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The Development Mandate of the Central Bank in the Small Open Economy[1]

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Abstract

This paper makes the case for a central bank mandate that includes the mobilization of finance for growth in small open economies. I draw on the literature analyzing the performance of the "Asian Tigers" and the more recent literature on the entrepreneurial state to show that innovation costs are a barrier to investment and growth in export-led economies. The state plays an essential role in subsidizing the return on innovation to increase it to an internationally competitive rate. It falls naturally to the central bank to mobilize the finance for this state subsidy. However, the funds raised by the bank should be intermediated to investors through development banks, equity and venture capital institutions, and similar entities.

Keywords: Central bank, development financing, open economy, economic growth, export-led growth, international competition, financing of innovation, industrial policy.

JEL classification: E22, E58, G24

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The focus on inflation targetting in recent decades should not obscure the fact that the central bank, as the financial agent of government, always plays a role in growth and development. In most countries growth is included in the central bank's mandate (Bordo 2007; Singleton 2011), and even where it is not, the GDP is inevitably impacted by the central bank's actions. This paper presents a rationale for acknowledging the central bank's essential role in mobilising finance for development in open economies, along the following lines. Growth in the open economy depends on expansion of the capacity to produce internationally competitive exports and services (Worrell 2023), and governments play an essential role in supporting and financing the entrepreneurship which drives the expansion of exports (Mazzucato 2013). As government's financial agent it falls to the central bank to mobilise the necessary financing, whether for government itself or for publicly-owned development banks. The so-called Asian Tigers are the foremost example of successful publicly-financed development (Page 1994); we shall review what analysis has revealed about the reasons for their success. In contrast, experience with development finance in Latin America and the Caribbean has generally not been encouraging (Jácome and Pienknagura 2022). The failures, I will argue, were the result of inefficiencies in the administration of development credits; they were not failures in the mobilisation of funds for development, which is the role played by the central bank. In at least one notable instance of success, central bank finance was used appropriately to provide new capacity to provide tourism services, with lasting benefits to the economy.

This essay makes the case for the central bank mandate in open economies to include the mobilising of finance for investment in the capacity to produce internationally competitive exports, including tourism and other traded services. However, the allocation and disbursement of these funds is not the central bank's business. In addition to stimulating growth and development in open economies that are small and import-dependent, expansion in export capacity also moderates inflationary pressures by relieving scarcity on foreign currency markets and apprehension about exchange rate depreciation. It is desirable, whatever the institutional arrangements and assignment of responsibilities between the government Treasury and the central bank, that these agencies jointly design and execute the government's economic strategy. In this way, one avoids the credibility problems, market uncertainty and investment disincentives that are the consequences of a perceived inconsistency between fiscal and monetary policy. In the small open economy there is no need to fortify the central bank to repel attempts at fiscal over-expansion, because the balance of payments, foreign reserve losses and exchange rate depreciation set the limits of fiscal sustainability (Worrell et al. 2015).

After reviewing the literature on the central bank's role in promoting growth and development in the first section of this paper, I present a model of growth which is adapted to the structures of the small open economy. This is the framework within which I provide the rationale for a central bank mandate which includes growth as target. That section is followed by a reinterpretation of the Latin American experience and a critical analysis of the conventional theory of financial deepening and economic development. The next section deals with the importance of coordination between fiscal and monetary policy and the effects on policy credibility and sustainability.

The literature review

Central banks have almost always played some part in the economic growth of the countries they serve. In his comprehensive survey of central banks Singleton (2011) cites intervention to promote economic development among the mandates commonly found in central bank legislation and practice, and Bordo (2007) lists stability and growth of the economy as one of three policy goals of the central bank in his brief historical survey. However, in most recent literature, the bank's contribution is seen as the development of financial markets, rather than the mobilisation of finance by the bank itself. The rationale for this view derives from the seminal work of McKinnon (1973) and Shaw (1973), both dealing with the ways in which the broadening and deepening of domestic financial markets can accelerate the provision of finance for growth. Agénor and Montiel (2008) present a formal model of financial intermediation and growth, demonstrating the effects on the savings rate, the allocation of capital, and intermediation costs and efficiency. They also discuss the relationship between inflation and growth, as well as the importance of maintaining macroeconomic stability in the interest of maximising growth. This focus on the development of financial markets continues to be the approach taken by a majority of central banks; it is a secondary consideration, with the principal concern being inflation. The World Bank (2000), for example, discusses the impact of financial systems development on economic growth, income distribution and poverty, the fragility of financial systems and the benefits and challenges of open financial markets. Chinn and Ito (2005) and Calderon and Kubota (2009) both deal with the question of openness and domestic financial market development, comparing the benefits of financial openness with the potential risks to domestic financial and exchange rate stability. However, in practice De La Torre, Gozzi and Schmukler (2007) found that despite intense reform efforts, capital markets in Latin America remained undeveloped. In a review of the literature on financial development Laeven (2014) found that many capital markets in emerging market and developing countries remained illiquid and segmented, with trading and capitalisation limited to just a few securities. Recent surveys confirm that domestic financial markets play only a minor role in financing investment. (Loretan and Wooldridge 2008; Levy and Bustamante 2021; Montenegro and Edson 2022).

In the meantime, the literature until very recently has been preoccupied with central bank anti-inflationary policy, despite the many theoretical and practical uncertainties about the monetary transmission process and the relationship between interest rates, inflation and growth. The unresolved issues include the impact of changes in the policy interest rate on the long-term rates that are of interest to investors (Carr 2023); uncertainties arising from the credibility of the central bank (Cole, Martinez Garcia and Sims 2023; Meon and Hayo 2023); the complexity of institutional arrangements affecting the monetary transmission (Losbanes et al. 2024); the unresolved issue of fiscal dominance (Svec and Tortorice 2024); and differing views about the nature of the inflationary process itself (Zambrano 2014). Moreover, the widespread belief that inflation targetting by central banks has proved effective is based on a misinterpretation of the observed data and correlations (Hayo and Hefeker 2001).

This preoccupation with inflation at the expense of an equal or greater concern with growth and development is now being challenged in academia and in policy circles. The challenges have emerged from many directions, including questions about the democratic justification

for assigning primacy to the central bank's inflationary mandate (Morris 2024), issues of time consistency and political economy (Gonzalez-Páramo 2024) and credibility problems that arise from the failure to coordinate monetary and fiscal policies (Sedgwick 2023). What is more, the overwhelming majority of central banks worldwide are assigned other macroeconomic objectives along with inflation, though only a few place equal importance on growth and inflation (Khan 2017). Of particular interest to us are those who argue for a direct role for the central bank in the finance of development (Vernengo 2020; Worrell 2015).

The theory of growth in the small open economy

Growth in the small open economy is propelled by investment in exportables, because all production uses imported inputs. This is the defining characteristic of economies that are small.

$$q = \alpha m, \quad 0 < \alpha < 1, \quad \delta m/\delta q > 0 \text{ for all } q,$$

where α is the propensity to purchase imports (m) for production equal to q.

In order to purchase the imports required for the growing economy the country must earn additional foreign exchange. The way to relieve this foreign currency constraint and start the engine of growth is to invest in internationally competitive exports. Note however, that economies of scale are pervasive in international trade, and no small economy will have the human and material resources to raise production to international levels in more than a handful of exports and services.

The characteristics of exports of small economies may be summarised as follows:

- The volume of production is overwhelmingly large relative to domestic consumption of export products and services; there are no possibilities for import substitution.
- The small economy is a price taker on the international market; it sells everything it produces at the ruling price and nothing if the price is higher. Reducing the offer price is pointless.
- There is unlimited availability of finance for competitive exportables, where competitiveness is defined as attaining a rate of return on investment comparable to what the international market offers for the same quality of product.

The domestic savings rate is not a constraint on investment because unlimited finance is available for competitive investment from the international market. What is more, international finance is in US dollars which is the currency needed to purchase whatever imported inputs are needed for the investment.

We may summarize the factors affecting the rate of return as follows:

$$RR_f = RR_d - CRP - ER\ risk.$$

RR_f is the international rate of return, that is, the rate which domestic projects must achieve if the investment is to go forward.

RR_d is the expected rate of return on the investment itself. The factors that will affect this rate include the cost of innovation, any external costs which the investment must bear, the supply and cost of labour and skills, market efficiencies, the regulatory framework and the effectiveness of government services.
CRP is the country risk premium, which is influenced by the sustainability of government's fiscal policy and debt management, other macroeconomic indicators, and social and political stability factors.
The final consideration to be taken into account is the exchange rate (*ER*) risk, which will depend on such factors as the volatility of the exchange rate, losses of foreign reserves, the disparities between local and foreign interest rates and the level of activity on the informal foreign exchange market.

The Central Bank mandate for promoting growth
The two elements where the central bank can make essential contributions to factors which affect the rate of return on investment are innovation costs and the costs of externalities. The challenges of adopting new technology, entering new markets and exploiting new production possibilities are well known. These are the challenges to which I give the title *innovation cost*. The financial market discounts innovation very heavily because there is no basis for estimating the magnitude of the risks associated with any level of probable returns for investment in innovation. Investors will always opt instead for known technologies, markets and policies, where estimates of risk can be derived from past experience.

My argument for assigning responsibility for mobilising finance for innovation to the central bank rests on two influential studies of the problem as it manifests itself in exporting economies. Both studies make the case that finance and other support by government and government agencies directed to private companies are essential for successfully overcoming the initial barriers which reduce the rate of return on innovation below the rate required to be internationally competitive.

Page (1994) is a study of the remarkable export-led growth of eight Asian economies between 1965 and 1990. The study finds evidence to suggest that countries need to pick winners, that is, to identify companies and sectors that have the potential to significantly expand competitive production and lift the growth trajectory to a higher level. Finance and support should be offered to such activity subject to export performance criteria, and competition should be encouraged among potential exporters. Importantly, the export promotion and finance strategy should be backed by macroeconomic stability, educational policies to ensure that the labour force benefits from broad-based primary and secondary skills, and the provision of effective public services.

A more comprehensive case for the promotion and finance of innovation is made by Mazzucato (2013). She makes the case that governments in all advanced countries have led the way in the development of innovative export strategies. The reasons are that the state has the capacity to make big bets on important new technologies that have substantial export potential; the state can absorb risks that are too high for any private company to undertake; and the state can venture into new areas where private companies have no information on which to make an assessment of the risks of investment. Mazzucato grounds her argument in

experiences drawn from the world's leading advanced countries; the countries differed widely in the mechanisms and institutional arrangements through which they led the investment strategy but without exception, the state support proved to be essential for the success of the export market strategy.

Once it is accepted that government finance is essential for innovation, the responsibility for securing the necessary finance falls naturally to the central bank, the government's banker and financial advisor. There is a strong case for mandating the central bank to mobilize the finance for investment by governments and their agencies to raise the rate of return on innovative investment to internationally comparable levels. The preferred approach would be that the central bank mobilizes funds from domestic and international markets for on-lending to development banks, investment banks, equity funds, and other forms of financing for innovation.[3] The funds would be transferred to the ultimate lenders in the form of loans, equity, guarantees or other suitable arrangements, at subsidized rates. The terms and arrangements would be such as to ensure that the funds reach investors at a cost low enough to raise the risk-adjusted rate of return to the international level. The cost of the subsidy would be absorbed by the central bank, to be deducted from the bank's transfer to the government at the end of its financial year. This assignment of responsibilities plays to the strengths of the central bank on the one hand – raising finance on domestic and international markets – and of the lending institutions on the other hand, that is, the administration of the credits.

In addition to the mobilization of financing, the central bank may contribute to increasing the return on investment in innovation through its role as advisor to the government. In the management of government finances ,the central bank should play its part in mobilising funds for priority investment projects in infrastructure and other capital projects which can reduce the external costs which would otherwise have to be borne by investors.

The costs of environmental protection and renewable energy are cases in point. In order to make substantial progress towards achieving desirable goals for environmental protection and adoption of renewable energy, government subsidies and support for investment in the required technologies are essential.

Finally, all central banks in small open economies, even those that have no development mandate, contribute to improved competitiveness to the extent that they coordinate with government Treasuries to stabilize the macroeconomy, maintain fiscal credibility and reduce uncertainty and perceived country risk.

A reinterpretation of Latin American experience

The exclusion of the provision of development financing from the mandates of Latin American central banks is largely the result of experiences of high inflation and economic

[3] The essential point is that the political economy issues related to the allocation of development credit remain, but they are not debt management issues, and therefore not within the scope of what the central bank is mandated to do. For discussion of allocation issues of financing innovation, see, for example Carreras (2020), Patil Sankar and Sonawane (2018), Saliya (2011) and Schapiro (2012).

stagnation in the 1970s and 1980s. Excessive money creation in local currency was at the root of the inflationary surge; much of that funding was directed to the financing of innovation. In their survey of central bank independence and inflation in Latin America Jácome and Pieknagura (2022) point out that central banks effectively became development banks.

The finance of innovation by Latin American central banks failed for two reasons. Firstly, the proportion of funding in local currency may have been too large. In practice, the portion of domestic funding for any project cannot be larger than the domestic content of the investment project. The majority of funding has to be in foreign currency to cover the purchase of imports, the requirement for which may well be larger for investment projects than for household consumption. Whenever foreign financing is insufficient to cover the import requirement, any domestic financing the central bank seeks to provide reduces the stock of foreign reserves when the import purchases are made.

The second and more important reason for the unfortunate Latin American experience was poor credit management by the development banks and other agencies responsible for allocating the financing provided by central banks. The failure was with the institutions responsible for allocating credit. While the mobilization of financing is expertise which a central bank must have in order to manage the financing of government operations and investment, the allocation of credit requires a different set of skills which the central bank cannot be expected to have. The mistake, where that was the case, was in giving the central bank the responsibility for allocating the credit that it mobilized. By and large, the record of the management of development finance in Latin America and the Caribbean has been poor, and many development banks have been closed after persistent losses. The mobilization of finance, which is properly a central bank function, should be separated from the allocation of that funding, which is beyond the central bank's expertise.

It may be argued therefore, that the inflationary consequences of central bank mobilization of finance for innovation in Latin America were a failure of the central bank only to the extent that the bank may have raised domestic currency finance when foreign currency was required. That is a question which appears not to have been investigated. However, there can be little doubt that the main failure was in the allocation of the finance that was provided. This conclusion is corroborated by the fact that Mexico's Cancún project, financed by the Bank of Mexico, is as remarkable a success as may be found in any of the Asian Tiger economies.

Financial deepening and economic development

The development and extension of financial services plays a vital role in the improvement of the material quality of life in emerging market and developing countries (Worrell 2023, chapter 10). However, domestic financial systems development does not contribute materially to the financing of innovation for a number of reasons. Firstly, commercial banks, which are typically the dominant financial institutions in developing countries, have a short-term horizon because of the nature of their liabilities. Their financing of enterprise is mainly for working capital needs; banks avoid long-term financing of the kind companies require for investment.

Secondly, the available pool of domestic financial savings is too small to make a significant contribution to the financing of innovation. Because the risks of such finance are unknown, prudent financiers will limit the proportion of their portfolio assigned to innovative investment. The small percentage of the domestic pool that the private sector can prudently lend for innovation is insufficient to propel the export drive.

Thirdly, most of the financial requirements for innovation have to be supplied in foreign currency because of the high import content of the investment. Domestic financial institutions will necessarily have to source such finance on foreign markets.

Fourthly, despite the efforts and resources that have been devoted to the development of equity and bond markets in emerging market and developing economies over more than four decades, these markets remain of little significance almost everywhere, with only a handful of exceptions in some large countries.

The consensus that promotes domestic securities trading as a development tool needs to be re-evaluated. For one thing, local trading platforms are mainly concerned with local currency finance, whereas foreign currency finance is needed for innovative investment. Foreign finance is available from major markets in London, New York and other financial centres in unlimited amounts for the international competitive products and services which drive development. What is more, the development of domestic securities markets does not address the question of the subsidies that are needed to cover the unknown risks of innovative investment.

Policy coordination, fiscal dominance and credibility

Except for a brief interval beginning in the 1990s, economic orthodoxy has taken for granted that official policy is of necessity devised, executed and monitored as a joint effort of all responsible government agencies, principally the Treasury and the central bank. However, in the past 25 years the notion that the central bank could be made independent by legislation and enforce financial discipline on the Treasury, has gained much credence. A majority of central banks worldwide now claim independence of their government's Treasuries.

A small minority of economists has maintained that economic policy should be a joint effort of the Treasury and the central bank: "the central bank and the Treasury must work together on the design, implementation, monitoring and, when necessary, the revision of macroeconomic policy, and on providing the public with information on ongoing economic developments and interpretation of the macroeconomic strategy" (Worrell 2000, abstract). In the small open economy the balance of external payments, loss of foreign reserves and depreciation of the exchange rate together impose a hard limit on the fiscal deficit that may be sustained over time. Whenever the public sector borrowing requirement exceeds the market supply of finance for the government, expansion in the supply of domestic money will increase the demand for foreign currency to purchase imports if the central bank adds to base money by providing funds to fill the unfinanced gap. Unless the fiscal excess is reversed, a loss of foreign reserves will trigger depreciation of the exchange rate resulting in a rise in domestic inflation. Prudent fiscal management is therefore an effective means of controlling inflation in the small open economy. Monetary policy plays a supporting role in stabilizing

financial markets and maintaining policy credibility in the short run - the interval during which fiscal adjustment measures come into full effect. The coordination of fiscal and monetary policies is essential for the success of the adjustment strategy

This process of price formation and inflation management may be represented by the following model, which is based on Worrell (2024).

The economy of the small open economy may be separated into the production of tradables, whose prices are given by the international market thanks to the economy's openness, and nontradables, whose prices adjust in response to demand and supply.

The price level p is a weighted average of the price of tradables p_t and the price of nontradables p_n, where the weights are the shares of tradables and nontradables in total output, q_t/q, q_n/q. Since the structure of the economy will not change appreciably from year to year, these proportions may be taken as constant parameters α_t, α_n, where $\alpha_t + \alpha_n = 1$ and $q_t + q_n = q$.

The price level is:
$p = \alpha_t.p_t + \alpha_n.p_n$

The tradable price is the product of the foreign price p_f and the exchange rate e:
$p_t = e.p_f$

The equation for the determination of the price of nontradables is conventional, reflecting the cost of the intended output:
$p_n = f_1(q_n, p_t, ulc, r)$ ……(1)
where p_t is the price of supplies, materials and other inputs (which are all importables), ulc is the unit cost of labour, and r is the interest rate, the opportunity cost of financing inventories, depreciation and investment in expansion and new technology.

At the beginning of the year nontradable producers offer an amount q_n at the above price. The amount they offer is assumed to be influenced by the previous year's sales and their expectations about consumers' spending power in the coming year a^*:
$q_n = f_2(a^*, q_n(-1))$ …….. (2)

As the year progresses, both p_n and q_n are adjusted periodically in light of actual sales, to result in the observed price and output of tradables.

Actual spending power is represented by the identity:
$a = q + \Delta MB/p$
This assumes that income and high-powered money have identical consequences for spending, but it might easily be substituted for specifications that offer a fuller description of wealth effects. The simpler specification suffices for expository purposes.

The increase in spending power generates a demand for imports, m:
$m = f_3(a)$ ……(3)

Losses of foreign reserves result from surges in imports:
$\Delta FXR = p_t(x - m) + FDI + B_f$

The exchange rate adjusts as the foreign currency market reacts to changes in foreign reserves ΔFXR:
$e = f_4(\Delta FXR)$ ……(4)

The balance of payments provides an objective measure of fiscal sustainability. The addition to the money supply is sustainable only if there is a sufficient increase in exports x, foreign investment FDI or net foreign borrowing B_f to avert major losses of foreign reserves that will induce a devaluation of the exchange rate.

This system yields the reduced form for price formation which captures the effects of central bank financing of government deficits directly via the prices on nontradables and indirectly through the devaluation of the exchange rate:
$p = f_5(e, p_f, q_t, \Delta MB/p, ulc, r, q_n(-1)$ ……. (5)

This model captures the essential need for consistency of monetary and fiscal policy in the small open economy; they are two sides of the same coin. It shows that inflation which is domestically generated is the result of unsustainable fiscal policy, and can only be eliminated by restoring fiscal sustainability. Monetary policy can play a useful role in maintaining financial market stability in case of an economic shock, but only if appropriate fiscal policy has been taken to eliminate uncertainty about the value of the exchange rate. The need for a unified institutional framework for policy formulation becomes obvious.

Conclusion

In any country where the growth of the economy depends on an increased supply of foreign currency, there is a role for the central bank to mobilize finance from international and domestic sources to provide subsidized funding for investment in innovation which will increase the country's capacity to earn foreign currency. This role falls naturally to the central bank as the government agency responsible for the public sector's borrowing strategy. It is generally accepted good fiscal practice to seek funding for government's capital expenditure program, including funding for infrastructure that contributes to the country's international competitiveness. The burden of this paper is that, in addition, finance should be mobilized to provide subsidized funding for innovation, that is to say, investment in new technologies, new markets, and new products and services. A government subsidy may be conveniently provided in the process of transfer of funds from the central bank to the financial institutions responsible for the distribution and management of credit. This could be done by providing finance at rates below the central bank's own cost of funds to commercial banks, development banks, venture capital institutions and other lenders for disbursement to innovative exporters. Investment projects should be selected for funding in a competitive process on the basis of appropriate criteria for the quality and service, and the soundness of their business plans and projections. Disbursement should be provided over time on the basis of export performance.

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