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A View From the Tropics: Celso Furtado and the Theory of Economic Development in the 1950s

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Resumo

O artigo mostra como a interpretação de Celso Furtado do desenvolvimento e subdesenvolvimento como fenômenos interdependentes era parte do surgimento da literatura de economia do desenvolvimento na década de 1950. Suas contribuições são comparadas à discussão histórica do "atraso econômico" por Gerschenkron, ao modelo de "economia dual" de Lewis, ao conceito de "sistema centro-periferia" de Prebisch, e à abordagem de "crescimento equilibrado" de Rosentein-Rodan e Nurkse, entre outros.

Palavras chaves: Celso Furtado, economia do desenvolvimento, heterogeneidade tecnológica, modelo Harrod-Domar, acumulação de capital

1. Introduction

During the 1950s the economic development of less developed countries became a major focus of economic policy and theory. Those were the years of “high development theory” (Krugman 1993, p. 16; see also Arndt 1987, chapter 3), when a set of ideas put forward by a relatively small set of economists - many of them with links with new international institutions such as the United Nations (UN) - established development economics as a new field. The “pioneers in development” (see the two volumes with that title edited for the World Bank by Meier and Seers 1984 and Meier 1987) included, among others, Paul Rosenstein-Rodan, Raul Prebisch, Ragnar Nurkse, Arthur Lewis, Albert Hirschman, Walt Rostow, Alexander Gerschenkron, Simon Kuznets, Paul Baran, Hans Singer and the Brazilian economist Celso Furtado. As suggested by Toye and Toye (2004, pp. 10, 13), Furtado was one of the UN economists who contributed new insights to interpret underdeveloped economies and were seen as mavericks inside and outside the institution (the list includes Nicholas Kaldor, Michal Kalecki, Sidney Dell, Juan Noyola, Prebisch and Singer). The present paper shows how Furtado’s interpretation of development and underdevelopment as interdependent phenomena was part of the emergence of the economic development literature, together with contributions made at the time by other development economists, especially Gerschenkron’s (1952) historical discussion of “economic backwardness”, Lewis’s (1954) model of the “dual economy” and surplus labor, Prebisch’s (1949) concept of the “center-periphery system”, and the “balanced growth” approach of Rosenstein-Rodan (1943, 1961) and Nurkse (1951, 1953a).

The emergence of development economics as a research field in the 1950s should be seen against the background of the role played not just by the UN and its regional commissions, but also by other institutions originally born in the 1940s as part of the UN system - like the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD, known as the World Bank) – or created to enhance communication between economists at the international level, such as the International Economic Association (IEA) founded in 1950. It is worth noting that the issue of economic development was not on the Bretton Woods Conference agenda (Meier 2005, chapter 3). The World Bank turned to developing countries after its initial participation in the financing of European reconstruction, but the emphasis in the 1950s was on project lending instead of intellectual contribution to the subject of development economics, which started to change only in the late 1960s (Mason and Asher 1973, ch. 14; Stern and Ferreira 1997). The IMF naturally focused on the relation between balance of payment problems and macroeconomic disequilibrium, which often led to conflicting interpretations with development economists (especially in Latin America) about the design of stabilization policies (Little 1982, ch. 15; Polak 1996; Furtado [1961] 1964, ch. 5).

The paper also discusses how the overall emphasis by the contemporary literature on development as a process of economic growth led by capital accumulation was reflected in Furtado's application of the Harrod-Domar model to explain the "mechanism of development" and to plan economic growth. Furtado's (1954, chapter VI; [1961] 1964, chapters 1 and 2) early interest in the Harrod and Domar formulations - as many other development economists' at the time - should be seen as part of his critical attitude to the role of the tendency to the stationary state, in both classical and, especially, (pre-Solovian) neoclassical approaches to growth. However, abstract models are only helpful in understanding economic underdevelopment phenomena if applied to historic realities, as often claimed by Furtado. In particular, careful historical account indicated that patterns of economic evolution were diversified among underdeveloped countries, and that it would be a mistake to discuss them en bloc (see e.g. [1961] 1964, chapter 4). In the late 1940s, when Furtado started his career as a development economist, the field had not been established yet. Upon visiting some top economic departments in the US in 1951, he felt that underdevelopment theory was seen by the American academic establishment just as an "imperfection in search of its Chamberlain" (Furtado 1985, p. 91; 1987b, p. 101).

From 1950 to 1957 Celso Furtado (b. 1920; d. 2004; see Boianovsky 2008a for background information on his life and work) was head of the development division of the United Nations Economic Commission for Latin America (ECLA; known as CEPAL in Latin American countries), created in 1948 and directed by the Argentinean economist Raul Prebisch from 1950 to 1963 (on the key role of CEPAL in the formation of Latin American economic thought see Montecinos 1996, pp. 286-91). His first piece on economic development theory was published in 1952, as a critical reaction to an influential set of lectures delivered by Nurkse during his visit to Brazil in 1951 (Nurkse 1951a, 1953a), under a grant from the American Department of State (Nurkse 1951b).

An English version of Furtado's article came out two years later in the *International Economic Papers* - a series of translations launched by the IEA at the time - and was reprinted in the well-known volume of readings edited by Agarwala and Singh (1958). Most of Furtado's (1954) first book - about development theory and the economic history of Brazil - was later incorporated into his two major works ([1959] 1963; [1961] 1964).

In his classic 1959 volume, written during the academic year he spent in Cambridge in 1957-58 after leaving CEPAL, the structuralist approach was applied for the first time to the interpretation of the economic history of a Latin American country (Love 1996, chapter 10). The 1961 book on economic development collected revised versions of essays written during the 1950s, including the 1952 article as chapter 2. With some exceptions, it contained his main contributions to the field at the time (some of them first published in *Econômica Brasileira*, the outlet of the "Economists Club" founded in 1955 by Furtado and a couple of other Brazilian economists, which lasted until 1962). The exceptions are Furtado's (1958a, 1961b) comment on Rosenstein-Rodan's (1961) theory of the "big push" presented to the IEA conference held in Rio in 1957, and an essay written by Furtado (1957a) for the Gudin Festschrift (published also in Spanish, 1956).[1] Also excluded from the 1961 volume are Furtado's contributions to the methodology of economic planning, which may be found in an influential anonymous study drafted by a team of CEPAL economists under his direction (CEPAL 1953, revised 1955; Furtado 1985 and 1987, chapter IX; see Hirschman [1961] 1971, pp. 285-87, and Little 1982, p. 54) and in a couple of signed publications (Furtado 1957b, 1958b).[2] Planning was regarded by Furtado as the only way to overcome the defining feature of underdeveloped economies as distinguished from developed ones, that is, "technological heterogeneity" – in the sense of significant differences in the capital-labor ratio between two or more sectors - and underemployment caused by a maladjustment between the availability of factors and irreversible production methods. Furtado's enthusiasm for economic planning is explained, just like in much of the contemporary economic development literature, by the prominent role of market failures in his theoretical framework.

Although Furtado continued to write extensively on development economics after he left Brazil, following the 1964 military coup, to take up appointments at American and European universities (see Szmrecsanyi 2005), his most sharp and innovative ideas in the theory and historiography of economic development were formulated back in the 1950s - a partial exception was his contribution to dependency theory (Furtado 1971; 1974 and 1984, chapter II), which was a further elaboration of some insights advanced by him earlier on. Several parts of Nurkse's (1953b) reply to Furtado's 1952 criticism were incorporated into Nurkse's (1953a) book, although without referring to Furtado. The 1954 translation of Furtado's 1952 essay in *International Economic Papers*, and its reprint in the Agarwala-Singh collection – which defined the discipline of development economics – made him known in the international scene (see e.g. Dagnino-Pastore 1963). That was confirmed by the positive reception to his 1959 and 1961 volumes (Lester 1960; Mueller 1963; Hasson 1964; Dobb 1965; King 1965). Furtado's role in the formative period of CEPAL and his participation in the first (1957) IEA conference dedicated to development economics also helped to establish links with scholars such as Gunnar Myrdal and Nicholas Kaldor, who would invite him to spend the academic year of 1957-58 in Cambridge. Indeed, we can say with hindsight that Furtado's lifelong research agenda was set out at the 1957 IEA meetings. According to Furtado (1958a, p. 120; 1961b, p. 69), development economists should be able to answer to three main questions:

(i) "What conditions and factors accounted for the advent of the first industrial economies?" Economic development and underdevelopment phenomena resulted from the break up of the world economy by the industrial revolution, as revealed by economic history (sections 2 and 3 below).

(ii) "The world economy being divided into [dynamic] industrial and stationary non-industrial systems, what are the requisites for the advancement of a system from the second group to the first?" This is the matter tackled by the theories of "big push", "take off" etc (sections 4 and 5 below).

(iii) "Under what conditions can economies whose development is retarded bridge the gap separating them from those economies whose industrial development began between the end of the eighteenth and the first half of the nineteenth century?" This is the convergence issue, regarded by Furtado as central to the theory and policy of development (sections 2 and 5 below).

2. The historical approach to economic development

As stated in his 1987 World Bank lecture, Furtado's methodological starting-point was that only through careful historical investigation one could grasp underdevelopment phenomenon.

> Why have countries that emerged as a result of the economic expansion of Europe - and that were organized to facilitate that expansion - lagged so far behind in their development? This question is at the heart of my thinking about underdevelopment. The theory of growth that blossomed immediately after World War II was a conventional dynamization of macroeconomic models... But inquiry into the reasons for backwardness is meaningful only in the historical context, which demands a different theoretical approach (1987a, p. 205).

Furtado, however, was at pains to emphasize that the economist should not limit itself to a "mere description of historic cases of development" (1954, p. 213; [1961] 1964, p. 4). Analytical tools are necessary in order to interpret the connection between the main variables. The theory of economic development moves on two planes: first, abstract formulations of the "actual mechanism of the process of growth" based on models with stable relationships, followed by their application to historic realities (1954, p. 211; [1961] 1964, p. 1). The role of historical investigation in development theory comes from acknowledging the "irreversibility of the historic economic process" that makes it impossible to eliminate the time factor, and the "structural differences of economies in different states of development" ([1961] 1964, p. 2).

Of course, Furtado was not the only economist at the time to adopt a historical perspective in interpreting economic backwardness. In his influential essay, Gerschenkron (1952) advanced the hypothesis that the level of development reached by a particular country - called "relative economic backwardness" - decides the characteristics of its industrialization process. The "advantage of backwardness" became the centerpiece of Gerschenkron's interpretation of late industrialization of continental European countries (see Dawidoff 2002, chapter 6; Crafts 2001; Meier 2005, chapter 5). Backward countries tend to borrow modern techniques of production from advanced countries, and to search for "substitutes for prerequisites" for the productive factors, internal demand or institutions they lack. The patterns of substitution for prerequisites were interpreted by Gerschenkron as responses to economic backwardness at the start of the industrialization process, with the implication that late-comers will grow faster than the pioneers did at earlier stages and eventually catch up. Gerschenkron never applied his hypothesis to Latin American and other tropical countries and, with the exception of his former Harvard colleague Albert Hirschman (1968; 1981, ch. 1), was rarely mentioned in discussions about Latin American industrialization (see Gootenberg 2001).

Furtado (1974, p. 22, n. 7; 1984, p. 23, n. 7; 1992, p. 58, n. 2) would refer to Gerschenkron's 1952 "classic work" in connection with the specific institutional aspects of late industrialization in Europe, such as the role of the banking system and of the state as substitutes for entrepreneurship and private capital market respectively. However, it is likely that Furtado came across Gerschenkron's essay much earlier. Indeed, Furtado (1985, pp. 89-95; 1987b, pp. 98-105) reported in his autobiography an American tour he made in the spring of 1951 to get to know the state of research on development economics at universities in Cambridge (Mass.) and Chicago. Gerschenkron is not mentioned among the economists he met during the tour (the list includes Wassily Leontief, Rostow, Charles Kindleberger, Bert Hoselitz, Melville Herskovits, Theodore Schultz and E. J. Hamilton), but Furtado (1985, p. 89; 1987b, p. 98) did refer to the interdisciplinary seminar on economic development that took place in June 18-21 1951 at the University of Chicago, when Gerschenkron's essay was first presented. Although Furtado is not listed among the participants (see Hoselitz 1952, pp. 287-88), he probably attended the seminar, since he was still in the United States by 29 June 1951, when he got a letter from an economist from Duke University - the letter is not signed, but it was probably written by Robert Smith, an expert on Latin American economics with whom Furtado corresponded in the early 1950s - calling his attention to Nurkse's lectures scheduled for July of that year in Rio. In any event, Furtado was certainly aware of the Chicago 1951 seminar (or of the 1952 published proceedings), which he mentioned in his 1952 reaction to Nurkse.

> The theory of economic development in its general form does not fall within the categories of economic analysis. This is a point of view fairly widely accepted nowadays, and it should hardly be necessary to refer to the seminar on Economic Development held at the University of Chicago in 1951, at which sociologists, anthropologists and historians sat side by side with economists. Economic analysis cannot say why any society starts developing and to what social agents

> this process is due. Nevertheless it can describe the mechanism of economic development and it this description which we now propose to discuss (Furtado [1952] 1954, p. 129; [1961] 1964, p. 60).

As recalled by Furtado (1985, pp. 90-91; 1987b, p. 100), his meeting with Rostow at MIT in 1951 was less than successful. Rostow gave him a copy of the typescript of *The Process of Economic Growth* (1952), which contained the basic elements of the proposition that the economic development of different countries historically goes through a succession of phases to which a single analytical framework can be applied, fully elaborated later in Rostow's 1960 book. Rostow's thesis was the opposite of Furtado's view that differences rather than similarities should be stressed in the historical investigation of the process of industrialization. Hence, "Rostow showed no interest in what I was concerned about", that is, the specific features of the modernization process in underdeveloped countries. Like Gerschenkron, Furtado ([1967] 1975, ch. 10) would reject Rostow's (and Marx's) framework that backward countries historically tend to reproduce the development pattern of the first-comers.

Historical comparisons between underdeveloped countries and the earlier phase of the industrialization process in developed economies were also a matter of concern for the UN. Kuznets ([1954] 1958) was requested by that institution to undertake a historical-statistical investigation of the theme for presentation at the 1954 World Population Conference. Similarly to Gerschenkron and Furtado, Kuznets was no supporter of Rostow's stages approach (see Toye and Toye 2004, pp. 170-71; Little 1982, p. 102). Kuznets concluded from his quantitative research that, in contrast with current underdeveloped economies, developed countries had not been in the past backward in comparison with others. Moreover, income per capita differences among developed and underdeveloped countries persisted and even increased between the mid XIX and XX centuries, that is, there was no convergence. Kuznets's ([1954] 1958, p. 151) result - that the absolute and relative economic position of the developed countries in their pre-industrial phase was "cardinally different" from the economic position of the underdeveloped countries of the 1950s - was consistent with Furtado's historical framework.

Some of the main aspects of Furtado's historical approach to economic development were established already in his 1950 article about the Brazilian economy, before he came to know of Gerschenkron 1952. Differently from Gerschenkron's interpretation of European industrialization in the late 19th century, Furtado argued that the industrialization process of Brazil and other Latin American economies in the 1930s and after could only be understood in the context of the historical evolution of the international economic system. The economic history of tropical countries must be based on an open growth model with international trade treated as an endogenous variable, since these countries' economies evolved as suppliers of raw materials to the world market.

Furtado ([1952] 1954, p. 129) distinguished between the economic growth process in developed and underdeveloped economies. In both cases the process of development involves the increase of labor productivity through new combinations of factors or introduction of technical innovations. However, whereas the growth of a developed economy is "mainly a problem of accumulation of new scientific knowledge and progress in the application of that knowledge", the increase of productivity in underdeveloped economies results from the simple introduction of techniques which are already known, that is, it is "above all a process of assimilation of the techniques existing at the time". The notion that underdeveloped economies adopt – through foreign investment, imports of capital goods and import substitution industrialization - the modern technology made available in developed countries and, therefore, do not go through the same historical stages, was often pointed out by him (see e.g. the CEPAL 1955 document on economic planning, p. 16, drafted by a team under Furtado's direction).

In contrast with Gerschenkron, this apparent "advantage of backwardness" was seen as problematic because of its implications for income distribution and employment, and therefore for the convergence process. The puzzle that excited Furtado's mind at the time was to explain why underdeveloped economies (like Brazil), with a net investment rate in 1950 similar to that registered for developed economies (like the United States) in 1875, accompanied by a much more advanced technique than in 1875, have not attained by mid twentieth century a rate of growth and an income per capita higher than that of the United States in the last quarter of the 19th century. The progress of technique had made necessary a greater concentration of resources, in the sense that the technology utilized by underdeveloped countries did not reflect their relative supply of factors. Furtado (1958a, p. 124; 1961b, p. 72) borrowed Kindleberger's (1953, p. 461) phrase "disequilibrium at the factor level" to describe the phenomenon.[3] The assimilation of new technology may have little impact on the average labor productivity if there is no alternative means of employing the workers released in backward economies. "In other words, the marginal physical productivity of specific sectors such as manufacturing may substantially increase without any improvement in the average productivity of the system as a whole" (Furtado 1958a, p. 124; 1961b, p. 72). Structural unemployment of labor caused by capital scarcity means that average productivity of factors in underdeveloped economies is lower than in developed ones using a similar technology, with no convergence of income per capita in the long-run (Furtado [1961] 1964, p. 61).

The introduction of modern techniques generally calls for an increase in capital supply, which is lacking in backward economies. Hence, such communities have the tendency to remain stagnant, unless they are affected by an initial impulse coming from outside, as has historically been the case.

> In certain circumstances it is possible to introduce more productive combinations without increasing the amount of capital available, provided it is possible to integrate the economy in question into a wider market. The opening of foreign trade will allow the economy to make a fuller and more rational use of those factors which are available to it in relative abundance, i.e. land and labor. By obtaining larger quantities of goods than would be possible if production were only for the home market, the economy will have increased its productivity. The increase in real income thus obtained will provide the necessary margin to enable the process of capital accumulation to begin ([1952] 1954, pp. 131-32; [1961] 1964, p. 64).

International trade, from that perspective, may be seen as a "substitute for prerequisites" in Gerschenkron's sense. The rise in productivity in response to the expanding world demand for raw materials, and the consequent increase of the mass of real wages brings about a diversification in the pattern of demand ([1961] 1964, pp. 67, 133). The growth of the domestic market, as a byproduct of export expansion, is the starting point of industrialization, especially if accompanied by (implicit or explicit) protectionist policy. The formation of an "industrial nucleus" producing non-durable consumer goods corresponded to the first phase of the economic development of tropical countries, which lasted until the late 1920s. With the sharp decline in external demand and prices of exported goods following the great depression of the 1930s, the change in relative prices spurred an increase in the demand for domestically produced manufactured goods, which marked the start of the phase of import-substituting industrialization (ISI; see also the next section).[4]

The driving force of the industrialization process is the previously existing demand created by "external induction" – that is, by changes in domestic income brought about by exports. This is in contrast with developed industrial economies, where the dynamic element was represented by technical change in the productive process. Therefore, according to Furtado ([1961] 1964, pp. 135-38), whereas the economic development of industrially advanced countries had been based on an internal supply-side dynamics, the development of tropical backward countries was induced from without and determined by the demand side (see also Hunt 1989, pp. 123-28).[5]

The upshot is that "underdevelopment is not a necessary stage in the process of formation of the modern capitalist economies". Rather, it is a "special process due to the penetration of modern capitalistic enterprises into archaic structures". It is a specific phenomenon that "calls for an effort of autonomous theorization" (Furtado [1961] 1964, pp. 138-39). This is different from late European industrialization examined by Gerschenkron, since, once "relative backwardness" reaches a certain point, the industrialization process changes qualitatively: it is no longer a matter of building a national economic system but becoming part of the international economy (Furtado, 1974, p. 23; 1984, p. 24). In contrast with the industrialization of European countries in the second half of the 19th century, the import-substitution process in Latin America - based on consumption goods demand - did not lead to the "verticalization" of the productive structure - in the sense of the intensive development of producer goods industries accompanied by technological autonomy – with its corresponding changes in international trade (exports of manufactured goods and imports of raw materials). The evolution of trade patterns in Latin American countries after the 1930s was quite the opposite: exports were still based on a few commodities and imports concentrated on goods whose production required huge investments and/or advanced technology (Furtado 1980, p. 130; 1989, p. 120; see also Hirschman 1968, pp. 8-9).

3. Trade and growth

Furtado's view that economic development and underdevelopment are interdependent phenomena is consistent with the concept of the center-periphery system advanced by Prebisch (1949) at CEPAL, although the Brazilian economist paid more attention to the historical dimension of the relation between developed and underdeveloped (called "dependent" or "colonial" by Furtado instead of "peripheral") economies than Prebisch had done. The growth of colonial or dependent economic systems, specializing in exports of raw materials, can only happen as a result of economic growth in other systems, that is, they are not able to generate their own growth impulse (Furtado 1954, p. 15; see also his 1956 book titled *A dependent economy*, formed by parts of the 1954 volume).

Prebisch's CEPAL document on "The economic development of Latin America and its principal problems" was translated from the Spanish original into Portuguese (with a long English abstract) by Furtado and published in *Revista Brasileira de Economia* (*RBE*) in September 1949, together with another study by the UN (written anonymously by Singer; see Toye and Toye 2003, p. 448) about the secular trend in the terms of trade. It was only after the publication of that article in the Brazilian journal that Prebisch's influence spread worldwide (ibid., p. 458), especially his claim that the terms of trade between primary products and manufactures had been subject to a long-run downward trend. In particular, that was probably how Singer, whose statistical report about price trends was translated in that same issue, got to know of Prebisch's essay (see United Nations 1949). As observed by Furtado (1985, p. 138; 1987b, p. 153), Gudin sent out reprints of Prebisch's 1949 article to economists abroad, including Jacob Viner and Gottfried Haberler, asking for (critical) reactions. Under Gudin's invitation, Viner gave his famous lectures on trade and development in Rio between July and August 1950; the lectures were published in *RBE* the year after, followed by the English version in 1953. Commenting on the relation between trade and growth, Viner (1951, pp. 81-82; 1953, p. 43, slightly changed) wrote that "since my arrival in Brazil, it has been brought to my attention, as a place where I could get needed enlightenment on these matters, a United Nations document … by Professor Raul Prebisch.".

However, the Prebisch-Singer thesis of secular fall in the terms of trade and its implication that - against the pure theory of international trade - there is no equalization of factor prices, did not play a prominent role in Furtado's historical analysis of the growth dynamics in the center and periphery or in his theoretical interpretation of underdevelopment (see also Hunt 1989, p. 133; Bielschowsky 1988, p. 163). The secular fall in the terms of trade was discussed at the outset of Furtado (1950), but was conspicuously absent from his two books (1954, 1959) about Brazilian economic history and from his 1961 volume on development economics. In the concluding section of his comments at the 1957 IEA conference, Furtado pointed out that

> It is essential to recognize that the mere existence of economies with widely different degrees of development, although all of them in process of growth, constitutes in itself a vitally important topic for study. It is not enough to acknowledge that international trade alone does not help to reduce inequalities in the remuneration of the factors. It must be determined in what conditions the expansion of a stationary economy's foreign trade can initiate a process of economic growth capable of generating its own momentum (Furtado 1958a, p. 125; 1961b, p. 73).

Indeed, Furtado ([1952] 1954 rejected Nurkse's (1951) view that, due to the small size of their markets and the indivisibilities of modern production methods, underdeveloped economies faced a "vicious circle of poverty" which could be only broken by inducing investment through a "balanced growth" strategy. While broadly agreeing with Nurkse's demand approach to economic development (Taylor and Arida 1988), Furtado ([1952] 1954, p. 126) argued that the lack of investment incentives depends on the assumption made about the dynamics of the external market. Nurkse's argument applied to backward economies with stagnant demand for exports, called "stagnation at a low development level" by Furtado ([1967] 1975, chapter 20). In Furtado's view, it did not apply to underdeveloped economies that had previously gone through a period of productivity growth caused by international trade. The increase of real income in periods of growing foreign demand brings about diversification of consumer demand and ensuing changes in relative prices, which will direct the allocation of new investment to some sectors. "The new investment will call forth increases in productivity in other sectors and the previous chain reaction will be repeated" (Furtado, [1952] 1954, p. 133). If this process is interrupted by a long and deep stagnation in trade (as it happened in the 1930s), its effect is to provoke "structural tensions" that open the way to import-substitution industrialization.

That may be described as a case of "unbalanced growth", as later called by Hirschman (1958), since disequilibria between the configuration of demand and the structure of supply produce concentration of investments in a few sectors, accompanied by a change in the shape of imports (Furtado [1967] 1975, pp. 279-80; 1976, pp. 233-34). It should be noted, however, that the matter of scale economies and the small size of the market becomes relevant if the import-substitution industrialization process is accompanied by increasing capital-output and declining labor-output ratios. "This may happen if import substitution is intensified in countries whose markets are not big enough to absorb the output resulting from investments with high density. Therefore, beyond certain limits - which are very narrow in some cases - the small size of the market is one of the greatest obstacles to economic development" (CEPAL 1955, p. 17). Furtado (1965) would came back to that in his interpretation - produced as a visiting researcher at the Economic Growth Center of Yale University - of the stagnation of Latin American economies in the early 1960s as the result of the exhaustion of import-substituting industrialization and falling productivity of capital in intermediate and durable consumer goods industries which are not able to operate at their optimal output level.[6]

Furtado's conjecture that international trade increases productivity through its positive impact on the absorption of resources that otherwise would remain idle is similar to Myint's later (1958) vindication of Adam Smith's "vent for surplus" theory of international trade. It differs from Ricardian comparative-costs theory insofar as its emphasis is not on the increase of efficiency through reallocation of resources in a full-employment economy, but on the effects of trade in providing effective demand for the output of surplus resources (see also Meier 2005, chapter 2). Just like Myint, Furtado ([1961] 1964, pp. 64-65) associated the vent for surplus theory to Smith's proposition that the division of labor is limited by the size of the market. Demand diversification was an important part of the argument, since, otherwise, higher productivity would only create "more leisure" and idle capacity, without any increase in the marginal utility of the fruits of work (Furtado [1952] 1954, pp. 133-34). Apart from the quotation from his 1952 article given in section 2 above, another relevant passage may be found in Furtado's historical account of the Brazilian economy before the great depression of the 1930s (which he called "colonial economy"):

> Permitting better utilization of the resources of the soil and preexisting manpower supply, the external impulse creates the increase in productivity

> which is the starting point for the capital accumulation process. The mass of wages and other payments to factors created in the export sector represents the embryo of the domestic market. When the external impulse grows, indirect expansion of internal demand tends to integrate into the monetary economy those manpower and soil resources that had been underemployed in the subsistence sector (Furtado 1954, pp. 141-42; [1959] 1963, pp. 220-21).

Depending on the price-elastiticity of demand for exports, the positive effects on income of an increase in the physical productivity of labor may be wiped out by the market mechanism. If the demand schedule is inelastic, as usually assumed by Prebisch and CEPAL at the time, the benefit of higher productivity in the export sector may be completely transferred abroad by a fall in the terms of trade. Furtado ([1952] 1954, p. 132) referred to those circumstances as "special cases" and assumed that "real income closely follows the movement of the average physical productivity of labor". Sometimes he accepted the demand price-inelasticity assumption, but contended that the positive nexus between trade expansion and growth could be still maintained by generalizing the Brazilian historical experience of maintaining the coffee price through a policy of artificial control of coffee supply ([1967] 1975, p. 198, n. 2; [1959] 1963, ch. 31; 1954, ch. 4; 1987a, p. 206).[7]

Furtado generally stressed cyclical changes in the terms of trade, instead of its secular trend. In a "colonial economy", characterized by the determination of its level of activity by export demand, the cyclical decline of the external impulse results in contraction of monetary income and ensuing underutilization of capacity and underemployment in the sector connected with the domestic market. However, the pattern of propagation of depressions - originated by cyclical falls in the exports sector - tends to change after the economy reaches a certain degree of diversification of its productive structure. Through a combination of several factors - such as exchange rate depreciation, fiscal deficit and accumulation of stocks of primary commodities through internal funding - domestic demand does not collapse when external demand shrinks, which leads to higher relative prices of domestic industrial goods. Hence, in contrast with the "colonial economy", a fall in external demand is accompanied by increasing industrial production in the second (import-substitution) phase of the industrialization process started in the 1930s, when trade ceased to act as an "engine of growth" (Furtado [1967] 1975, chapters 16 and 17; 1954, chapter 4; 1950).

The main obstacle to economic growth posed by the external sector is not represented by hypothetical secular falling terms of trade, but by restrictions to the capacity to import caused by changes in the economic structure for a given rate of growth of exports. Furtado (1958c; [1961] 1964, ch. 5) showed, in a two-sector model featuring a modern and a backward sector, how balance of payments disequilibrium could constrain the growth process under the assumption that the coefficient of imports in the investment sector is larger than in the consumption sector, as is typically the case in underdeveloped countries. Such chronic disequilibrium has structural (not monetary) causes; it may lead to the "strangulation" of the growth process unless the planning of the import-substitution process succeeds in increasing domestic production of capital goods. That notion could be already found in Furtado [1952] 1954, p. 143), and was criticized by Nurkse (1953b, p. 73) in his reply. Furtado (1958c) was written during his 1957-58 stay in Cambridge, where he attended James Meade's lectures on trade. He showed the paper to Meade at the time, who remarked that the way out of external disequilibrium in underdeveloped economies was the resumption of capital exports by industrialized countries to their pre-1929 levels (Furtado 1985, p. 225; 1987b, p. 252). Furtado agreed, but replied that that would not rule out structural problems in late industrializing countries. As recalled by Furtado (ibid), Meade "did not take seriously what I was saying… He was undertaking a great theoretical effort to dynamize a neoclassical macroeconomic production function model… There was no reason to infect economic science with institutional impurities" (see Meade 1961).

Some ideas of Furtado's 1958 article could be traced back to section V ("Industrialization and Foreign Trade") of chapter I of the first CEPAL *Economic Survey*, produced in 1948, before Prebisch became a member of the commission (CEPAL 1949, pp. 44-54; see also Fitzgerald 1994, pp. 96-98). Furtado - who wrote that section (Furtado 1985 and 1987b, chapter III; Toye and Toye 2004, pp. 148-49) - argued that the process of industrialization and growth is generally accompanied by both an expansion of imports in absolute terms (because of the greater than one income-elasticity of imports of manufactured goods) and a change in their composition in favor of capital goods (CEPAL 1949, pp. 44-45) - the source of that hypothesis was an extensive empirical study made by F. Hilgerdt for the League of Nations in 1945; see Endres and Fleming, pp. 208-13. In order to increase the 1939 per capita supply of manufactures in a group of Latin American countries (Argentina, Brazil, Chile and Mexico) to 50% of the Canadian level of that year it would be necessary to increase the imports of manufactures to an amount corresponding to 30% of total world imports (CEPAL 1949, p. 51). However, “the possibility of a multiple increase in the exports of primary commodities can be contemplated only in exceptional cases. In a general way, the expansion of Latin American exports is limited by the low [income] elasticity of the demand for raw materials and foodstuffs in the world markets” (ibid).

Whereas the 1949 survey addressed mainly the possibility of increasing the supply of manufactures by means of an increase in trade with industrialized countries, Furtado’s 1958 article elaborated on the consequence on foreign trade of an increase in domestic manufacturing output, a question asked but not discussed in any detail in the survey (CEPAL 1949, p. 51). The argument - which led to the strong conclusion that “in the long run industrialization appears to be the principal means whereby a substantial increase in the standards of living in Latin America can be achieved” (CEPAL 1949, p. 53) - is not incompatible with the Prebisch-Singer thesis, but both in the 1949 survey and in the 1958 article Furtado’s focus was on quantity, not price effects.

The view advanced by Furtado (1958c; [1961] 1964, ch. 5) and by CEPAL about foreign exchange constraint - in addition to (and often more important than) savings - as a limiting factor of growth in peripheral countries would soon be formalized in the two-gap model set out by Chenery and Bruno (1962). Indeed, Chenery started working on that model after visiting CEPAL headquarters in Santiago in the late 1950s (Taylor and Arida 1988, p. 172). The two-gap framework would be eventually turned into the backbone of the World Bank’s approach to foreign aid, largely thanks to the influence of Chenery, who became chief economic adviser of the Bank in 1971 (Little 1982, pp. 147-49; Easterly 2001, p. 34).

Apart from its role in planning growth through ISI, Furtado’s notion of foreign exchange constraint was instrumental in the criticism of the IMF’s view that excess aggregate demand was behind both inflation and balance of payments problems that beset Latin American countries in the 1950s (Furtado [1961] 1964, pp. 154-71; Boianovsky 2008b). Edward Bernstein, head of the Research Department of the Fund (see Polak 1996, p. 215), visited Latin America regularly in the 1950s. One of the targets of Furtado ([1961] 1964, ch. 5) was Bernstein’s (1956) claim that persistent external disequilibrium could only be caused by a process of chronic inflation. Instead, Furtado argued that inflation and balance of payments disequilibrium result from structural maladjustments which are characteristic of the growth process of underdeveloped countries (on the conflict between CEPAL and IMF about stabilization and development policies in the 1950s from Prebisch's perspective see Pollock et al 2001, p. 19). The influence of structural factors on external disequilibrium were occasionally acknowledged in publications by IMF economists - see e.g. Jorge Marshall's (1961, p. 432) statement that "changes produced by the new pattern of income and expenditures may also affect the balance of payments unfavorable", with a reference to Furtado ([1952] 1954] – and the Fund would gradually incorporate new elements into its basic framework (Boughton 2004). Nevertheless, the controversy between "monetarists" and "structuralists" persisted throughout the 1950s and 1960s in Latin American economics (Montecinos 1996).

Furtado's first book included theoretical and historical formulations of the economic growth process, together with an extended application to the development of the Brazilian economy from colonial times to mid 20th century from a structuralist perspective. Although dedicated to Prebisch (see Furtado 1954), it was not well received at CEPAL, since it conflicted with its general anonymity rule (Furtado 1985, p. 183; 1987b, p. 191). Prebisch's reaction was cool (Mallorquin 2005, pp. 52 and 59); in a memorandum of 26 August 1954 he asked Furtado to clarify the relation between exports growth and increasing productivity, which defied some elements of the falling terms of trade thesis. Eventually Furtado ([1967] 1975, chapters 16 and 18) came to the conclusion that the crux of the center-periphery system was not the terms of trade issue per se but the asymmetric pattern of international trade expressed by the concept of "dependency".

> By referring to *products* instead of countries, the controversy around the issue of the long-term behavior of the terms of trade between raw-materials and manufactured goods has overlooked the phenomenon of dependency and diverted attention to a set of false problems that have occupied the center of attention ([1967] 1975, p. 233; 1976, p. 188; italics in the original).

The restatement of the falling terms of trade thesis in terms of the characteristics of different types of countries (particularly distinct levels of technological capacity), instead of the characteristics of different commodities, may be found in Singer (1987), who referred to Furtado and dependency analysis in that connection.

The theme of dependency theory had often come up in Furtado's writings in the 1950s, as mentioned above. However, it was only in the 1970s, starting with his 1971 article in the Mexican journal *El Trimestre Económico*, that Furtado would argue that the theory of underdevelopment is essentially a theory of dependency. Furtado claimed that underdeveloped economies feature cultural dependence, that is, consumption patterns are historically transplanted from developed countries by the upper strata of the underdeveloped areas (see also Kay 1989, pp. 132-34). Such modernized component of consumption brings dependence into the technological realm by making it part of the production structure through the import-substitution industrialization process.[8] After two earlier periods of economic growth - decided by comparative advantages and import-substitution respectively - Brazil and other Latin American countries had, according to Furtado (1971; 1974 and 1984, chapter II), entered a new growth path in the late 1960s, in which consumption demand by high-income groups could under certain conditions become the leading factor of the system. However, economic growth under these circumstances would not be accompanied by elimination of economic dualism, as discussed further in section 5.

4. Capital accumulation and technical change

One of the main features of the development literature of the 1950s is what William Easterly (2001, p. 47) and others have called "capital fundamentalism", that is, the notion that physical capital accumulation, instead of technical change or investment in human capital, determines the rate of growth of income per capita. This was reflected in the widespread application of the Harrod-Domar model (especially in its Domar version) to economic planning and to the interpretation of the "economic development mechanism" (see e.g. Singer [1952] 1958 and Bruton [1955] 1958). As suggested by Easterly, "capital fundamentalism" resulted from the double assumption of surplus labor and absence of diminishing returns to capital. While the former assumption was often explicitly made (see e.g. Lewis 1954), the latter was generally implicit, at least until the Solow-Swan 1956 neoclassical growth model.

"Capital fundamentalism" was present among international funding institutions, as illustrated by IMF economist Jorge Marshall's (1961, p. 430) definition of economic development as the growth of income per capita "mainly through direct and indirect measures aiming at an increase in the rate of capital formation". However, that notion would become part and parcel of the World Bank's framework only after the development of the two-gap model by Chenery in the 1960s. Before that, the Bank's implicit conception of the development process could be inferred from its several country mission reports (started in 1949) and annual reports (Spengler 1954; Moore 1960; Mason and Asher 1973, ch. 14). The Bank's lending policy was centered on the financing of the foreign exchange cost of social overhead capital projects, which was supposed to provide the framework needed for the expansion of private investment and ensuing growth. Interestingly enough, contemporary commentators (Spengler, pp. 592-93; Moore, pp. 84-85) criticized the reports for not working out the precise relation between investment and growth based on the capital-output ratio. Gerald Alter (1954, p. 610), a World Bank economist, replied (to Spengler) that "practical limitations on the side of resources, skills etc" may limit the rate of growth even if resources could be made available for supporting a higher level of investment. Indeed, the Bank often stressed at the time "how limited is the capacity of the underdeveloped countries to absorb capital quickly for really productive purposes" (IBRD, *Fourth Annual Report, 1948-1949*, p. 8, as quoted by Mason and Asher, p. 461; see also Kindleberger 1958, pp. 262-65; Hirschman 1958, p. 192), partly because of the relatively low level of education and health characteristic of those countries. Furtado would not accept this view about the limits to capital absorption, as indicated by a passage from a document about the economic development of Brazil prepared by a team under his direction.

> We will not deal here with the issue of the limits to the capacity to absorb new capital, which are generally believed to be narrow in underdeveloped economies. This belief, however, is based on partial empirical observations without logical support. Actually, given its [high] elasticity of labor supply, the capacity to absorb capital in an underdeveloped economy is quite large (CEPAL/BNDE 1957, p. 15).

Clearly, Furtado was no exception to the emphasis on capital accumulation by development economists in the 1950s. However, it should be noted that he distinguished sharply between growth processes in developed and underdeveloped countries as far as the role of capital is concerned. Technical progress, instead of investment in physical capital, was perceived as the main source of growth in advanced economies.

> The development of the more advanced industrial economies over the last three-quarters of a century very particularly reflects the progress of technique. Capital formation, although it has been the main vehicle of the assimilation of new techniques, is in itself responsible for only a relatively small fraction of the

> increase in the productivity of labor... In the historical context of today the effect of the assimilation of a technical innovation on the rate of growth is a function of the degree of development. The more highly developed an economy is, the greater is the positive effect of the assimilation of a technical innovation. In other words, development depends increasingly upon technique and less on direct capital formation in the productive process (Furtado 1958a, pp. 123-24; 1961b, p. 72; see also 1980, pp. 58 and 63, and 1989, pp. 59 and 63).

Furtado presented those comments to the IEA conference held in Rio in August 1957, the same month Solow's empirical paper about the pivotal role of technical progress, as opposed to pure capital accumulation, came out. It is very unlikely that Furtado read it before the IEA conference. A more likely source of influence was Abramovitz's similar result about the effect of technical progress on growth included in the May 1956 *AER* "papers and proceedings", dedicated mainly to the theme of economic development. Indeed, in his review of the May 1956 issue of that journal Furtado (1956c, p. 104) referred to Abramovitz's "somewhat surprising" conclusion about the relatively minor role of capital accumulation in the explanation of American economic growth between 1870 and 1953. From a theoretical perspective, another important source was Kaldor's (1957) technical progress function, published in December of that year. Furtado (1985, p. 197; 1987b, p. 219) had been, since the mid 1950s, in contact with Kaldor and may had had access to draft versions of the 1957 paper. Furtado ([1961] 1964, p. 114, n. 1) referred to Kaldor (1957) and would discuss extensively the Kaldorian technical progress function in later works ([1967] 1975, pp. 76-80; 1976, pp. 87-90; 1980, pp. 61-64; 1989, pp. 61-63).

The notion of diminishing returns to capital applies, according to Furtado (1956a, 1957a), to homogeneous technological systems in which the movement of workers from one sector to another cannot bring about an increase of average productivity. In this full-employment neoclassical framework, capital accumulation at a higher rate than population growth will be accompanied by a temporarily increasing output per worker, but the continuous fall in the marginal productivity of capital will eventually bring about stagnation of the growth process (see also Furtado 1954, p. 224; 1955, p. 7). Historically, diminishing returns to capital had been counteracted by the compensating effect of technical progress in advanced economies, which explains why the productivity of capital (as measured by the output-capital ratio) had been stable in the long-run (Furtado 1956a, pp. 443-44; 1957a, pp. 170-71; CEPAL 1955, p. 15, n. 5). Although Furtado did not refer to Solow (1956, 1957) in his 1961 *Development and Underdevelopment*, the notion of diminishing returns is implicit in his remark that "undoubtedly without technological progress [capital] accumulation would soon attain its limits" ([1961] 1964, p. 69). Solow's model was carefully discussed in Furtado ([1967] 1975, pp. 64-76; 1976, pp. 77-87), where he pointed out that, under the Harrod-Domar assumption of given output-capital and labor-capital ratios, the growth process may be interpreted in terms of a single production factor (capital). The assumption of a margin of substitution between capital and labor makes it clear that "it is impossible to base the growth of income per capita on capital accumulation only", which brings technical progress into the picture. The publication and gradually increasing influence of Solow's 1956 model eventually changed Furtado's (1956c, p. 105) earlier assessment that the contribution of American universities to growth economics at the time was restricted mainly to empirical research, with a dearth of original theoretical insights.

Differently from developed countries, diminishing returns to capital are not a necessary feature of underdeveloped economies. Technological heterogeneity with a low margin of factor substitutability is a feature of economies with capital scarcity, as it happened when classical economic thought prevailed at the start of the 19th century. In that case, the simple reallocation of workers between sectors leads to higher average productivity. However, this depends on the availability of the relatively scarce factor (capital) which decides the level of employment, as stressed by classical economists (see also section 5 below). Hence, classical economic theory fits underdeveloped economies better than the neoclassical framework, which applies to homogeneous systems with the same marginal productivity of factors among sectors, as described above (Furtado 1956a; 1957a; [1961] 1964, p. 141).[9]

As recalled by Furtado (1985, p. 131; 1987b, p. 145), the starting-point of CEPAL's approach to economic planning in Latin America in the 1950s was the existence of a "structural" permanent excess supply of labor caused by capital scarcity and technological heterogeneity (see CEPAL 1955, p. 14).[10] Economic development policy should not aim at the full-employment of the labor force, but at the steady increase of its average productivity as determined by the rate of investment and by the output-capital ratio. Domar's (1946, 1947) papers were a main influence, but instead of the "parametric" role played by the rate of investment and the output-capital ratio in Domar's original formulation, Furtado (1985 p. 134; 1987b, p. 148) would recall that he treated them as "instrumental variables" in Tinbergen's later sense. "We did make use of variables similar to Domar's, but we reached them through a different route and in search for other objectives" (ibid). In his summing up of Latin American economic planning experiments, Furtado ([1969] 1970, chapter 22) explained that macroeconomic projections were based on hypotheses concerning the evolution of the average productivity of capital expressed by the output-capital ratio, which was measured for Latin American countries for the first time by Furtado's CEPAL team in the early 1950s.

The output-capital ratio was interpreted by Furtado as a variable that encapsulated the influence of the several factors that affect the productivity of capital, including the abundance of fertile land, the learning skills of the labor force, the infrastructure of the economy (especially transportation and power supply), and the use, due to an increase in exports, of hitherto idle resources (Furtado [1952] 1954, p. 135; 1958b, chapter 5; CEPAL 1955, pp. 42-43; cf. Domar 1947, p. 38). Skilled labor was perceived as a scarce factor, but it was held that the improvement of the human factor could only be achieved through investment and, therefore, was also dependent on the availability of capital (see Furtado 1958b, ch. 5; [1969] 1970, p. 207, n. 2).

Hirschman (1958, p. 32) saw the effect of shortages and bottlenecks (and their elimination) on the productivity of capital as a limitation of the application of the Harrod-Domar model to developing countries. Furtado (1958b, chapter 5), on the other hand, stressed the way the model could be used to estimate the impact of economic planning on (increasing) the output-capital ratio and, therefore, the growth rate. In particular, the social productivity of capital should be distinguished from its productivity from the point of view of businessmen. That difference is not conspicuous in full-employment developed economies, where marginal productivity is approximately the same in all sectors. By contrast, in less developed economies "the mere transfer of factors of production or the introduction of new combinations thereof may bring about a substantial increase in social productivity" (Furtado [1952] 1954, p. 139). However, such an increase is not reflected in the profitability of the firm. Due to this market failure, planning of the allocation of investments may be able to raise the overall output-capital ratio and therefore speed up the growth rate of the economy.[11]

Furtado ([1952] 1954, pp. 137-38; [1961] 1964, pp. 72-74) also made use of the Harrod-Domar model to discuss the process of acceleration of growth - that is, what Rosenstein-Rodan (1961) would later call the "big push" - in hitherto stagnant backward economies. Given the output-capital ratio (0.5 in his numerical illustration), the growth process is initiated by an increase of the rate of investment to a certain positive level (10%). Such increase is historically caused by exogenous factors such as inflow of capital and techniques, influence of external demand or substantial improvement in the terms of trade ([1952] 1954, p. 137, n. 11). The impact of these factors on the rate of growth depends on the form of appropriation and utilization of the economic surplus (in the classical sense of the excess of output over subsistence needs) yielded by trade, as pointed out by Furtado (1955; [1961] 1964, chapter 3) in his detailed historical investigation of the connection between the process of development and the use of surplus in advanced and backward economies.[12] If the impulse provided by external factors is sustained, a substantial change may take place in the structure of demand. Insofar as the domestic supply keeps pace with these changes, "possession of the surplus will inevitably be transferred from the traditional landowner class to the commercial and industrial entrepreneurial class" (Furtado 1958a, pp. 122-23; 1961, p. 71), with profound implications for economic growth.

> As first generation entrepreneurial classes have a high propensity to save, the concentration of part of the surplus in their hands will be conductive to a considerable increase in reproductive investment. It is thus perfectly possible that the resources required for the big push may be accumulated within a relatively short period... What is important to emphasize is that a formerly stationary economy can in a few years reach a net investment of up to 10% with its own resources, provided the way in which the surplus is utilized is fundamentally altered. It is true that these changes do not come about gradually but relatively abruptly, as the accumulation of resources in the hands of the entrepreneurial class increases much more rapidly than consumer expenditure (1958a, p. 123; 1961b, p. 71).

Furtado presented this description of the growth process – inspired by the experience of the Brazilian economy - as part of his criticism of the general historical validity of Rosenstein-Rodan's (1961) theory of the big push. The economic history of Bolivia was a case in point: per capita investments in social overhead capital were high, but, since they were concentrated in the mining sector, which absorbs a small fraction of the labor force and transfers most of its profits abroad, there was little change in the structure of internal demand, and, therefore, on the pattern of utilization of the country's surplus (ibid; see also [1961] 1964, pp. 132-35).

Hence, what differentiates a stationary backward economy from an economy in process of growth is not, according to Furtado (1955; 1958a, p. 121; 1961, p. 69), the average level of productivity or the form taken by income distribution, but the way surplus production is utilized. Furtado (1957a, pp. 169-70) was not convinced by Kuznets's (1955) evidence that economic progress is initially accompanied by rising income inequality. More importantly, he rejected the notion that the degree of saving increases with income inequality. Furtado (1958a, p. 122; 1961, p. 70; 1958b, pp. 47-48; [1961] 1964, p. 41) referred to Adam Smith's feudal baron to illustrate the notion that income inequality tends to create a leisure class with high unproductive consumption standards. The transformation of a stationary economy into a system in process of expansion is determined by a change in the method of appropriation and utilization of the surplus, historically brought about by exogenous factors as explained above.

According to Furtado ([1952] 1954, p. 128), Nurkse's (1951) notion of balanced growth through simultaneous increase of investment in several sectors creating demand for each other overlooks the role of savings (that is, the pattern of surplus utilization) in the growth process. "For an undeveloped economy to start a process of development with its own resources and by the spontaneous action of its entrepreneurs is, to use a current expression, like raising oneself by one's bootstraps". Nurkse (1953a, p. 67; reproduced in 1953b, p. 30, without reference to Furtado) did not accept Furtado's "bootstraps" criticism, but the interpretation that the supply of capital will take care of itself in the balanced growth framework has been largely incorporated into the literature (see e.g. Krugman 1993, p. 23).

The numerical exercise carried out by Furtado ([1952] 1954, p. 137; 1954, p. 207; [1961] 1964, p. 73) was designed to illustrate the mechanism of acceleration of the rate of growth under the assumption that consumption increases at a given rate (2.5%) lower than the rate of growth of income (5%, according to the Harrod-Domar formula). Under these circumstances, the average propensity to consume will decline while the rate of investment will increase from 10% in the first year to 24% in the fifth year, which will allow the rate of annual growth of income to rise from 5% to 9.4% in the fifth year. If consumption had grown at the same rate as output, the rate of investment would have remained as 10% and the rate of growth would have kept steady at 5%. This description of the growth process, according to Furtado, applied to the historical experience of Brazil and other Latin American countries in their industrialization process, and, moreover, provided a benchmark for economic planning. In the chapter on the "economic development of Brazil", drafted by Prebisch and Furtado (see Furtado 1985 and 1987b, chapter V) for the CEPAL 1949 survey of Latin America, it was pointed out that "the belief that a country must first improve its agriculture and then turn its attention to the development of light industries before undertaking the establishment of heavy industries, indispensable to capital formation, is no more than mere theorizing which experience has often proved false" (CEPAL 1951, p. 199). The first phase of the economic development process should consist of acceleration of the growth rate, with an increase of investment at a higher pace than consumption. Once reached the desired investment coefficient, the rate of growth should be stabilized in the second phase, with consumption, investment and income all growing at the same rhythm (CEPAL 1955, chapter IV.5).[13]

Moreover, as observed by Furtado (1954, pp. 207-08; [1961] 1964, pp. 73-74; [1967] 1975, pp. 125-26; 1976, pp. 155-56), this process of growth acceleration accompanied by a declining share of consumption in aggregate income is only feasible under the assumption that the original impulse comes from exports, since the surplus may be absorbed by investment in the expanding external sector. If output growth is to be absorbed by the internal market instead, there will be a "break" to the increase of the rate of investment. The existence of this "ceiling" to the rate of investment is explained by both physical - the increase of the average production period (in the Austrian sense of a higher amount of capital per consumption good produced) brings about diminishing returns to capital and a fall in the marginal efficiency of investments - and economic reasons, that is, the fact that consumption demand must provide a market for the increasing stock of capital goods. "For investment to proceed there must be a growth in consumption, and this requirement sets a ceiling on the proportion of the national product that a free enterprise economy can spontaneously invest. Once this ceiling is surpassed the rate of growth of consumption fails to provide incentives for new investment" (1954, p. 208; [1961] 1964, p. 74). Furtado is here close to the Malthusian theme of the "optimum propensity to consume" dear to the old underconsumption tradition in economics (see Lange 1938). As indicated by Maurice Dobb (1965, p. 461), Furtado had advanced the notion that income distribution is a crucial factor in determining, through its influence on the structure of demand, whether development becomes a cumulative process or is interrupted because increase of capacity fails to be matched by an appropriate growth of demand. The connection between income distribution and demand was an important link in his interpretation of the obstacles to the development of dual underdeveloped economies once they start their industrialization process, as discussed next.

5. Economic dualism and underdevelopment

Furtado's study of the historical process of development by "external induction" with technology as an "independent variable" determined abroad led him to define an underdeveloped structure as one in which "the full utilization of available capital is not a sufficient condition for complete absorption of the working force at a level of productivity corresponding to the technology prevailing in the dynamic sector of the economy" ([1961] 1964, p. 141; 1958c, p. 404). This structural definition has been accepted by many authors, as an alternative to general descriptions in terms of statistical indicators such as income per capita etc (see e.g. Hunt 1989, p. 49). It means that underdeveloped countries are not just backward, but hybrid systems with the prevalence of a technology that does not correspond to the pattern of the available factors of production. The origins of that definition may be traced back to an extensive empirical study about labor productivity of the cotton textile industry in Latin America undertaken by CEPAL with the assistance of an American firm of consulting engineers in 1949 (CEPAL 1951). The main conclusion of that investigation - that low labor productivity in the textile industry was caused by the widespread use of old obsolete machinery despite the availability of new equipment, and, therefore, that new capital intensive technology was dysfunctional in respect to the supply of production factors - made a big impact on Furtado's approach to underdevelopment (see Furtado 1985, pp. 87-89; 1987b, pp. 96-98).[14]

In broad terms, underdeveloped economies are formed by two sectors: the "nucleus", in which modern technology predominates (whether it produces for the external or the domestic market) and the backward sector, with a pre-capitalist structure. Hence, the degree of underdevelopment is a function of the relative importance of the backward sector, and the overall rate of growth is determined by the pace of the increment in the relative importance of the modern sector. That pace depends upon the rate of investment, the nature of the technology adopted and the rate of population growth. The process of growth is thus essentially a transfer of labor from the backward to the developed sector, which implies an increase in the average labor productivity of the economy as a whole, regardless of the fact that productivity in both sectors remains unchanged (Furtado 1958b, p. 18; CEPAL 1953, pp. 12- 13; see also Singer [1952] 1958 for a similar approach).

The focus on underemployment as a crucial characteristic of underdevelopment was not unique to Furtado; it could be found in other development economists of the 1950s, like Rosenstein-Rodan, Nurkse and especially Lewis (Hirschman 1981, pp. 7-8). Furtado ([1952] 1954, pp. 129-30, 139) had distinguished between the long-term full-employment situation prevailing in developed countries and the structural underemployment typical of underdeveloped economies on the basis of capital scarcity and technological heterogeneity. In the same vein, the notion of a perfectly elastic labor supply at subsistence wage came out as one of the results of his 1950 historical essay on the industrialization process of Brazil (Love 1996, p. 157; Furtado 1950; 1985, p. 68; 1987b, p. 75). It was further discussed in Furtado's 1954 book (preface dated September 1953), where he argued that "elastic labor supply" (p. 91) was a key factor in the expansion of the exporting economy. As long as wages paid in the dynamic exporting sector were higher than those paid in the subsistence sector, shifts in manpower occurred throughout the expansion process at nearly stable real wages (p. 92). Had wages rose as exports price increased, the volume of investment would become smaller and the absorption of the subsistence sector (accompanied by a higher average overall productivity) would also be slower (p. 93; see also Furtado [1959] 1963, pp. 167-69).

It is worth noting that Furtado's notion of elastic labor supply at subsistence wage was not strictly based, in contrast with Lewis's (1954), on the assumption of zero marginal productivity of labor caused by land scarcity, which did not apply to most Latin American countries. Although it was not physically scarce, economic access to land was restricted and its ownership highly concentrated. The outcome was the creation of a large subsistence agricultural system with a minimum amount of capital, primitive technology and low productivity (Furtado[1959] 1963, chapter 21; [1967] 1975, pp. 209-10; 1976, pp. 160-61). Historically, excess labor supply was formed by the cyclical interaction between the exporting and subsistence sectors that resulted from the successive expansion and decadence of different exporting commodities (sugar, gold, rubber, coffee etc), plus the effects of forced (slavery) and voluntary immigration.

Although the connection between elastic labor supply from the subsistence sector, high profits in the dynamic sector and the economic growth process had been part of Furtado's (1950, 1954) framework, it was only after the publication of Lewis's classic 1954 paper that the full analytical implications of the unlimited labor supply assumption for the theory of development became clear. Lewis's paper had an immediate impact on Furtado (and on the economic development literature as a whole; Tignor 2006, chapter 3), who, in a bitter letter to his colleague Juan Noyola, regretted that CEPAL economists had not been able to come up with a similar model.

> I call your attention to Lewis's work... I regard it as the best single piece ever written about the theory of development. He follows exactly the same approach adopted by us in our preliminary studies for planning techniques. I am convinced that if we had not been discouraged to "theorize" at that stage, we would have been able to present two years ago the basic elements of a theory of development along the lines of this important contribution by Lewis. We are left with the fact that, having dedicated more time than any other person or group of people to think about and investigate in this field, we find ourselves today relatively behind and without anything of real significance to show for (letter from Furtado to Noyola, 22 February 1955).

In the following year Furtado reviewed in Portuguese Lewis 1955 *Theory of Economic Growth*. There were great expectations about Lewis's (who was also born, as noticed by Furtado in the review, in an underdeveloped country) book, after his 1954 formulation of the theory of labor surplus, a "central piece of what we could call the theory of backward development", with "strong affinities with ideas that have been elaborated by the CEPAL team of economists since 1948" (Furtado 1956b, p. 52). However, the book was disappointing, since, instead of developing further his 1954 model, Lewis embarked upon a relatively loose description of the development process, full of pieces of "amateur sociology" (ibid).

Lewis's ideas about unlimited labor supply could be found already, in incipient form, as part of the UN 1951 report about employment problems in underdeveloped countries. Lewis was the dominant influence among the five-person committee that drafted the document (Tignor 2006, pp. 84-86). One of the main claims of the report was the notion that the growth of underdeveloped economies depended on a threshold rate of capital formation of 10%, which could be reached by means of foreign aid - Furtado ([1952] 1954) would use the same number in his numerical exercise discussed in section 4 above. It was in that context that the UN report strongly criticized the

World Bank for not contributing effectively to narrowing the gap between requirements and availabilities of foreign assistance in underdeveloped economies (Mason and Asher 1973, pp. 384 and 462).

Soon after his letter to Noyola, Furtado started working on a paper for the Gudin Festschrift, in which he referred to Lewis's 1954 model to support his claim that the marginal productivity theory of wage determination did not apply to economic systems that display significant technological heterogeneity (Furtado 1956a, 1957a). Under conditions of strong scarcity of capital, as it happened in the first stages of the Industrial Revolution (and in contemporary underdeveloped countries), production factors are used in approximately fixed proportions, since it is not possible to combine capital with broadly variable amounts of labor. That was the world analyzed by classical economists, where the simple transfer of labor (as restricted by available capital) between sectors with distinct technologies would bring about a higher average productivity for the whole economy. In those economies, the transfer of labor from the backward to the modern sector would bring the marginal productivity in the latter quickly to zero, and yet the average productivity would be higher than in the backward sector. From this point on, labor transfer to the modern sector would cause a decline in aggregate output, despite the fact that the capital-labor ratio is higher than in the traditional sector. This would make it impossible to equalize the marginal productivities in the two sectors, and, therefore, would preclude any relation between wages paid and marginal productivity in the modern sector. A way out would be the determination of wages in the latter by the marginal productivity in the backward sector, so that the modern sector would benefit from a quasi-rent. This solution, however, does not apply if the marginal productivity in the traditional sector is zero or very close to zero, which brings in the Lewis model (Furtado 1957a, pp. 168-69).

Yet another extension of Lewis's model may be found in Furtado's (1957a; [1961] 1964, chapter 4, written in 1958) thesis that the first phase of the Industrial Revolution in England had taken place under conditions of capital scarcity, constant real wage and entirely elastic labor supply, followed by a second phase of labor scarcity, growing real wages and ensuing labor saving technical change, especially in the capital goods industry.[15] The same interpretation applied to the United States, which from many points of view formed a single economic system with England in the first half of the 19th century ([1961] 1964, p. 127). It is worth noting that Furtado (1957a) did not discuss the second part of Lewis's model, that is, the absorption of surplus labor by increasing investment in the capitalist sector financed by saving out of profits (quasi-rent), until the marginal productivity of labor in the backward sector rises to equality with the wage rate. He did apply the argument to the early stages of development in central industrial countries, but argued that the absorption of workers from the subsistence sector by the modern one would be a very slow process in underdeveloped economies, due to the kind of technology adopted in the modern sector ([1961] 1964, chapter 4).[16] The reasons for Furtado's skepticism about the full working of Lewis's mechanism could be already found towards the end of his 1957a (pp. 172-74) essay. Economic duality is linked with the highly concentrated income-distribution profile associated with imported technology, which affects the level and structure of aggregate demand. The market for general consumption goods grows very slowly because of stationary real wages, which, in the absence of a strong external impulse, leads to stagnation (see also Kay 1989, p. 42). That proposition was further developed as part of Furtado's ([1967] 1975, ch. 14) careful discussion of Lewis's model. It is related to Furtado's remarks about the limits to a growing investment rate mentioned in section 4 above.

> The explanatory value of [Lewis's model] is restricted to the behavior of the capitalist sector under the assumption of growth based on external induction. In this case, the domestic income-distribution profile is not relevant for the growth process. Under a more general assumption, in which the domestic demand profile is the main factor determining resource allocation, we may ask what will be the implications of the fact that demand growth takes place under a stagnant wage rate, that is, without consumption diversification by most of the population. The income concentration, which necessarily accompanies the kind of growth we are considering, brings with it a certain evolution of the demand profile characterized by increasing dependence of external supply of consumption goods required by higher income strata, and by allocation of resources in the internal market that tends to increase the capital-labor ratio … Moreover, if we take into account that technical progress contributes to the increase of the capital-labor ratio, it is easy to understand that the labor surplus, instead of disappearing, tends to persist and, and in many cases, because of demographic growth, to increase ([1967] 1975, pp. 205-06; 1976, pp. 155-56).

Interestingly enough, Lewis (1954, pp. 153-54) did consider the Malthusian argument that the rate of profit may fall if capital is growing more rapidly than consumption, which could prevent the working of the absorption mechanism in the model. However, Lewis dismissed Malthus's argument on the grounds that - as Ricardo had argued against Malthus - unlimited labor supply means that the capital-labor ratio, and therefore the rate of surplus, can remain constant for any amount of capital (see Basu [1984, pp. 64-66] for a related criticism of Lewis's claim that his model is not restricted by lack of effective demand). Furtado was probably the most conspicuous author in what Lustig (1980) has called the Latin American underconsumptionist tradition. The perverse positive relation between growth and income concentration - as opposed to the inverse relation featured in his 1957a and 1965 pieces - as Furtado would eventually argue in his 1974 book (see note 8 above), as well as the persistence of economic dualism and poverty in underdeveloped countries, led Furtado (1974, p. 97; 1984, p. 121; see also 1987a, pp. 223-26) to claim that the Lewis thesis - that the investment of the economic surplus in the industrial modern sector would eventually bring about an economic system with increasing homogeneity and real wages growing together with the average productivity of the economy - had been rejected by the facts.

6. Concluding remarks

Furtado's contributions to the theory of economic development in the 1950s should be seen against the background of the transformations operated by the new international institutions and the intellectual context of the time. As head of the development division of CEPAL he was from the beginning exposed to the Prebisch-Singer thesis of declining terms of trade and the center-periphery concept. He probably attended the Chicago 1951 seminar where Gerschenkron's essay was first presented. The seminal formulations of the balanced growth and big push ideas by Nurkse and Rosenstein-Rodan, respectively, were both originally presented in Rio in the 1950s, and on both occasions Furtado was the first economist to discuss them in print. Furtado also reacted to the Lewis model shortly after it came out. Like many other development economists at the time, Furtado used the Harrod-Domar growth model as the backbone of his interpretation of the mechanism of economic development and of his work on economic planning.

As discussed above, the theoretical discussions in which Furtado participated should be interpreted as part of the birth of the new branch of "development economics”. The creation of new international institutions played a key role in that process. In particular, as pointed out by Fitzgerald (1994, p. 89), the ideas put forward by Furtado and other CEPAL economists in the 1950s were developed in the context of the international debate on the organization of the world economy that followed WWII, which included the role played by institutions such as the UN, IMF, IEA and IBRD. Academic development economists often worked along with such institutions, as illustrated by Nurkse, who taught international economics at Columbia University. As observed by Furtado (1985, p. 147; 1987b, p. 162), Nurkse had been a member of the League of Nations before WWII, and some of the collaborators of Singer at the UN used to keep links with Columbia. Nurkse’s and others’ visits to Brazil in the 1950s – which had become “a centre of debates on development problems” (Furtado, ibid) - was part of the process of internationalization of economics. As recalled by Furtado (ibid), Nurkse told him at the time that “since this subject is now fashionable, let’s make ourselves noticed”. It was precisely Furtado’s 1952 critical reaction to Nurkse Brazilian lectures, and its publication by the IEA, which made Furtado noticed by the international community. In a letter of 28 October 1953 to Prebisch, Furtado reported a visit by Rosenstein-Rodan - who worked for the World Bank from 1947 to 1954 as head of the economic advisory staff, when he left for MIT after several disagreements (Mason and Asher 1973). According to Furtado, Rosenstein-Rodan gave full support to CEPAL’s propositions. Rosenstein-Rodan and Nurkse would return to Rio in 1957 for the IEA conference on economic development.

Although influenced by those economists’ ideas, Furtado’s own contributions, as one might expect, grew out of his critical assessment of their role in interpreting underdevelopment phenomena from a historical-analytical perspective. These involved the relatively minor role of the Prebisch-Singer thesis in his historical account of the industrialization process in the periphery, the rejection of Nurkse’s Schumpeterian perspective on development, the historical reformulation of Rosenstein-Rodan’s big push idea, the view that the Harrod-Domar model is relevant to underdeveloped economies if specific assumptions are made about excess labor supply and absence of diminishing returns to capital, and the proposition that the Lewis model overlooks the demand side of the economy. Together with those (and many other) authors, Furtado was engaged in the 1950s in showing that development economics should not be approached with the same analytical instruments deployed in the study of industrialized economies. Instead of searching for “imperfections” that supposedly distinguished underdeveloped economies from developed ones, development economists should be able to come up with a new theoretical framework.

At the beginning Furtado was optimistic about both the theoretical progress of development economics and the growth of underdeveloped countries - an attitude shared by others in the 1950s - which reflected in part the good economic performance of Latin American countries at the time (cf. Singer [1961] 1964). Furtado's optimism is particularly clear in his contribution to the 1963 special issue of the *Scientific American* about technology and economic development). However, as noticed by Hirschman (1968, pp. 2-3), that gave place to a negative opinion by Furtado about the economic prospects of the region, reflecting again the problems faced by the import-substitution industrialization process in the mid 1960s. At the theoretical level, the main result was Furtado's (1971) relatively new perspective on development economics as a theory of dependency. Furtado ([1960] 1967, pp. 106-07; italics in the original) had before submitted that the Brazilian economy had in the 1950s "finally outgrown its colonial economic structure" through the "shift of the economy's dynamic centre towards the industrial sector", and by that had entered "the stage of self-sustained growth". The groups connected with the external sector were "essentially *dependent* groups, both economically and mentally" (cf. Gerschenkron's [1952] discussion of changing attitudes in late industrialization process). The decisions of a country which exports primary commodities are necessarily "reflex decisions", instead of the high "degree of autonomy" of economies based on industrial production for the domestic market. However, by the late 1960s Furtado would come to the conclusion that the change from exports to industrial investment as the dynamic factor of the economy only meant a change in the form of external dependence, since decisions concerning the consumption pattern and therefore the kind of technology adopted are largely made abroad, with effects on the relation between growth, income distribution and welfare.

Although Furtado had some important elements in common with Gerschenkron's historical approach to development, he did not share its convergence implications - that is, the view that the rate of growth of backward countries would speed up once they became industrialized, until their income per capita reaches the level of the developed countries. As discussed above, Furtado suggested in the 1950s that the speed of technical progress is a positive function of the rate of accumulation, which would give developed countries better conditions to overcome the "physical constraint" represented by diminishing returns. On the other hand, a backward economic system, in which the more advanced technology has not been introduced yet, will in principle be in an even better position to assimilate available technology without facing diminishing returns to capital and, by that, speed up its growth rate. However, in Furtado's (1987a, pp. 225-26) view, the "economic constraint" represented by income concentration, structural rigidity and external dependence would prevent the acceleration of the growth process and the elimination of economic dualism, unless the economic structure was changed through economic planning.

Notes

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1. The Festschrift included contributions by foreign economists who had lectured on development economics in Rio throughout the 1950s under Eugenio Gudin's invitation, such as Jacob Viner, Gottfried Haberler, Kenneth Boulding, Hans Singer, Lionel Robbins, Ragnar Nurkse and a few other "fortunate souls", as put by Boulding (1958, p. 462) in his review.

2. On the anonymity rule of UN publications at the time see Toye and Toye (2003, p. 456). I shall also refer to Furtado's books (1967 [1975], 1974, 1980; all in Portuguese, with French translations) written during his period (1965-1985) as professor of development economics at the Sorbonne. The 1967 textbook (and its revisions) is an extended and updated version of the 1961 collection. Another important source is Furtado's 1985 (in Portuguese, with French translation) autobiographical volume with recollections of his experience as a development economist in the 1950s, partly summed up in Furtado (2000). Page references to both Brazilian and French editions will be provided.

3. The concept was initially created by Kindleberger to illustrate balance of payments disequilibrium that results from factor prices which fail to reflect factor endowments. Furtado applied the notion to a much broader context and eventually concluded that it was an essential feature of underdevelopment (see Furtado [1961] 1964, p. 142, second paragraph, where the phrase "factor imbalance" is an inexact translation of the Portuguese original meaning "disequilibrium at the factor level"; see also Furtado [1967] 1975, chapter 14). Differently from Kindleberger, Furtado saw the

disequilibrium at the factor level in underdeveloped countries as a consequence of the import-substituting industrialization process that had led entrepreneurs to adopt technologies compatible with a cost and price structure similar to that prevailing abroad.

4. As pointed out by Furtado ([1961] 1964, pp. 132-33), the impact of exports on the domestic market is a positive function of the labor-intensity of that activity and of the national ownership of the capital invested. Accordingly, the impact is comparatively small in export mining economies. The distinction between the two phases of the industrialization process in Latin America was further elaborated by Furtado ([1969] 1970, chapters 10 and 11). The recent "revision" of the role of exports in the pre-ISI phase of economic development of Latin America (see Ficker 2005; Haber 2006) is largely a repetition of Furtado's interpretation, although written as a criticism of structuralist economic historiography.

5. This is similar to Wallich's (1958) notion of "derived development". Wallich suggested, in a paper circulated in 1952 but published only in 1958, that economic growth in underdeveloped countries is derived from innovations made elsewhere. Instead of the "Schumpeterian development" typical of industrialized economies, based on the sphere of supply, derived development is oriented towards the realm of demand (consumption). The inapplicability of Schumpeter's framework to underdeveloped economies was often pointed out by Furtado ([1952] 1954, pp. 127-29; 1954, pp. 232-36; [1961] 1964, pp. 47-52). See also Singer ([1953] 1964) for a kindred perspective.

6. The view that the doctrine of balanced growth implies an interpretation of the historical experience of growth that does not fit the facts may be also found in Goran Ohlin (1959). Just like Furtado, Ohlin pointed out the historical role of foreign markets as a way out of the limitations of domestic ones. The theme is conspicuous in Douglass North (1961) and other contributors to the so-called "staple theory of economic growth" in Canada and the United States (see Watkins 1963). The pivotal role of exports (especially cotton) in the growth of the American economy in the first half of the 19th century was discussed by Furtado ([1959] 1963, chapter 18).

7. According to recent calculations by Blattman, Hwang and Williamson (2007, p. 162), the terms of trade for Brazil in the period 1870-1939 (the same period examined by Singer and Prebisch) presented an average rate of growth of 0.82. The trend was practically stationary for Argentina, but declining for a larger set of Latin American countries. Anyway, the validity of Furtado's argument depends not on the absence of falling terms of trade, but on the assumption that it is not so intense as to provoke a reduction of real income even if output is growing - that is, what Bhagwati (1958) would later call "immiserizing growth".

8. In contrast with his previous treatment of the industrialization process in the 1950s (see Mueller 1963, p. 486), Furtado now stressed foreign direct investment by multinational corporations (see the formalization of Furtado's argument by Taylor and Bacha 1976; for a critical comment on the notion of circular causation between the production of capital-intensive goods, growth and income inequality see Little 1982, pp. 250-55). Furtado's dependency theory has been often described as "Neo-Marxian" (see e.g. Arndt 1987, pp. 120-22). However, the main goal of Furtado's 1971 piece was to provide a bridge between neoclassical and development economics. It was a critical reaction to Myint's (1965) plea for the application of the traditional "optimum" approach to economic development. According to Furtado, the issue of the rationality in

the allocation of resources and in the decision making process in an economic system takes on a distinct meaning if technology and consumption patterns are decided outside that system. In particular, the neoclassical notion of “optimum” must be adapted to dependent economies, in which the appropriation of the fruits of technical progress by a minority decides the pattern of income distribution and therefore the resource allocation “optimum”. On the distinction between the structuralist and Marxian roots of Latin American dependency theory in the 1960s and 1970s see Love 1996, chapter 12.

9. Furtado came back to that in the *Brief Introduction to Development*, where he pointed out that backward economies, where advanced techniques have not spread to all sectors, are able to undergo substantial capital accumulation before diminishing returns sets in (Furtado 1980, p. 58; 1989, p. 59). The perception that development economics is closer to classical than to neoclassical framework may be also found in Lewis (1954 and, especially, 1958).

10. As put by Furtado (1958b, p. 38), in underdeveloped countries like Brazil, “characterized by high elasticity of the supply of unskilled labor, productivity capacity is a function of capital accumulation and technical progress”. Moreover, “technical progress is not a constraint in underdeveloped economies, since they have at their disposable the technical experience of more developed economies... However, the assimilation of more advanced techniques is usually done through the incorporation of new equipment to the productive process, that is, through capital accumulation. This is, therefore, the basic factor of the process of growth in an underdeveloped economy” (Furtado 1957b, p. 40). This is reminiscent of the “new view of investment”- introduced at the time by Svennilson (1954) and formalized by Solow (1960) - which sees the double role of investment in the deepening *and* modernization of the capital stock (see Furtado’s [1967] 1975, pp. 73-76 [1976, pp. 85-87] discussion of vintage models of economic growth).

11. Furtado (1959) claimed in his critical review of Hirschman (1958) that most of the points of the book had already been made by CEPAL economists, especially concerning the heterodox approach to external disequilibrium and inflation. Hirschman’s (1958, pp. 59-61) opposition to central planning - on the grounds that it would internalize the external economies of growth and consequently tend to slow down innovation - was disregarded by Furtado as “unrealistic” from the perspective of underdeveloped countries. However, Furtado ([1967] 1975, chapter 8) would later discuss positively Hirschman’s concept of “backward” and “forward linkages” and the interpretation of economic development as a disequilibrium process.

12. The economic surplus concept was also central to Paul Baran’s well-known 1957 book, published a couple of years after Furtado’s 1955 essay (see Furtado 1985, p. 178; 1987b, p. 186). The analytical role of the economic surplus was not mentioned in Baran’s 1952 article. It was, however, extensively discussed in Baran (1953), a paper probably unnoticed by Furtado at the time. Furtado and Baran shared the view that the form of utilization of the surplus (and not just the saving capacity) was a key notion in the analysis of development. However, while Furtado had in mind the relatively successful historical episodes of growth in Brazil, Argentina, Mexico and a few other Latin American countries, Baran focused on the experience of stagnant backward economies in some African and Asian countries.

13. Hunt (1989, p. 128) is therefore incorrect in suggesting that Furtado argued for a

sequence for industrial development - from light industry through intermediate goods and finally basic capital goods - that was the reverse of the sequence which Dobb (1967) and others advocated to maximize the long-run rate of growth in socialist economies. Furtado presented some of his ideas about planning at a 1958 conference, co-organized by IEA and UNESCO, which took place from 24 March to 3 April 1958 in Bursa (Turkey), on "Peaceful Cooperation and International Organization". The meeting gathered economist from Western capitalist countries invited by IEA (such as A.G. Robinson, Haberler, E. Lindahl, R. Triffin, and Furtado) and from Eastern socialist countries. The topic of the conference was the determination of the level of activity in different economic systems. According to Furtado (1958c; 1985 and 1987b, ch. 13), eastern economists were amazed at the fact that economic planning was seriously discussed in Latin America. The meeting indicated, in Furtado's (1958c, p. 406) account, that "eastern economists were even less aware than western economists of the necessity to acknowledge development economics as an autonomous field that demands a theoretical creative effort".

14. Svennilson (1954, p. 10) and Salter (1960, chapter IV) dealt with a similar problem, that is, the observed inertia in the introduction of capital goods that represent new and more efficient techniques. Their interpretation – that the explanation is based on the fact that old machines only have to cover their variable costs, whereas new machines have to expect to cover their total costs – differed from the conclusions drawn by Furtado and CEPAL in the early 1950s.

15. Lewis (1972) would later suggest a similar interpretation of the behavior of real industrial wages and capital accumulation in England from the Industrial Revolution to mid 19th century.

16. In a related criticism of Lewis's model, Todaro ([1977] 1981, pp. 235-36) has pointed out that if profits are reinvested in labor-saving capital goods, the labor demand curves do not shift uniformly outward (as in Lewis's [1954, p. 152] diagram) but cross. The upshot is that aggregate output goes up, but total wages and employment remain unchanged, so that all the extra output accrues to capitalists.

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