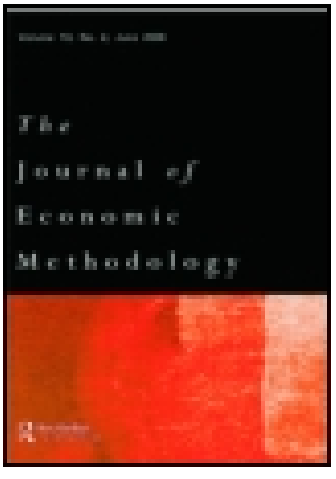

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Between Lévi-Strauss and Braudel: Furtado and the historical-structural method in Latin American political economy

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Between Lévi-Strauss and Braudel: Furtado and the historical-structural method in Latin American political economy

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The methodology of Latin American economic structuralism has been generally interpreted as an implicit extension of classic French structuralism of Claude Lévi-Strauss and others, without careful examination of the methodological pronouncements of Latin American economists and social scientists. The present paper provides a detailed treatment of how Latin American structuralist methodology was formed between the 1950s and 1970s, with emphasis on Celso Furtado's views. Furtado was influenced by both C. Lévi-Strauss's and F. Braudel's apparently incompatible approaches to structure and history. Furtado's suggested combination of structure and history was based on the use of economic models to interpret successive historical structures, plus the development of the notion of creativity as a link between structures and processes. It differed in some important aspects from the 'historical-structural method' usually associated with other Latin American authors such as Sunkel, and Cardoso and Faletto, built on existentialism and dialectics.

Keywords: Celso Furtado; Claude Lévi-Strauss; Fernand Braudel; Latin American economics; structuralism; historical method

Jel Classification: B20; B31; B41

> Economic analysis is not matter of taste. Distinctive Latin American art forms, literature and philosophy are to be welcomed, but there should no more be a 'Latin American economics' than a Latin American physics or mathematics. (Lincoln Gordon 1961, p. 71)

1. Introduction

In June 1965, Brazilian economist Celso Furtado (1920–2004) arrived in Paris to take up a position as professor of development economics at the Sorbonne, in replacement of Raymond Barre (see Furtado, 1991, p. 149). Furtado had fled Brazil in April 1964 soon after the military coup d'état. Before moving to France, he worked for a few months in Santiago de Chile at ILPES (Latin American Institute for Economic and Social Planning, a research centre created in 1962 as part of CEPAL, the United Nations Economic Commission for Latin America), followed by an academic year at the Economic Growth Centre of Yale University. Furtado was familiar with the Sorbonne, having done his doctorate at that institution in the late 1940s with a thesis about the Brazilian colonial economy (Furtado, [1948] 2001). From 1950 to 1957 Furtado directed the development division of CEPAL. Upon leaving CEPAL, he spent the academic year 1957–1958 in Cambridge (UK), writing his well-known 1959 volume about the economic history of Brazil, a further elaboration of a previous book on the same topic (Furtado, 1954).

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His main contributions to the field of development economics in the 1950s were collected in book form in 1961 (see Boianovsky, 2010; Furtado, [1961] 1964, [1961] 1966). That was later expanded and turned into a textbook for his course at the Sorbonne (Furtado, 1967, 1970). Furtado would live in Paris until 1985, when he returned to Brazil after resumption of democracy.

French intellectual life was dominated in the 1950s and 1960s by structuralism and its paradigm of a rigorous method in social sciences. Structuralism would reach its apex in 1966, led by anthropologist Claude Lévi-Strauss (see Dosse, [1991, 1992] 1997). It was also during that period that a 'structural approach' to economics gradually established itself in Latin America, especially among economists related to CEPAL. Furtado ([1961] 1964) would add to the English translation of his *Development and Underdevelopment* the subtitle *A Structural View of the Problems of Developed & Underdeveloped Countries*. However, the use of the noun 'structuralism' to describe (a substantial part of) Latin American economics gained currency only later. It was in the methodological appendix added to the French edition of his book on development economics that Furtado (1970, p. 30) referred, for the first time, to 'le structuralisme économique' as a Latin American school of thought (parts of that appendix were reproduced in Furtado, 1973a, 1987). He argued that economic structuralism was 'not directly related to the French structuralist school', that is to scientific classic structuralism as developed by Lévi-Strauss and others. Whereas the latter was defined by its anti-historicism, Latin American economic structuralists often included historical studies as part of their research agenda. Nevertheless, Furtado's assertion implies that there may be an *indirect* relation between classic and Latin American structuralism, which is investigated in the present essay.

Lévi-Strauss's structuralism challenged the claim of the influential *École des Annales* – led by historian Fernand Braudel from the 1950s to the 1970s – that history is the science of the sciences of man, in the sense that duration conditions all social sciences (Dosse, [1987] 1994; Hexter, 1972). According to Lévi-Strauss ([1958] 1963, chapter 15), the historian, by restricting itself to the plane of the empirical and observable, is unable to model and have access to social structures, which are essentially abstract. In his rejection of the effectiveness of a historical method and of consciousness for scientific explanation of social phenomena, Lévi-Strauss followed closely Ferdinand de Saussure's ([1916] 1959) priority of synchrony over diachrony and by that imported the linguistic model into anthropology. Such criticism of the alleged superiority of the temporal or diachronic dimension was aimed at historical explanations in general, including Sartre's (1960) attempt to bring dialectics to the forefront.

Braudel reacted to structuralism in his 1958 *Annales* essay about the *longue durée* and in the second 1966 edition of his classic *La Méditerranée*, where he defended the notion of 'structural history' and described himself as a structuralist 'by temperament' (see Kinser, 1981). However, the 'structuralism of a historian' is not about the 'mathematical abstraction of relations expressed as functions' but about 'concrete' life, as he wrote in the closing pages of that book (Braudel, [1949] 1966, vol. 2, p. 520). Furtado did not mention Braudel in his contributions to economic history written between the late 1940s and the 1960s, but he did refer to and acknowledged the influence of Belgian historian Henri Pirenne, whose approach to social time and comparative history strongly influenced the *Annales* school. Shortly after his arrival in Paris, Furtado (1966) published in the *Annales* – then under Braudel's direction – the French version of his article about development and stagnation in Latin America, with the significant subtitle 'a structuralist approach', reproduced also as chapter 7 of Furtado ([1961] 1966) (the original version was written in Yale; see Furtado, 1965).

The first accounts of Latin American economic structuralism and its methodology came out in mid 1980s (Jameson, 1986; Palma, 1987).[1] Both focused on the contributions of Argentine economist Raul Prebisch, executive secretary of CEPAL between 1950 and 1963. Prebisch (1950) advanced the notion that the world economy is an asymmetric system formed by two poles with distinct production structures, called 'centre' and 'periphery'. Since Prebisch did not make methodological pronouncements, Palma (1987) and particularly Jameson (1986) argued that his (implicit) methodology was broadly consistent with the approach to knowledge associated with scientific classic structuralism of Lévi-Strauss and others. The argument was further elaborated by Blankenburg, Palma and Tregenna (2008), and Gibson (2003), who claimed that the method of classic structuralism – as summed up in Piaget's ([1968] 1973) handbook – applied not just to Prebisch but also to the work of Lance Taylor and other late economic structuralists outside Latin America.

By neglecting explicit methodological statements by Furtado and others, commentators have often overlooked how the attempt to integrate structural and historical methods – regarded by many in the 1950s and 1960s as intrinsically incompatible – became the hallmark of Latin American economic structuralism. Carlos Mallorquín (1998) presented a first discussion of Furtado's (1970) methodological appendix, but did not discuss whether it was related to classic French structuralism. Historians of thought associated with CEPAL have described the institution's method as 'historical-structural' (Bielschowsky, 1998, pp. 23–24; Rodríguez, 2006, pp. 30–35). Bielschowsky (op. cit.) and Oliveira (1983, p. 1019) have ascribed the introduction of such a method in Latin American economics to Furtado's (1959) investigation of the evolution of the Brazilian economy through a historical succession of different 'structures'. This is consistent with Furtado's (1985, p. 67) remark that Prebisch's view of the centre–periphery system was essentially synchronic, in contrast with Furtado's own approach.

However, the 'historical-structural' ('historico-estructural' in Spanish) method made its first appearance in volumes produced at ILPES by Chilean economist Osvaldo Sunkel (1970), and by Brazilian sociologist Fernando H. Cardoso and Chilean historian and sociologist Enzo Faletto (Cardoso & Faletto, 1969). In both cases, it was introduced as an element of criticism of CEPAL's structuralism of the 1950s and early 1960s, in the context of the formulation of dependency theory and its application to Latin American socio-economic development. The historical-structural method at its inception represented not just a (self-)criticism of CEPAL's early structuralism but also largely a rejection of Lévi-Strauss's structuralism in favour of dialectics. As discussed below, Furtado (2000) would deploy for the first time the expression 'historical-structural approach' ('enfoque histórico-estrutural' in Portuguese) as late as 2000, in the subtitle to the revised edition of his 1980 introductory volume to development. Differently from Cardoso and others, however, the term reflected Furtado's attempt to bring together Lévi-Strauss's notion of *structure* as a set of stable relations expressed by a model, and the concept of *process* as a causal sequence of facts in historical time. It also reflected Furtado's increasing exposure to Braudel's approach to history throughout the 1970s and 1980s.

2. Models and systems in economics and social sciences

Until the 1950s, the prevailing sense of 'structure' in social sciences, as put forward by Radcliffe-Brown and other anthropologists, was the entirety of observable relations in a society. Structure was, therefore, used as a concept to break down the whole into its components. In an article originally written in 1953, reproduced in his 1958 *Structural*

Anthropology, Lévi-Strauss ([1958] 1963, p. 279; italics added) opposed that usage of the term and claimed instead that 'the term "social structure" has nothing to do with empirical reality but with *models* which are built up after it'. Social scientists in general (and anthropologists in particular) should distinguish between the surface observation of social relations, and the analysis of such relations through the identification of the structure below empirical reality. The structuralist method aimed at the investigation not of the parts of a whole, but of the set of reciprocal connections that hold them together (see Keat & Urry, 1982, pp. 124–125; Lane, 1970, pp. 14–16).[2]

According to Lévi-Strauss (op. cit.), a 'structure consists of a model meeting with several requirements'. First, the structure exhibits the characteristics of a system. It is made up of several elements, 'none of which can undergo a change without effecting changes in all the other elements'. Moreover, for any given model there should be a possibility of 'ordering a series of transformations resulting in a group of models of the same type'. Those properties make it possible to 'predict how the model will react' if some of its elements change. In connection with that, the model should make 'immediately intelligible all the observed facts'. Structures are, therefore, self-sufficient logical reconstructions, which do not need references to extraneous elements. Jean Piaget summed up Lévi-Strauss's concept of structure:

> A structure is a system of transformations. Inasmuch as it is a system and not a mere collection of elements and their properties, these transformations involve laws: the structure is preserved or enriched by the interplay of its transformations laws, which never yield results external to the system nor employ elements that are external to it. In short, the notion of structure is comprised of three key ideas: the idea of wholeness, the idea of transformation, and the idea of self-regulation. (Piaget, [1968] 1973, p. 5)

As pointed out by François Dosse ([1991, 1992] 1997, vol. 1, p. 166), Lévi-Strauss borrowed the idea of a model from economics. Indeed, he referred to von Neumann and Morgenstern (1944) as a key contribution to formalization and modelling in economics and social sciences (Lévi-Strauss, [1958] 1963, pp. 297–298). During the twentieth century modelling became the dominant methodology of economics, although the term 'model' only gained currency after Jan Tinbergen introduced it in the 1930s as part of his pioneer work in applied econometrics (see Morgan, 2012). The concept of economic structure attracted overall attention in the post-war period, particularly in France. This was not directly related to classic scientific structuralism, which was seldom mentioned by French economists (see Dosse, [1991, 1992] 1997, vol. 1, chapter 20). Indeed, it was only later that François Perroux (1971) – a leading French structuralist economist who had taught Furtado during his doctorate at the Sorbonne – compared French economic structuralism with classic structuralism as codified by Piaget ([1968] 1971). Tinbergen was invited in 1952 to contribute an article about the notion of economic structure to the *Revue D'Économie Politique*, which elaborated on the relation between structures and models in economics.

Tinbergen (1952, pp. 27–30; italics in the original) distinguished between several meanings of the word 'structure' in economics. The first and most common one was the set of economic characteristics '*immediately observable*', such as numerical relations between production in different sectors or average values of some variables considered as representatives of an underlying economic trend. In another sense, the adjective 'structural' was used in order to qualify 'slow movement or development'. This was related to the distinction between structure (semi-invariant or permanent long-run characteristics) and conjuncture (short-run fluctuations) in business cycle analysis. A more important extension of the notion of structure, suggested Tinbergen, was introduced by a

'deeper analysis' that considered '*non-immediately observable*' characteristics related to the way the economic system reacts to changes. Like in Lévi-Strauss, it is this concept of structure that was associated with the notion of models.[3] In econometric terms, such characteristics were described by the 'coefficients' of the model. The general problem (whether in economics or elsewhere) was to 'determine unknown magnitudes in terms of known ones', imprecisely called 'data'.

Tinbergen used the concept of structure to express the set of 'known' constants of a certain object of economic study, which corresponds to the necessary 'minimum information' in each case. Hence, he came to '*identify the notion of structure with the minimum demanded information*' to estimate statistically the parameters of the model (ibid.). In his critical survey of the various usages of 'structure' in economics at the time, Machlup ([1958] 1963, pp. 78–79) pointed out that its only precise meaning was related to the transformation of irregular impulses into regular swings, which is accounted for by the reaction coefficients, as originally proposed by Ragnar Frisch in the 1930s and further elaborated by Tinbergen. The invariant background against which 'certain processes of change are seen on the stage provided by the analytical model is regarded as its structure' (Machlup, ibid.).

The association between structures and models was the theme of Furtado's (1970, pp. 28–33, 1975, pp. 81–86) methodological appendix. Its subtitle in the Brazilian editions is 'structures and models in economic analysis'. Although Tinbergen is not mentioned in that appendix, his influence is evident throughout. Indeed, Tinbergen's books on econometrics and economic policy are mentioned elsewhere in Furtado's *Theory of Economic Development*. Furtado (1970, p. 28, 1975, p. 81) opens the appendix by stating that the goal of economics is to 'explain certain phenomena from other known ones'. This is very close to Tinbergen's definition of the general problem quoted above. According to Furtado,

> A linear model, which is the simplest instrument of economic analysis, leads to the determination of the numerical values of a vector of variables (endogenous) from the known values of another vector of variables (exogenous). The way the second vector determines the first, that is, the set of precise relations between the variables, forms the *structural matrix* of the model. If the values of the parameters are specified, the relations between variables take on precise characteristics and define a *structure*. This way, to each model corresponds an undetermined number of structures … It is in this sense that the term 'structure' is used here. (Furtado, 1970, pp. 28–29, 1975, pp. 80–81; italics in the original; partly reproduced in Furtado, 1973a, p. 23)

The original description in the late 1950s and early 1960s of a group of Latin American economists as 'structuralists' was largely motivated by the controversy over inflation and stabilization policy in the region (Boianovsky, 2012, pp. 284–285, and references there cited). Juan Noyola and Osvaldo Sunkel, two economists associated with CEPAL, had introduced the distinction between 'basic causes' and 'propagation mechanisms' in the interpretation of the dynamics of inflation in different Latin American countries.[4] In his chapter about the 'interaction between decisions and structures', Furtado (1970, p. 34, 1975, p. 103) pointed out that his analysis of structures is essentially concerned with the 'propagation mechanisms of certain economic decisions to which some degree of autonomy is attributed'. The Frisch-Tinbergen pedigree of Furtado's notion of economic structures may be explained by the concern with economic policy that pervaded Latin American development economics in the 1950s and 1960s. The formulation and compatibility between different goals of economic policy were made possible by the use of models and 'instrumental variables', wrote Furtado (1970, pp. 198–199, 1975, pp. 268–269) in explicit

connection with Tinbergen. Each equation in the model 'contains a certain number of coefficients, which form the structural matrix of the model'. Economic models were initially designed to determine the influence of non-economic (natural, psychological, technical and institutional) parameters on the behaviour of endogenous economic variables (Furtado, ibid.). The structural matrix of the model becomes more complex to the extent that the behaviour of certain variables, hitherto regarded as parametrical, is explained by the addition of new equations, as observed by Furtado (1970, p. 29, 1975, p. 81).

It is in that context that Furtado's (1970, p. 30, 1975, p. 83) definition of 'economic structuralism' should be interpreted. Such 'school of thought, born in the first half of the 1950s among Latin American economists', had as 'its main goal to put in evidence the relevance of "non-economic parameters" in macroeconomic models'.

> Because the behaviour of economic variables depends heavily on those parameters – and their character may change quickly in periods of intense social change, or when the time frame of analysis is extended – they should be carefully studied … Because non-economic factors – the landownership system, the control of firms by foreign groups, the composition of the labour force, and so on – form the structural matrix of the economist's model, those who stressed the study of those parameters were called 'structuralists'. In a way, the work of those economists is close to those who are concerned with making economic models dynamic. In both cases, the goal is to turn *constants* into *variables*. (Furtado 1970, pp. 30–31, 1975, pp. 83–84; partly reproduced in Furtado, 1987, pp. 209–210)

'Underdeveloped structures', according to Furtado's ([1961] 1964, p. 141, 1970, p. 154) definition, are those in which full utilization of capital is not a sufficient condition for complete absorption of the working force at a level of productivity corresponding to the technology of the modern sector of the economy. The main characteristic of underdevelopment is, therefore, the 'technological heterogeneity' of the various sectors of the economy, which has its roots in economic history (see also Boianovsky, 2010). Such structural definition of underdevelopment, claimed Furtado ([1961] 1964, p. 143), was more general than the prevailing ones based on statistical indicators such as income per capita or the degree of utilization of natural resources. Indeed, as observed by Boudeville (1966, p. vii) in his foreword to the French translation of Furtado ([1961] 1966), the search for a 'structural explanation of development takes on the formal precision of a model', which he regarded as one of the main contributions of the 'Latin American economic school'.

The first Latin American structuralist introductory textbook, prepared from lecture notes by Antonio B. de Castro and Carlos Lessa delivered at CEPAL training courses in Rio and Santiago, came out around the same time as the first edition of Furtado's volume on economic development (Castro & Lessa, 1967). It has been an editorial success in the region ever since, going through several reprints in Spanish and Portuguese languages. The book's subtitle ('a structuralist approach') is explained in the methodological preface written by Aníbal Pinto, head of CEPAL's office in Rio at the time. According to Pinto (1967, p. 10), the guiding principle of the book was the concept of economic system, in the sense of a 'set of interrelated phenomena that must be appreciated in its totality if one wishes to understand any of its parts'. Such concept, Pinto pointed out, provided the starting-point of the 'structural approach' to economics, which is consistent with Lévi-Strauss's framework. Like Furtado (1970), Pinto (1967, p. 12) referred to the investigation of the 'structural factors' characteristic of Latin American and other underdeveloped economies as the defining feature of the structuralist research agenda in the region. This followed on Prebisch's original distinction between centre and periphery in the international economy. Indeed, the first structuralist models put forward by Prebisch

and Furtado in the 1950s discussed the tendency to external disequilibrium caused by structural differences between centre and periphery (Boianovsky & Solís, 2014).

Castro and Lessa (1967) was organized around intersectoral relationships represented by different versions of the Leontief input–output matrix. Pinto (1967, p. 15) called attention to the 'circulating model' of real and nominal flows presented in the book: 'There we can find an essentially structuralist vision of circulatory phenomena, which had attracted the attention of Quesnay and Marx, and have resurfaced in our time with Leontief's studies'. Economic modelling by Latin American structuralists has been based since the 1950s on matrix algebra and the definition of structural input–output coefficients (see Di Filippo, 2009, pp. 184–185).[5] Leontief's input–output model was introduced to Latin American economists in the very first volume of CEPAL's *Economic Bulletin for Latin America* (United Nations, 1956). Pedro Vuskowsky, who prepared (but did not sign) the document, observed that CEPAL's studies on planning were largely based on that model (ibid.).

Furtado (1970, pp. 22–28, 1975, pp. 97–102) discussed the input–output model in some detail, describing it as the 'simplest way' to represent the interrelations of the economic system. He became attracted in the late 1960s to simulation modelling in order to interpret the influence of the demand profile (as determined by income distribution) on the composition and growth of output, which involved the application of input–output techniques (Furtado & Maneschi, 1969; Furtado & Sousa, 1970). The topic was related to his concern with the apparent stagnation of Latin American economies in the mid 1960s. In the preface to the French edition of his book, Furtado (1970, p. 5, 1975, p. xiii) observed that hypothesis testing through the 'simulation of certain processes from models of increasing complexity' represented a significant progress in the field of development economics at the time. He did not pursue that line of research after the 1970s, but simulation modelling would become an important instrument to validate the late structuralists' program (see Gibson 2003).

From a methodological perspective, abstract economic models closely resembled Max Weber's 'ideal types'. In both cases, as pointed out by Furtado (1970, p. 29, 1975, p. 82), one deals with representations of elements of social reality, in which 'all aspects of the represented elements are precisely defined, that is, assume an exact logical meaning' (on Weber's influence on Furtado, see also Fonseca, 2009, pp. 872–874). Although Lévi-Strauss's structuralism shared with Weber the notion of abstract models as distinct from empirical/historical reality, the French anthropologist tended to avoid all resort to the consciousness of social agents and to privilege, as in linguistics, the structure's unconscious phenomena in order to capture the invariants of human spirit (Dosse, [1991, 1992] 1997, vol. 1, chapter 3). Weber's ideal types, on the other hand, were based on understanding the purpose and meaning individuals attach to their actions.

In Furtado's (1970, p. 29, 1975, p. 82) view, meaning was an important attribute of economic models. Despite their high level of abstraction, the structure of models could be only conceived in '*concrete* terms, that is, as relations between variables with a precise meaning'. Hence, the structural matrix of economic models should not be strictly understood as mathematical structures, which are 'based on *laws of composition* and may be translated by an axiomatic'.[6] For in that case the structure is independent of the meaning associated to the elements forming the whole described by it. In the economist's model, the '"substantive" meaning of the elements of the set (consumption and investment decisions etc.) is indispensable to understand the relations, that is, to define the structure'.

Furtado's reference to ideal types reflected the influence of sociologist José Medina Echavarría, an expert on Weber recruited to CEPAL by Furtado in the 1950s (see Gurrieri, 1979; Furtado, 1985, p. 116). Medina (1961) contributed an essay about the concept of

models in social sciences and their role in the theory and policy of socio-economic development. According to Medina (1961, p. 30), the origin of the use of the 'model' may be attributed to Weber's 'ideal types', defined as the 'accentuation or exaggeration of certain features of a specific real phenomenon in order to facilitate a better understanding of it' (see also Morgan, 2012, chapter 4). The ideal type is essentially a 'heuristic instrument to check whether the picture presented by reality approximates to the synthesis built up in the concept with the maximum degree of logic, or is remote from it'. Medina distinguished the Weberian original concept of models from the significance the term sometimes assumes in social sciences (borrowed from physics and mathematics) aiming at a 'formalization of isomorphic relationships'. The validity of the 'model' in its pure mathematical forms is only found where it is possible to express in one idiom exactly what was expressed in another, as in analytical geometry. However, 'such point-by-point equivalence of the elements of two distinct provinces – i.e. complete isomorphism – is unlikely to exist among different social institutions' (ibid., p. 31). Medina's remarks look like a critical reaction to Lévi-Strauss's notion of models.

Medina (ibid.) criticized as well the 'strictly inductive models', constructed on the basis of historical-statistical analysis, for their inability to exactly define the interdependence of phenomena. CEPAL economist A.B Castro (1969, pp. 14–16), who had attended Karl Popper's lectures during his graduate studies at the LSE in the early 1960s, endorsed Medina's rejection of purely inductive models. Castro argued – probably reflecting as well Friedman's (1953) influence – that the validity of economic hypotheses was based on their results (predictions), not on their empirical basis. Economic knowledge was not extracted from tables or general information and data often appended to articles and books. 'The failure of the inductive method goes back to the early history of modern science. The first great steps in modern scientific thought demanded, in many cases, the *denial* of the totality of observations so far disclosed', suggested Castro. By another route, Castro reaffirmed the concern of Latin American structuralists with the role of abstract models in scientific discourse. Furtado ([1978] 1983, p. 184) would also support Popper's falsificationism as a demarcation principle between science and non-science.

Medina (1961) did not refer to Latin American structuralism. This is not surprising, as the identity of economic structuralism in the region was still under construction at the time. He did refer to the 'group of contemporary French economists who adopt the theory of economic systems and structures' (p. 30), formed by F. Perroux, André Marchal, R. Barre and others. Medina, however, highlighted the differences between the French economic descriptive structural approach and Weberian modelling methodology advocated by him. According to Medina (ibid.), French structuralist economists had 'endeavoured to eliminate all that may be considered factitious in Weberian methodology relating to the "ideal type" by putting forward the construction of "real types"' (see also Lévy's [1960, pp. 152–153] comment that Weber's ideal types fit better neoclassical than French structuralist economics). Indeed, many French economists in the post-war period argued for a positive and concrete economics, closely linked to sociology and history, which led them to emphasize the study of structures (see Marchal, 1959). Their notion of structure relied more on empirical observable facts than on theoretical propositions. In that sense, it was closer to the methodology of historians than that of structuralist anthropologists (Dosse, [1991, 1992] 1997, p. 169; Piaget, [1968] 1973, p. 103). This applied to Perroux's (1939, vol. 1, p. 194) well-known definition of structures as those 'proportions and relationships that characterize an economic ensemble in space and time'.[7] That project came to an end in the late 1960s, when Marxism and neoclassical general equilibrium attracted the new generations of French economists (Bérand & Steiner, 2008, p. 484).

Around that time, the 'historical-structural' method made its first explicit appearance in Latin American economics and social sciences.

3. Structures and processes

A main feature of classic structuralism, as developed by Lévi-Strauss and others, was its central concern with synchronic (across a moment in time) instead of diachronic (through time) structures. The synchronic structure was interpreted as determined by current structural relations, not by a historical process. As expressed by Lane (1970, p. 17), 'structuralism is rather atemporal than strictly ahistorical'. Consequently, classic structuralism was not interested in cause and effect, but in how a structure is logically transformed into another structure (see also Keat & Urry, 1982, pp. 125–126). In his depiction of classic structuralism, Jameson (1986, p. 227) misinterpreted 'laws of transformation' as a temporal process, and inaccurately attributed to classic structuralists the view that structural analysis is 'historically contingent'. This may be true of (most) Latin American economic structuralists, but not of Lévi-Strauss and his colleagues.

Saussure ([1916] 1959) introduced in his linguistic studies the distinction between diachronic and synchronic approaches. The latter studies the underlying system of language by examining how its elements relate to each other in the present, synchronically. Diachronic linguistics traced the history and evolution of words through time. Only synchronic linguistics was able to illuminate how people used language at a given time, since its past history is irrelevant to explain actual communication between different speakers. Synchronic and diachronic linguistics, according to Saussure (p. 80), should be treated as separate sciences, associated respectively with the '*axis of simultaneities*' (relations between coexisting things, from which the intervention of time is excluded) and the '*axis of successions*' (on which only one thing can be considered at a time, but upon which are located all the things on the first axis together with their changes).

As pointed out by Piaget ([1968] 1973, p. 77), Saussure's claim about the relative independence of laws of equilibrium (statics) from laws of development (dynamics) was probably inspired by the theory of general equilibrium formulated by Léon Walras and Vilfredo Pareto around the same time (end of the nineteenth century) and in the same country (Switzerland) where Saussure lived.[8] Saussure suggested that, unlike linguistics and economics, most other sciences were unaffected by duality created by the time factor. In the 'economic sciences, in contrast with other sciences, political economy and economic history constitute two clearly separated disciplines within a single science'. By doing so, economists were 'obeying an inner necessity', even if not aware of that. A similar necessity led to the division of linguistics into two parts with different principles. 'Here as in political economy we are confronted with the notion of *value*; both sciences are concerned with *a system for equating things of different orders* … For a science concerned with values the distinction is a practical necessity and sometimes an absolute one' (Saussure [1916] 1959, pp. 79–80). Moreover, Saussure stressed that language is a social phenomenon with rules established independently of the individual who uses it, which led to removing the individual's conscious perception from linguistics studies.

Furtado (1970, p. 44, n. 1, 1975, p. 111, n. 6) quoted Saussure on synchronic and diachronic approaches, as well as on the distinction between the axes of simultaneities and successions. Economics had focused, since the end of the nineteenth century (when mathematical formalization was introduced), mostly on the construction of static models – 'hence, its notorious ahistorical character, which is a form of "structuralism"' (Furtado 1970, p. 30, 1975, p. 83).[9] Clearly, Furtado understood that (classic) structuralism is

intrinsically ahistorical. Attempts to introduce dynamics (history) into economics had been largely unsuccessful, for the introduction of a diachronic axis into a model 'may demand drastic simplifications on the synchronic axis' (ibid.).[10] As far as classic French structuralism was concerned, its general orientation, according to Furtado, was to focus on the 'axis of synchronies' in social analysis and establish 'a syntax of disparities in social organizations'.

As mentioned at the outset of this essay, Furtado (1970) claimed that Latin American economic structuralism was not 'directly related' to classic French structuralism. In principle, Latin American structuralists, by turning the structural parameters of the models into variables, were able to move closer to Saussure's diachronic axis. However, it was not clear how exactly Latin American economists could manage to accomplish that task. After all, the notion of structure was useful precisely because of the stability of its elements (institutions, natural resources, technology, patterns of behaviour): it was due to 'the stability [of those elements] that economic variables feature uniformities that may be object of analysis' (Furtado, 1970, pp. 21–22, 1975, p. 97). The matter belonged to the broad issue of the relation between abstract models and concrete historical situations, called by Furtado ([1961] 1964, p. 2) 'the fundamental double character of economic science, its character at the same time abstract and historical'. The stable relationships that form economic models are not derived directly from observation but from simplified schemes of reality. The fundamental methodological problem facing economics, as perceived by Furtado, was the clash between the possibility of generalizing and the capacity for explaining. In Furtado's ([1961] 1964, p. 76) view, when concrete problems arise, the economist tends to abandon substance and retreat into 'vague shadows'. Such deficiency can be corrected only by the economist's 'carrying his knowledge of historical realities much further'. Since the relationships presuppose some 'structural stability', structuralist economists faced a two-fold problem:

> To ascertain to what extent it is possible to generalize in regard to other structures observations in record for another structure, and to define relationships which may be deemed sufficiently general to retain the validity in the course of some structural changes. What explanatory value might have a model if it is general enough to meet those requirements? The accuracy of economic analysis consists precisely of defining the limits of such validity. (Furtado, [1961] 1964, p. 2)

Furtado's suggested research program represented an attempt to combine elements from both structural and historical analyses. History alone was not enough, as implied by Furtado's ([1961] 1964, p. viii) remark that the German historical school (and to some extent old American institutionalists) lacked a model of economic growth (see also Bresser-Pereira, 2004). Medina (1963) made a similar point in his plea for grafting a 'historical point of view' onto Weberian ideal types (Rodríguez, 2006, pp. 32–35). According to Medina (1963, p. 13), the analytical approach amounts to a cross-section at a particular moment in time. Referring implicitly to Lévi-Strauss, he argued that the

> exigencies of knowledge cannot be satisfied by a synchronous study of this kind, to borrow a term from the modern anthropologists. The historical entity of Latin America in 1961 is something more than the components of its socio-economic spectrum; what *is* can only be fully understood through what *has been*.

Whereas both Furtado's (1961, 1970) and Medina's (1961, 1963) methodological perspectives entailed a mix of abstract models and concrete historical situations, the formulation of what was for the first time called 'historical-structural' method, by Sunkel (1970) and Cardoso and Faletto (1969), presented a different view of how to account for structural transformation. The context of the new historical-structural approach was the

poor economic performance and, especially, the persistence of poverty in most Latin American economies despite the implementation of import-substituting industrialization strategy supported by CEPAL since the 1950s. This led to the formulation of 'dependency theory' as the rebellious offspring of structuralism, with focus on an integrated world-system in which centre and periphery are interconnected (see Saad-Filho, 2005). Sunkel (1970, p. 36) described how a 'self-critical position inside the structuralist school' was developed at the time at both methodological and ideological levels. 'It became clear that structuralism did not examine Latin American reality as a totality that explains itself as a product of its historical evolution'. The proposed new method should approach reality from a 'structural, historical and totalizing' point of view, based on the notions of 'process, structure and system'.[11] Sunkel (1970, p. 82) referred to Furtado's passage about the double character of economics quoted above, but the relation between theory and history was distinct.

Sunkel (1970, p. 94) started section 5 – titled 'Characteristics of the method adopted (historical-structural)' – of chapter 1 of the third part of his book by rejecting what he called the traditional methodological view in economics. According to that view as understood by him, scientific investigation proceeded in two steps: hypothesis formulation (deduction/abstract) followed by testing (induction/historical). From that perspective, the temporal succession of facts is observed in order to infer some hypotheses, without any previous assumptions about them, which he regarded a 'naïve' position. In contrast,

> What constitutes the essence of the historical-structural method is that such previous hypothesis should be totalizing. For, if history must be understood, apprehended as a process through some theory, this must capture it as a totality, in the sense that the facts that form it are explained in relation to each other in their interrelations and in their succession. (Sunkel, 1970, p. 94)

The goal of the historical-structural method, as put forward by Sunkel (1970, p. 95), was not to capture static or synchronic facts, but reality as a totalization that 'objectively reproduces itself in a permanent way'. Such approach should take into account only the 'essential' elements of totality, given the intrinsic complexity of social phenomena. It is significant that Sunkel explained his notion of totality by referring to Sartre's existentialist concept of dialectical totalization. In the immediate post-war period existentialism was the French dominant intellectual movement. Structuralism rose to prominence in the 1960s in the wake of existentialism. This focused on the construction of reality and meaning, and assumed that individuals are agents who consciously intend their actions. Structuralism, on the other hand, focused on structures of meanings as predetermined, and assumed that actions are dominated by the deeper structures of mind that lie beneath the individual's conscious behaviour. Hence, whereas Sartre emphasized historical reconstruction, Lévi-Strauss dispensed with the issue of the historical genesis of the structures (see Brown, 1979). It was only gradually that Lévi-Strauss's structuralism penetrated Latin American intellectual community, often against the background of existentialist historicism.[12]

The historical-structural method in economics and political and social sciences is usually associated with Cardoso & Faletto's 1969 influential essay, regarded as the foundational contribution to dependency theory (see e.g. Cyr & Mahoney, 2012). The method is described in section 3 – 'Structure and process: reciprocal determinations' – of the second chapter of that book, even though the term itself was not used but only the expression 'historical-structural characteristics'. The analysis of economic and social development, claimed the authors, should 'go beyond the structural approach, reinstating it in an interpretation elaborated in terms of the "historical process"' (Cardoso & Faletto, 1969, p. 18). This was not about the 'naïve' perspective of searching for the temporal

origins of each social situation in succession, but the view that 'historical becoming[13] can only be explained by categories that attribute meaning to facts and, consequently, are historically referred'. Such categories should express the distinct moments and 'structural characteristics of the historical process' (ibid.). CEPAL's 'structuralist vision' was criticized for being essentially ahistorical and uninformed of the analysis of social process, as elaborated in Cardoso (1973, p. 17) and in the new preface to the English translation of Cardoso and Faletto (1979, p. viii).

Cardoso's 1973 memorial lecture elaborated on the historical-structural method implied in the 1969 essay. The elements of the structures display certain stability and are articulated, but at the same time structures are the result of social struggles and, by that, are seen as *processes* instead of *as given*.

> Using as a point of reference the methodological trends now in fashion, the historical-structural method, although it recognizes that structures exist and that the historical process is conditioned by them, unlike structuralism, does not search for the fundamental, invariable constants which, from a logical-ontological point of view, reduce to a single conformity the apparent variations of history. (Cardoso, 1973, p. 22)

Cardoso's critical reference to 'structuralism' clearly aimed at Lévi-Strauss. Indeed, Cardoso (1977, n. 7) would explicitly dissociate the historical-structural method from what he perceived as Lévi-Strauss 'static analysis of structures'. During the eventful year of 1968 Cardoso was visiting scholar at the University of Nanterre, then dominated by two 'antipodes of structuralism': the sociologist Alain Touraine and the philosopher Henri Lefebvre (Dosse, [1991, 1992] 1997, vol. 2, chapter 10). But long before that he had already expressed a critical attitude towards classic structuralism. Cardoso's (1962) introductory chapter presented a sustained defence of dialectics, as restated by Sartre (1960), against the novelty represented by structuralism. As suggested by Cardoso (1962, p. 18), there were some apparent similarities between the dialectical and structuralist approaches, as both used the notions of system and totality. However, the distinguishing feature of Lévi-Strauss's structuralism, as seen by Cardoso, was the concept of structures as *models* expressed by abstract systems of relations. Structuralists are then 'able to foresee all the possibilities of interaction regulated by structural patterns, *independently of content and particular type* of action that unfolds in a certain group' (p. 21). Hence, the model may formally explain every observed fact expressing structural norms. However, claimed Cardoso, structuralist 'models, due to the methodological constraints of their construction, do not retain the meaningful content of social actions', in contrast with dialectics.

Cardoso's assessment of classic structuralism was part of the broad criticism that just as structural analysis discusses how human action is caused by social structures, it is necessary to investigate how structures themselves are produced by human activity. As pointed out by Keat and Urry (1982, p. 138), this required a 'dialectical emphasis in which analysis is made of how social and meaning-structures result from constitutive human activity' (see also Piaget, [1967] 1973, chapter 7). Cardoso carried his early dialectical view of social phenomena to his joint 1969 essay with Faletto. Cardoso and Faletto's (1979, pp. ix–x) described their method as a 'dialectical approach' that was both structural and historical. It aimed at studying not just the relations that sustain a given structure, but also those that oppose it and lead to its transformation: 'thus our methodology is historical-structural'.

Furtado was also attracted to existentialism and dialectics in the early 1960s, but his enthusiasm did not last long. In chapter 1 (titled 'A return to dialectics') of his 1964 book, he argued that the importance of the dialectical method for understanding historical

processes derived from the fact that history cannot be reconstructed from isolated analysis of the 'multiple facts that compose it'. However, 'through his individual *praxis* – the "original experience of dialectic", to use an expression of Sartre's[14] – man has intuitively perceived in the historical process that synthetic vision capable of giving unity to multiplicity' (Furtado, [1964] 1965, pp. 5–6). This 'totalization' of historical phenomenon was seen as a prerequisite for an analysis of the behaviour of parts. Furtado's main concern at the time was the construction of 'dynamic models' that allow for explanation of economic development through a 'totalizing' perception of interdependent historical processes in social sciences and economics. It was not enough to identify the interrelations between the elements that make up a system. Dynamics came from the introduction of some exogenous factor, that is, from 'changing one of the structural parameters', especially technology, as Furtado (1978) would elaborate later. Furtado's attraction to dialectics and the Marxian approach did not disappear, but faded away after the mid 1960s, in favour of the Weberian framework and elements of Lévi-Strauss's structuralism. In fact, by 1976 Furtado (p. 37, n. 27) would assert that Weber 'surely contributed more than anybody else to the understanding of the phenomenon of capitalism'.[15]

Dependency theory became central to Furtado's (1971, 1978, 1980) research agenda in the 1970s. His 1978 essay on culture, creativity and dependency was the high point of his intellectual effort in the field (Cunha & Britto, 2011; Rodríguez, 2006, chapter 9). Furtado ([1978] 1983, pp. 182–183) came closer to classic structuralism as he distinguished sharply between *structure* (form) and *process* (causality), the two building blocks of cognitive work. The 'principle of causality' was associated with the use of continuous analytic functions in physical scientists, inadequate to describe the discontinuities of social reality. The practice of social sciences had led them to adopt a 'structural approach' which until recently had not warranted attention from an epistemological perspective. According to Furtado, this approach produced a kind of 'structuralist empiricism', illustrated by Keynesian macroeconomics. Despite some problems, it was clear to Furtado that the advance of social sciences could only come from the 'structural approach'.

A few years later, Furtado (2000, p. 41) further elaborated the distinction between structure and process. The idea of structure was regarded as the 'starting-point for the apprehension of a whole, or totality, whose form may be described by rules that translate the relation between its parts'. Such combinatory rules are in finite number, obtained from the observation of 'elementary morphologies'. The apprehension of the whole consists in the identification of the symmetries implicit in its form. Hence, 'the structure describes this form as a coherent ensemble of stable relations between elements of the whole', as formalized by a system of equations (e.g. of the Leontief type). If such stable relations are projected in time, the notion of causality comes in, which allows for the apprehension of social reality as a process. However, combining structures and processes was anything but simple.

> By confining itself to the plane of morphological description and excluding the notion of causality, the structural approach narrows the cognitive horizon. On the other hand, the analytical approach leads to a pigeon-hole determinism and takes no account of qualitative aspects. (Furtado, [1978] 1983, p. 182)

The notion that structuralism is essentially anti-causal was an accurate interpretation of Lévi-Strauss's approach, as discussed above. The issue was relevant to the theory of development, which dealt with transformation – in the 'morphogenic sense of the adoption of forms which are not just an unfolding of pre-existent ones'. The future, therefore, cannot be derived from the information contained in the structure (2000, pp. 41–42). Furtado's

([1978] 1983, pp. 182–183) suggested solution was to reconcile structure and process by introducing the notion of *creativity*, understood as the 'human faculty to intervene in causal determinism, enriching any social process by introducing new elements'.[16] 'Structural discontinuities' are produced when the actions of several innovative acts converge. Economic development results from technical progress, seen as the ability of men to create and innovate based on what Max Weber called 'substantive' and 'formal' rationality (Furtado, 2000, preface). Furtado's concept of creativity has since become one of the philosophical underpinnings of Latin American economic structuralism (Di Filippo, 2009, pp. 182–183).

Furtado ([1978] 1983, p. 183) did not attempt to formalize those ideas, but referred to René Thom's (1971) mathematical *catastrophe theory* of natural phenomena as the most original attempt to introduce the causality principle into the structural approach. Topological methods gave intelligibility to sudden events like the emergence of the discrete in a continuous environment, without introducing an external causal theory. Catastrophe theory provided a way to designing a dynamic structuralism that could account for the emergence of structure (see Aubin, 2004). Furtado (op. cit.) believed it could provide an 'epistemological basis for structural theory'. Thom's catastrophe theory had been discussed in the context of social sciences for the first time at a seminar organized by Lévi-Strauss (1977), who was attracted to the isomorphism of natural, social and cultural structures (Dosse, [1991, 1992] 1997, vol. 2, chapter 37). More than that, catastrophe theory was broadly consistent with Lévi-Strauss's notion of history as essentially discontinuous.

As explained by Jacques Derrida ([1966] 1978, pp. 291–292) in his deconstruction of structuralism, in the work of Lévi-Strauss the respect for the internal originality of the structure 'compels a neutralization of time and history'. The appearance of a new structure always comes about by a rupture with its past and origin. Lévi-Strauss must 'always conceive of the origin of a new structure on the model of catastrophe – an overturning of nature in nature, a natural interruption of the natural sequence, a setting aside *of* nature' (ibid.). Furtado's (2000) use of the expression 'historical-structural approach' as subtitle of his book should be seen as an attempt to build a bridge between structure and process by means of the notion of discontinuity. This was largely consistent with Lévi-Strauss's structuralism and distinct from the dialectical meaning of 'historical-structural' in Sunkel (1970) and Cardoso and Faletto (1969) – which leads to the question: what is the role of history in Furtado's structuralist framework?

4. History and theory

Furtado's (1948) doctorate thesis was presented to the Sorbonne a year after Braudel's and in the same year as Lévi-Strauss's. Both Braudel's and Lévi-Strauss's Sorbonne theses, about *La Mediterranée* and *Les structures élémentaires de parenté*, respectively, came out in book form in 1949. Furtado's thesis was never published in French; a Portuguese version came out as late as 2001. Furtado's main contribution to economic history would have to wait until his 1959 volume, which, according to his recollections (Furtado, 1991, p. 159), 'completely conquered Fernand Braudel, who considered it innovative from the methodological point of view'. Braudel was familiar with Brazil and its history, having spent part of the 1930s in São Paulo as member of an important French cultural mission that also included Lévi-Strauss (Skidmore 2003). Furtado did not interact with Braudel or Lévi-Strauss on that occasion; but as an undergraduate student he would meet in the early 1940s in Rio a member of another French cultural mission, the economist Maurice Byé,

who later supervised Furtado's doctorate thesis about Brazilian colonial economy (Byé, 1966, p. 1; Furtado, 1985, p. 18).

Historical research in the post-war period was increasingly dominated by the *École des Annales*, particularly in France. As recalled by Furtado (1985, p. 167), 'without previous knowledge of the works of the *École des Annales*, I sought during that same period the merging of history with social sciences, taking the latter as starting-point, whereas the members of that school started from the first' (see also Furtado, 1987, p. 205). Furtado, however, was familiar with the contributions of Henri Pirenne (1914, 1936), who had played a key role in the launching of the *Annales* review in the late 1920s and strongly influenced Braudel's approach to history (Dosse, [1987] 1994, chapter 1). It was during his undergraduate studies in the early 1940s that Furtado (1973b, p. 33) first came across Pirenne's works on medieval history, 'who latter had a decisive influence on me. It was Pirenne's books ... which made me see the importance of economics for an understanding of history'.

Pirenne privileged 'structural' rather than 'eventful' history – in the sense of slow changes in social time as opposed to the concern with short 'political' oscillations that had dominated historians' agenda before him – and stressed the method of comparative history through long time spans and large geographical areas. Braudel's notions of 'geohistory' and *longue durée*, together with the use of time series of prices and other variables, partly reflected Pirenne's influence (Hexter, 1972; Kinser, 1981).[17] Braudel ([1958] 1982, pp. 31–32) interpreted structures as stable long-term phenomena featuring 'obstacles' (geographical, mental, biological) which constrain changes. Lévi-Strauss's challenge led Braudel to stress the temporal dimension of structures, understood as concrete visible realities instead of abstract models. As observed by Dosse ([1987] 1994, p. 94), Braudel and the *École des Annales* conceived 'historical movement as repetition; what was permanent took precedence over what changed'. Braudel's structural history was therefore based on almost immobile time. This did not imply a static past, but a balance of stable equilibrium with conjunctural (an expression Braudel borrowed from German and French economics) disequilibrium, forming continuity out of the discontinuity of historical cycles, as often illustrated by Latin American history.[18]

The notion of the persistency of institutions and ruling elites well beyond their original appearance played an important role in Furtado's framework, who acknowledged Pirenne's influence in that regard (Furtado, [1948] 2001, pp. 145–149; see also Silva, 2011 pp. 175–184 on Furtado and the historical comparative method). In the same vein, Braudel's concept of structure is implicit in Furtado's (1976, pp. 126–127) criticism of the 'a-historical vision of contemporary European structuralist thought'. Latin American social scientists did not study structures as a 'set of invariants or as a basis to establish a syntax of social reality', but as 'expression of resistance to change'. During the 1970s Furtado referred occasionally to Braudel's ([1949] 1966) notion of the 'long 16th century' (extending from the end of the fifteenth to the beginning of the seventeenth centuries), a crucial period of European economic and geographical expansion (see e.g. Furtado, [1978] 1983, chapter 2). He had examined in some detail the period of transition from European feudalism to commercial expansion (Furtado, [1961] 1964, chapter 3), with references to Pirenne. Instead of trying to trace evidence of Braudel's influence on Furtado's historical works between the 1940s and 1960s, one should point to some shared foundations – which included not just Pirenne's approach to history but also Werner Sombart's and Henri Sée's studies of capitalism – and cross-influences (Alcouffe, 2009).

In October 1985 Furtado and Braudel attended a conference in honour of the latter, held in Châteauvallon (Braudel, 1986). The conference was organized around three main themes of Braudel's research agenda: the histories of the Mediterranean, capitalism and

France. Furtado gave a talk at the session on capitalism, about socio-economic heterogeneity and industrialization in Brazil (Braudel, 1986, pp. 117–122). In the discussion that followed, Furtado referred to his interaction with Braudel during the two decades he lived in Paris, and suggested that the notion of *longue durée* may be applied to the study of 'external dependence' as the determining long-term feature of Brazilian economic history (pp. 148–149). Towards the conclusion of that session, Braudel reaffirmed his view that the word 'structure' corresponds to 'social, economic or cultural realities of long duration … a phenomenon of structure is a phenomenon that lasts, which has nothing to do with the structuralism of Lévi-Strauss or any other French sociologist or philosopher' (pp. 157–158). There are no records of Furtado's reactions to those statements by Braudel.

The methodological novelty of Furtado's 1959 *Formação*, from the point of view of the *École des Annales*, may be recognized from the prefaces to European translations of that book. Historian Ruggiero Romano, a former student of Braudel's and author of the preface to the Italian translation, added a significant subtitle to it: 'a model of economic history' (Furtado, [1959] 1970). According to Romano (1970, pp. 11–12), Furtado constructed a series of 'mechanisms' showing the constitutive elements of different 'Brazilian economies' in various historical periods and geographical spaces, which together account for the economic history of the country until modern times. The 'lesson' to be learned from Furtado's 1959 book is not the intrinsic superiority of economic history over other kinds (political, diplomatic, ideas, etc.) of history simply because the economy is the object of investigation – economic events [*événementiel* in the original, a French term often used by the *Annales* school to distinguish short from long-run] are not superior to other events. 'One goes beyond the *événementiel*, the *événementiels*, only when, as is the case with this book, it is able to display a mechanism, an engine, particular rhythms, frictions, slowness, accelerations, weaknesses, capacity to resist' (ibid., p. 13).

Furtado's 'structural approach' was based on such continuous reflux between history and economics. Romano (1970, p. 21) concluded his preface by referring to the 'exemplarity' of *Formação* as an historical reconstruction of the process of economic development of a country. 'Not that the model constructed by Celso Furtado can be *sic et simpliciter* applied to other countries: but its exemplarity remains, if not for the sheer rigour of its construction'. Frederic Mauro (1972, pp. 6–7), another prominent Braudelian scholar, implicitly referred, in the preface to the French edition, to Furtado's way of modelling economic history. Mauro was impressed by Furtado's interpretation of the succession of long economic cycles and the transitions between them throughout Brazilian history since the sixteenth century. A true economic history, argued Mauro, is in the first place an economic theory of the past: by 'describing the economic dynamics of Brazilian past, Furtado makes the economic history of Brazil' (ibid.).

Ignacy Sachs (1967), author of the preface to the Polish translation of *Formação*, called attention to the 'methodological importance' of the book. Even more than Romano and Mauro, Sachs made clear the role of models in Furtado's approach to economic history. The Brazilian economist 'takes to its logical limit the postulate of eliminating from his reflections specific historical facts, by focusing on mechanisms, that is, repeated facts'. By that, according to Sachs (1967, p. iii), Furtado obtains a 'temporal sequence of models of the working of the Brazilian economy, which in part result one from another'. Indeed, Furtado ([1959] 1963, p. v) announced in his preface that his economic history of Brazil was rather an 'analysis of economic processes than a reconstruction of historical events underlying them'. It was probably that approach, close to Braudel's own structural history, that granted him an invitation to publish his 1966 article in the *Annales*.

It was in the preface to his *Economia Brasileira* that Furtado (1954, pp. 13–14) first advanced his views of the interaction between history and economic models. Having spent years dealing with concrete data about the Brazilian economy at CEPAL, Furtado decided to get away momentarily from that 'statistical mess' and attempt a view of the economic process as a whole. In order to accomplish the task, he made a 'vertical cutting in the historical process'. Successive Brazilian economic systems were discussed using the analytical technique called 'model building' by economists. The objective was to reconstitute in abstract the 'working mechanism' of each system. Some 20 years later, in the preface to another book about the Brazilian economy, Furtado provided a summary view of the method he had been adopting since the late 1940s.

> Starting with an historical globalization, I identify the structural elements that permit, using a temporal cross-section, the 'reduction' of social reality to a system to which the instruments of economic analysis can be applied. Such temporal cross-section is necessary in order that certain elements get enough invariance to be treated as *structural*. Historical globalization, in its turn, permits to continue observing those elements as *variables*, which change meaning when one moves from a temporal cross-section to another. (Furtado, 1972, p. 3)

Furtado's (1954, 1959) contributions to economic history represented an attempt to fill what he perceived as a void in Latin American structuralism at the time. Prebisch had restricted himself to pointing out the existence of the centre–periphery structure, with no discussion of its historical formation (Furtado, 1991, p. 33). Prebisch's vision was 'essentially synchronic', geared towards a structural discontinuity that produced distinct economic dynamics in the centre and in the periphery (Furtado, 1985, p. 67). When comparing the behaviour of the system in successive periods (e.g. of British and American domination), Prebisch did not go beyond an interface of 'two synchronic cross-sections'.[19] From that perspective, one of Furtado's main concerns was to 'historicize' Latin American structuralism (see also Love, 1998). This involved the combination of a 'historical view with a synchronic cross-section employing all the tools of economic analysis' (Furtado, 1973b, p. 36). As recalled by Furtado (ibid.), that approach became clear in his mind only after grasping the concepts of structure and decisions centres.

Furtado's new methodological approach to economic history naturally attracted the attention of Latin American economists at the time. His CEPAL colleague Juan Noyola (1955, p. 193) regarded Furtado's (1954) methodology – described as a 'happy synthesis of Cartesian logic and historical consciousness' – the book's main contribution. Ferrer's (1963, p. 13) economic history of Argentina explicitly followed Furtado's method of distinguishing between different historical stages (models) with specific structures. The economic historian, claimed Ferrer, should then be able to overcome the complex of statistical data that usually overwhelm traditional economic histories, and focus instead on the behaviour of the economic system in distinct historical circumstances with help of modern economic analysis.[20]

Furtado (1973a) took part in the 1971 colloquium held in Paris about the quantitative history of Brazil, run by members of the *École des Annales* F. Mauro, Pierre Chaunu and Ernest Labrousse, one of the founders of that school. Furtado's (1973a) methodological paper, about the relation between history and economics, reproduced parts of his 1970 appendix and reaffirmed his view that history provides the questions that economists try to answer in their (macroeconomic) models. Economic structural analysis, claimed Furtado (1973a, p. 26), was an important instrument for historians, mainly because it took into account both economic and non-economic parameters. On the other hand, history should be the starting point of economic analysis, as only history permitted a 'global view'. Although Furtado acknowledged the relevance of history in the study of social processes,

his methodological perspective departed from the view of Braudel and the *Annales* that all social sciences are incorporated into history and become instrumental sciences (Dosse, [1987] 1994, chapter 3).

The issue was related to Furtado's critical respect for Saussure's distinction between synchronic and diachronic axes. Economic theory has been essentially synchronic, in the sense that projects to make it dynamic and historical have failed to turn it into a diachronic field. However, this does not imply that economists have no use for economic history in their effort to formulate new hypotheses. Economic models represent attempts to capture aspects of the social reality quantitatively expressed. It is from this 'raw-material of imprecise nature' that economists elaborate their macroeconomic models (Furtado, 1970, p. 32, 1975, pp. 84–85). Such constructions are based on a previous 'global idea of economic reality', which necessarily refers to a 'historical reality'. Macroeconomic models, as seen by Furtado (ibid.), are an effort to capture and translate into economic language 'historical processes' in which economic and non-economic factors condition one another. As put by economic historian D. McCloskey (1985, p. 64) in her defence of Saussure's linguistics as a role model for economics, 'economic history is in this view the raw material for synchronic thinking', a sort of 'tacit knowledge'. From that perspective, 'one must have a direct grasp of the subject in order to have something to be synchronic about' (ibid.).

Lévi-Strauss ([1962] 1966, chapter 7), in his criticism aimed at Sartre and dialectics, observed that the diversity of social forms established by the anthropologist presents the appearance of a discontinuous system. History 'seems to restore to us not separate states but the passage from one state to another in continuous form' (p. 256). This supposed 'totalizing continuity', however, is an illusion, argued Lévi-Strauss; as is the notion that diachrony provides a kind of intelligibility superior to that provided by synchrony, just because it adds the temporal dimension. History is discontinuous and not tied to any particular object. It consists rather entirely of its method, indispensable for classifying the elements of any structure. Therefore, it is not the case that the 'search for intelligibility comes to an end in history … Rather it is history that serves as the point of departure in any quest for intelligibility' (p. 262). This fits well with Furtado's notion of history as provider of 'raw-material' for economists.

5. Concluding remarks

It was while visiting the Mexican National Museum of Anthropology in the 1950s that Furtado realized the relevance of Lévi-Strauss's search for the 'invariants of human spirit, its general structures' (Furtado, 1985, p. 115). Despite his critical references to classic French structuralism, in his 1970 methodological appendix and elsewhere, Furtado was influenced by Lévi-Strauss's distinction between structure and process. Furtado's sense of 'historical-structural' differed from the original meaning of the concept as introduced by Sunkel (1970) and Cardoso and Faletto (1969) under the impact of existentialism and dialectics. Methodological discussions among some of the main Latin American structuralists between the 1950s and 1970s can be only understood against the background of theoretical-philosophical debates that took place at the time in social sciences outside the continent, particularly in France. However, Latin American intellectuals did not limit themselves to absorbing and reproducing those debates at a local level. There was an attempt to construct a Latin American approach to economics and social sciences, against L. Gordon's (1961) warnings quoted at the outset of this essay. Latin American economic structuralism originated in the 1950s as an effort to interpret the connections between

economic development and macroeconomic imbalances in the region, under the guise of external disequilibrium and, especially, inflation. It was only gradually that it established itself at the methodological level, particularly after Furtado moved to France and wrote his 1970 appendix on the structuralist method. And it took him a few years to articulate the links between structure (stability) and process (change), as put forward in his 1978 and 1980 books. As it often happens in economics, methodological statements come by after the theory is developed, not simultaneously.

Furtado's close association of structures with models reflected not just Lévi-Strauss's influence but also Tinbergen's and other econometricians. Indeed, it is significant that he referred to Barbut's ([1966] 1970) discussion of the semantic view of models as mathematical structures, in the sense of a group structure for which a set of axioms define the properties of this structure.[21] This is the view that influenced von Neumann and Morgenstern (1944) and, by that, Lévi-Strauss. Such concept of a model is different from Tinbergen's, which is an empiricist one (for an account of the differences between these concepts of models, see Boumans, 2004). Hence, Tinbergen's concept of structure is distinct from the mathematician's. Structure, according to Tinbergen, referred to an underlying causal structure, by which he actually meant an underlying 'mechanism'. He shared this concept of structure with R. Frisch, whose notions of 'propagation mechanisms' and 'degree of autonomy' (in the sense of underlying invariant relationships, also called 'structural equations') were mentioned and used by Furtado and other Latin American structuralists (see also Boianovsky, 2012, p. 286, n. 3). Hence, although there are some important connections with Lévi-Strauss's structuralism, Furtado's resource to the notion of 'autonomy' indicates that his concept of structure differed.[22] Latin American economists (particularly Castro & Lessa, 1967) entertained yet another interpretation of structure, as illustrated by their deployment of Leontief's input–output framework. Input–output coefficients were not the abstract relationships that could not be observed directly but only by applying statistical/econometric techniques (like the structural relations of the econometricians), but they were also not that invariant either (cf. Leontief, 1971, pp. 3–4). Those three different conceptions of structure were used by Latin American structuralists, even if they were not always fully aware of the differences.

History mattered mostly because of Latin American structuralists' concern with development. History was seen as a succession of 'models' interpretative of distinct structures. Furtado's models were often closer to Braudel's 'historical models' than to Lévi-Strauss's mathematical meaning. They were supposed to provide information about the workings of particular concrete systems in succession, again similarly to Braudel's approach. Nevertheless, Furtado's approach to economic history added new dimensions to the *Annales* school's, as indicated by reactions to his 1959 book documented above. The synchronic nature of any particular system must be understood before a historical or diachronic account is provided (see also Lane, 1970, p. 17). This is not far from Marx's approach, which broke with historicism by postulating that the study of the genesis of a structure can only come by after knowledge of the working and existence of that structure is established (see Godelier, [1966] 1970). From that perspective, structuralism is more helpful as a method to investigate historical regularities – as performed by Furtado (1954, 1959) – than as a way to understand changes from one structure to another.

The character of the parameters of the model was a key feature of Latin American structuralism. As pointed out by Marchal (1959, pp. 71–72), if economic structures are described exclusively in terms of exogenously and often non-economic given data, without any attempt to logically reproduce the invariants of the model through abstract reasoning (of the kind argued by Lévi-Strauss), their explanatory value may be seriously

reduced. Ragot (2003, p. 107) has argued, on precisely those grounds, that Latin American economic self-proclaimed structuralists do not really belong to structuralism, as they allegedly lack a self-contained model. However, the 'transformation of parameters into variables' through historical investigation, mentioned by Marchal in passing, was one of the features of Latin American structuralism, as discussed above. Indeed, North (1978, p. 693) – as part of (self) criticism of North American 'New economic history', probably written under the influence of Braudel – suggested that the purpose of economic history is to 'analyse the parameters held constant by the economist' (see also Boianovsky, 2009). This, of course, is reminiscent of Furtado's 1970 appendix. However, as Furtado (1976, pp. 13–14) observed, the transformation of parameters into variables may be a simple consequence of the increase of the information flow. That was behind what he perceived at the time as 'diminishing returns' to the Latin American structuralist (Lakatosian) research program. The alternative, as outlined by him, was to add to that research program a model of economic development based on the classical notion of the generation, accumulation and allocation of the economic surplus, together with structural discontinuities associated with technical change.

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Notes

1. Around that same period, Arndt (1985) traced the origins of Latin American structuralism to the emergence of the doctrine of market failures in England in the 1930s and 1940s, which played an important role in the unfolding of the new field of development economics after the Second World War. Arndt, however, did not dwell on the methodology of Latin American structuralists and its connection with French classic structuralism.
2. Kinser (1981, pp. 80–81) has suggested that the old and new notions of structure correspond to 'surface pattern' and 'generating law', respectively. The first sense has been used to refer to an apparent framework, often in organic contexts. The second sense has been usually found in mechanical contexts of science, particularly in association with equilibrium. Hence, Lévi-Strauss's notion of structure refers to the 'set of principles implied by the form of a thing' (Kinser, ibid.).
3. As Weintraub (1979, p. 160) would put it later, 'models are metaphors, explaining one structure in terms of another'.
4. Furtado (1965, p. 175, n. 3). Furtado (1987, p. 209, n. 7) would list his 1958 article on external disequilibrium as one of the original contributions to the 'structuralist approach', together with Noyola and Sunkel (Boianovsky & Solís, 2014, pp. 43–45).
5. The 'structural account matrix' is a related tool deployed by late structuralists such as L. Taylor (see Baghirathan, Rada & Taylor, 2004). In the 1960s Taylor was a student of Hollis Chenery, who had lectured on input–output and economic planning at CEPAL headquarters in Santiago in the 1950s. Taylor would develop strong connections with Latin American structuralists over the years.

6. By ‘laws of composition’ Furtado probably meant Lévi-Strauss’s ‘laws of transformation’. He referred to Barbut’s ([1966] 1970) analysis of mathematical structures as a syntax.
7. Perroux’s definition was quoted by Furtado (1970, p. 29, 1975, p. 82), who regarded it as close to his own meaning of structures as models. But, of course, they differ. Perroux (1971, p. 331) acknowledged that his definition was not structuralist in Lévi-Strauss’s sense, since it was primarily an instrument of observation and statistical study. Interestingly enough, Furtado (1970, 1975) did not acknowledge the existence of French economic structuralism, possibly because it had practically disappeared by the late 1960s. Pinto (1967, p. 11) noticed the popularity of the term ‘structure’ among economists at the time and referred to Marchal (1959). The input–output model played an important role in French economic structuralism as well (see e.g. Perroux, 1962).
8. The relation between Saussure’s linguistics and the Lausanne School of Economics has been further investigated by Ponzio (1977) and Molino (1984), who have largely supported Piaget’s suggestion. See also Ragot, 2003, pp. 104–106.
9. Furtado’s rendering of the mathematization of economics is not fully supported by historians of thought, who tend to associate it with modelling of economic dynamics started in the 1930s (see e.g. Boumans, 2004). Anyway, economists (and especially econometricians) attempted to make economics dynamics, not historical in Furtado’s sense.
10. For a discussion of the difficulties economists have faced to graft diachronic branches onto a synchronic foundation, see McCloskey (1985, pp. 62–64).
11. Sunkel (1970, p. 83) rejected the distinction between positive and normative economics and sustained that judgements of value should be part of theoretical reflection. In particular, the declared objective of theoretical effort was the necessity to overtake dependency conditions.
12. Mexican essayist Octavio Paz ([1967] 1970) provided the first major Latin American commentary about Lévi-Strauss. Classic structuralism was introduced in Brazil in the 1960s by anthropologist Roberto Cardoso de Oliveira, but was resisted by F.H. Cardoso in the first chapter of his 1962 doctorate thesis (Garcia, 2009).
13. This was probably inspired by the French equivalent ‘devenir historique’, which Sartre (1960) often deployed.
14. This is a reference to Sartre (1960, p. 373). Lévi-Strauss (1962, pp. 44–45) agreed with Sartre’s point. It indicated, in Lévi-Strauss’s view, the distinction between the analysis of structures – which are only revealed through observations made from the outside – and processes. These are not analytical objects, but the ‘peculiar form in which a temporality is lived by an individual’. In that sense, there is no process except for an individual committed in his historical becoming [devenir historique], which means that they are specific to each person. Consequently, claimed Lévi-Strauss, the study of structures and processes cannot be conducted together.
15. In the preface to his 1961 collection of essays, Furtado ([1961] 1964, p. vi) expressed the view that although Marxism gave rise to a necessary ‘critical attitude’ in underdeveloped countries, it ‘hampered the development of free scientific work in economics, inasmuch as its philosophical postulates, accepted as dogmas, lent a teleological character to economic analysis’. At the end of chapter 1 of Furtado ([1964] 1965, p. 12), he observed that the Marxian model ‘does not have much value as an instrument of practical orientation’ demanded by science. Furtado attempted to resist the temptation to ‘“explain” History by sliding down into forms of reductionism in which Marx and many other 19th century authors had fallen’ (1985, p. 167).
16. As observed by Furtado, Aristotle had attempted to reconcile structure and process by means of the principle of *finality*, one of the basic axioms of Aristotelian philosophy (on the relation between Furtado’s ‘creativity’ and Aristotle’s ‘finality’, see Di Filippo, 2009, pp. 182–183).
17. See also Gurevich ([1993] 2004), who explored the fact that both Pirenne’s and Braudel’s main historical works were written during war periods (First and Second World Wars, respectively).
18. Adelman (2004) refers to the affinity between Octavio Paz’s *Labyrinth of solitude* and Braudel’s notion of immobile time.
19. The view that Prebisch’s analysis was structuralist and synchronic in the sense of Lévi-Strauss and Saussure is implied in Blankenburg et al. (2008).
20. Meaning often Keynesian macroeconomics. See also Bielschowsky (1989). Pinto (1959) is another illustration of Latin American structuralist historiography. In his 1967 methodological preface, Pinto (1967) pointed out that structures are both historically and spatially specific, bringing him close to Braudel’s notion of ‘geohistory’.

21. The classic account for this view is Bourbaki (1950).
22. Haavelmo (1944, p. 28), a student of Frisch, defined autonomous relations as those relations that 'describe the functioning of some parts of the mechanism irrespective of what happens in some other parts'. This is distinct from Lévi-Strauss's definition of structure quoted at the beginning of Section 2.

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