Structuralist Development Macroeconomics Research Group

SDM

A Theoretical Framework for a Structuralist Development Macroeconomics and New-Developmentalism

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Overview

- Structuralist development economics was formulated between 1940 and 1960 by a group of economists associated to the transition of the League of Nations to the United Nations.
- Their approach as well as Keynesian macroeconomics were dominant between 1940 and 1960, greatly due to the occurrence of the Great Crash of 1929 and the Great Depression of the 1930 decade, which caused the collapse of economic liberalism and the neoclassical theory which legitimize it.
- However, from the economic slowdown that occurs in the years 1970, in rich countries, neoliberal ideology returned and neoclassical economic theory that justified it "scientifically" became hegemonic again.

Overview

- From the beginning of the year 2000, however, after a succession of financial crises, it became clear the failure of neoliberal proposals.
  - They do not guarantee either stability or economic growth or a reasonable distribution of income.
  - On the contrary, it only benefited a restricted minority.
  - From the global financial crisis of 2008, it became also clear to rich countries the failure of neoliberalism.
- Then, since the beginning of the year 2000, a set of new macroeconomic policies and development strategies that began to be developed that came to be known “new developmentalism”, and a new theory justifying it – “structuralist development macroeconomics” – emerged.
- In this paper we summarize the new ideas.

Macroeconomics for the long run

- Usually economic textbooks treat separately macroeconomics, which is seen as the study of cyclical fluctuations, and economic development, seen as the study of the long-term trend of capitalist economies. However, recent developments in the econometrics of time series had shown that it is incorrect the decomposition of real output behavior in "trend" and "cycle“.
  - This is because the time series for the gross domestic product, both for developed and developing countries, present "unit root", so that temporary shocks – in demand or supply – have permanent effects over current output.
  - Thus, the cyclical component of economic activity, traditionally associated with the variations of aggregate demand in the short term, affects the growth trend of capitalist economies in the long term. In this context, the growth trend becomes dependent on the trajectory that capitalist economies effectively described over time. This phenomenon is known in the literature as "path dependence" -

Structuralist Development Macroeconomics

- It is not therefore reasonable to separate macroeconomics from the theory of economic development.
- More reasonable is to unite the two areas under the name of *macroeconomics of development*.
- But as our vision of economic development is a structuralist vision, what we will introduce here is a *structuralist development macroeconomics* that can be *defined* as follows: is the economic theory that explains economic development as a historical process of capital accumulation with incorporation of technological progress and structural change in which the accumulation depends on the existence of profitable investment opportunities offered by the sustained growth of demand, which, on its turn, depend on the even increase of the domestic market and of exports.

Development pulled by demand

- In an economy that already done its industrial revolution or its capitalist revolution and become a middle-income country, long-term growth is determined by aggregate demand.
- In a mature capitalist economy, albeit in a developmental stage, the means of production are produced within the system, so that availability of then can never be taken as given.
- In this context, the rate of creation of productive resources is determined by the rate of expansion of aggregate demand, more specifically, by the expansion of those components of aggregate demand that are autonomous in relation to the level and/or the change of output and income, since it is this expansion that creates opportunities for profitable investments and motivates the capitalists or entrepreneurs to invest

Development pulled by demand

- In a small open economy that does not have a convertible currency as in the case of developing countries; the autonomous component of aggregate demand is constituted by exports.
- Economic development depends therefore mainly of exports.
- Domestic consumption cannot lead long-term growth unless wage share income is persistently increasing over time, what is, in principle, incompatible with a satisfactory expected profit rate for entrepreneurs (unless technical progress is of a capital saving type).
- Another condition for consumption led growth is that consumer debt is growing over time what is also not sustainable.
- Thus, the existence of limits to the growth of wage share makes it impossible to pull output growth indefinitely through wage increases ahead of productivity growth.
- An alternative - a growth led by government spending – it is also untenable, because these expenses will sooner or later lead to inflation and to a balance of payments crisis.

Export-led Growth

- The growth rate of exports is equal to the product between income-elasticity of exports (ε) and the growth rate of world income (z).
- So we can establish that the long-run growth rate of real output (g^*) according to the theory of demand-led growth is given by:

$$g^* = \varepsilon z$$

"External constraint" and capacity constraint

- Up to this point we assume that the output level adjusts itself, in the long term, to the growth of autonomous aggregate demand which is constituted fundamentally by exports in the case of a small open economy with non-convertible currency.
- However, the economy might not present a long-term growth rate equal to the value given by equation (1) due to the presence of constraints to expanding the level of production at the rate determined by the expansion of exports.
- These restrictions arise from the need to maintain the balance of payments balanced in the long term, as well as the existence of factors that prevent the full adjustment of the productive capacity of enterprises to the projected growth of its sales

Balance of Payments Equilibrium Growth Models

- The concept of balance of payments equilibrium growth rate developed by Thirwall start from the finding that cumulative causation models of Kaldorian inspiration, in which the growth rate of demand for exports is the engine of long term growth, are incomplete for not include its formal analytical structure a condition for equilibrium of balance of payments.
- In this context, dependent on the relationship between income elasticity of exports and income elasticity of imports, a growth path led by exports could be unsustainable from the point of view of the balance of payments.
- Indeed, one of the classical thesis of latin-american structuralist thought was that export of primary goods or commodities was relatively inelastic with respect to income increases in the rich countries, while income elasticity of imports of manufactured goods by developing countries was greater than one.
- From that premise, who had also served as the basis for the tow-gap model, Thirwall argued that a path of accelerated growth pulled by exports could generate an increasing trade deficit due to an unsustainable growth in imports.
- In this context, the feasible long-term growth rate would be the one compatible with the balance of payments equilibrium

Thirwall´s Law

- According to Thirwall, the balance of payments equilibrium growth rate is given by:
- (2) $$g^{**} = \frac{\varepsilon}{\pi} z$$

- Where: is the income elasticity of exports, is the income elasticity of imports, *z* is the growth rate of world income.

Exchange rate and the endogenity of income elasticities

- When the level of real exchange rate is chronically overvalued due to the non-neutralization of Dutch disease or due to high inflows of foreign capital, the productive structure of the country will be affected, inducing a perverse specialization process in production of goods intense in natural resources and causing low growth due to de-industrialization.
- Alternatively, when the country manages to counteract the tendency to cyclical overvaluation of real exchange rate, a balanced exchange rate at a level compatible with the "industrial equilibrium" enable a process of industrialization in which country is able to continuously increase the generation of added value of the production process.
- **This means that the productive structure of a country and, consequently, the income elasticities of exports and imports, are not constants**, but depend on the exchange rate; more accurately the relationship between the current value of the exchange rate and the exchange rate of industrial equilibrium.
  - When exchange rate is overvalued in respect to the industrial equilibrium level, then occurs a process of deindustrialization and re-primarization of exports, i.e. a perverse structural change which acts to reduce the income elasticity of exports and increase the income elasticity of imports. In this context, there will be a gradual reduction of the balance of payments equilibrium growth rate. Conversely, if the current value of the exchange rate is at or slightly above the industrial equilibrium level; then there will be a deepening of the country's industrialization process, which will lead to an increase in income elasticity of exports and a reduction of income elasticity of imports, thereby increasing the balance of payments equilibrium growth rate

Industrial equilibrium exchange rate and structural change

- In mathematical terms, this reasoning can be expressed as follows:
- (3) $$\frac{\partial\left(\frac{\varepsilon}{\pi}\right)}{\partial t} = \beta(\theta - \theta_{ind})$$
- Based on equation (3) we find that Thirwall´s model of balance-of-payments constrained growth provides, at best, only a temporary constraint to long-term growth.
- Indeed, solving equation (3) for and substituting the resulting expression in equation (2) we get:
- (4) $$\dot{g} = \beta(\theta - \theta_{ind})$$

Capacity constraint and income distribution

- Equation (8) defines the so-called *warranted growth rate*, i.e. the rate of output growth which, if achieved, will maintain the capacity utilization at its normal level in the long-term (Park, 2000).
- This concept originates from the seminal work of Harrod (1939).

$$g^{***} = \frac{\Delta Q}{Q} = u^n \left[v \frac{I}{Q} - \delta \right]$$

Investment function and exchange rate

- The net investment as a proportion of GDP, in turn, depends on, as we have argued previously, expected profit rate and the opportunity cost of capital. The rate of profit, in turn, critically depends on the actual value of exchange rate.
- The profit rate (R) can be expressed by the following equation:

$$R = \frac{P}{K} = \frac{P}{Q}\frac{Q}{\bar{Q}}\frac{\bar{Q}}{K} = muv$$

Exchange rate and mark-up pricing

- Let us consider now that domestic goods are not homogeneous, so that firms can differentiate their products with respect to goods produced abroad.
- In this case, the domestic firms have market power, so that they are able to fix the prices of their products on the basis of a *mark-up* over the unitary direct cost of production, such as in equation (10) below:

$$p = (1+z)[wa_1 + ep^*a_0]$$

Exchange rate and mark-up pricing

- We will assume that domestic goods produced by domestic firms are imperfect substitutes goods produced abroad, in such a way that international trade does not enforce the validity of the *law of one price* for *tradables;* i.e. the purchasing power parity is not valid.
- However, domestic firms' profit margin is affected by the price of imported goods.
- More specifically, the ability of domestic firms to establish a price above the unitary direct cost of production on the real exchange rate, which is defined as the ratio of the price of imported goods in domestic currency and the price of domestic goods also in domestic currency. In this context, a devaluation of real exchange rate enables domestic firms to increase *mark-up* due to the reduced competitiveness of the final goods imported from abroad.
- So, we can express the *mark-up* as a function of the actual value of real exchange rate as follows:
- (11)

$$z = z_0 + z_1\theta$$

Exchange rate and profit share

- The distribution of income between wages and profits depends on the actual value of real exchange rate. Indeed, profit share is given by:
- (12)

$$m = \frac{z}{1+z} = \frac{z_0 + z_1\theta}{1 + z_0 + z_1\theta}$$

Exchange rate and investment function

- Based on this reasoning, we can see that the profit rate depends on, among other variables, profit share which, in turn, depends on the actual value of real exchange rate.
- It follows that a devaluation of real exchange rate, everything else held constant, increase the rate of profit.
- So, we can express investment rate as follows:

$$\frac{I}{Q} = \vartheta(\theta, R(\theta) - r)$$

Exchange rate and the warranted rate of growth

- Equation (14) presents the warranted rate of growth for a developing economy, taking into account the effect of the real exchange rate on income distribution and on the rate of profit.

$$g^{***} = u^{n}\left[v\left(\vartheta\left(\theta, R(\theta) - r\right)\right) + \delta\right]$$

A Keynesian-Structuralist growth model

- The Keynesian-Structuralist growth model is given by the following system of equations:
- (14)
- (15)

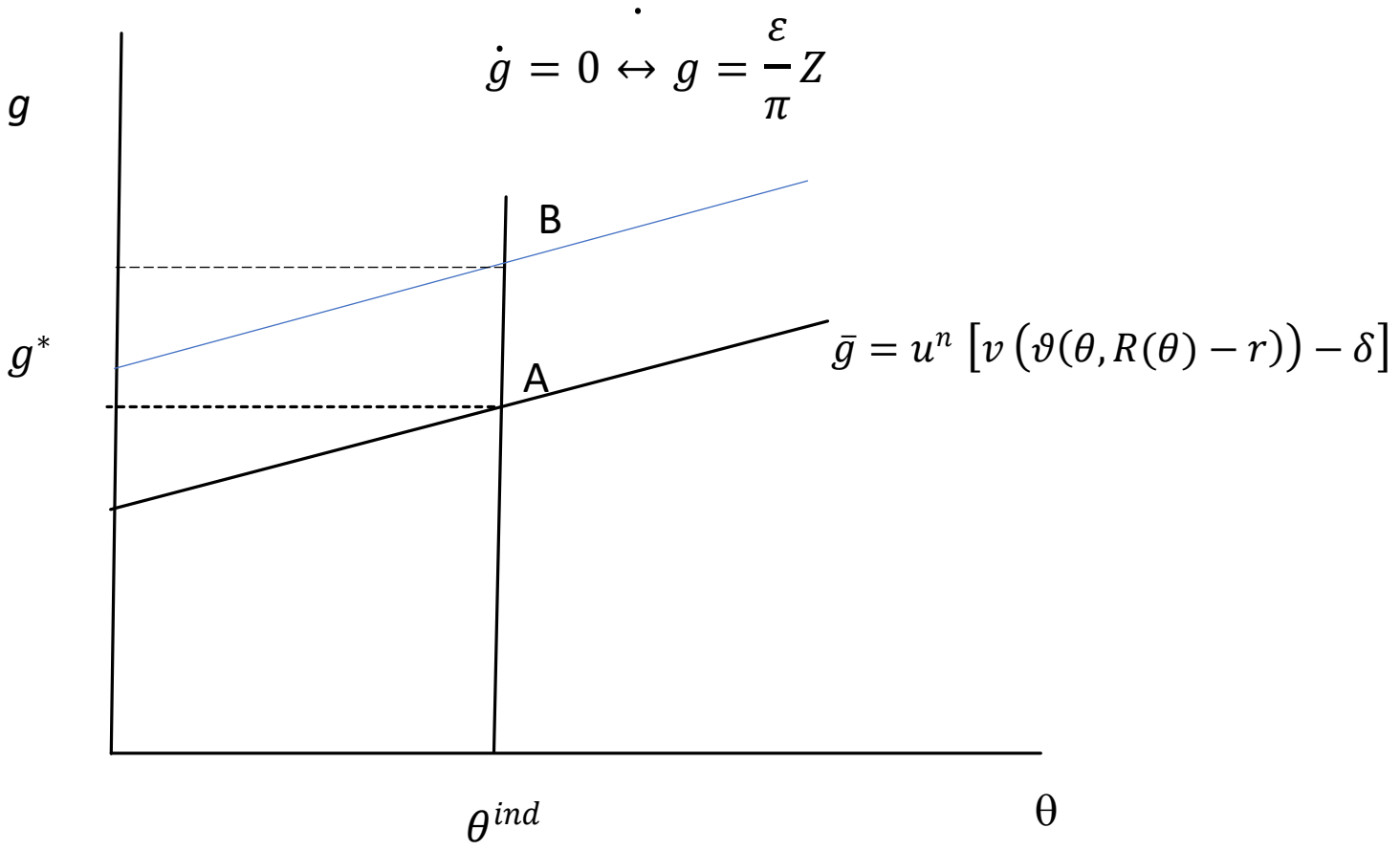
$$g^{***} = u^{n}\left[v\left(\vartheta(\theta, R(\theta) - r)\right) + \delta\right]$$

$$\theta = \theta_{ind}$$

- The system formed by the equations (14) and (15) have two equations and two unknowns, namely: the real output growth rate (g) and the actual value of real exchange rate (). It is, therefore, a determinate system.
- The exogenous variables of the model are the industrial equilibrium exchange rate, the normal degree of capacity utilization, the output-capital ratio, the real cost of capital and the rate of depreciation of capital stock.

Long-run equilibrium

Figure 1



Dutch disease and excessive capital inflows

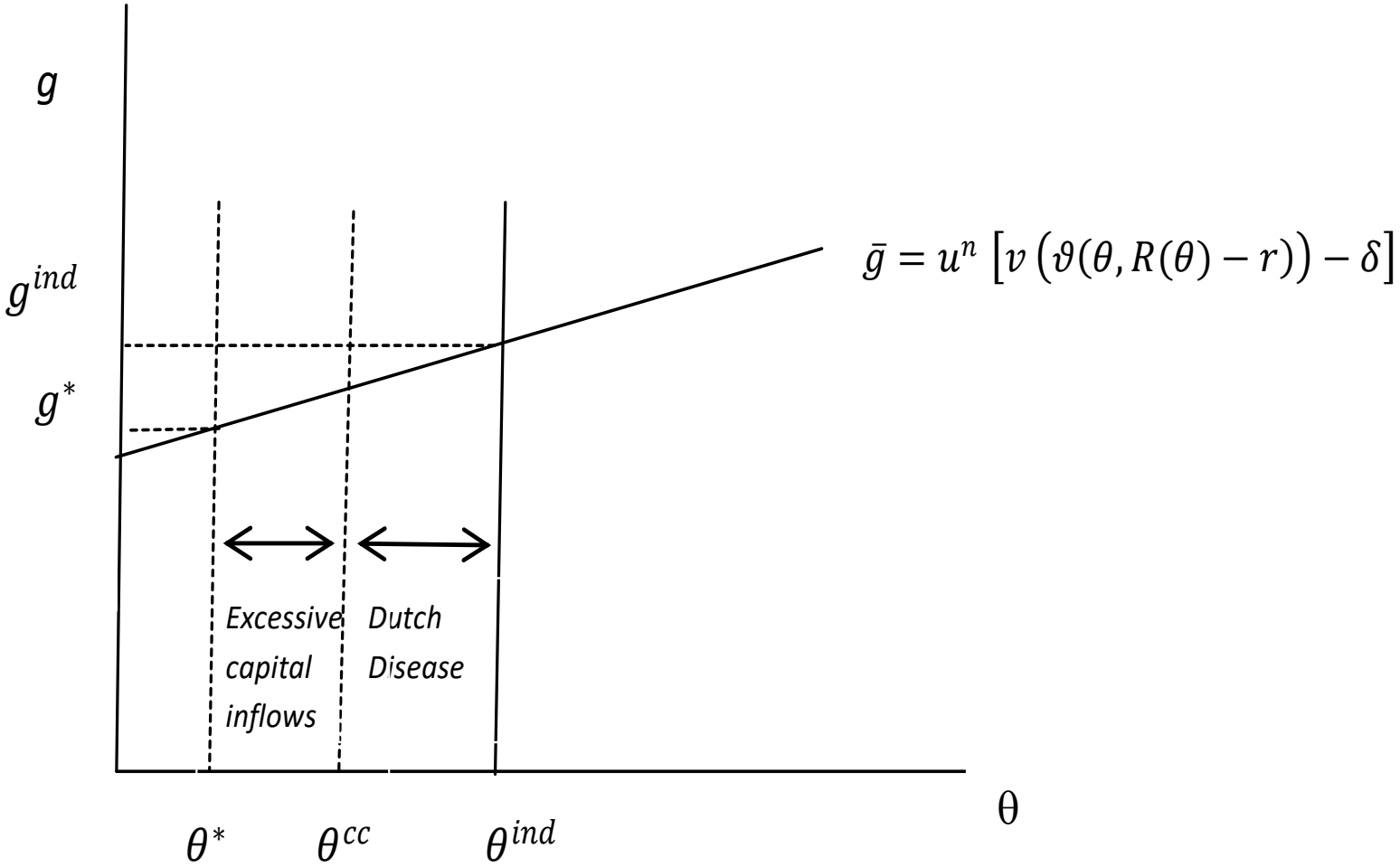
- For Structuralist Development Macroeconomics, the restriction to long-term growth does not originate from the external constraint or capacity constraint; but from the over-valuation of real exchange rate which has its origin in Dutch disease and excessive capital inflows.
- Dutch disease is a permanent over-valuation of real exchange rate caused by exports of commodities that uses cheap and abundant natural resources, generating large export revenues for the country.
- Due to the fact that natural resources cannot be reproducible by labor, being scarce in the classical-Marxist meaning of the term, countries and firms that produces commodities that are intensive in natural resources earn Ricardian rents that enable then to export these commodities even at a more appreciated exchange rate than the one required by industrial firms that operate with state-of-art technology to compete in international markets.
- As result we have two equilibrium exchange rates for economies that have abundant natural resources: the current account equilibrium real exchange rate and the industrial equilibrium real exchange rate

Dutch disease and excessive capital inflows

- The second cause of chronic over-valuation of real exchange rate in developing countries is "excessive" capital inflows. These inflows are “excessive” because they are not required for balance of payments equilibrium.
- These excessive capital inflows are, in general, the result of interest rate differentials and the adoption of a growth model with foreign savings.
  - Regarding to interest rate differentials we have to notice that real interest rates are higher in middle income countries than in developed countries for a variety of reasons.
    - First of all, capital markets are less organized in middle income countries than in developed countries, making liquidity premium over long-term bonds higher in the first rather than the former.
    - Second, middle income countries had external debts denominated in foreign currency which is in sharp contrast to developed countries that had external debt denominated in their own currency. This “original sin” problem of middle income countries increase the default risk over external debt, increasing domestic interest rates if prevail a situation of near perfect capital mobility in Mundell´s sense.
    - Finally the adoption of a growth model with foreign savings, according to which foreign savings would be complement, rather than substitute of domestic savings so that current account deficits are beneficial to economic growth, implies government decision to run current account deficits by means of a intentional over valuation of real exchange rate. In order to reach an equilibrium in the balance of payments, domestic interest rates should be kept at higher levels compared to the ones that prevails in developed countries.

Figure 2

Dutch Disease and Excessive Capital Inflows



Summing-Up

- We had presented a theoretical framework for structuralist development macroeconomics.
- Based on this framework we can see that the development of middle-income countries, which has not a convertible currency, is pulled by the rate of export growth.
- The **real exchange rate plays a central role in economic development** because it is the price that matches the normal degree of capacity utilization with the stability of long-term productive structure.
- If the actual value of real exchange rate is at its right level, i.e. at the level that allows domestic firms that operate state-of-the-art technology to be competitive on international markets; **then, there will be no external constraint to development**, which will be limited only by the rate of investment and the productivity of capital.
- The abundance of natural resources can, however, act as a barrier to economic development to the extent that Ricardian rents resulting from the exploration of these resources will result in a permanent over-valuation of exchange rate.
- Additionally, excessive capital inflows add a new impetus for exchange rate over-valuation, resulting in current account deficits. Both factors appreciating chronically the exchange rate will not only discourage productive investment, but also induce a process of structural change, with de-industrialization and perverse re-primarization of exports.
- The combined effects of Dutch disease and excessive capital inflows will result in a path of real output that is lower than the one verified in developed countries. In this case the middle-income country will enter in a falling-behind path.

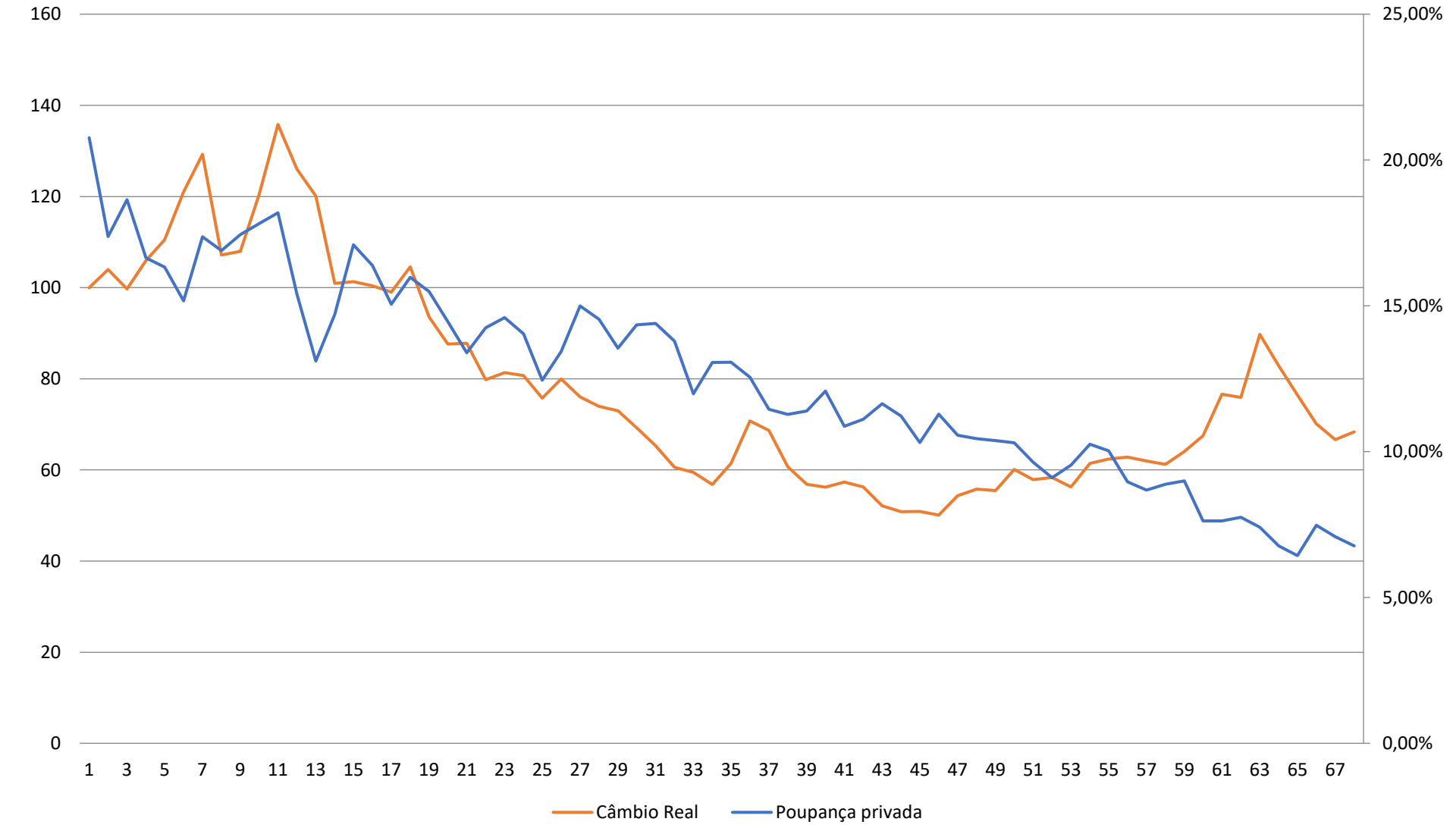
Core Principles of New Developmentalism

- 1 – Manufacturing industry is the engine of long run growth of capitalist econ omies, mainly developing economies.
- 2 – The dynamics of manufacturing industry depends on price and non-price competitiviness, the first one largely determined by real exchange rate and the last by technological gap.
- 3- Exchange rate overvaluation (resulting from Dutch disease and/or capital inflows) produces premature deindustrialization and generates a substitution of domestic savings for foreign savings. Countries that are affected by this illness will show a low growth path in the mediium to long run as well as a cronicle scarcity of domestic savings
- 4- The elimination of exchange rate overvaluation requires a temporary reduction of real wages. The acceleration of productivity growth due to the structural change induced by real exchange rate devaluation will allow a higher rate of increase of real wages in the medium term, making workers standar of living to be higher tthan otherwise will be in just few years after the exchange rate devaluation.

Savings Substitution

- Substitution of domestic savings for foreign savings is due to real exchange rate appreciation.
- When a real appreciation occurs, real wages are increased as well as wage share.
- Since propensity to consume out of wages is bigger than propensity to consume out of profits, then domestic consumption increases, causing a reduction of domestic saving rate.
- Real exchange rate appreciation, on the other hand, generate a reduction of exports and an increase of imports generating an increase in current account deficit, i.e. an increas in foreign savings.

Domestic savings as a ratio to GDP and (Bilateral) Real Exchange Rate in Brazil (2000-2016)



Real Wage, Real Exchange Rate and Inflation

$$p_t = \phi E_t^{\ \theta} \frac{w_t}{q_t}$$

$$E_t = \frac{e_t p_t^*}{p_t}$$

$$\varphi = (1+z) = \phi q^{\theta}$$

$$V_t = \frac{w_t}{(p_t)^{\varepsilon}(e_t p_t^*)^{1-\varepsilon}}$$

$$V_t = \frac{w_t}{p_t} E_t^{\varepsilon-1}$$

$$\frac{w_t}{p_t} = \frac{q_t}{E_t^{\theta}\phi}$$

$$V_t = \frac{q_t}{E_t^{\theta}\phi} E_t^{\varepsilon-1} = \frac{q_t}{\phi} E_t^{\varepsilon-\theta-1}$$

$$\hat{p}_t = \theta(\hat{e}_t + \hat{p}_t^* - \hat{p}_t) + \hat{w}_t - \hat{q}_t$$

$$\hat{p}_t = \frac{1}{\theta}[\hat{e}_t + \hat{p}_t^* + \hat{w}_t - \hat{q}_t]$$

$$\hat{w}_t = \hat{p}_t^e + \omega(\bar{V}_t - V_t)$$

$$\bar{V}_t = v_0 + v_1 l_t$$

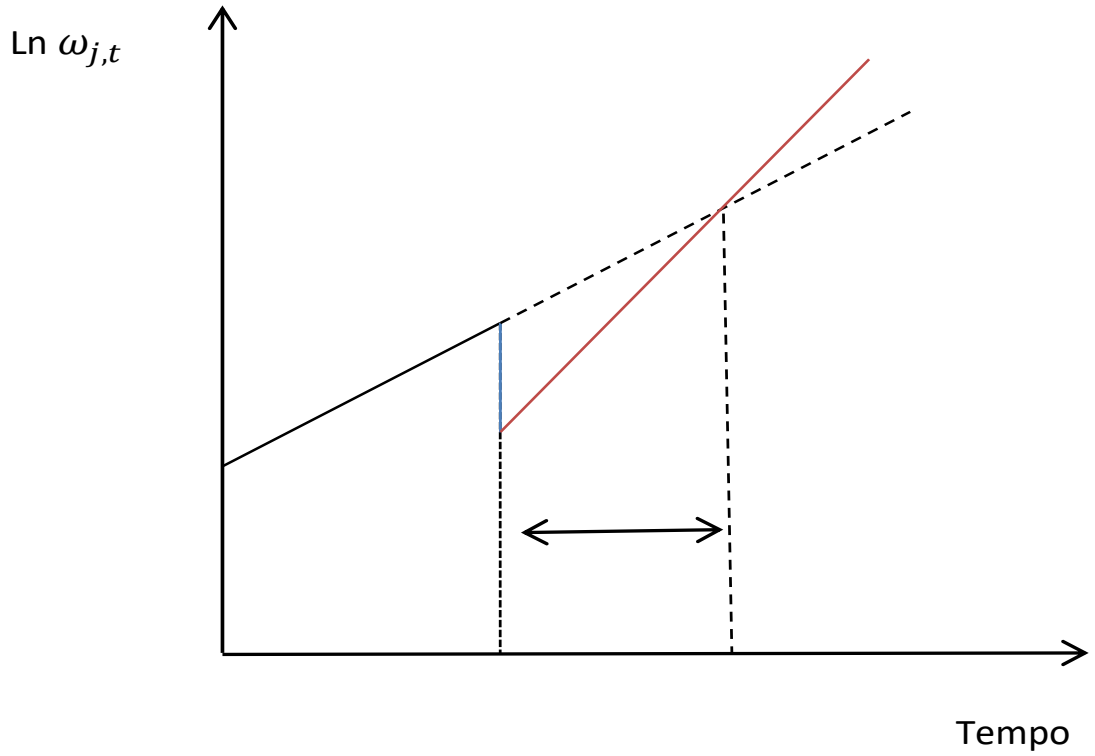
$$l_t = \frac{L_t}{N_t} = \frac{L_t}{y_t}\frac{y_t}{K_t}\frac{K_t}{N_t} = \frac{u_t}{q_t} k_t$$

$$\hat{w}_t = \hat{p}_t^e + \omega\left(v_0 + v_1\left(\frac{u_t}{q_t}k_t\right) - V_t\right)$$

$$\hat{p}_t = \frac{1}{\theta}\left[\hat{e}_t + \hat{p}_t^* + \hat{p}_t^e + \omega\left(v_0 + v_1\left(\frac{u_t}{q_t}k_t\right) - V_t\right) - \hat{q}_t\right]$$

$$\hat{q}_t = \alpha_0 + \alpha_1 h_{t-1}\hat{y}_{t-1} + \alpha_2 l_{t-1}$$

Level and Growth rate effect over real wages of an exchange rate depreciation



Obstacles to a Real Exchange Rate Depreciation

- Real wage resistance: If real wages are rigid due to, for instance, indexation, then the only effect of nominal exchange rate devaluation will be a proporional increase in the domestic price level.
  - Real wage resistance will be higher when the time period between nominal wage negociations is shorter.
  - In 1982 the max-devaluation of 30% of nominal exchange rate made by Finance Minister Delfim Netto did not produce a real exchange rate devaluation because it was followed by a reduction of the time interval between wage negaciations from 12 to 6 months.
  - Inflation accelaration had eroded the effect over real exchange rate of a nominal exchange rate devaluation.
- In such a case, nominal exchange rate devaluation will produce only inflation acceleration.