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Structuralist Development Macroeconomics and New Developmentalism: Theoretical Foundations and Recent Developments

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Abstract: *The Brazilian New Developmentalist School*, also known as "consensus of São Paulo", can be understood as an approach to the *deep determinants of economic development* in which *macroeconomic policy regime* has a key role in explaining the long-term growth differentials among countries, notably middle-income countries. The school was originated from the seminal works of Bresser-Pereira (2006, 2007 and 2009) who defined *new developmentalism* as a set of proposals for institutional reforms and economic policies, whereby the middle-income countries seek to achieve the per-capita income level of developed countries. The first aim of this article is to present the theoretical foundations and the recent developments of the New Developmentalism School. Regarding the theoretical foundations, New Developmentalism is based on the so-called *Structuralist Development Macroeconomics*, which can be understood as a synthesis between Classical Development Theory, Latin American Structuralism and Post-Keynesian demand-led growth models. One of the most known and controversial features of new developmentalism is the key role of the manufacturing industry and real exchange rate in the process of economic development. The present article presents the state-of-the art reasoning of the New-Developmentalist school about why and how real exchange rate and manufacturing industry matters for long-run growth. Finally, the article discusses the convergences and divergences between New-Developmentalism and Balance of Payments Constrained Growth models, which are up today the major heterodox explanation for uneven development.

Keywords: New-Developmentalism, Structuralist Development Macroeconomics, Real Exchange Rate.

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1. Introduction

The Brazilian New Developmentalist School, also known as "consensus of São Paulo"¹, can be understood as an approach to the *deep determinants of economic development* in which *macroeconomic policy regime* has a key role in explaining the long-term growth differentials among countries, notably middle-income countries. The *modern theory of economic growth* distinguishes between the *immediate determinants* and the *fundamental or deep determinants* of the process of economic development (Maddison, 1988). The *immediate causes* are those most direct responsible for the object under analysis; Whereas the *deep causes*, more distant in time, are the underlying causes, that is, the determinants of background or origin of a given phenomenon. In the context of economic growth theory, the immediate causes are those directly related to the per-capita income level, namely: the existing amount of physical and human capital, the availability of natural resources, the efficiency in the use of existing productive resources and the level of technical and scientific knowledge existing at a given point of time. The deep or fundamental determinants, in turn, refer to the reasons why countries differ from each other in terms of the availability of factors that determine the level of per-capita income. Among the last determinants we can list geography, institutions, income distribution and economic policy regimes (Ros, 2013, p.15-17). For new developmentalism, economic policy regime is the deep cause of economic development.

The school was originated from the seminal works of Bresser-Pereira (2006, 2007 and 2009) who defined *new developmentalism* as a set of proposals for institutional reforms and economic policies, whereby the middle-income developing countries seek to achieve the per-capita income level of developed countries. This catching-up strategy is explicitly based on the adoption of an *export-led* growth regime, in which the promotion of exports of manufactured goods induces the acceleration of the pace of capital accumulation and the introduction of technological progress and structural change. In order to do that real exchange rate must be kept at a competitive level in the medium to long-term, what requires the design of a *macroeconomic policy regime* which neutralizes the chronic overvaluation of real exchange rate observed in these countries as a result of the combined

¹ See Bresser-Pereira (2009) and Bresser-Pereira, Oreiro and Marconi (2015).

effects of Dutch disease and inflows of foreign capital due to the adoption of an external saving growth strategy.

The basic theoretical propositions of the Brazilian New-Developmentalist School are as follows (See Bresser-Pereira, Oreiro and Marconi, 2015 and Oreiro, 2018):

1 – Economic development is a cumulative process of raising real wages and the standard of living of the population that is made possible by the increase in the labor productivity that stems from the technical progress incorporated in new machinery and equipment and the structural transformation of the economy, with the labor migration of sectors with the lowest value added per worker to the sectors with the highest value added per worker. The growth rate of productivity depends, therefore, on the growth rate of the capital stock per worker and the evolution of the productive structure over time.

2 – The pace of growth of the real output is determined by the growth of autonomous demand that does not create capacity. The investment adjusts, in the long term, to the pace of demand growth, so that it cannot *lead* output growth; But it's *pulled* by it. In an open economy that does not have international reserve currency the output growth will only be sustainable in the long-term, if it is led by the growth of exports; If the growth engine of autonomous demand is domestic demand (e.g. government spending), the growth trajectory will be sooner or later interrupted by a crisis in the balance of payments.

3 – The pace of output growth is not limited by the supply side factors, since the pace of growth of capital stock, workforce growth and productivity growth adapt, in the long term, to the pace of growth of non-creating capacity autonomous demand.

4 – In the long-term the balance of payments is also not a restriction on long-term growth because the income elasticities of exports and imports are not constant; but adapt to the evolution of the productive structure of the economy². As the productive structure evolves in the sense of greater sophistication or complexity, it follows that the ratio between the income elasticity of exports and imports

² Regarding the endogenous nature of income elasticities see Oreiro (2016a); Marconi, Araujo and Oreiro (2016) and Missio et al. (2017).

increases, thus allowing a higher growth rate compatible with balance of payments equilibrium.

5 – The restriction on long-term growth is given, in the case of economies that have abundant natural resources, by the chronic tendency of exchange rate overvaluation that stems from the Dutch disease and foreign capital inflows. This exchange rate overvaluation acts in order to interrupt and, in sequence, reverse the process of productive sophistication, which will produce a reduction in the rate of productivity growth; being the main cause of the *middle-income trap* for some developing countries like Brazil³ and Argentine.

6 – Domestic savings and external savings are substitutes, rather than complementary. In fact, aggregate savings are determined by investment; but the composition of the savings depends on the level of the actual exchange rate. An increase in external savings – due to an appreciation of the real exchange rate – is associated with a reduction in domestic savings; because the appreciation of the real exchange rate produces a reduction in the share of profits in national income – as the actual wages increases with respect to the labor productivity. As the propensity to save from profits is greater than the propensity to save from wages; it follows that the reduction profit share due to an appreciation of the exchange rate will result in a reduction in domestic private savings.

7 – The abundance of natural resources in a given country makes the industrial equilibrium exchange rate – defined as that level of the exchange rate that makes domestic firms, for a given level of technological gap, to be competitive both in domestic and international markets – is greater than the exchange rate which guarantees balance in the current account. In this way, the long-term sustainability of the economic growth process of countries with abundant natural resources requires that they have surplus in the current account.

8 – The adoption of an external savings growth strategy by many middle-income developing countries, mainly in Latin America, in the 1990's was another source of real exchange rate overvaluation. Growth with external savings requires policymakers to set the level of domestic interest rates at level higher than the one corresponding to the sum of international interest rate and country risk

³ For the Brazilian case see Oreiro et al (2018) and Oreiro and D'Agostini (2017).

premium. The interest rate differential induces foreign capital inflows, resulting in a surplus in the balance of payments' capital account and a real exchange rate appreciation relative to the level of current account balance. The adoption of such strategy requires financial liberalization, mainly capital account liberalization due to the elimination of capital controls.

Based in such principles, new developmentalism can also be considered as an explanation for the *Middle-Income Trap* – MIT hereafter - in which many developing countries seems to be stuck. According to Glawe and Wagner (2016) a MIT usually refers to countries that have experienced rapid growth and thus quickly reached middle-income status, but then failed to overcome that income range to further catch up to the developed countries. That was precisely the case of middle-income Latin American countries such as Brazil and Argentine. New developmentalism asserts that a MIT can occur in countries where Dutch disease suddenly appears due to the discovery of natural resources (for example, new petroleum reserves in Brazil after 2006) or ceased to be neutralized and/or the adoption of an external savings growth strategy. In both cases, real exchange rate overvaluation is the ultimate consequence of a *class coalition*⁴ between workers and the rentier class that favors exchange rate appreciation due to its positive effects over inflation and real wages, on one hand; and financial income, on the other (Bresser-Pereira, 2015). Although the long-lasting effect of exchange rate overvaluation will be premature deindustrialization and falling behind; the short and medium-term effects of such overvaluation seemed to be enough positive for sustaining this political coalition, making very difficult or even impossible for a *developmental coalition*⁵ to be formed to eliminate the MIT.

The first aim of this article is to present the theoretical foundations and the recent developments of the New Developmentalism School. Regarding the theoretical foundations, new developmentalism is based on the so-called structuralist development macroeconomics⁶, which can be understood as a synthesis between Classical

⁴ The term *class coalition* is due to Bresser-Pereira (2015) and refers to a political (implicit) alliance between groups that belongs to different social classes that aim to reach some political and economic goals. Class coalitions are possible because social classes are not homogenous; but have internal divergences regarding their goals. Such divisions allowed the occurrence of political coalitions between groups that belongs to different social classes.

⁵ A developmental coalition would be formed by industrial entrepreneurs, manufacturing workers and politicians in order to eliminate the sources of the real exchange rate overvaluation, allowing the economy to get rid of the MIT.

⁶ See www.sdmrg.com.br.

Development Theory, Latin American Structuralism and Post-Keynesian demand-led growth models. One of the most known and controversial features of new developmentalism is the key role of the manufacturing industry and real exchange rate in the process of economic development. The present article presents the state-of-the-art reasoning of the New-Developmentalist school about why and how real exchange rate and manufacturing industry matters for long-run growth. Finally, the article discusses the convergences and divergences between New-Developmentalism and Balance of Payments Constrained Growth models, which are up today the major heterodox explanation for uneven development.

2. Theoretical Foundations: Classical Development Theory and Post-Keynesian Theory of Demand-Led Growth.

a. Classical Development Theory and Latin American Structuralism

The Classical Theory of Economic Development, understood as the systematic and specialized study of the problems of the underdeveloped or developing countries, began after the Second World War with the emergence of Keynesian interventionism, state planning, the experience of the USSR and the movements of decolonization.

The main authors of the classical development theory were Rosenstein-Rodan, Arthur Lewis, Raúl Prebisch, Gunnar Myrdal, Hans Singer, Michael Kalecki, Albert Hirschman and Celso Furtado. According to these authors, economic development is a consequence of the industrialization process and capital accumulation, which allow a sustainable increase in labor productivity.

Underdevelopment is seen as a *low equilibrium* caused by factors such as low savings rates, high population growth rate and low incentives for investments due to the existence of external economies and economies of scale. In addition, the economy is seen as a dual system that has an industrial sector and a subsistence, predominantly agricultural, which is the source of structural surplus of labor force.

The main contribution of the Classical Development Theory, according to Bresser-Pereira (2019), was in the political plan namely, the understanding of economic development because of a *coalition of classes* involving the national bourgeoisie, public bureaucracy, and urban workers; and, at the economic level, was to define economic development as structural change, that is, as industrialization that transforms the productive structure of society.

For a poor country to develop and make the catching-up with respect to developed countries a significant increase in the investment rate is needed, coupled with the development of one or more relevant sectors in the manufacturing industry, as well as the existence or rapid emergence of a political, social and institutional structures that explores the impulses of the expansion of the modern sector (Rostow, 1956). This expansion also requires the ability to mobilize capital from domestic sources, that is, an increase in domestic savings rate.

One of the concerns of the classical theory of economic development was precisely to explain how countries undergoing a rapid industrialization process can increase their savings rate of 4-5% of GDP to levels above 15% of GDP within a few years (Lewis, 1954). The explanation given by Lewis was that in the early stages of the industrialization process, the existence of surplus labor in the subsistence or traditional sector allows employment in the modern or industrial sector to expand at larger rates with a virtually nil effect on the supply price of labor. In other words, the modern sector faces an infinitely elastic labor supply at the level of the labor supply price (equal to the subsistence wage plus a wage premium to compensate workers for the hassle of urban life). As productivity is higher in the modern sector than in the subsistence sector – the fact that production in the first is capital intensive while production in the second is labor - it follows that the transfer of labor from the subsistence sector to the industrial sector will result in an increase in the average productivity of the economy, without concomitantly increasing the level of the actual wage. This process of *structural change* will therefore produce an increase in the profit share. As the propensity to save from profits is higher than the propensity to save from wages (Kaldor, 1956) there will be an increase in the aggregate savings rate. In short, during the process of industrialization of developing or underdeveloped economies, a positive correlation between savings rate, profit and manufacturing share in income should be observed.

Structural change is therefore the key to understanding the process of economic development. The increase in social income made possible by the growth of labor productivity has also an impact on the demand structure (Furtado, 1952). In fact, the increase in productivity gives to the sector benefited an increase in income, this increase becomes a profit, allowing the accumulation of capital to increase future production. It is a fact evidenced by the experience that demand tends to change in the Sense of diversification, there is always an increase in the average real wage. The new inventions

are largely aimed at future demand, with this diversifying demand, the production apparatus tends to modify its structure as the real income rises.

Although a shortage of savings could not be considered an ultimate obstacle to economic development according to Classical Development Theory, the international division of labor, namely the center-periphery division of the world - i.e. the idea structural heterogeneity prevails at world level, where some countries are specialized in the production and export of manufactured goods and others are specialized in the production and export of primary goods - can impose a balance of payments constraint to the growth rate of developing economies.

The balance of payments constraint occurs in *Phase Two* of the center-periphery relation and it is associated with the so-called *Latin-American Structuralism*, mainly with the works of Raul Prebisch. In the first phase, the Center is responsible for the production of manufactures, while the periphery supplies the center with primary products. The new techniques were only applied in the modern (exporting) sector of the periphery, thus coexisting sectors of high and low productivity. In this phase the periphery is at the same time a *specialized and heterogeneous structure*⁷; and the Center is a *diversified and homogeneous structure*⁸. The second phase is marked by the industrialization of the periphery from the 1930 years onwards. The *outward orientation* of periphery's development in the first phase was replaced by an *inward orientation* in the second phase, based on the expansion of industrial production for import substitution. The existence of a specialized and heterogeneous structure during the industrialization process gives rise to structural balance of payments problems. This occurs because exports of periphery are made of primary goods that had a low elasticity of income; but imports are made up of intermediate and capital goods - that are required for the substitution of consumer goods imports for local production - which have a high-income elasticity of imports. This means that the capacity to pay for imports (which is determined by exports) does not grow at the same rate of the import requirements for the industrialization process (Prebisch, 1950).

⁷ It is a specialized structure since the modern sector is made up of firms specialized in the production of primary goods (for example, coffee, cotton, cocoa, iron ore and copper) and the consumption goods are almost entirely imported from abroad; and it is also a heterogeneous structure due to the large productivity differentials between modern and traditional sectors.

⁸ The center is a diversified structure due to the multiplicity of consumption, capital and intermediate goods that are produced in this area; and it is also a homogeneous structure due to the fact that productivity differences between sectors are small or non-existent in the case of a mature economy (Kaldor, 1967).

This problem can be amplified by the trend deterioration of the terms of trade of periphery due to the asymmetric effect of technological progress over prices of primary and manufactured goods. In the center, due to the inexistence of a structural labor surplus, productivity gains are appropriated by workers in the form of higher wages, making prices of manufactured goods constant through time. In the periphery, however, the existence of surplus labor implies productivity gains will result in lower prices for primary goods. This will cause a deterioration in the terms of trade (TT) and thus an increase in the per-capita income gap between center and periphery, as we can see in the expression bellow.

Let us define the per-capita income gap Y_r as (Rodriguez, 2009, p. 89):

$$Y_r = \frac{l_i p_i}{l_p p_p} = \frac{l_i}{l_p} TT$$

Where: l_i is the productivity of work in the industrial sector, l_p is the productivity of work in the primary sector, p_i is the price of industrial goods and p_p is the price of the primary products and TT is the terms of trade.

b. Post Keynesian Theory of Demand-Led Growth

Neoclassical growth models take for granted that the fundamental limit to long-run growth is the supply of factors of production. Aggregate demand is relevant only to determine the degree of capacity utilization; but have no direct influence over the rate of expansion of productive capacity. In the long-run, Say's law is supposed to hold, i.e. supply creates its own demand.

But is it true that supply of factors of production is independent of demand? This question is originally raised by Kaldor (1988), originating the theory of demand-led growth. The starting point of demand-led growth theory is that means of production used in a modern capitalist economy are themselves goods produced within the system. The "supply" of means of productions should never be taken as given and independent from the demand for them. In this theoretical framework, the fundamental economic problem is not the allocation of a given amount of resources between alternative uses, but the determination of the rate of creation of these resources. In the words of Setterfield:

"The use of produced means of production implies that the 'scarcity of resources' in processing activities cannot be thought of as being independent of the level of activity in the economy. What is chiefly important in processing activities is the dynamic propensity of the economy to create resources (that is, to deepen and/or

widen its stock of capital) rather than the static problem of resource allocation” (1997, p.50).

To understand the long run endogeneity of factors of production, we will start with the supply of capital. The quantity of capital that exists in a point of time – or, in other words, the productive capacity that exists in the economy – is the result of past investment decisions. From this line of argument, we can conclude that the stock of capital is not a given quantity determined by “nature”; but is dependent of the rate at which entrepreneurs want to increase the stock of capital.

So, the fundamental determinant of the *capital stock* is investment decision. Investment, in turn, is determined by two set of variables: i) the opportunity cost of capital (mainly determined by the level of short-term interest rate set by the Central Bank); ii) the expectations about the future growth of sales and production. In this setting, if entrepreneurs expect a strong and sustainable increase in demand for the goods that they produce – as it would be expected in an economy that shows a persistent high growth rate – then they will make large investment expenditures.

In other words, investment is an endogenous variable that came in line with the expected growth of aggregate demand, since one fundamental restriction is met: the expected rate of return of capital had to be bigger than the cost of capital. If this condition is met, the “supply of capital” should not be considered a limit to long-run growth.

It is true that in the short and in the middle run, production should not increase beyond the maximum productive capacity of the economy. In the long-run, however, the productive capacity must be increased – by means of investment expenditures – to meet the increase in aggregate demand. In the words of Kaldor:

“Since under the stimulus of growing demand capacity of all sectors will be expanded through additional investment, there are no long-run limits to growth on account of supply constraints; such constraints, whether due to capacity shortage or to local labor shortage, are essentially short-run phenomena – at any one time, they are a heritage of the past” (1988, p.157).

A very common objection to this reasoning is the idea that investment needs *previous saving* in order to be realized; that is, any increase in investment expenditure requires a previous increase in the saving rate of the economy. According to this line of reasoning, the *supply of capital* is limited by the share of real income that society does not want to consume. Saving defined this way is determined by private sector saving, government saving and foreign saving.

It is not true that investment requires *previous saving* in order to be realized. In fact, investment expenditures require only the creation of liquidity by commercial banks (Carvalho, 1992; Davidson, 1968). If commercial banks are ready to increase their credit operations in favorable terms, then it will be possible for firms to start their investment projects, buying new machines and equipment from the capital goods producers. Once the investment expenditure is done, it will be generated an extra income of such magnitude that, at the end of the process, aggregate saving will adjust to the new value of aggregate investment. The extra saving generated in this way should now be used for funding short-term debts with commercial banks in long-term debts in capital markets. More specifically, firms could sell shares or long-term bonds in capital markets in order to raise the required funds to pay all their debts to commercial banks. These operations will not necessarily decrease the price of bonds or shares since families will be looking for new assets to store their extra saving.

There are, however, financial limits to the increase in the productive capacity. In fact, firms must be ready to adjust their productive capacity to the expected growth of demand for their products if and only if the expected rate of return of the new investment projects is higher than the opportunity cost of capital. In a first approximation we can define the cost of capital as the average interest rate that firms must pay for the required funding for their investment projects. There are three sources of funds to finance the investment project of firms: retained earnings, debts and equity. So, the cost of capital is the weighted average of the cost of each of these sources of finance. If the cost of capital is too high – for instance, due a very tight monetary policy that increase the short-term interest rate, increasing the cost of borrowing – than new investment projects may not be profitable, and investment expenditure will not adjust to the level required by the expected growth of aggregate demand.

We will now turn our attention to the *supply of labor*. According to Post Keynesian Theory of Demand-Led Growth, the *supply of labor* should not be considered a limit to the growth of production in the long run.

Firstly, the number of work hours could be increased easily to increase the level of production.

Second, the participation rate – defined as the ratio between the labor force and total population in work age – could increase in response to a strong increase in demand for labor (Thirlwall, 2002, p.86). In fact, during boom times, the opportunity cost of

leisure increases, stimulating a strong increase in the participation rate. So, we can conclude that the growth rate of labor force could accelerate during boom times due to the fact that some people may decide to enter in the labor force as a response to the incentives created by a booming labor market.

Finally, we have to say that population and labor force are not a datum from the viewpoint of the economy. A shortage of labor – even of qualified workers – can be solved by immigration from other countries. For example, countries as Germany and France could sustain high growth rates during the 1950's and 1960' due to immigration of workers from the countries of the periphery of Europe (Spain, Portugal, Greece, Turkey and south of Italy).

A last element to be considered is technological progress. Is it possible to consider the rate of technological progress a restriction to long-run growth? If the rate of technological progress is exogenous to the economic system, then growth will be limited by the pace at which technological knowledge is increased. However, technological progress is not exogenous to the economic system.

Firstly, the pace at which firms introduce innovations is largely determined by the rate of capital accumulation; since a large part of technological innovations are embodied in new machines and equipment.⁹

Second, even that small part of technical progress that is disembodied is determined by *dynamic economies of scale* such as *learning-by-doing*. So, we can establish the existence of a structural relationship between the growth rate of labor productivity and the growth rate of output known as “Kaldor-Verdoorn law”¹⁰¹¹. In this

⁹This idea was originally presented in Kaldor (1957) by means of the “Technical Progress Function”, which establishes the existence of a structural relationship between the growth rate of output per-worker and the growth rate of capital per-worker. According to Kaldor is not possible to isolate the growth of labor productivity due to introduction of new technologies from the growth of labor productivity due to an increase in capital per-worker. That is so because almost all technological innovations that increase labor productivity require the use of a biggest level of capital per-worker, since these innovations are embodied in new machines and equipment.

¹⁰ Some econometric evidence about the validity of “Kaldor-Verdoorn’s Law” for United States can be found in McCombie and De Rider (1984). More recent evidence for a sample of 70 developed and developing countries can be found in Magacho and McCombie (2017). See also Romero and Britto (2017).

¹¹ Ledesma (2002) estimates a demand-led growth model for 17 OECD countries (Germany, Australia, Austria, Belgium, Canada, Denmark, United States, Spain, Finland, France, Italy, Holland, Japan, Norway, Portugal, Sweden, and United Kingdom) in the period 1965-1994. Based on his econometric evidence, we can establish the existence of a structural relationship between the growth rate of labor productivity and a set of other variables, in particular the growth rate of output. The estimated structural equation is:

$$r = -0.015 + 0.642y + 0.0002(I / O) + 0.617K + 0.021GAP,$$

setting, an increase in aggregate demand will cause an increase in the growth rate of labor productivity since the growth rate of output will be increased as a consequence of a greater demand growth.

Based on his reasoning we can say that there is no such a thing as potential or full-employment output for the long-run, since the supply of factors of production and the rate of technological progress is demand determined. “Full-employment” is essentially a short-run concept that ignores that endogeneity of *natural growth rate* in the long-run. In the words of Kaldor:

“Full employment of an industrial region or a country is therefore essentially a short-run concept, which ignores the long-run mobility of labor and the possibility of an increase in training which responds to demand in much the same way as capital investment” (1988, p.157).

If supply of factors of production should not be considered a limit to long-run growth, what are the determinants of economic growth in the long-run? According to the Post-Keynesian Theory of Demand-Led Growth, the ultimate determinant of economic growth is aggregate demand. Firms will increase their production levels as a response to an increase in aggregate demand two conditions are satisfied: i) profit margins are high enough to give to entrepreneurs the rate of profit desired by them; ii) realized profit rate must be bigger than the cost of capital. If these two conditions are met, then the rate of growth of real output will be determined by the rate of growth of *autonomous demand*, i.e. the growth of that part off aggregate demand that is independent of the level and/or variations of the level of output and income.

For open economies there are two components of autonomous demand: exports and government consumption expenditures (Park, 2000). Investment expenditures are not a component of autonomous demand since investment decision in capital assets is basically determined by entrepreneurs’ expectations about future growth of production and sales, according to the so-called *principle of acceleration* of investment theory (Harrod, 1939). In other words, investment is not an exogenous variable from the viewpoint of growth process since it is driven by output growth. So, long-run growth rate of real output is a weighted average of the rate of exports growth and the rate of government consumption expenditures.

Where: r is the growth rate of labor productivity, y is the growth rate of real output, (I/O) is investment as a share of real GDP, K is an index of technological innovation and GAP is an estimate of the technological gap.

For a small open economy that do not have a convertible currency, exports growth is the exogenous variable in growth process. If the rate of growth of government consumption expenditures is bigger than the rate of exports growth, then real output and income will increase faster than exports. Supposing an income-elasticity of imports bigger than one (as it is usual in open economies) then the rate of imports growth will be bigger than the rate of exports growth, generating a growing trade deficit (assuming constant terms of trade), which will be unsustainable in the long run¹².

3. The role of manufacturing industry and real exchange rate in economic development: a new developmentalist approach

Among heterodox economists, mainly these one with a Kaldorian background, there is no doubt that manufacturing industry is the engine of economic development, since this sector is the source of increasing returns of scale (both internal and external to the firms), the sector with higher backward and forward linkages in the productive structure, the sector that produced tradeable goods that had a higher income elasticity of demand and hence softens the balance of payments constraint to growth and produce and spread new technologies through other sectors by means of new capital goods (Thirlwall, 2002). The special role of manufacturing sector in economic development was one of the central theses of both classical development theory and Latin-American Structuralism (Ros, 2013).

Nowadays, the central role of manufacturing industries to economic growth and the technological catch-up process are highlighted in Szirmai (2012), Thirlwall (2002), and Tregenna (2009), among others, through stylized facts and empirical analysis. They show that economic growth depends on the composition of productive structure and, especially for developing economies, industry.

According to Rodrik (2016), manufacturing tends to experience relatively stronger productivity growth and technological progress over the medium to longer term. Therefore, premature deindustrialization closes off the main way to achieve fast economic convergence in low- and middle-income countries. It was the industrialization process

¹² It is important to notice that a growth rate of exports bigger than the growth rate of government consumption expenditures is not a sufficient condition for a sustainable growth process in the long run. In fact, it is also necessary to be a balance of payments equilibrium. For open economies with zero-capital mobility this means that long-run growth rate will be equal to the ratio between the income elasticity of exports and the income elasticity of imports, being this ratio multiplied by the growth rate of world income, what is known as “Thirlwall’s Law” (Thirlwall, 1997). The introduction of capital flows does not alter significantly the long-run equilibrium growth rate (McCombie and Roberts, 2002, pp.95-96).

that permitted catch up and convergence with the West by non-Western nations, such as Japan in the late 19th century, and South Korea, Taiwan, and China, among other countries, in the 20th century.

Rodrik (2009, 2016) highlights that the rapid economic growth of developing economies since the 1960s is associated with the largest transfer of productive resources (labor and capital) to the most modern industries. The structural shift toward industrial activities drives economic growth.

Szirmai (2012) presents a series of empirical and theoretical arguments about the role of industry as the “engine of growth” in developing economies. Basically, productivity in manufacturing is higher than in agriculture because the transfer of resources from this sector to the industry provides a “structural change bonus.” This “bonus” comes because of the transfer of labor from economic activities with low productivity to high productivity activities (Lewis, 1954). This automatically raises the overall productivity of the economy.

For most mainstream economists, however, there is nothing special in the manufacturing sector. For them, economic growth is the result of capital (both physical and human) accumulation and technological progress. The composition of output is seen irrelevant for long-term growth or the result of factors endowments and the quality of institutions. In this second interpretation the existence of a positive correlation between periods of growth acceleration and increasing manufacturing share in GDP – the so-called industrialization process – is just the result of a high pace of capital accumulation allowed by the combination of high saving rates and “good institutions”, which are generally defined as the institutions that induce growth, being so a non-falsified concept in the sense of Popper (1972). In their framework, that there is no need to adopt policies to develop the manufacturing industry, but only to improve the quality of institutions: good institutions will allow growth accelerations which are, in general, associated with industrialization, at least in the first stages of economic development.

One of the basic propositions of the Classical Development Theory is that the combination of unlimited supply of labor due to the existence of a traditional or non-capitalist sector in developing economies with internal and/or external economies of scale can result in a *poverty trap* due to the *paradox of underdevelopment*: In developing economies a lower stock of capital per-worker is associated with low returns for capital accumulation, not with high profit rates as in the traditional neoclassical growth models

(Ros, 2013, pp.154-159). This means that the main obstacle for growth take-off is not the shortage of savings, but the lack of incentives for capital accumulation by the private sector. Underdeveloped economies are poor because they had low levels of capital per-worker and, at the same time, the profit rate and the incentive to capital accumulation is low because of the low-level of the capital per-worker. If investment can be accelerated by some non-market mechanism than it will produce the savings required for the development process to continue since labor will be transferred from the low productive subsistence sector for the high productivity modern sector; but real wages will stay at a constant level (the subsistence wage plus some constant wage premium). This means that the share of profits in income will rise as the investment is increasing, and since the propensity to save out of profits is higher than propensity to save out of wages; than the saving rate will increase because of the increasing in the investment rate. Economic development always and elsewhere produced the saving rate required for its long-term sustainability.

For classical development theory, a self-sustained process of economic development requires the achievement of a critical mass for capital per-worker, which can only be done by the State, so industrialization, at least in its first stages, had to be necessarily State-Led. Moreover, as claimed by Prebisch (1950) and the economists of ECLAC, due to low-income elasticity of demand for exports of underdeveloped countries, whose exports are mainly composed by primary products, then in the early stages of industrialization there is no option rather than impose some controls over imports, trade tariffs and exchange rate controls to soften the external constraint. These policies will induce a process of import substitution to reduce the income elasticity of imports and “save” the external currency required for import capital and intermediate goods required to industrialization. So, development process will be an Import-Substitution-State-Led Industrialization (ISSI, hereafter).

Latin-American Structuralism had not given to the real exchange rate any important role in the process of economic development. Because of the so-called “elasticity pessimism” - that is due to the fact the composition of exports and imports of underdeveloped economies do not allow the fulfilment of the Marshal-Lerner condition- an exchange rate devaluation will not either increase the trade surplus or induce the substitution of imports for domestic production, since it will produce an increase in the domestic prices of imported capital goods. A system of multiple exchange rates, where a

more appreciated exchange rate is defined for capital goods imports and a more depreciated exchange rate for final goods imports combined with high import tariffs will both relieve the external constraints and provide the incentives for import substitution. Capital accumulation led by state-owned enterprises will also be necessary for the “big push” required for the economy to escape the poverty trap.

The first Latin-American economist to see a role for the exchange rate in the process of economic development was Diamand (1972). According to him, for countries specialized in exports of primary products, there is a problem of an unbalanced productive structure. In his words:

The essential feature of the new economic reality of the Primary exporting countries in the process of industrialization is the which we have dubbed an unbalanced productive structure. It is a productive structure. Composed of two sectors of different price levels: the primary-agricultural sector in our case -, which works at international prices, and the industrial sector, which works at a level of costs and prices considerably higher than the international. This peculiar configuration, not even imagined by the generations dedicated to the elaboration of the economic theory that today is taught in universities, gives rise to a new economic model, characterized by the chronic limitation that the external sector exerts on economic growth. Indeed, while the growth of the economy - particularly industrial growth - always requires increasing amounts of foreign exchange, the high level of industrial prices that characterizes the unbalanced productive structure prevents industry from exporting. Thus, unlike in industrial countries, in which the industry self-finances the foreign exchange needs posed by its development, the Argentine industrial sector does not contribute to obtaining the foreign exchange it needs for its growth. Its supply is always in charge of the agricultural sector, limited either by lack of a greater production, or by problems of world demand or by both.

In the initial stage of this type of development a rapid replacement of imports makes the industry contribute to keeping the balance of payments balanced by saving foreign exchange. Subsequently, the replacement process becomes increasingly slow. Finally, it is reached that substitution at most can neutralize the increase in imports brought by technological progress by the incorporation of new products (cars, television, yarnsynthetics, etc.). From this moment on, a process of divergences begins between the growth of the industrial sector consuming foreign exchange, which it does not contribute to the production of them, and the provision of these currencies by the much slower growing agricultural sector. This diversity is responsible for the balance of payments crisis in Argentina and is the main growth limiter in the country. The expansion of domestic production, each time it occurs, increases imports. Once the reserves are exhausted, the country is forced into a devaluation. This occurs even without a prior increase in costs, which requires the restoration of parity. This is a devaluation of another kind, which is imposed by the imbalance that arises in the productive structure itself, because of the already marked divergence between the consumption and the supply of foreign exchange. (1972, p.2)

The problem of the unbalanced productive structure emerges from setting the nominal exchange rate at a level compatible with the productivity of the primary sector, that is, in a level that makes the exports of such goods competitive in international markets, but that is too much appreciated for the manufacturing firms to be also competitive in such markets (1972, p.18). As a result of the *overvalued exchange rate for manufacturing goods*, the domestic manufacturing industries of these countries are incapable to conquer international markets and thus increasing their share of manufacturing exports. Therefore, domestic manufacturing firms are confined to domestic markets, where the scale of production is not enough to provide then even the productivity to compete with imported goods unless high import tariffs are set to isolate the domestic market from external competition. Thus, tariff protection that should be only used in the phase of infant industry to promote the initial stages of industrialization through import substitution, became permanent due to the political pression of domestic industrial entrepreneurs. A permanent protection destroys the incentives for the domestic firms to increase its productivity over time by introducing labour-saving technologies and hence will increase the technological gap of domestic firms relative to foreign firms, also reducing their non-price competitiveness.

Diamand's arguments are very similar to the role of exchange rate in the process of economic development according to the Brazilian New-Developmentalist School. A competitive level for real exchange rate is required to compensate the technological backwardness of domestic firms in developing economies. Overvaluation of real exchange rate is a very important cause of premature deindustrialization of these economies, as it is showed by Oreiro et al (2020) for the Brazilian economy. Moreover, Gabriel et al (2020) had shown with a panel data econometric model for a broad sample of 84 countries for the period of 1990 to 2011 that the effect of real undervalued Real Exchange Rate is positive and statistically significant with a lag for all the technological gap levels considered, increasing their effect on the *per capita* income growth rate when the technological gap measure is higher (for each group of countries). The effect of undervalued RER on the *per capita* growth rate is conditional on the technological gap level considered: the greater the gap of the sample of countries in relation to the technological frontier, the greater the effect of the undervalued RER on per capita income growth rate.

These findings shows that the common criticism made against the role of real exchange rate in economic development according to which manufacturing growth and per-capita income growth depends only on non-price competitiveness of the manufacturing sector is wrong. The higher is the technological gap the firms of a country face, more important is for then to have an undervalued exchange rate to compensate their technological backwardness relative of the firms of developed countries.

This does not mean, for sure, that the only thing that can be done to foster economic development is to set the exchange rate at the “right” level, which is for new-developmental school the so-called industrial equilibrium level, recently redefined by Oreiro (2020) and calculated by a new methodology developed by Oreiro et al (2020). Science and Technology policies, as well as industrial policies, are required to reduce the technological backwardness of domestic firms relative of the firms of developed countries; but it is impossible for these policies to give any relevant result if real exchange rate is overvalued.

4. New Developmentalism and Balance of Payments Constrained Growth Model: convergences and divergences

A relative unknown book chapter written by Thirwall with Dixon in a book published in 1979 titled “Inflation, Development and Integration: essays in Honour of A.J. Brown” can be used as the stating point for discusses the convergences and divergences between New Developmentalism and Balance of Payments Constrained Growth Model (BPCG hereafter). The title of the chapter is “A model with export-led growth with balance of payments constraint”. This chapter is very interesting for understanding the historical development of the literature of BPCG models because it make a synthesis between the cumulative causation model developed by Dixon and Thirwall (1975), where growth is export led and there is a positive feedback mechanism between exports growth and output and productivity growth; and the “pure” BPCG models (Thirwall, 1979), where the long-run growth is determined by the ratio between exports growth and income elasticity of exports, but there is no feedback mechanism that allowed an increasing divergence between growth rates of real output once an initial advantage of one country over another was established. According to the authors, the cumulative causation mechanism was abolished from the BPCG literature because:

“Despite the effort of formulating a fairly sophisticated export-led growth model, incorporating the idea of a virtuous cycle led by exports but constrained by the balance

of payments, it seems from empirical evidence that a simpler model will suffice (...). It is to suggest that the link between exports and growth via Verdoorn effect may not be very important either because relative price change very little or because the price elasticities of demand for exports and imports are not sufficient high. The main importance of export growth lies in raising the balance of payments constraint on growth, simply allowing countries to reach their capacity rate” (Thirwall and Dixon, 1979, p. 188).

Above we can see some convergences and divergences between new-developmentalism and BPCG models. The convergence lies in the fundamental importance of (manufacturing) exports for long-term growth; the divergence regards the role of real exchange rate in the process of economic development.

New-Developmentalism arises as an answer to the crisis of the model of Import Substitution Industrialization (ISI hereafter) in the 1980 and 1990 in Latin America. One of the fundamental historical facts in which new-developmentalism is based is the idea that middle-income countries of Latin America, like Brazil or Mexico, had already overcome the phase of infant industry where import tariffs are required to develop the domestic manufacturing industries until they reach the efficient production scale in order to become competitive in both domestic and international markets (Bresser-Pereira, 2006). Once the phase of infant industry is overcome, it is necessary to put in place a model of industrialization through the promotion of manufacturing exports, what Kaldor (1967) named as the stage 2 of industrial development. In the words of Kaldor:

“As the experience of many countries has shown, the stimulus of industrialization afforded by this pattern out as the process of import substitution is gradually completed. To maintain development, it is necessary for the industrializing country to enter a second stage during which it becomes a growing net export of manufacturer consumer good”

This model requires the adoption of a macroeconomic policy regime that allowed real exchange rate to remain at a competitive level in order to compensate the technological backwardness of domestic manufacturing industries in comparison with the manufacturing firms of developed countries that operate within the technological frontier.

Reducing the technological gap is a time-consuming process and cannot be done at once, which means that technological disadvantage of manufacturing exports of the new-

industrialized Latin American countries, as well as in East Asia, had to be compensated by price competitiveness in the form of an undervalued exchange rate. The abundance of natural resources combined with liberalization of capital account of balance of payments in the beginning of the 1990 had produced a trend of overvaluation of real exchange rate in Latin-American countries, reducing the price-competitiveness of manufacturing exports and hence in a falling share of manufacturing exports of Latin American countries in total world manufacturing exports. East Asia did not suffer from the same trouble: the combination of low natural resources with large capital controls had contributed to keep real exchange rate at competitive or undervalued level, allowing these countries to increase their share of world's manufacturing exports. In terms of the 1967 Kaldor's model, Latin America failed to enter in the phase 2 of industrial development, but East Asia had been extremely successful.

BPCG models shared with new-developmentalism the role of exports as the engine of long-term growth. In the words of Thirwall and Dixon (1979):

“Thus, as long as the income elasticity of exports is greater than unity, which appears to be for most countries, the ratio of exports growth to income growth will almost certainly show an historical tendency to exceed unity. Indeed, one could go further and say that if the income elasticity of demand for imports exceed unity the export sector must expand relative to the total of the economy if growth is to be sustained” (p.174)

If an income elasticity of imports greater than one demands exports to grow at a higher rate than domestic output; this means that a sustainable growth path from the perspective of balance of payments requires an increase in the ratio of exports to GDP, which means that output growth must be export-led to be sustainable.

A similar argument is presented in Bresser-Pereira, Oreiro and Marconi (2015):

“For a small open economy that lacks a convertible currency, as is the case of the vast majority of the middle-development countries, the exports growth is the exogenous variable par excellence. The reason is that, if the growth rate of public expenditure is higher than the exports growth rate, then output and domestic income will grow more than exports. If income elasticity of imports is higher than one (as it usually is in medium-development economy), then imports will grow higher than exports, generating a growing trade deficit which will probably be untenable in the long-term” (p.29).

The divergence of new developmentalism with BPCG models regards the role of exchange rate in the process of economic development and, more specifically, its ability in promoting the exports of manufacturing goods. Thirwall and Dixit (1979) argues that exports growth cannot be affected by the level of real exchange rate or, in their words, “on the absolute difference between domestic and foreign prices” (p.177); but only by the difference between the rate of change of domestic prices and foreign prices” (p.177-178), which is the same as the rate of change of real exchange rate. Although the authors explicitly recognizes that a depreciation of nominal exchange rate is capable to increase the growth rate of real output compatible with the balance of payments equilibrium, since the Marshall-Lerner condition is likely to be satisfied in most countries (p.184-185); they argue that an “improvement in the growth rate can only be once-and-for-all unless depreciation is continuous” (p.183), which means that in order to increase the output growth, policy makers must increase the rate of nominal exchange rate depreciation instead of make a once-and-for-all depreciation of the level of nominal exchange rate. However, a continuous change in the relative prices of domestic goods and foreign goods is clearly unsustainable in the long-term: the real exchange rate cannot change forever in one direction or another, it had to reach some equilibrium level.

Regarding the equilibrium level of real exchange rate, Thirwall and Dixit (1979) suggests that it can be given by the law of one price (p.184); or, in other words, by the strong version of the Purchasing Power Parity (PPP) Theorem according to which the real exchange rate in the long run is constant and equal to one. Another possibility is that in the long run all changes in the rate of change of nominal exchange rate gives rises to equal increases in the rate of change of domestic prices, so that real exchange rate remains unchanged; but in this case, the equilibrium level of real exchange rate is undetermined by the model proposed by the authors.

In contrast to BPCG, new developmentalism argues that long-run equilibrium level of real exchange rate is given by the level of real exchange rate for which the share of manufacturing industry in GDP is constant over time (See Oreiro, 2020; Oreiro, D’Agostini and Gala, 2020; and Oreiro, Martins da Silva and Dávila-Fernandes, 2020). If the actual level of real exchange rate is equal to the industrial equilibrium level, then the growth rate of real output will be determined by the growth rate of exports – with the investment rate adjusting itself to the growth rate of exports in order to keep capacity utilization at the normal level in the long run – and the country will run a surplus in the

current account of balance of payments as a ratio to GDP if it is capable to both neutralize the Dutch disease and control the inflows of foreign capital. In this scenario the balance of payments constraint will never be a binding constraint: the growth rate of real output will be lower than the one compatible with the equilibrium in the balance of payments. In this context, the restriction to output growth will be given by (i) the growth rate of international trade and (ii) the size of technological gap which largely determines the income elasticity of exports.

To sum up. New-Developmentalism shares with the BPCG models the thesis that exports growth is the engine of long-term growth of capitalist economies, at least those ones that did not had a convertible currency and hence are incapable to finance a permanent disequilibrium in the balance of payments. Unlike BPCG models, however, New-Developmentalism had a clear and measurable (See Oreiro, D'Agostini and Gala, 2020) concept of equilibrium real exchange rate. Moreover, New-Developmentalism set the real exchange rate at the centre of the theory of economic development, since set the real exchange rate at the "right level" is fundamental for a sustainable path of economic growth. Real exchange rate overvaluation due to Dutch disease and/or foreign capital inflows will result in premature deindustrialization and slowdown in the rate of output growth, thereby reducing the growth rate of productivity and real wages in the long-term.

5. Final Remarks

As the main conclusions of this article, we can emphasize these ones.

- (i) The common criticism made against new developmentalism according to which manufacturing growth and per-capita income growth depends only on non-price competitiveness of the manufacturing sector is wrong. The higher is the technological gap the firms of a country face, more important is for them to have an undervalued exchange rate to compensate their technological backwardness relative of the firms of developed countries.
- (ii) This does not mean, for sure, that the only thing that can be done to foster economic development is to set the exchange rate at the "right" level, which is for new-developmental school the so-called industrial equilibrium level, recently redefined by Oreiro (2020) and calculated by a new methodology developed by Oreiro et al (2020). Science and Technology policies, as well as industrial policies, are required to reduce the technological backwardness of

domestic firms relative of the firms of developed countries; but it is impossible for these policies to give any relevant result if real exchange rate is overvalued.

- (iii)** New-Developmentalism shares with the BPCG models the thesis that exports growth is the engine of long-term growth of capitalist economies, at least those ones that did not had a convertible currency and hence are incapable to finance a permanent disequilibrium in the balance of payments. Unlike BPCG models, however, New-Developmentalism had a clear and measurable (See Oreiro, D'Agostini and Gala, 2020) concept of equilibrium real exchange rate. Moreover, New-Developmentalism set the real exchange rate at the center of the theory of economic development, since set the real exchange rate at the “right level” is a necessary condition for a sustainable path of economic growth
- (iv)** Real exchange rate overvaluation due to Dutch disease and/or foreign capital inflows will result in premature deindustrialization and slowdown in the rate of output growth, thereby reducing the growth rate of productivity and real wages in the long-term.

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