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Devaluation and investment in an optimizing model of the small open economy

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Abstract

We analyze the impact of devaluation on sectoral investment, aggregate investment, and real output in a fully articulated, optimizing model of a small open economy where installed capital is sector-specific and new capital goods are constructed by combining nontraded inputs with non-competitive imported machines. Investment falls when the intertemporal elasticity of substitution and the share of domestically produced capital goods are not implausibly large. This result is robust to a wide range of parameter values and to the possibility that saving–investment decisions are made by heterogeneous agents instead of a representative agent.

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Private investment is still far below its 1980 level in many parts of the Third World. The decline in investment has attracted considerable comment and is at the heart of the controversy about whether the adjustment programs sponsored by the World Bank and the IMF are consistent with recovery through growth.[1]

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[1] See Faini and de Melo (1990), Greene and Villanueva (1991), Serven and Solimano (1992), Bleaney and Greenaway (1993), Chibber et al. (1992), and Stewart (1994).

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It is important in this connection to understand how large real devaluations of the currency, the signature policy of Bank/Fund programs, affect investment. Supporters of the Bank/Fund approach contend that devaluation improves external balance by raising production in the tradables sector and shifting demand toward nontraded goods. On this perspective, there is no reason to think devaluation is inherently biased against investment spending. Sceptics counter that the supply response in the tradables sector may be weak when exports consist predominantly of primary products and that devaluation tends to depress investment in other sectors by increasing the cost of imported capital goods. To date, neither theory nor empirical studies have made much progress toward resolving the issue. The formal theoretical literature has analyzed the response of investment to devaluation only in one-sector, large country models (Buffie, 1986; Risager, 1988) that fail to shed light on the conditions under which expansionary effects operating in the tradables sector might prove stronger than contractionary effects impinging on the nontradables sector.[2] Computable general equilibrium models, on the other hand, have plenty of sectors but lack secure theoretical foundations. The vast literature in this area has yet to analyze the effects of devaluation in a rigorous intertemporal model consistent with optimizing behavior and rational expectations.

The potentially relevant empirical literature consists of (i) econometric estimates of private investment functions in LDCs and (ii) studies that evaluate the impact of structural adjustment programs. The former are of little help because the real exchange rate seldom appears in the list of regressors, and the latter do not support any conclusion stronger than that adjustment programs are not working as intended: while investment is invariably lower in adjusting than in non-adjusting countries, it is not clear whether this reflects the impact of devaluation, other policies, uncertainty associated with the debt overhang, or the continuing effects of forces that drove the economy into a downturn before the adoption of adjustment measures.[3]

In this paper we investigate the impact of devaluation on sectoral investment, aggregate investment, and real output in a fully articulated, optimizing model of a small open economy where installed capital is sector-specific and new capital goods are constructed by combining nontraded inputs with non-competitive imported machines. The model captures the critical tension emphasized in the policy debate: devaluation increases profits and reduces the relative price of capital in the tradables sector but has the opposite effects in the nontradables

[2] This point is emphasized by Lizondo and Montiel (1989), Serven and Solimano (1992), and Agenor and Montiel (1995).

[3] Faini and de Melo (1990) find that the real exchange rate has a strong negative effect on private investment, but the estimates in Serven and Solimano (1993) are weak and statistically insignificant. For comparisons of adjusting and non-adjusting countries, see Faini and de Melo (1990), Harrigan and Mosley (1991), Faini et al. (1991), Elbadawi et al. (1992), World Bank (1992), and Bleaney and Greenaway (1993).