



The production structure, exchange rate preferences and the short-run–Medium-run macrodynamics



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ABSTRACT

This paper focuses on the role of the production structure in shaping output shares, wage bargaining and the dynamics of the real exchange rate in a Neo-Kaleckian macroeconomic model. While changes in the rate of capital utilization ensure the short-run equilibrium, in the medium run the real exchange rate must adjust to stabilize the labor market and the external sector. Interestingly, these variables define a trilemma in which it is not possible for workers to have their desired wage share, for firms to have their desired profit share in output and for the economy to have a stable deficit in current account to GDP ratio at the same time. Structural change allows for a way out of the trilemma as it makes possible a higher wage share for a given profit share with external equilibrium. The corollary is that distribution and high employment cannot be sustained solely by conventional fiscal and monetary policies: they also require industrial and technological policies that redefine the structural parameters of the system, as a form of reconciling conflicting claims with external equilibrium.

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1. Introduction

This paper discusses the role of the production structure in growth and distribution in an open economy in which there are heterogeneous preferences over the real exchange rate. The model contributes to the literature on Neo-Kaleckian macrodynamics in two ways.

Firstly, it offers a discussion of how the production structure affects the short- and medium-run dynamics and the equilibrium configurations of the economy. In the short run the adjustment takes place through changes in the rate of capital utilization; in the medium run prices, wages

and employment adjust to secure a stable distribution of income and a stable current account/GDP ratio. This paper highlights the role that the parameters related to the production structure play in defining employment, income distribution and growth in equilibrium. It is argued that the political and economic viability of the transition toward the medium-run equilibrium may be challenged in countries whose production structure shows little diversification and low levels of technological intensity. As a corollary, not only should macro policies be concerned with traditional short term macro variables (inflation, real wages, unemployment, investment), but they also should work in close association with industrial and trade policies to promote structural change.

Secondly, the model emphasizes the interplay between different actors in shaping the real exchange rate. The literature has consistently pointed out that the real exchange

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rate is crucial in the distributive conflict (Frenkel and Rapetti, 2011).¹ When firms set their mark up, they do have a say on the real exchange rate; when workers strive to improve their income share and demand (and obtain) higher nominal wages, this is not inconsequential for the real exchange rate; and when the government manages the fiscal, exchange rate and monetary policies, it is also (either directly or indirectly) using the real exchange rate as a tool to attain its own objectives—either for controlling inflation, encouraging growth or correcting trade unbalances. Each actor has its own preferences on the real exchange rate, whose equilibrium level emerges from the interplay between the power and preferences of these actors.

Sections 1 and 2 deal with the short run; Sections 3 and 4 address the medium run. The model assumes a small open developing economy in which the supply of labor is infinitely elastic for a given labor share in total output (the implications of the latter assumption are further discussed later). The government uses the exchange rate policy to achieve BOP equilibrium in a regime of dirty fluctuations with an open capital account. In all cases the impact of the production structure on dynamics and equilibrium is discussed, and policy implications derived from the model.

1.1. The short run: baseline model

There are three economic agents, the government, workers and firms. The international economy supplies capital and intermediate goods, demands consumer goods (which is what the developing economy exports), and lends in response to deficits in current account. There is perfect substitutability between foreign and domestic capital, and hence the interest rates in the domestic and international economies are equal—the risk premium for foreign lending is not considered. The economy produces only one good that can be used for consumption and investment purposes. All wages are spent in domestic consumer goods (workers do not save), while all profits are saved (capitalists do not consume). Foreign capital goods are a fixed proportion $(1 - k)$, where $k < 1$ of total investment; k is the domestic share in the total supply of capital goods. The government intervenes in the exchange market by selling and buying reserves of foreign currency in a managed-float exchange rate regime. Government investment is part of the autonomous component of investment, while government consumption is part of workers' consumption.

Both the infinitely elastic supply of labor and the fixed k are assumptions consistent with the focus on developing economies. Such economies tend to be highly dependent on foreign capital goods and usually lack the technological capabilities required to produce such goods. In addition, these economies have a large reservoir of labor that can be mobilized in such a way that there is no labor shortage when the economy grows. A note of caveat should be made in this regard. The assumption of a fixed k is not so strong considering that the periods of time analyzed are the

short run and the medium run, which define a timeframe of around 2–3 years. Installing new productive capacity in capital goods takes longer than that; hence the rigidity of the assumption is realistic. On the other hand, the assumption of infinitely elastic labor supply is admittedly more heroic, since moving people from informality to formal markets without a significant loss in productivity may be difficult. Some training and an upgrading of skills may be required—and this is costly and takes time. The implications for the analysis of relaxing this assumption are discussed in Section 3.

Formally, the production function is of fixed coefficients: there is no substitution between domestic capital, labor, foreign capital and foreign inputs.

$$Y = \min(aL, bM^m, \nu K), \quad (1)$$

where Y is output, a is labor productivity, L is total employment, b is the productivity of foreign intermediate goods, M^m is the amount of foreign intermediate goods, ν is the productivity of capital and K is the total capital stock comprising domestic capital goods and imported capital goods, $K = kK_d + (1 - k)K_i$. There is imperfect competition in the goods markets, which allows firms to set prices applying a mark up factor over unit variable costs:

$$P = z \left(\frac{W}{a} + \frac{P^* E}{b} \right) \quad (2)$$

The level of the mark up factor (z , which is one plus the mark up) responds to the firms' degree of monopoly. Variable unit costs depend on the productivity of labor and foreign intermediate goods, the nominal wage level (W), the foreign price level (P^*) and the nominal exchange rate (E), defined as the price of the foreign currency in terms of the domestic currency—in such a way that a higher E and a higher P^* mean depreciation of the domestic currency, hence a rise in international competitiveness. Conversely, a lower P means ceteris paribus an appreciation of the domestic currency (the foreign currency becomes more expensive). The real exchange rate is $q \equiv P^* E / P$ —the cost of one unit of foreign goods in terms of units of domestic goods. Note that (q/b) is the share of foreign intermediate inputs in total production costs.

As a general rule, the economy does not fully utilize its capital stock. This is consistent with the assumption of imperfect competition and constant returns to scale in the production function. The rate of capacity utilization of the capital stock, u , is given by the ratio between effective output and the potential output which can be produced using the capital stock at its (technology given) maximum level of productivity (ν):

$$u = \frac{Y}{\nu K} \quad (3)$$

The workers' share in output (σ) is:

$$\sigma = \frac{WL}{PY} = \frac{\omega}{a} \quad (4)$$

where ω is the real wage, while L is total employment (as defined above). With some algebraic manipulation (see

¹ Some Neo-Kaleckian models which stress the role of the real exchange rate are Blecker (2011a,b), Cordero (2004), Lima and Porcile (2012), Rapetti (2011), Razmi (2010), Razmi et al. (2012), and Vera (2010).

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