



The real exchange rate and economic development[☆]

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ABSTRACT

Recent empirical studies have found a robust correlation between competitive exchange rates and economic growth in developing economies. This paper presents (i) a formal model to help explain these findings and (ii) econometric evidence on the relation between investment and the real exchange rate. The model emphasizes the existence of (hidden) unemployment as a source of endogenous growth, even under constant returns to scale. Growth promoting policies, however, affect the external balance, and two instruments are needed in order to achieve targets for both the growth rate and the trade balance. The real exchange rate can serve as one of those instruments. The implications of the model for the relation between real exchange rates and the rate of capital accumulation find support in our econometric analysis.

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1. Introduction

Recent studies have found a robust correlation between competitive exchange rates and economic growth. An interesting example is the study by Hausmann et al. (2005) which identified and analyzed determinants of ‘growth episodes’ in the latter half of the twentieth century and found that real exchange depreciations tend to precede sustained growth spurts. Other work includes Razin and Collins (1997), Polterovich and Popov (2002), Levy-Yeyati and Sturzenegger (2007), Gala (2008), Rodrik (2008), and

Berg et al. (2008). This emerging body of empirical evidence – along with East Asia’s rapid accumulation of reserves in the pursuit of what is widely seen as ‘export-led growth’ – has stimulated interest in the theoretical linkages between the real exchange rate and growth.

The growth enhancing effects of competitive exchange rates are found primarily in developing countries,¹ and this finding motivates our approach in this paper. Unlike developed economies, LDCs typically have large amounts of (hidden) unemployment and the development process involves the mobilization of these unemployed resources. An obvious example is China where record growth rates over the last three decades have involved moving millions of workers from the rural hinterland to the industrialized urban areas, mainly in the coastal provinces in the south and south east. The rural areas have low productivity and significant under- and informal employment, and the goods produced in these informal sectors tend to be relatively non-traded in nature.

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¹ See, for example, Rapetti et al. (2011).

The classic Lewis model captures the dual character of developing economies and the elastic supply of labor to the modern sector but pays little attention to trade and aggregate demand. These aspects are addressed in open-economy versions of Keynesian and Kaleckian models in which depreciations tend to boost demand and raise output in the short-run. A redistribution of income towards profits, moreover, can stimulate long-run growth in a profit-led regime in these models.² The 'balance of payments constrained' growth model (BPGC), first developed by Thirlwall (1979), adds to this argument by suggesting that the need for external balance puts a limit on the sustainable levels of aggregate demand.³ To the extent that real exchange rate depreciations relax the external constraint, a depreciation would promote growth in this framework.

Like the Kaleckian and BPGC models, the model in this paper focuses on the mobilization of unemployed resources, but there are important differences. Both the Kaleckian and the BPGC models emphasize quantity adjustments over external relative price adjustments, and the real exchange rate is often treated as an exogenously given constant in these models. Real depreciations, moreover, may be expansionary, but the specifications of export and import functions in most BPGC models imply that continuously depreciating exchange rates are required in order to obtain a lasting effect on growth. Our analysis, by contrast, sees the real exchange rate as a key variable, and we assume that the demand for exports is perfectly elastic.

We set up a stylized model of a small open economy with two sectors; a modern sector produces a tradable good while the output of the traditional sector is non-tradable. Only the former uses capital and, owing to the underdeveloped nature of the industrial sector, all capital goods are imported. The framework has affinities with the 'dependent economy model,' but unlike the standard versions of this model, we assume that there is substantial hidden or open unemployment.

The model implies that changes in the real exchange rate affect the level and composition of employment and that the real exchange rate can, therefore, be used to facilitate sustained capital accumulation and economic growth. The basic intuition behind these results is straightforward. Growth is endogenous in a dual economy without full employment, as evidenced for instance by the classic Harrod-Domar and Lewis models. This endogeneity of the growth rate also applies to open economies, but in open economies one needs to consider the implications of growth promoting policies for the external balance. An increase in the growth rate may require a more competitive exchange rate, and this adjustment need not happen automatically.⁴ Recently, Rodrik (2009)[p. 23] has argued

that, in the presence of trade balance constraints, "industrial policy can be assigned to the structural transformation target while the exchange rate is assigned to the external balance." Our model can be interpreted as a formal development of this argument.

Mainstream macroeconomic theory has traditionally seen the real exchange rate as an endogenous variable whose value is determined in a general equilibrium set-up by 'deeper' parameters such as preferences, factor endowments, and productivity. In accordance with this view, the role of exchange rate policy in causing or sustaining growth has been played down. A body of literature shows, however, that the real exchange rate tracks the nominal exchange rate quite closely over time which suggests that targeting the latter may effectively target the former as well, at least in the short- and medium-run. Moreover, the ability of policy to target the exchange rate in the presence of capital mobility may have been underestimated. Governments have a variety of policy options including monetary and fiscal policy, saving incentives, capital controls, and reserve management, and the evidence suggests that governments do indeed use these instruments to influence exchange rates.⁵ These empirical observations are consistent with the model in this paper. The model has a continuum of equilibrium paths. All of the paths have balanced trade, but the growth rates and the real exchange rates differ across paths, and the existence of these different paths leaves an opening for policy to influence the outcome.

The empirical part of the paper examines the implications of the model for the relationship between real exchange rate changes and the rate of capital accumulation. In the absence of a sophisticated industrial sector that has the capacity to supply domestic capital goods requirements, a more ambitious accumulation target requires an undervalued exchange rate to offset the effects on the external balance. We show that real exchange rate undervaluations are (statistically) significant drivers of investment growth, but only in developing countries. This result, which is in line with the model, is robust to different specifications, controls, and econometric methods.

To the extent that underemployment of resources and the balance of payments constraint play a crucial role, two important recent papers that perhaps come closest to this contribution are Gala (2008) and Porcile and Lima (2010). However, the former explicitly focuses on the short run, assuming adjusting capacity utilization and nominal wage rigidity and, unlike our two-sector version of a small open economy, both use a one-good model with mark-up pricing in an "imperfect substitutes" framework. The Porcile and Lima study is purely theoretical while

² See, for example, Blecker (2002). To the extent that they come at the expense of other countries, these effects in Kaleckian models have a beggar-thy-neighbor flavor. See Blecker and Razmi (2008) for an investigation of the "fallacy of composition" argument.

³ See Porcile and Lima (2010) for a recent contribution in this tradition.

⁴ See, for example, Chinn and Wei (2008). The lack of exchange rate adjustment in the face of external imbalances may hinder growth, as has been eloquently illustrated in recent decades by the economic performance of several developing countries that experienced *stop-and-go*

cycles during which foreign exchange shortages typically led to the interruption of growth instead of smooth exchange rate depreciations.

⁵ A detailed discussion of these policy issues is beyond the scope of this paper but see, for example, the 'fear of floating' literature emanating from Calvo and Reinhart (2002), who show that, in the aftermath of the Asian crises, developing countries have systematically intervened in the foreign exchange market to manage the behavior of exchange rates. Levy-Yeyati and Sturzenegger (2007) find evidence that in the 2000s such interventions have aimed to maintain competitive exchange rates or to avoid overvaluations.

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