4 A theoretical framework for new developmentalism

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Structuralist development economics was formulated between 1940 and 1960, in the context of great optimism after the Second World War, by a group of economists associated with the replacement of the League of Nations by the United Nations.[1] Their approach, as well as Keynesian macroeconomics, was dominant between 1940 and 1960, very largely because of the Great Crash of 1929 and the Great Depression of the 1930s, which caused the collapse of economic liberalism and the neoclassical theory, which legitimized it. However, after the economic slowdown that occurred in rich countries in 1970s, neoliberal ideology returned and the neoclassical economic theory that justified it 'scientifically' regained their hegemony.

Since the start of the twenty-first century, however, a succession of financial crises has revealed the failure of neoliberal prescriptions, which guarantee neither stability, nor economic growth, nor a reasonable distribution of income. On the contrary, neoliberalism has benefited only a narrow minority. The global financial crisis of 2008 made clear the failure of neoliberalism even to the rich countries. Since the beginning of the present century, a set of new macroeconomic policies and development strategies has begun to be developed, known as 'new developmentalism', along with a new theory justifying it, 'structuralist development macroeconomics'.[2] In this chapter we summarize these new ideas.

Economics textbooks usually treat macroeconomics, which is seen as the study of cyclical fluctuations, separately from economic development, which is seen as the study of the long-term trends of capitalist economies. However, recent developments in the econometrics of time series have shown that the decomposition of real output behaviour into 'trend' and 'cycle' is incorrect. This is because the time series for gross domestic product (GDP), for both developed and developing countries, present 'unit roots', so that temporary shocks – in either demand or supply – have permanent effects on current output. Thus, the cyclical component of economic activity, traditionally associated with 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 describe over time.

This 'path dependence' phenomenon has strong implications for macroeconomic theory and policy. In terms of macroeconomic theory, it exposes as

misleading the traditional division of macroeconomics between the 'short term', in which issues related to aggregate demand are relevant, and the 'long term', where these issues do not have any relevance (Dutt and Ros 2007, p. 97). This is because what happens in the short term has long-term effects.

It is therefore not reasonable to separate macroeconomics from the theory of economic development. It is more reasonable to unite the two areas under the name 'macroeconomics of development'. This is what we attempt to do in this article. But as our vision of economic development is a structuralist one, what we introduce here is a *structuralist development macroeconomics* that can be *defined* as follows. It is the economic theory that explains economic development as a historical process of capital accumulation, incorporating technological progress and structural change, in which accumulation depends on the existence of profitable investment opportunities offered by sustained growth of demand, which, in turn, depends on the balanced increase of the domestic market and of exports, which, finally, depends on the exchange rate to fluctuate around the equilibrium, instead of being chronically and cyclically overvalued, as is often the case in developing countries.

Development driven by demand

In an economy that has already undergone its industrial revolution or its capitalist revolution and become a middle-income country, long-term growth is determined by aggregate demand. This is because economic growth depends not on prior savings or on the availability of means of production, but, contrary to the teaching of conventional economic theory, on the existence of profitable investment opportunities and the availability of credit. In a mature capitalist economy, albeit in a developmental stage, the means of production are produced within the system, so that their availability 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 capitalists or entrepreneurs to invest.

In small open economies that do not have convertible currencies such as those of developing countries, the autonomous component of aggregate demand is constituted by exports. Economic development therefore depends on exports. Domestic consumption cannot drive long-term growth unless the share of wage income increases steadily over time, which is, in principle, incompatible with a satisfactory expected profit rate for entrepreneurs (unless technical progress is of a capital-saving type). Another condition of consumption-led growth is that consumer debt is growing over time, which likewise is not sustainable. Thus, the existence of limits to the growth of the wage share makes it impossible to generate output growth indefinitely through wage increases ahead of productivity growth. It is also impossible to generate growth generated with government spending for obvious reasons.

From the perspective of structuralist development macroeconomics, the potential long-term growth rate of real output is given by the investment rate or the rate of increase in the stock of capital, given the productivity of capital or the output–capital ratio. Investment, in turn, depends on the existence of profitable investment opportunities. To the extent that entrepreneurs in developing countries, where labour is relatively cheap, master the technology similar to the one that exists in most advanced countries, they are able to produce manufactured goods cheaper than the ones produced by rich countries. Thus, they obtain credit, invest and export, thereby increasing the country's share of world exports. But all this depends on the exchange rate being at the industrial equilibrium.

Neoclassical growth theory assumes that the availability of technology and factors of production is independent of aggregate demand. But there are strong arguments to the effect that economic growth is driven by aggregate demand. First, investment directly depends on demand. A businessman will not invest if he or she does not believe that demand exists for the goods and services that he or she wants to produce. Second, by its very nature, investment increases the availability of capital and productive capacity. In fact, both the growth rate of the availability of the factors of production and the pace of technological progress are determined, in the long run, by the rate of expansion of aggregate demand.

Structuralist development theory emerged at the moment when the Keynesian thinking became dominant throughout the world, in such a way that structuralist economists had no doubts about the importance of demand for economic development. Celso Furtado (1966), in particular, was very clear on this issue. Entrepreneurs invest only if they detect good, profitable investment opportunities, which depend on demand.

On the other hand, Nicholas Kaldor (1988, p. 157) argued that growth is driven by demand because the means of production used in a modern capitalist economy are themselves goods that are produced within the system. In this way, the 'availability' of the means of production can never be considered as a given independent of the demand for them. In that context, the fundamental economic problem is not the allocation of a given volume of resources among a number of alternatives available, as neoclassical economists think, but the determination of the pace at which these resources are created. In the words of Mark Setterfield, one of the exponents of this theoretical approach:

> 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.
>
> (Setterfield 1997, p. 50)

The key role of the exchange rate

It is well known that investments depend on demand – on domestic and foreign demand. What is less discussed in the economic literature is that they also depend on an equilibrium or competitive exchange rate – on an exchange rate that fluctuates around the industrial equilibrium. Only an equilibrium exchange rate gives to the technology competent business firms in the developing country *access* to foreign demand. Yet, free markets do not assure that the exchange rate fluctuates around the industrial equilibrium. Given the Dutch disease and the excessive capital inflows, the exchange rate tends to be chronically and cyclically overvalued.

If the real exchange rate is at the 'right' equilibrium level, that is, the 'industrial equilibrium' level – the level that allows domestic firms operating with world state-of-the-art technologies to be competitive in international markets – there will be no external constraint to development, which will be limited only by the investment rate and capital productivity.

Yet in developing countries free markets don't lead to this exchange-rate equilibrium. Instead, they render the exchange rate chronically overvalued. First, the existence of abundant and cheap natural resources acts as an obstacle to economic development, as the Ricardian rents that results from the exploitation of these resources produce the permanent overvaluation of exchange rate: this is the 'Dutch disease' or the 'natural resources curse'. If this disease is not neutralized, or stops being neutralized, then a country that previously was able to industrialize will reduce investment in manufacturing, and will incur premature de-industrialization and a return to a primary exports model.

On the other hand, excessive net capital inflows into the economy will lead to a current account deficit and to cyclical overvaluation of the exchange rate. Giving the fact that capital inflows appreciate the exchange rate and given the existence in developing countries of a high rate of substitution of foreign for domestic savings, the capital inflows required to finance the 'foreign savings' rather increase consumption than the investment rate. Besides, current account deficits involve increased indebtedness in foreign currency, what makes the developing economy go from currency crisis to currency crisis.

Such inflows that unduly appreciate the national currency result from a structural factor – (a) the fact that profit and interest rates tend to be structurally higher in developing countries – and from four policy causes. Two of these reflect conventional economics – (b) high interest rates to control inflation, and (c) to avoid 'financial repression'; one cause is common to conventional as well as Keynesian and structuralist economics – (d) to incur current account deficits to overcome the 'foreign constraint'; and one cause is derived from domestic politics – (e) exchange-rate populism, whereby politicians appreciate the currency so as to increase wages and reduce inflation and so increase their chances of being re-elected. The combined effects of Dutch disease and excessive capital inflows result in a chronically overappreciated national currency – result in an exchange rate that denies or powerfully constrains the competitiveness of the

local business enterprises utilizing technology in-the-state-of the art.[3] Thus, its path of real output will tend to be lower than the one verified in developed countries – a path insufficient for the catching up, and the country will fall behind.[4]

Availability of factors

Factors of production are endogenous in the long run. In order to understand that we start with the supply of capital. The quantity of capital that exists at a point in 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 on the rate at which entrepreneurs want to increase the stock of capital.

So the fundamental determinant of the 'capital stock' is the sum of investment decisions. Investment, in turn, is determined by two set of variables: (a) the opportunity cost of capital (mainly determined by the level of short-term interest rate set by the Central Bank), and (b) 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 would be expected in an economy that shows a persistent high growth rate – then they will make large investment expenditures.

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, productive capacity must be increased – by means of investment expenditures – in order to meet the increase in aggregate demand.

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. In fact, investment expenditures require only the creation of liquidity by commercial banks (Carvalho 1992; Davidson 1986). If commercial banks are ready to increase their credit operations in favourable terms, then it is possible for firms to start their investment projects, buying new machines and equipment from capital goods producers. Once the investment expenditure is made, it will generate 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 funds required to pay all their debts to commercial banks. These operations would not necessarily decrease the price of bonds or shares since families would be looking for new assets in which to store their extra saving.[5]

There are three sources of funds to finance firms' investment projects: retained earnings, debt 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 – because of, for instance, a very tight monetary policy that increases the

short-term interest rate, so raising the cost of borrowing – then 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 now turn our attention to the 'supply of labour'. In our view, the 'supply of labour' should not be considered a limit to the growth of production in the long run. First of all, hours of work could easily be increased in order to raise the level of production.[6] Second, the participation rate – defined as the ratio of the labour force to the total population of working age – could increase in response to a strong increase in demand for labour (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 the labour force could accelerate during boom times because some people may decide to enter the labour force in response to the incentives created by a booming labour market.

Finally, it should be emphasized that population and the labour force are not a datum from the viewpoint of the economy as a whole. A shortage of labour – even of qualified workers – can be made up by immigration. For example, countries like Germany and France could sustain high growth rates during the 1950s and 1960s with the immigrant workers from the peripheral countries of Europe (Spain, Portugal, Greece, Turkey and the south of Italy).

A last element to be considered is technological progress. Can the rate of technological progress be considered an obstacle to long-run growth? If the rate of technological progress is exogenous to the economic system, then growth is limited by the pace at which technological knowledge is increased. However, technological progress is not exogenous to the economic system. The pace at which firms introduce innovations is largely determined by the rate of capital accumulation, since many technological innovations are embodied in new machines and equipment. This idea, central to structuralist development theory as expounded mainly in the works of Ragnar Nurkse (1953), was encapsulated by Kaldor (1957) in the so-called '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. In addition, 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 labour productivity and the growth rate of output, known as the Kaldor–Verdoon Law.[7,8] In this setting, an increase in aggregate demand causes an increase in the growth rate of labour productivity, since the growth rate of output increases as a consequence of a greater demand growth. Based on Kaldor's 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 are demand-determined. 'Full employment' is essentially a short-run concept that ignores that endogeneity of the 'natural growth rate' in the long run.

If the supply of factors of production should not be considered a limit on long-run growth, what are the determinants of economic growth in the long run?

The ultimate determinant of economic growth is aggregate demand. Firms increase their production levels in response to an increase in aggregate demand if two conditions are satisfied: (a) profit margins are high enough to generate the rate of profit entrepreneurs desire, and (b) the realized profit rate must exceed 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*, that is, the growth of that part of aggregate demand that is independent of the level of and/or variations in the level of output and income.

In open economies autonomous demand has two components, namely exports and government consumption expenditures (Park 2000). Investment expenditures are not a component of autonomous demand since investment decisions concerning capital assets are basically determined by entrepreneurs' expectations about the future growth of production and sales, according to the so-called 'principle of acceleration' in investment theory (Harrod 1939). In other words, investment is not an exogenous variable from the viewpoint of the growth process, since it is driven by output growth.

Consumption, in turn, depends to a large extent on wages, which, given the distribution of income between wages and profits, is a function of the level of production and employment. In this way, given the functional distribution of income, consumption is not an autonomous component of aggregate demand and cannot lead or drive long-term economic growth. This means that consumption-led growth is possible only in a context in which the functional distribution of income is modified over time in favour of the working class. In other words, the share of wages in national income must constantly increase.[9]

So the long-run growth rate of real output is a weighted average of the rate of growth of exports and the rate of government consumption expenditures.

For a small open economy that does not have a convertible currency, export growth is the autonomous variable in the growth process.[10] If the rate of growth of government consumption expenditures is higher than the rate of export growth, then real output and income will increase faster than exports. If the income elasticity of imports is greater than 1 (as is usual in open economies), then the rate of import growth will be higher than the rate of export growth, so generating a growing trade deficit (on the assumption of constant terms of trade) that will be unsustainable in the long run.

The growth rate of exports is equal to the product between the income elasticity of exports (ε) and the growth rate of world income (z).[11] So we can establish that in the theory of demand-led growth the long-run growth rate of real output (g^*) is given by:

$$g^* = \varepsilon z. \tag{4.1}$$

'External constraint' and capacity constraint

Up to this point we have assumed that the output level adjusts itself, in the long term, to the growth of autonomous aggregate demand, which in the case of a

small open economy with a non-convertible currency is constituted fundamentally by exports. However, the economy might not present a long-term growth rate equal to the value given by equation (4.1) due to the presence of constraints on expanding the level of production at the rate determined by the expansion of exports. These restrictions arise from the need to maintain a balance of payments equilibrium in the long term, as well as from the existence of factors that prevent the full adjustment of the productive capacity of enterprises to the projected growth of their sales.

The issue of external constraint is an old one in development theory. In the *big push* model of Rosenstein-Rodan (1943), who founded the structuralist theory of development, this restriction is an assumption. From this perspective, developing countries would face always lack hard currency because the income elasticity of their exports of primary goods would be smaller than the income elasticity of their imports of industrial goods. The two-gaps model of Hollis Chenery and Michael Bruno (1962) was perhaps the most significant formalization of this idea.

In a second moment, already within the context of the first crisis of structuralism and after Post Keynesian ideas became dominant among heterodox economists, the problem of external constraint on long-term growth is to be associated with the contribution of Thirwall (1969, 2002). The concept of a balance-of-payments equilibrium growth rate developed by this author proceeds 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 because it does not include in its formal analytical structure a condition for equilibrium in the balance of payments. In this context, dependent on the relationship between the income elasticity of exports and the income elasticity of imports, a growth path led by exports could be unsustainable from the standpoint of the balance of payments. Indeed, one of the classical theses of Latin American structuralist thought was that the export of primary goods or commodities was relatively inelastic with respect to income increases in the rich countries, while the income elasticity of imports of manufactured goods by developing countries was greater than 1. From that premise, which had also served as the basis for the two-gap model, Thirwall argued that a path of accelerated growth driven 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 a balance-of-payments equilibrium.

According to Thirlwall, the balance of payments equilibrium growth rate (g^{**}) is given by:

$$g^{**} \frac{\varepsilon}{\pi} z \tag{4.2}$$

where ε is the income elasticity of exports, π is the income elasticity of imports, and z is the growth rate of world income.

If we understand Thirlwall's model simply as the thesis that a country, whether developed or developing, cannot in the long run grow at a higher rate than the growth of its exports, then we have nothing against it. However, if we understand it as a demonstration of the 'convenience' of foreign savings or external financing, the picture changes completely. This is because in middle-income countries we can no longer assume that the income elasticity of imports is greater than the income elasticity of exports, since the country is now an exporter of manufactured goods. Even in this case, however, the external constraint thesis is doubtful.

But the essential thing to consider is the exchange rate. As we will argue next, income elasticities of exports and imports are not variables that are exogenous to the model, determined only by the level of technological knowledge obtained by country; rather, they depend on the current level of the real exchange rate. Income elasticities are thus *endogenous* variables that depend on the exchange rate.

When the level of the real exchange rate is chronically overvalued due to the non-neutralization of the Dutch disease or to high inflows of foreign capital, the productive structure of the country is affected, inducing a perverse specialization in the production of goods that are intense in natural resources and causing low growth due to de-industrialization. Alternatively, when a country manages to counteract the tendency to cyclical overvaluation of the real exchange rate, a balanced exchange rate at a level compatible with the 'industrial equilibrium' enables a process of industrialization in which the country is able to continuously increase the 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, on the relationship between the current value of the exchange rate and the industrial-equilibrium exchange rate. When the exchange rate is overvalued in relation to the industrial-equilibrium level, there occurs a process of de-industrialization and re-primarization of exports, that is, a perverse structural change that acts to reduce the income elasticity of exports and increase the income elasticity of imports. In this context, there is a gradual reduction in 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 the country's industrialization process will deepen, which will lead to an increase in the income elasticity of exports and a reduction in the income elasticity of imports, thereby increasing the balance-of-payments equilibrium growth rate.

In mathematical terms, this reasoning can be expressed as follows:

$$\frac{\partial\left(\frac{\varepsilon}{\pi}\right)}{\partial t} = \beta(\theta - \theta_{ind}) \tag{4.3}$$

where β is a positive constant, θ is the industrial-equilibrium exchange rate.

Based on equation (4.3), we find that Thirlwall's model of balance-of-payments constrained growth provides, at best, only a temporary constraint on long-term growth. Indeed, solving equation (4.3) for $\frac{\varepsilon}{\pi}$ and substituting the resulting expression in equation (4.2) we get:[12]

$$\dot{g} = \beta(\theta - \theta_{ind}) \tag{4.4}$$

In the expression (4.4) we can see that the balance-of-payments equilibrium growth rate will adjust over time depending on the relationship between the current value of the exchange rate and the industrial-equilibrium exchange rate. If the exchange rate is overvalued, that is, if the exchange rate is below the industrial equilibrium, then the rate of growth consistent with the balance-of-payments equilibrium will be reduced over time, thus indicating a deepening of the external constraint. Similarly, if the exchange rate is undervalued, that is, if the exchange rate is above the industrial-equilibrium level, then the equilibrium growth rate of the balance of payments will increase gradually over time. It follows that any growth rate of real output is consistent with balance-of-payments equilibrium when the exchange rate is at the industrial-equilibrium level. Thus, in the long term we cannot talk about an external constraint on growth if the exchange rate is properly aligned, that is, at a level compatible with the industrial equilibrium.

Capacity constraint and income distribution

Another constraint on long-term growth arises from the productive capacity, since its expansion depends on the investment plans of entrepreneurs and the output–capital ratio.

To determine the rate of output growth compatible with the investment plans of entrepreneurs, we consider that the amount of goods and services produced in a given point of time is given by:

$$Q = vuK \tag{4.5}$$

where Q is the level of output, K is the stock of ca∫

$$\Delta Q = v[K\Delta u + u\Delta K] \tag{4.6}$$

Dividing both sides of (4.6) by Q, assuming that the rate of depreciation of capital stock is equal to δ so that net investment equals to $I=(\Delta K-\delta K)$, we get the following expression:

$$\frac{\Delta Q}{Q} = v\left[\Delta u\frac{K}{Q} + u\left(\frac{I}{Q} - \delta\frac{K}{Q}\right)\right] \tag{4.7}$$

In the long-run equilibrium the degree of capacity utilization is equal to the *normal* level of capacity utilization, that is, the level of capacity utilization that firms desire in light of their competition strategies (Oreiro 2004, p. 47). In this

way, we can assume $\Delta u=0$ in equation (4.7), and thereby we obtain the following expression:

$$\frac{\Delta Q}{Q} = v\left[\Delta u \frac{K}{Q} + u\left(\frac{I}{Q} - \delta \frac{K}{Q}\right)\right] \tag{4.8}$$

where u^n is the normal level of capacity utilization.

Equation (4.8) defines the so-called 'warranted growth rate', that is, the rate of output growth which, if achieved, maintains capacity utilization at its normal level in the long term (Park 2000). This concept originates in the seminal work of Harrod (1939).

Net investment as a proportion of GDP in turn depends, as we have argued previously, on the expected profit rate and the opportunity cost of capital. The rate of profit, in turn, critically depends on the actual value of the exchange rate.

The profit rate (R) can be expressed by the following equation:

$$R = \frac{P}{K} = \frac{P}{Q}\frac{Q}{\bar{Q}}\frac{\bar{Q}}{K} muv \tag{4.9}$$

where P is the aggregate profit, $\bar{Q}$ is the economy's potential output (i.e. the maximum amount of goods and services that can be produced from existing productive capacity), and m is profit share.

Let us consider now that domestic goods are not homogeneous, so that firms can differentiate their products from 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 (4.10) below:

$$p = (1+z)[w\alpha_1 + ep^*\alpha_0] \tag{4.10}$$

where p is the price of domestic goods, z is mark-up rate or profit margin, w is the nominal wage rate, e is the nominal exchange rate, p^* is the price of imported raw materials valued in the currency of the imports' source country, α_1 is the unitary technical requirement of imported raw material and α_1 is the unitary requirement of labour.

We assume that domestic goods produced by domestic firms are imperfect substitutes for goods produced abroad, in such a way that international trade does not validate the *law of one price* for *tradable goods*, that is, purchasing power parity is not valid. However, the profit margin of domestic firms 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 depends on the real exchange rate, which is defined as the ratio of the price of imported goods in the domestic currency and the price of domestic goods also in

the domestic currency. In this context, a devaluation of the 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 the real exchange rate as follows:

$$z = z_0 + z_1\theta \tag{4.11}$$

where $\theta = \frac{ep^*}{p}$ is the actual value of real exchange rate.

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

$$m = \frac{z}{1+z} = \frac{z_0 + z_1\theta}{1 + z_0 + z_1\theta} \tag{4.12}$$

From equation (4.12), it is very clear that a devaluation of the real exchange rate promotes an increase in the profit share.

Based on this reasoning, we can see that the profit rate depends on, among other variables, the profit share which, in turn, depends on the actual value of the real exchange rate. It follows that a devaluation of the real exchange rate, with everything else held constant, increases the rate of profit.

So we can express investment rate as follows:

$$\frac{I}{Q} = \vartheta(\theta, R(\theta) - r) \tag{4.13}$$

where R is the rate of profit expected by entrepreneurs and r is the opportunity cost of capital.

Equation (4.13) shows that the rate of investment in the economy considered here is a positive function of the real exchange rate, because a devaluation of the exchange rate will produce an increase in the profit share and in the rate of profit, inducing entrepreneurs to invest more.

Putting (4.13) in (4.8), we get the following expression:

$$g^{**?} = u^n[v(\vartheta(\theta, R(\theta) - r)) - \delta] \tag{4.14}$$

Equation (4.14) 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.

A Keynesian–structuralist growth model

We are now in a position to present a formal model of economic growth that synthesizes the theoretical discussion so far. As discussed above, the long-term

growth of developing economies, which have no convertible currency, depends on the rate of growth of exports (equation (4.1)), which is equal to the joint product of the income elasticity of exports and the rate of growth of income in the rest of the world. This growth, however, is subject to two types of constraints. The first is the external constraints examined by Thirlwall's growth model. If we take into consideration the effect of the real exchange rate on the productive structure of the economy, we will conclude that the income elasticities of exports and imports in Thirlwall's model are endogenous, so that if the exchange rate is properly aligned – that is, at the level corresponding to the industrial equilibrium – then any growth rate will be sustainable from the point of view of the balance-of-payments equilibrium. In other words, external constraint will never be an obstacle to long-term growth.

The second constraint is given by the *warranted rate of growth*, derived from Harrod's growth model, which determines the real output growth rate that is compatible with the achievement of a normal level of capacity utilization. Since income distribution and the profit rate depend on the real exchange rate, it follows that a devaluation of the real exchange rate will encourage entrepreneurs to invest more, causing, given the output–capital ratio, an acceleration in the growth rate of productive capacity. In this way, the production capacity constraint can also be 'relaxed' through appropriate variations of the real exchange rate.

The Keynesian–structuralist growth model is given by the following system of equations:

$$g^{**?} = u^n[v(\vartheta(\theta, R(\theta) - r)) + \delta] \tag{4.14}$$

$$\theta = \theta_{ind} \tag{4.15}$$

The system formed by equations (4.14) and (4.15) has two equations and two unknowns, namely the real output growth rate (g) and the actual value of the real exchange rate (θ). It is, therefore, a determinate system.

The exogenous variables of the model are the industrial equilibrium exchange rate (θ_{ind}), the normal degree of capacity utilization (u^n), the output–capital ratio (v), the real cost of capital (r) and the rate of depreciation of the capital stock (δ).

The long-run equilibrium of the economy is defined as the joint of values of the real output growth rate and the actual real exchange rate for which productive capacity is growing at the same pace of aggregate demand, in such a way that the degree of capacity utilization remains constant through time and equal to the normal level and that the productive structure of the economy is constant over time. The long-run equilibrium can be determined with Figure 4.1.

Figure 4.1 demonstrates the importance of the real exchange rate for long-term growth. Indeed, the real exchange rate acts as an adjusting mechanism that allows simultaneously a normal degree of capacity utilization and a stable productive structure in the long term. In this way, the growth model presented here puts the real exchange rate *at the centre of the theory of economic development.*

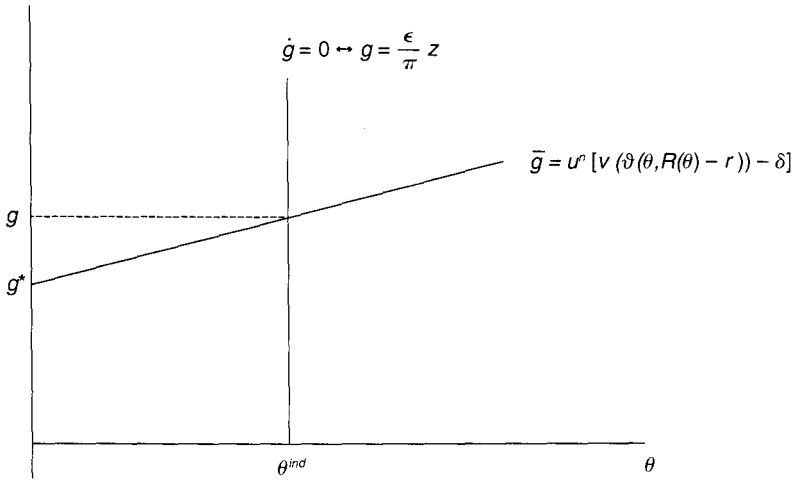

Figure 4.1 Determination of long-run equilibrium.

Dutch disease and excessive capital inflows

For structuralist development macroeconomics, the restriction on long-term growth originates not in the external constraint or a capacity constraint but in the overvaluation of the real exchange rate, which in turn originates in the Dutch disease and excessive capital inflows.

Consider first the Dutch disease. Dutch disease is a permanent overvaluation of the real exchange rate caused by the export of commodities that use cheap and abundant natural resources, generating large export revenues for the country. Because natural resources cannot be reproduced by labour, and so are scarce in the classical-Marxist meaning of the term, countries and firms that produce commodities that are intensive in natural resources earn Ricardian rents that enable them to export these commodities even at a more appreciated exchange rate than the one required by industrial firms that operate with state-of-the-art technology to compete in international markets. As a 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.

The current-account equilibrium exchange rate is defined as the actual value of the real exchange rate that generates the inter-temporal equilibrium of the current-account. In this context, Ricardian rents arising from the scarcity of natural resources allow the inter-temporal current-account equilibrium at a real exchange-rate level that is more appreciated than the one required for industrial equilibrium. In other words, there is a decoupling between the industrial-equilibrium exchange rate and the current-account exchange rate, with the latter more appreciated than the former. This phenomenon is called 'Dutch disease'.

As a result of Dutch disease, the real exchange rate appreciates to the level θ^{cc} in Figure 4.2, and generates a negative structural change in the economy. More precisely, de-industrialization begins, which induces a reduction in the income elasticities of exports and an increase in the income elasticities of imports. As a result, the balance-of-payments equilibrium growth rate is reduced. At the same time, the appreciation of the real exchange rate leads to a reduction in profit margins and in the rate of profit, inducing a contraction in private investment and therefore a fall in the warranted rate of growth. In the light of the reduction in the pace of expansion of productive capacity and the process of de-industrialization, the long-run equilibrium output growth rate is reduced from g^{ind} to g^{cc}.

The second cause of the chronic overvaluation of the real exchange rate in developing countries is capital inflows that are 'excessive' in that they are not required for a balance-of-payments equilibrium. As we saw, if the real exchange rate is at a proper level – that is, the industrial-equilibrium level – any rate of output growth is sustainable from the standpoint of the balance of payments. Even if a country suffers from Dutch disease, these inflows are unnecessary if the real exchange rate is at the current-account equilibrium level.

As discussed above, these excessive capital inflows are, in general, the result of interest rate differentials and the adoption of a growth model with foreign savings. With regard to interest rate differentials, we should observe 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 the liquidity premium on long-term bonds higher in the former rather than the latter. Second, middle-income countries have external debts denominated in foreign currency, which is in sharp contrast to developed countries, whose external debt is denominated in their own currency. This 'original sin' of middle-income countries increases the default risk of external debt, increasing domestic interest rates if a situation of near-perfect capital mobility in Mundell's sense prevails. Finally, the adoption of a growth model with foreign savings, according to which foreign savings would be a complement rather than substitute for domestic savings so that current account deficits are beneficial to economic growth, implies a government decision to run current account deficits by means of an intentional overvaluation of the real exchange rate. In order to reach an equilibrium in the balance of payments, domestic interest rates need to be kept at higher levels than those that prevail in developed countries.

As a result of excessive capital inflows, the real exchange rate appreciates to level θ^*, lower than the current-account equilibrium level. This means that a middle-income country that suffers simultaneously from Dutch disease and excessive capital inflows will have a *current account deficit plus de-industrialization*. This situation is depicted in Figure 4.2.

Figure 4.3 sets out a further way of explaining the same ideas and the cyclical tendency of the exchange rate to become overvalued. The exchange rate is depicted on the vertical axis, and time on the horizontal axis. The two horizontal

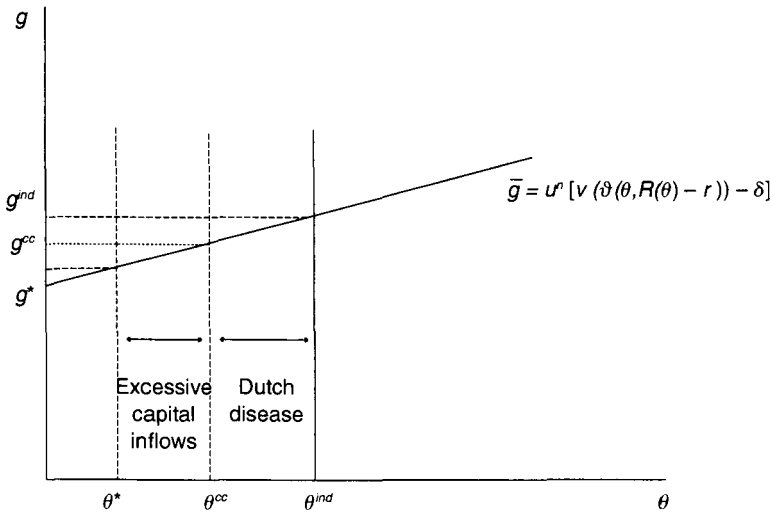

Figure 4.2 Dutch disease and excessive capital inflows.

dotted lines refer to the industrial equilibrium and the current-account equilibrium. If the exchange rate is left fully free, the exchange rate will not just be volatile, it will go from sudden stop to sudden stop, from currency crisis to currency crisis. The Dutch disease pulls down the exchange rate to the current equilibrium, and excessive capital inflows push the exchange rate even lower, into the realm of increasing current account deficits. The cycle ends when creditors lose confidence, the country defaults on its debts and its currency sharply depreciates. In consequence, the exchange rate tends to be chronically overvalued.

Theoretically, a floating exchange rate would prevent this appreciation and avoid the crisis. But this holds only on the condition that markets endogenously balance financial markets – which we know is not the case. A more realistic theory tells us that lending to developing countries is often a speculative practice involving the formation of financial bubbles. Foreign lenders see their prophecy that the exchange rate will continue to appreciate confirmed, and keep lending, gaining from high interest rates and the appreciation of the local currency. They continue to lend until, all of a sudden, in a well-known herd movement they lose confidence, suspend the renewal of their loans and the currency crisis breaks out.

Conclusion

In this chapter we present a theoretical framework for structuralist development macroeconomics. Based on this framework, we can see that the development of middle-income countries that do not have a convertible currency is driven by the rate of export growth. The real exchange rate plays a central role in economic

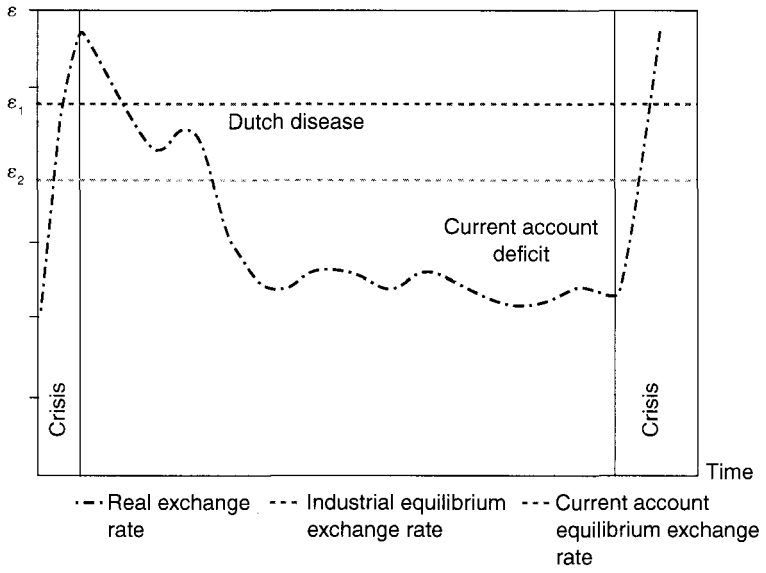

Figure 4.3 Cyclical tendency to exchange rate overvaluation.

development because it is the price that matches the normal degree of capacity utilization with the stability of the long-term productive structure. If the actual value of the real exchange rate is at its right level – that is, at the level that allows domestic firms that operate with state-of-the-art technology to be competitive on international markets, the industrial equilibrium level – then there is no external constraint to development, which is 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 exploitation of these resources result in a permanent overvaluation of the exchange rate. Additionally, excessive capital inflows add a new impetus to exchange rate overvaluation, resulting in current account deficits. Both the factors that chronically appreciate the exchange rate not only discourage productive investment but also induce a process of structural change, involving de-industrialization and a perverse re-primarization of exports. The combined effects of Dutch disease and excessive capital inflows result in a chronically and cyclically overvalued exchange rate, and, so, in a path of real output that is lower than that experienced in developed countries. In this case the middle-income country shifts on to a falling-behind path.

Notes

1 We refer to economists like Paul Rosenstein-Rodan, Ragnar Nurkse, Gunnar Myrdal, Michal Kalecki, Raul Prebisch, Hans Singer, Celso Furtado and Albert Hirschman.

2 The 'Ten Theses on New Developmentalism' were drafted in 2010 and originally subscribed to by 80 economists. They are available at www.tenthesesesonnewdevelopmentalism.org, and are in the Appendix of this book.
3 In this regard see Bresser-Pereira (2008, 2010, 2012).
4 This is the case with Brazil, which between 1930 and 1990 had neutralized Dutch disease through 'currency confiscation' and experienced industrialization; but after the debt crisis of the 1980s it renounced this policy of neutralization and liberalized the exchange rate. This policy and excessive capital inflows led to premature deindustrialization.
5 It should be noted that investment determines savings also in an economy that operates in conditions of 'full employment'. Indeed, as Kaldor (1956) argued, in an economy that is moving along a path of balanced growth with full employment of the workforce, an increase in the rate of investment results in an increase in profit margins, leading to a redistribution of income from workers to capitalists. Since capitalists' propensity to save is higher that than of workers, an increase in the profit share results in an increased aggregate rate of savings.
6 In the case of Brazil, increasing the number of hours of work could raise the current level of industrial production by nearly 44 per cent, according to estimates of the Institute for Studies on Industrial Development (IEDI) (*Valor Econômico*, 24 March 2006). With additional work shifts, production could increase by almost 57 per cent.
7 Some econometric evidence of the validity of Kaldor–Verdoon's Law for the United States can be found in McCombie and De Rider (1984).
8 Ledesma (2002) estimates a demand-led growth model for 17 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom and United States) for the period 1965–94. Based on this econometric evidence, we can establish the existence of a structural relationship between the growth rate of labour productivity and a set of other variables, in particular the growth rate of output. The estimated structural equation is:

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

where: r is the growth rate of labour 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.
9 Changes in income distribution between wages and profits can occur only within certain limits, if the conditions for the existence of capitalist economies have to be satisfied. As emphasized by Kaldor (1956, 1957), the profit share has a lower limit determined by the requirement to realize a minimum rate of profit, below which capitalists will not be willing to invest. Therefore, it is impossible to sustain indefinitely a consumption-led growth trajectory. At some point in time, the growing share of wages in national income will cause the profit share to reach its minimum value. When this happens, consumption can no longer grow autonomously with respect to output and income levels, thereby losing its ability to drive long-term growth.
10 The important distinction between government consumption spending and government investment spending must be recognized. Although both types of government expenditure are autonomous with respect to the level and/or the variation of current income, government investment spending delivers a positive externality on private investment: which is why a growth policy based on fiscal expansion should focus on increasing investment spending, not consumption spending. On the effect of public investment on long-term growth see Oreiro *et al.* (2008).
11 On the assumption that the terms of trade remain constant over time.
12 Without loss of generality we assume $z = 1$.

References

Bresser-Pereira, L.C. (2008) 'Dutch disease and its neutralization: a Ricardian approach', *Brazilian Journal of Political Economy* 28(1): 47–71.

Bresser-Pereira, L.C. (2010) *Globalization and Competition.* New York: Cambridge University Press.

Bresser-Pereira, L.C. (2012) 'Structuralist development macroeconomics and new developmentalism', *Brazilian Journal of Political Economy* 32(3): 347–66.

Carvalho, F.C. (1992) *Mr. Keynes and the Post Keynesians: Principles of Macroeconomics for a Monetary Production Economy.* Aldershot: Edward Elgar.

Chenery, H. and Bruno, M. (1962) 'Development alternatives in an open economy: the case of Israel', *Economic Journal* 72: 79–103.

Davidson, P. (1986) 'Finance, funding, saving and investment', *Journal of Post Keynesian Economics* 9(1): 101–10.

Dutt, A.K. and Ros, J. (2007) 'Aggregate demand shocks and economic growth', *Structural Change and Economic Dynamics* 18: 75–99.

Furtado, C. (1966) *Subdesenvolvimento e Estagnação na América Latina.* Rio de Janeiro: Editora Civilização Brasileira.

Harrod, R. (1939) 'An essay in dynamic theory', *Economic Journal* 49: 14–33.

Kaldor, B. (1956) 'Alternative theories of distribution', *Review of Economic Studies* 23(2): 83–100.

Kaldor, B. (1957) 'A model of economic growth', *Economic Journal* 67(268): 591–624.

Kaldor, B. (1988) 'The role of effective demand in the short and long-run growth', in A. Barrère (ed.), *The Foundations of Keynesian Analysis.* London: Macmillan.

Ledesma, M.L. (2002) 'Accumulation, innovation and catching-up: an extended cumulative growth model', *Cambridge Journal of Economics* 26: 201–16.

McCombie, J.S.L. and De Rider, J.R. (1984) 'The Verdoorn law controversy: some new empirical evidence using U.S. state data', *Oxford Economic Papers* 36: 268–84.

Nurkse, Ragnar (1953) *Problems of Capital Formation in Underdeveloped Countries.* Oxford: Basil Blackwell.

Oreiro, J.L. (2004) 'Accumulation regimes, endogenous desired rate of capacity utilization and income distribution', *Investigación Económica* 63(248): 41–70.

Oreiro, J.L., Silva, G.J. and Fortunato, W. (2008) 'Public spending on infrastructure, private accumulation of capital and long-term growth: a theoretical and empirical evaluation for Brazil (1985–2003)', *XIII Encontro da Sociedade Brasileira de Economia Política.* João Pessoa.

Park, M.S. (2000) 'Autonomous demand and the warranted rate of growth', *Contributions to Political Economy* 19: 1–18.

Rosenstein-Rodan, P. (1943) 'Problems of industrialization in Eastern Europe and South-Eastern Europe', *Economic Journal* 53: 202–11.

Setterfield, M. (1997) *Rapid Growth and Relative Decline.* London: Macmillan.

Thirlwall, A.P. (1969) 'Okun's law and the natural rate of growth', *Southern Economic Journal* 36: 87–89.

Thirlwall, A.P. (2002) *The Nature of Economic Growth.* Aldershot: Edward Elgar.