Devaluation (levels vs. rates) and balance of payments in a cash-in-advance economy

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Abstract

This paper investigates the consequences of the currency devaluation, both in levels and rates, on the balance of payments in a cash-in-advance economy with finite horizons, endogenous capital accumulation and international capital immobility. In this context, a once and for all currency devaluation induces a balance of payments surplus, whereas a sustained increase in the rate of devaluation produces, in principle, an ambiguous effect on the balance of payments. If however non-restrictive assumptions on some structural parameters are made, an increase in the devaluation rate leads to a balance of payments surplus, the exact opposite of Calvo’s result [J. Int. Econ. 11 (2) (1981) 165].

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1. Introduction

In a monetary small open economy operating under international capital immobility and a predetermined exchange rate regime, a once and for all currency devaluation leads to a balance of payments surplus while a sustained increase in the rate of devaluation induces a balance of payments deficit. These results have been demonstrated by Calvo (1981) in a very simple macroeconomic setup, characterized by an immortal representative agent with a fixed endowment, real money balances—the
only asset of the system that varies according to current account imbalances—inserted into the utility function, consumers that receive lump-sum compensation for the inflation tax and purchasing power parity.

The effect of the simple exchange rate devaluation on the balance of payments relies upon the “monetary approach” mechanism, while the effect of the increase in the devaluation rate depends on the current account determination of the money supply and the long-run reduction of money holdings determined by higher inflation.

Despite the simplified framework considered, Calvo’s findings are very general and robust, in the sense that they are not qualitatively affected by other ways of introducing money into the economy and/or by the consideration of an endogenous capital stock, as an alternative asset to real money balances (see, for example, Dornbusch and Giovannini, 1990; Obstfeld and Rogoff, 1996; Turnovsky, 1997).¹

This paper investigates the consequences of the currency devaluation, both in levels and rates, on the balance of payments in a cash-in-advance economy with finite horizons and endogenous capital accumulation. We focus on the case of a Clower constraint imposed on consumption spending alone.

We discover that, for the simple devaluation, the effect shown by Calvo is confirmed, whereas for a sustained increase in the rate of devaluation the effect on the balance of payments is, in principle, ambiguous, reflecting a possible departure from Calvo’s findings. However, if non-restrictive assumptions on some structural parameters of the model are made and/or the role of government money transfers in financing consumption expenditure is relatively modest, an increase in the rate of devaluation induces a balance of payments improvement, the exact opposite of Calvo’s result.

The rationale for the consequence of the rate of devaluation on the balance of payments obtained in our model is due to the endogeneity of capital stock and the OLG demographics without intergenerational altruism, on the one side, and to the cash-in-advance constraint on consumption spending, on the other. In fact, the first two assumptions assure that an increase in the rate of devaluation—equivalent to a rise in inflation since purchasing power parity holds—augments long-run capital stock and consumption because the lump-sum distribution of seignorage increases saving through intergenerational redistribution of income. The latter assumption—ensuring that money demand is a quasi-fixed proportion of consumption as the money-consumption ratio can solely respond to long-run inflation—may imply, as a consequence of the Tobin effect on capital stock, a steady-state increase in real money holdings, namely money balances accumulation along the transition path through a balance of payments surplus.

¹ Neither is the introduction of an endogenous labor-leisure choice capable of altering these results, as can be easily deduced from the dual characterization of the present economic context represented by monetary growth models (see Wang and Yip, 1992).
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