnson. 1976. The Monetary Approach to the Balance Of Payments: Essential Concepts and Historical Origins. In: Frenkel, J.A., Johnson, H.C. (Eds.), The Monetary Approach to the Balance of Payments. University of Toronto Press, Allen & Unwin, pp. 21-45.

Friedman, M. 1953. The Case for Flexible Exchange Rates. In Friedman, Milton: Essays in Positive Economics, Chicago: The University of Chicago Press, 157-203.

Georgiadis, G. and F. Zhu. 2021. Foreign Exchange Exposures and the Financial Channel of Exchange Rates: Eroding Monetary Policy Autonomy in Small Open Economies? Journal of International Money and Finance, 110 (C), pp. 1–15.

Giannone, D., M. Lenza and G. Primiceri. 2012. Prior Selection for Vector Autoregressions. ECB NBER Working Paper No. 18467.

Gopinath, G. 2015. The International Price System. NBER Working Paper No. 21646.

Hoffman, B., L. Shim and H. Shin. 2020. Bond Risk Premia and the Exchange Rate. Journal of Money, Credit and Banking, 52 (S2), pp. 497–520.

IMF. 2019. Chapter 2: Exchange Rates and External Adjustment. External Sector Report 2019.

Journal of Development Economics, 84(2), pp. 755-776.

Joiner, A. 2002. Monetary policy effects in an Australian Bayesian VAR model. Paper presented at The Australasian Macroeconomics Workshop, Wellington, April 2.

Kamin, S.B. and J. H. Rogers. 2000. Output and the Real Exchange Rate in Developing Countries: An Application to Mexico. Journal of Development Economics 61 (1), 85-109.

Kandil, M. 2015. The Adverse Effects of Real Exchange Rate Variability in Latin America and the Caribbean. Journal of Applied Economics, 18(1), pp. 99-120.

Kim, S. and N. Roubini. 2000. Exchange Rate Anomalies in the Industrial Countries: A Solution with a Structural VAR Approach. Journal of Monetary Economics, 45 (3), pp. 561-586.

Kim, Y. and Y. Ying. 2007. An empirical assessment of currency devaluation in East Asian countries. Journal of International Money and Finance, 26(2), pp. 265-283.

Krugman, P. and L. Taylor (1978): "Contractionary Effects of Devaluation," Journal of International Economics, 8, 445–456.

Krugman, P. and L. Taylor. 1978. Contractionary effects of devaluation. Journal of International Economics 8 (3), pp. 445-456.

Lizondo, J. and P. Montiel. 1989. Contractionary Devaluation in Developing Countries: An Analytical Overview. IMF Economic Review 36, pp. 182–227.

Manalo, J., D. Perera and D. Rees. 2015. Exchange Rate Movements and the Australian Economy. Economic Modelling. 47, pp. 53–62.

Montiel, P. and P. Pedroni. 2019. Trilemma-Dilemma: Constraint or Choice? Some Empirical Evidence from a Structurally Identified Heterogeneous Panel VAR. Open Economies Review, Volume 30, pp. 1-18.

Moore, W., J. Beckles and D. Worrell. 2015. Size, Structure and Devaluation. Central Bank of Barbados Working Paper No. WP/15/1.

Obstfeld, M. and K. Rogoff. 1995. The mirage of fixed exchange rates. Journal of Economic Perspectives 9 (4), 73-96.

Rey, H. 2013. Dilemma not Trilemma: The Global Financial Cycle and Monetary Policy Independence. Proceedings - Economic Policy Symposium - Federal Reserve of Kansas City, pp 285-333.

Rose, A. 1991. The Role of Exchange Rates in a Popular Model of International Trade: Does the 'Marshall–Lerner' Condition Hold? Journal of International Economics 30, 3-4, 301-316.

Sims, C. 1986. Are Forecasting Models Usable for Policy Analysis? Quarterly Review, Federal Reserve Bank of Minneapolis, 10, pp. 2-16.

Sims, C., J. Stock and M. Watson. 1990. Inference in Linear Time Series Models with some Unit Roots. Econometrica 58 (1), pp. 113–144.

Sims, C. and T. Zha. 1998. Bayesian Methods for Dynamic Multivariate Models. International Economic Review, Vol. 39(4), pp. 949-968.

Upadhyaya, K.P., D. Dhakal and F. G. Mixon. 2000. Exchange Rate Adjustment and Output In Selected Latin American Countries. Economia Internazionale 53 (1), 107-117.

Waggoner, D. and T. Zha. 2000. A Gibbs Simulator for Restricted VAR Models. Federal Reserve Bank of Atlanta Working Paper No. 3.

Wilson, S. and E. Mclean. 2014. Understanding The Impact of Exchange Rate Adjustment on the Trade Balance of Selected Caribbean Countries. Bank of Jamaica Working Paper.

Zha, T. 1999. Block Recursions and Structural Vector Autoregressions. Journal of Econometrics, 90, pp. 291-316.