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► **To cite this version:**

Alain Herscovici. The Historicity of Economic Sciences: The Main Epistemological Ruptures. Journal of Philosophical Economics, 2023, Volume XVII, 10.46298/jpe.12219 . hal-04189632v2

HAL Id: hal-04189632

<https://hal.science/hal-04189632v2>

Submitted on 3 Apr 2024

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**THE JOURNAL OF PHILOSOPHICAL ECONOMICS:
REFLECTIONS ON ECONOMIC AND SOCIAL ISSUES**

Volume XVII Annual issue 2024

ISSN: 1844-8208

ISSN (print): 1843-2298

Paper format: 16.5x23.5 cm

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**The historicity of economic sciences:
the main epistemological ruptures**

Alain Herscovici



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Abstract: The object of this work is threefold: it consists in (a) explaining and justifying, based on Foucault's concept of episteme, the epistemological foundations from which Classical Economics, Keynesian Economics, Neoclassical Economics and Hayekian Economics were built; (b) studying the nature of the epistemological ruptures that allow differentiating these schools; and (c) defining the degree of incommensurability of these different paradigms. In the first part, I will define the main epistemological tools that allow studying the birth and evolution of science. In the second part, I will study the nature of the epistemological ruptures that characterise these evolutions and these different schools.

Keywords: historicity, epistemological ruptures, history of economic thought, episteme.

La représentation subjective du monde social comme légitime fait partie de la vérité complète de ce monde. (Bourdieu 1984) [1]

Introduction

Any scientific research programme has implicit or explicit epistemological foundations. Denying this implies falling into the naive positivism refuted today by modern epistemology, from Popper to Lakatos and Kuhn.

The object of this paper is threefold: (a) it consists in making explicit, on the basis of the concept of episteme, as defined by Foucault, the epistemological foundations on which Classical Economics, Keynesian Economics, Hayekian Economics and Neoclassical Economics were built; (b) on the basis of this definition, it is necessary to study the nature of the epistemological ruptures that

allow these schools to be differentiated; and (c) to show to what extent it is possible or not to speak of the incommensurability of these different paradigms.

There are two theses concerning science and its evolution: the first one starts from the principle that the evolution of science is the product of an autonomous and sovereign logic: thus, scientific production is characterised by its cumulative character, and it is possible to affirm that there is progress of science.

This conception is adopted, implicitly or explicitly, by Neoclassical Economics: in such perspective, since its birth, economic science has developed, from this linear logic, the Neoclassical Scientific Research Program (SRP) representing the most pertinent form. From this conception, Neoclassical Economics, or the so-called 'mainstream', has always tried to incorporate the other currents and the other schools into its theoretical framework.

The second thesis, which I will describe as historicist, refutes this conception: science can only be studied on the basis of the criteria in force during the period in which it was conceived. The evolution of science does not follow a linear trajectory but is characterized by *discontinuities and ruptures*.

In this paper, I will use the concept of episteme, a concept elaborated by Foucault in two books: *Words and Things* (1966) and *The Archaeology of Knowledge* (1969). From such a perspective, (a) it is necessary to analyse the nature of the epistemological ruptures that run through these long-term evolutions; (b) on the other hand, this approach allows refuting the epistemological strategies of integration developed by neoclassical economists. Concerning Ricardian and Keynesian Economics, I will show how and why, this integration can only be carried out on the basis of *an epistemological emptying*, denying the specificities of the schools being integrated. Contrary to Foucault, based on the concept of episteme, the Neoclassical School will be included in our analysis.

In the first part, I will define the main epistemological tools that allow us to study the birth and evolution of science, from the different epistemological approaches. In the second part, I will highlight the hypotheses from which Classical Economics, Neoclassical Economics, Hayekian Economics and Keynesian Economics were built, and I will study the nature of the epistemological ruptures that characterise these evolutions.

The Episteme concept in Foucault's conception

Some preliminary considerations

The orthodoxy/heterodoxy dichotomy

The criterion for distinguishing between orthodoxy and heterodoxy can be the theory of value; traditionally, the labour theory of value characterises heterodoxy, while the subjective utility value theory is adopted by orthodoxy.

However, this criterion does not seem adequate to me: Schumpeter, for example, is generally considered as a heterodox economist (Vercelli 1985). He does not use any particular theory of value. Hayek, an 'ultraliberal' economist, does not use such a theory, either.

Consequently, it is necessary to define another criterion of demarcation between orthodoxy and heterodoxy: the historicity of the analysis, i.e., the historicization of the conceptual tools. The various heterodoxies incorporate historicity, in different ways, into their theoretical constructions, while the orthodoxies refute this historicity in order to discover universal scientific laws; this is the position of Popper, Hayek, and all of Neoclassical Economics. *On the basis of this criterion linked to historicity, I will define the position of Hayek and Stiglitz in relation to the orthodoxy/heterodoxy dichotomy.*

Historicity, or more precisely the historicization of analysis, was obviously not initiated by Foucault; in this respect I can cite Vico ([1725] 1993) and Marx and Engels ([1845] 1972). Nevertheless, in this article, I will deliberately limit the scope of the analysis to the study of the different schools of economics from the concept of episteme, as defined by Foucault.

Hayek and Neoclassical Economics

Hayekian Economics presents divergences, but also convergences, with respect to standard Neoclassical Economics:

i. Hayek (1945) refutes the hypothesis of substantial rationality, the maximisation of objective functions and the static character of the Walrasian general equilibrium.

ii. The convergences with Neoclassical Economics concern the primacy of the real sector, i.e., the neutrality of money and finance (Sraffa 1932, p. 43): Hayek's analysis of the business cycle is a theory of capital and cannot be qualified as monetary (Hicks 1967, p. 61). In this respect, the same criticism can be made of the theory of rational expectations: if money is neutral, it is not possible to speak in monetary analysis of the cycle. On the other hand, like Neoclassical Economics, Hayek's approach is also normative: the norm used is not that of the Walrasian Pure and Perfect Competition, but the concept defined by Hayek: 'The basis of comparison, on the grounds of which the achievement of competition ought to be judged, cannot be a situation which is different from the objective facts and which cannot be brought about by any known means. It ought to be the situation as it would exist if competition were prevented from operating' (1948, p. 100). In relation to Neoclassical Economics, the break represented by Hayek is partial, since this author shares the following elements with the neoclassical hardcore: the primacy of the real sector, i.e., the neutrality of money and finance, the normative approach, and the universality of scientific laws. If, as Arrow (1985, p. 63) states, 'The two pillars of the neoclassical doctrine are the principle of optimisation by economic agents and the coordination of their activities by the market', Hayek rejects the former but adopts the latter.

iii. Contrary to what some authors claim (Root 2018), the Hayekian approach cannot be conceived as dynamic: all the works related to the complex systems show that scientific laws do not have a universal dimension (Israël 1992; Prigogine 1996). The spontaneous order of the market replaces the fiction of the Walrasian auctioneer, without explaining how the adjustment mechanisms concretely work (Kirman 2016, p. 54).

iv. Finally, the economic and monetary policy implications of Hayek's analysis are similar to those of the rational expectations theory (Phelps 2011) or Friedman's theory ([1962] 2002).

The break represented by Hayekian economics is only incremental and not fundamental. In other words, it is partial because it shares part of the hard-core components of standard neoclassical theory (Herscovici 2023, p.155).

In short, it can be said that Hayek belongs to the 'liberal' tradition; he shares several elements of the hard-core of the neoclassical research programme and

comes to comparable conclusions regarding the self-regulating character of the market. There are also strong similarities in the economic and monetary policies advocated.

Is Stiglitz heterodox?

According to the historicist criterion, Stiglitz is heterodox for the following reasons:

i. He shows that (a) the system generates structural instability, i.e., produces endogenous fluctuations; (b) markets are not efficient in the Pareto sense. Such results become clear when he deals, for example, with financial markets (Grossman and Stiglitz 1976, 1980); (c) markets are rationed due to information asymmetries. An economist who points out the paradox of the efficient market hypothesis (ibid.) and, consequently, the need for public/institutional intervention cannot be described as orthodox (Kirman 2016, p. 62).

ii. It is also necessary to point out the following points, which should allow an epistemological rapprochement with Keynes and a deepening of the differences with Neoclassical Economics: 'The efficient markets hypothesis has been systematically criticised, and Keynes (1912) wrote a review criticising the unreasonableness of the assumptions' (idem, p. 62). (a) The Marshallian microeconomic foundations of neoclassical macroeconomics are entirely refuted: the analysis of financial markets or the labour market highlights the existence of totally atypical supply and demand functions: demand increases when prices increase (the efficiency wage theory itself), and supply decreases when prices increase (the bank credit market). Based on these functions, markets are necessarily rationed: the continuous market-clearing neoclassical hypothesis is refuted. (b) Stiglitz recognises the existence of strong uncertainty in the sense defined by Knight and Keynes: the absence of futures markets (Grossman and Stiglitz 1980, p. 125) is similar to strong uncertainty: '(...) the events which they (individuals and firms) confront often appear to be unique, and there is no way that they can form a statistical model predicting the probability distribution of outcomes' (Greenwald and Stiglitz 1987, p. 131). From this perspective, the value of capital cannot be considered constant: as the expectations of different groups

of agents change, the value of a given amount of capital necessarily changes. This clearly leads to an inherently historicist analysis. (c) Finally, Stiglitz's perspective fundamentally diverges from those of neoclassical and Hayekian liberalism. He rejects the notion of a self-regulating and highly efficient superior order, while also challenging the assumption of the neutrality of finance, that is, the primacy of the 'real' sector. As Kirman (2016, p. 63) notes, Stiglitz rejects the '(...) adherence to a sort of Invisible Hand illusion as that which has characterized the development of "real" economic theory.'

Study object and subject

The epistemological position

The oppositions between the idealist and the materialist position are directly related to the opposition between universalism and historicism, between methodological determinism and methodological indeterminism; this debate refers directly to the nature of scientific laws, and to the definition of subject and object.

Seventeenth- and eighteenth- centuries methodological determinism is found, in its most elaborate form, in the works of Kant, Leibniz, and Descartes. What is the nature of 'reality', how is it possible, in the case of science, to define the nature of the object of study and its relations with the subject who implements this study?

Kant's philosophy is characterised by the hypothesis according to which the world exists outside of us: reality exists as a 'real' and immutable fact (Fournié and Rigal 2007, p.3), and science is able to objectively analyse this reality and to reveal its mechanisms; the ultimate aim of science is to discover the 'truth'. The epistemological project of this deterministic view is to produce *universal knowledge* (Ong-Van-Cung 2018, pp. 7 and 11), that is, knowledge that is totally independent of different historical contingencies. Leibniz elaborates the *mathesis universalis*, which makes it possible to conceive of it as a '(...) formal science of order and measure (...) (idem, p. 9).

This objective and positivist conception of science presupposes the neutrality of the subject. If, on the one hand, the object of science is to discover natural and

universal laws, the subject must be 'neutral'. The Cartesian cogito states that '*I think, therefore I am*'; it is necessarily true every time *I* utter this statement or conceive of it (Descartes 1647). *I* is a transcendental subject insofar as it is 'neutral,' devoid of any historical dimension; *I* is a universal subject.

Finally, this type of deterministic approach presupposes that the systems are (a) stable systems: the trajectory of the system does not depend on some specific initial conditions. (Vercelli 1991); (b) universal, by nature and (c) that the laws of nature are analysed from a mathematical determinism (Dahan 1992).

Object and subject of science

Hayek (1952) states in several works that aggregate analytical categories are not facts but intellectual constructions: the object cannot be studied independently from the subject's 'Habitus'. Aggregate mechanisms do not constitute objective facts and cannot constitute the object of the study of economics. Thus, Hayek rejects this approach, choosing as the concrete object of study the objective facts that, according to him, are limited to the individual behaviours of economic agents.

Popper comes to a similar conclusion: he states that, according to historicist theses, '([...] most objects [...] are theoretical constructions' ([1976] 1988, p. 170), and deduces that such analysis confuses '[...] theoretical models and concrete things' (ibidem).

An epistemological rupture appears from the moment that certain philosophers refute this conception of reality. Regarding Feuerbach's conception, Marx and Engels ([1845] 1976, p. 24) state that this author '(...) does not see that the sensible world around him is not a given object determined for all eternity and always the same (...), but it is a historical product (...)'. Heidegger also claims the historicity of the world: 'But even what is real is discoverable only on the basis of a world already disclosed' (Heidegger [1927] 1985, § 43, pp. 202- 3).

These approaches make it possible to refute the hypothesis of an immutable and ahistorical reality, of an external reality that can be known objectively, regardless of the sensitive world proper to the subject who carries out the observation.

The observation thus carried out is implemented from a particular language, from a particular *point de vue* (Bourdieu 1984, p. 16); it is not possible to dissociate observation and reality. Sensible objects are not dissociated from the objects of thought (Marx, Engels [1845] 1976, p. 1), which implies that reality cannot be conceived independently from these sensible objects. This suggests redefining the goal to be achieved by science and the very concept of progress in science. The subject is a historical subject: he is not transcendent, but, on the contrary, *he speaks from a certain place, a place determined from its historical, sociological, and temporal dimension.*

As far as economics is concerned, it is not possible to elaborate a system on the basis of the hypothesis of substantive rationality exercised by a generic and abstract man, the *homo economicus*, or to attribute to human beings a natural propensity to exchange (Smith [1776] 1980, p. 25): ‘Every man thus lives by exchanging, or becomes, in some measure, a merchant, and the society itself grows to be what is properly a commercial society.’ The same kind of remarks can be made about the concept of labour used by classical economists: Marx’s critique is based on the fact that economics does not deal with labour *en général*, but with the specific form taken by labour in the capitalist mode of production (Marx [1859] 1972, p. 169): abstract labour.

On the other hand, the ‘world’ is not an object that has its own characteristics, but a pure mental and intellectual construction mediated by concepts, from a certain language (Sobel 2017, p. 7). The ‘I think, therefore I am’ has to be replaced by ‘I speak, therefore I am’; the subject is intrinsically historical and uses the mediation of language in his perception of the world.

Some examples in economic science

The epistemological rupture that prevails in economic sciences is defined in terms of Kant’s conception and Heidegger’s conception, with regard to the nature of reality. The Neoclassical analysis is directly linked to this first conception; I will illustrate this from the capital controversy and the implicit assumptions that underpin the entire theoretical framework of the theory of rational expectations.

The Cambridge controversy

In the famous capital controversy between the two Cambridges, the neoclassical position asserts that it is possible to conceive and measure a certain amount of heterogeneous capital independently from the value of distributive variables and that consequently the aggregate capital is represented by physical quantities. This hypothesis allows formulating the following conclusions: (a) the 'value' of an aggregate amount of heterogeneous capital is constant, that is, it does not vary over time; (b) capital is a component that can be found in any type of society and at any time (Piketty 2013, pp. 562, 565-6), capital is universal; and (c) finally, the distribution of income, that is, the relative share of wages and profits in the national product is determined from the quantities of factors of production and their scarcity. This implies the universalisation of social and economic mechanisms inherent to a historically determined system, the capitalist system.

In this regard, it is possible to speak of *capital-centrism*: all societies and all economic structures are analysed using the same conceptual tools. On the other hand, the capitalist system represents the most elaborate form of society, a form toward which any type of society will 'naturally' arrive.

The rational expectations theory

The implicit hypotheses from which the Theory of Rational Expectations (TRE) was elaborated (Lucas 1975; Sargent and Wallace 1975) are the pure product linked to the exacerbation of this approach: all agents elaborate their expectations integrating the available information into the relevant theoretical model, that is, into the neoclassical General Equilibrium (GE) model. Such an assumption is obviously incompatible with the epistemological pluralism necessary to any scientific debate.

- i. This implies that the only theoretical model that allows an observation of reality to be carried out is the neoclassical one. From an epistemological point of view, it is possible to state that the TRE uses the hypotheses of Descartes, Leibniz and Kant, hypotheses linked to Classical Mechanics: the subject is transcendent, the definition of the object is objectively carried out and the ultimate objective of science is to reveal the intrinsic truth embedded in reality.

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- ii. This thesis is hardly sustainable: as shown by several economists (Keynes [1936] 2009, Arrow 1974, Grossman and Stiglitz 1976), the concrete reality of the market, that is, the simultaneous existence of supply and demand at a given moment, can only be justified by the heterogeneous expectations. Such heterogeneity can only be explained from the moment that expectations are elaborated on different theoretical models. On the other hand, rational expectations elaborated on the basis of the Keynesian model will produce Keynesian results (Neary and Stiglitz 1983) and not neoclassical ones.
- iii. Finally, the sociology of knowledge allows understanding why the Neoclassical School, founded on subjective hypotheses, like any other school, is able to appear as objective. The orthodox school (the mainstream) that dominates the social field, in this case the academic field, manages to '(...) impose its subjective representation (...) as an objective representation' (Bourdieu 1984, p. 93); the different heterodoxies, due to the fact that they are dominated, cannot acquire the legitimacy that would look objective in the eyes of actors operating in the field.

More generally, Neoclassical Economics, based on a tradition inherited from the Physiocrats (Herscovici 2023, p.71), conceives economic mechanisms as natural and ahistorical: (a) natural mechanisms because they do not depend on the will of individuals (Tsoulfidis 2017, p. 4) (b) ahistorical mechanisms due to the fact that they do not include institutional changes in market analyses (idem, p. 17).

Classical and Keynesian economics

In contrast, *institutional elements are present in Classical and Keynesian economics.*

- i. As stated by Ricardo ([1821] 2001), the wages that correspond to the reproduction of the labour force are determined as a function of social and historical variables that vary depending on the periods studied. On the other hand, in the Sraffian scheme, distributive variables are determined exogenously: these wage-setting mechanisms can be assimilated to institutional mechanisms (Boyer 1987, pp. 49-50; Hodgson 1988, p. 169).

- ii. In Marx's economics, the very concepts of capital and commodity, and the system of property rights that characterise them, are 'institutional' mechanisms that are directly related to a historically determined system, the capitalist system (Herscovici 2019, p. 14).
- iii. In Keynesian economics, the concept of convention plays an important role in determining economic dynamics; it serves as a basis for agents to elaborate their expectations, to strengthen the state of confidence of entrepreneurs, and thus to contain the destabilising effects produced by uncertainty (Keynes [1936], 2009, pp. 124 and 126).

It is interesting to note in this regard that, in several economic articles, economists invoke 'empirical evidence' to validate their analyses. Even if the formula may seem elegant, within the scope of a historicist perspective linked to the dissociation between the subject and the object, this formula is nothing more than an *epistemological incongruity: the concrete level* (Marx [1859] 1972, pp. 165 and 166) *represents the more complex analytical level. It has to be conceived as the result of scientific knowledge, and not as its starting point: it is necessary* '(...) to rise from the abstract towards the concrete (...)' (idem, p. 165).

Episteme: a definition

Episteme and historicity

We cannot ignore the parallel between Foucault (1966, 1969)'s and Kuhn ([1962]1991)'s approaches: within each episteme, or each paradigm, there is a certain consensus about the problems to be considered and the methods used to 'solve' these problems. This corresponds to solving problems using tools provided by normal science. Beyond the oppositions that manifest themselves within the field of scientific production, there is tacit agreement on certain 'rules of the game'. In Lakatos terminology, it is possible to state that controversies are related to auxiliary hypotheses, but they do not represent a threat in relation to the hard core, which allows avoiding the *modus tollens*.

The periodisation proposed by Foucault distinguishes three different epistemes (Foucault 1966):

- i. The *preclassic episteme* (until the end of the sixteenth century) presents the following characteristics: the world is characterised by signs deposited by God: the interpretation of these signs is carried out from the principle of similarity. The analogy is widely used (Foucault 1966, pp. 36 and 47), as highlighted by the category of the microcosm (idem, p. 46); the observations carried out at the micro level will be extended to the macroscopic level (and vice versa), on the basis of equivalences, analogies, and similarities: analogies that allow comparing the functioning of the human body and the astrological mechanisms, for example.
- ii. The *classical episteme* (seventeenth and eighteenth centuries) [2] intends to reveal the Order of the world (idem, pp. 73, 86) based on the interpretation of signs.

These signs are deciphered, organized, and classified according to scientific knowledge. They can only be revealed and acquire a precise and univocal meaning from their representation carried out from a *mathesis* and/or a *taxonomy* (idem, p. 88). The order of the world is represented by the Cartesian interpretation. Regarding economics, Quesnay's general framework is representative of this type of *démarche*. The object of knowledge is the order that prevails in Nature, and the scientific representations constructed to explain nature use a logical time, which is by nature reversible (Israël 1992; Herscovici 2019). To this episteme corresponds a *deterministic* conception of science, represented by Classical Mechanics; Descartes, Laplace and Leibniz are part of this global logic. Scientific laws are of the same nature as natural laws and, consequently, they are *universal*. This episteme represents the first step towards the emancipation and autonomy of the scientific field: the internal logic substitutes progressively and partially the religious power. The natural order will be analysed from the stable equilibria that science allows discovering.

Voltaire, one of the most brilliant authors of the Enlightenment, ironically highlights the limits of these two epistemes, the preclassical and the

classical ones: regarding the first one, Zadig makes the following statement: 'Who is happier, said he, than the Philosopher, who peruses with Understanding that spacious Book, which the supreme Being has laid open before his Eyes? The Truths he discovers there, are of infinite Service to him. He thereby cultivates and improves his Mind.' (Voltaire 1747) With regard to the classical episteme, when Candide asks Pangloss if, after all the misfortunes he has suffered, he always believes that everything is better in the best of all worlds, the latter responds as follows: 'Well, my dearest Pangloss,' said Candide to him, 'while you were being hanged, dissected, lashed, and were rowing in the galleys, did you continue to think that all went as well as could be?' 'I still think as I always did,' said Pangloss, 'for, after all, I'm a philosopher, and it would be inappropriate for me to change my mind. Leibniz cannot have been wrong, and moreover, the preestablished harmony is the most beautiful thing in the world, along with the plenum and subtle matter.' (Voltaire 1759)

- iii. According to Foucault, historicity appears in the episteme linked to *modernity* from the end of the eighteenth century onwards. The object of study is Man, the human being defined in his finiteness and in his productive activities. In Classical Economics, this is reflected in the primacy of production over circulation (Foucault 1966, p. 271); production is conceived as the human activity that allows the scarcity to be temporarily removed.

Human activities occupy a central role in economics; they make it possible to dominate Nature, and thus compensate for the limitations Nature imposes on humanity. The production relations are no longer conceived as the use of the wealth provided by Nature but, on the contrary, by the control that Man exercises over Nature and by the social relations that allow the implementation of these production activities (Ricardo [1821] 2001, Marx [1859] 1972).

Contrary to what the physiocrats claimed, Nature no longer lavishes its riches; in contrast, as emphasized in Ricardian theory of differential rent, it is 'greedy'. Scarcity appears, and the function of labour is to reduce this scarcity: labour becomes a central element in economic analysis.

The (relative) emancipation of Economics as a science appears in the classical episteme and is developed in the episteme linked to modernity. In the classical episteme, the divine Order is substituted by the order of nature; in modernity, this natural order is replaced by the appearance of Man and his productive activities (Foucault 1966, p. 16). *Modernity is characterised by the existence of a 'purely' economic order.*

This economic order is characterised by *the active role of Man, as an economic subject by definition*: his action determines this order. On the contrary, preclassical, and classical epistemes were linked to a holistic conception of society and human activities (Dumont 1985) because the individual has no active role in determining this order, because the individual is a 'passive' subject. In classical economics, this action is manifested mainly through the mediation of labour and institutions; in neoclassical economics, by the subjective and exogenous preferences of economic agents, in the absence of institutions.

Foucault emphasizes a *Fundamental Historicity*: The different types of scientific discourses are possible, legible, and legitimate, depending on the episteme within which they were produced (Foucault 1969; Deleuze 1986, p. 56). This Fundamental Historicity corresponds to an absolute relativism: the coherence of any discourse, notably the scientific discourse on economics, can only be judged on the basis of the criteria specific to a given episteme.

In the same way that in the classical episteme, knowledge is embodied in nature and is universal, in modernity, time is the manifestation of human scarcity and finitude. In Ricardo's and Marx's work, time is present: labour time determines the value of commodities, the rotations of capital determine the rate of profit.

The nature of ruptures

Within the same paradigm or episteme, it is possible to have oppositions (the points of heresy mentioned by Balibar 2020). However, none of these oppositions questions the foundations of the paradigm or episteme. These are *incremental ruptures*, in the sense that they act on the surface and do not threaten the perennity of the paradigm. *Fundamental ruptures*, on the other hand, translate into a paradigm change or episteme [3]. *Can the main controversies present*

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today in economic theory be interpreted as opposition between different epistemes, or as simple oppositions within the same episteme?

The commensurability of paradigms implies the existence of scientific progress and the cumulative character of the production of science; incommensurability limits the possible comparison between the different schools within the same episteme, and it is incompatible with the thesis of long-term scientific progress: *commensurability is a short-term intra-paradigmatic mechanism*, incommensurability a long-term inter-paradigmatic mechanism. Obviously, neoclassical integration attempts were implemented on the basis of commensurability of the different paradigms and/or epistemes.

Episteme and economics

Classical Economics was born with the Physiocratic school; it continued with Adam Smith and became autonomous with Ricardo and Marx; Sraffa and the Neo-Ricardian school recovered and rehabilitated the classical school and developed a radical critique of the neoclassical construction in regard to its micro- and macroeconomic foundations.

This relative autonomy corresponds to the definition of its own criteria linked to the field of economics, the definition of the object of study, and the (relative) distancing from political and religious powers. An economic order gradually and partially replaces the divine and natural orders.

Foucault states that ‘in a given culture and at a given moment, there can only be one episteme, which defines the conditions of possibility of any knowledge’ (1966, p. 17). Nevertheless, unlike other sciences, economics is characterised by the coexistence of several paradigms or epistemes. This epistemological heterogeneity of economic science can be explained by the following elements:

i. *The different schools of thought considered drawing on elements belonging to different epistemes*: the classical school is assimilated, according to Foucault, to modernity. Nevertheless, it also has characteristics that are typical of the classical era: implicit references to a natural order, a transcendent and

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ahistorical subject, which prefigures the *homo economicus*. The same observations can be made about Neoclassical Economics.

ii. The Marxian, Neo-Ricardian and Post-Keynesian schools are different: (a) The critique of Political Economy elaborated by Marx is based on a historicization of the analytical categories (Herscovici 2002); (b) Starting from the elements present in the works of Smith, Ricardo and Marx, the neo-Ricardian school highlights the logical inconsistencies of the neoclassical construction (Kanalü 2015) and affirms the intrinsic historicity of economic mechanisms (Herscovici 2019); (c) Finally, Keynesian theory emphasises the use of irreversible time (Davidson 1996) and, consequently, historical time.

Classical economics, neoclassical, Hayekian, and post-Keynesian economics: heresies or bifurcations?

The production/realisation dichotomy: classical economics

Despite the ambiguities present in Smith's work (Herscovici 2020b), based on the paradox of the water and the diamond, this author refutes utility as the source of value, in the name of objective utility: water and diamonds have an intrinsic utility, the same for all individuals. In the same way, Marx and Ricardo dismiss the role of use value in the formation of prices and in the modalities of value determination. Marx recognizes that use value is 'natural': utility is determined '[...] by the bodily properties of commodities [...]' ([1867] 1976, Book I, p. 44) and '[...] does not express a social relation of production' (1859, p.8), which may seem paradoxical coming from Marx (Herscovici 1994, Orléan 2011).

Within such a perspective, the use value constitutes only a necessary condition for the realisation of exchange value. The use value exists as an objective fact (Kanalü 2015, p. 8); in this sense, it is intrinsically different from the utility value theory used by Neoclassical Economics.

Classical economics attaches little importance to supply and demand: excess of demand or supply determines only the temporary deviation between the market price and the natural price (or price of production).

As the situation becomes competitive, the deviations between market prices and natural prices will systematically disappear: if, for example, the market price is higher than the natural price, one of the components of natural prices will be remunerated at a rate higher than its natural rate. There will be a transfer of capital, or labour, towards this sector (Smith [1776] 1980, p. 165), until these rates equalise with the value that corresponds to the natural rates.

Ricardo ([1821] 2001, p. 79) adopts the same position: referring directly to Chapter VII of the *Wealth of Nations*, he qualifies the deviations between market prices and natural prices as temporary and accidental (Idem). In this respect, Marx states that due to a double determination, demand and supply do not explain prices: 'If the market price is determined by supply and demand, supply and demand are determined by the market price [...]' ([1876] 1976, Book III, p. 205).

The natural price, defined in the sphere of production, constitutes the *regulating element*. Market prices fluctuate from the value of these natural prices: 'The natural price is therefore, so to speak, the central price, towards which the prices of all goods continually tend' (Smith [1776] 1980, p. 163). Consequently, the object of the labour theory of value is to make explicit the ways in which this natural price, or the price of production, is determined.

The primacy of the sphere of production is interpreted as the primacy of the 'real' sphere in relation to the sphere of circulation. However, the primacy of the sphere of production can also mean the neutrality of money and finance, that is, ultimately, the fact of adopting Say's law. If this hypothesis was adopted by Smith and Ricardo, it was refuted by Marx and, obviously, by post-Keynesian authors; these, on the contrary, speak of a monetary economy of production, which is characterised by the existence of strong uncertainty, and by the non-neutrality of money and finance.

This primacy of production is interpreted differently by Neoclassical Economics: on the one hand, based on the theory of subjective value, along the lines of the works linked to Physiocracy (Foucault 1966, Herscovici 2020b), Neoclassical Economics focuses its study on the sphere of circulation (and not production), i.e., on the supply and demand game. On the other hand, the neutrality of money corresponds to the primacy of the real sector. Finally, saving is interpreted as a real mechanism (the intertemporal choice of consumption), which implies the

neutrality of money and finance (Herscovici 2020a); this conception is based on Smith's thesis regarding the role played by 'parsimony' (Smith 1776, p. 592).

This incommensurability of the paradigms proper to these two scientific research programs (SRP) comes from their adopting different theories of value: 'The labor and utility theories of value seek to explain the prices of goods in terms of what takes place respectively in the sphere of production and in the market' (Lucarelli, Lunghini 2012, p. 7). These theories of value constitute the irrefutable premises that characterize any SRP, i.e., '[...] an accepted 'basic value' judgment' of the scientific elite' (Lakatos 1970, p. 110). The choice of a particular theory of value represents what Wittgenstein (1912, apud. Lucarelli and Lunghini, op. cit.) qualifies as '[...] all the primitive propositions that are assumed as true without proof by the various sciences'.

Despite this incommensurability of paradigms, neoclassical authors, from Marshall to Friedman, Blaug, and Mankiw, have always tried to integrate these schools into the neoclassical framework. This strategy, in the epistemological sense of the word, starts from the principle according to which the neoclassical paradigm represents the most complete form that results from these long-term evolutions. I will show later that the same strategy was adopted by neoclassical authors to integrate Keynes' General Theory model.

Definition of the object of study

Scarcity

The Ricardian theory of value excludes from its field of investigation goods that are not reproducible from an industrial process, and whose value is only determined by their intrinsic scarcity: 'Some goods have their value determined only by their scarcity. No labor can increase the quantity of such goods (...). Their value is totally independent of the amount of labour originally required to produce them, and fluctuates with changing wealth and preferences of those who wish to own them.' (Ricardo [1821] 2001, pp. 43 and 44)

Thus, the Ricardian theory of value excludes from its field of investigation the goods whose value can only be explained from the subjective theory of value: Ricardo cites the example of statues, paintings, rare books, and wines of specific quality, and observes that the value of these goods fluctuates with the modification of tastes and preferences (ibidem). As these preferences change over time, the value of these goods changes accordingly.

For Neoclassical Economics, on the contrary, scarcity defines such an object: Robbins (1932, p. 83) defines the object of economic science as the efficient allocation of scarce resources which have alternative uses: 'Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.' This object is constituted by scarce means that must be rationally allocated, that is, from the maximisation of some objective functions.

I will focus my analysis on the nature of the scarcity invoked here: for Neoclassical Economics, this scarcity is natural, that is, devoid of any historical component. In the construction of aggregate production functions of the Cobb-Douglas type, the scarcity of factors of production is evaluated based on the ratios between the quantity of capital and the quantity of labour: this evaluation in terms of quantity is the most obvious expression of the universalisation of the analysis and its pseudo-objectivity.

The law of diminishing marginal productivity is stated from the relative quantities of the factors of production: when one factor is abundant, in relation to the other factor, its marginal productivity is diminishing. Solow's (1956) growth model and the steady-state trend depend on the law of diminishing marginal productivity of capital (Harris 1978).

In Ricardo's differential rent analysis, in contrast, the scarcity of the best quality land causes the relative share of land rent in output to rise and the relative share of profit to fall. The cause of this mechanism lies in the 'Development of society and wealth' (Ricardo [1821] 2001, p. 97), a development that is directly translated into an increase in wheat demand. As Sraffa (1925, p. 301) wrote: 'The characterization of the Ricardian theory, acknowledged by us as fundamental, i.e. assigns an economic cause rather than a physical cause to the diminishing productivity [...]'. Ricardo's analysis incorporates this historical dimension:

scarcity is by nature social and historical, whereas it is conceived as a natural fact in the neoclassical analysis.

The two antagonistic conceptions are matched by equally antagonistic theories of distribution: in the Ricardian analysis, the divergence of interests between landowners and workers, on the one hand, and capitalists, on the other, is fully explicit. In the neoclassical aggregate model, distribution is explained on the basis of the Walrasian concept of *service producteur* or the contribution of factors of production to output (Clark 1891): these analyses emphasise convergence of interest and deny, by definition, any distributive conflict.

Ricardo introduces a definitive rupture with physiocracy and utilitarianism: in his analysis, contrary to Physiocracy, nature ceases to be the source of wealth and becomes 'avaricious' (Foucault 1966, p. 268). On the other hand, this analysis is centred on production and no longer on the satisfaction of human needs.

While Ricardo justifies the tendency for the rate of profit to fall based on an extensive margin (Kanalau 2015) (which comes from incorporating land of inferior quality into the productive structure), Marshall, in order to justify the law of diminishing marginal productivity, considers only intensive margin (which comes from applying an increasing amount of labour to land of the same quality). In order to maintain the equivalence between value and price (Herscovici 2019, p. 107), Marshall has to ignore Ricardo's fundamental hypothesis: the heterogeneity of land and, by extension, of capital. According to Schumpeter, Marshall '(...) does not generalize Ricardo's scheme but instead destroys it' (Schumpeter 1954, p. 739).

All the economic theories considered here recognise that profit is explained by the scarcity of capital; Smith states that an increase in productive capital implies an increase in the demand for labour, an increase in wages, and consequently a decrease in profits ([1776] 1980, Book I, p. 215). In Ricardo's differential rent theory, an increase in the demand for wheat translates into an increase in the value of wheat, an increase in the relative share of wages and rent in the product, and consequently a decrease in the relative share of profit, from the scarcity of the best quality land. Marx considers that technical progress causes the organic composition of capital to increase more than the rate of surplus value. Similarly,

in *The General Theory (GT)* ([1936] 2009), Keynes links a high rate of profit to the scarcity of capital:

- i. He shows why, in both the short and the long run, the marginal efficiency of capital decreases when investment increases (idem, pp. 115 and 116).
- ii. With the paradox of abundance, he highlights the fact that the richer the collectivity, the smaller the multiplier (idem, p. 103).
- iii. Finally, he states that the abundance of capital means that '[...] there is no new investment apparently capable of [...] yielding in the course of its life more than its replacement cost.' (idem, p. 248).

All these schools, for different reasons, associate profit with the scarcity of capital. However, the nature of scarcity is radically different, which goes back to the famous Cambridge controversy. In Ricardian, Marxian, and Keynesian matrices, scarcity is, by nature, social and historical. In his differential rent theory, Ricardo demonstrates that the value of a quantity of wheat obtained from heterogeneous capital changes over time (Schefold 2017, Herscovici 2019). Finally, the neo-Ricardian school shows that the value of a quantity of heterogeneous capital changes when distributional variables change (Schefold 2017).

In these different approaches, with regard to a quantity of heterogeneous capitals, there is no equivalence between physical quantities and economic values (Herscovici 2019, p. 106). From this characteristic, the analysis acquires an intrinsically historical dimension: scarcity, necessarily measured in economic value, and not in quantity, is determined by social and historical conditions: the level of development for Ricardo, the distributive variables, with regard to the neo-Ricardian school, and the state of long-term expectations for Keynes.

The response provided by neoclassical economists to this criticism was more than partial and incomplete: starting from the construction of a pseudo-production function (Samuelson 1962), Neoclassical Economics continues to evaluate an aggregate quantity of capital in physical units. This quantity is totally devoid of any historical dimension. It is thus possible to assimilate any tool necessary for material production to a capital; this makes it possible to universalise the analytical categories and to consider that scarcity, i.e., the object of the analysis, is an intrinsic characteristic of the goods exchanged.

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The incommensurability of paradigms is explained by the incorporation or refutation of the historicity thus defined; and this historicity, or its absence, necessarily translates into different conceptions regarding the nature of capital (Scheffold 2017, p. 16). Finally, each of these conceptions leads to the formulation of different theories of income distribution and economic growth.

The concept of order

As seen above, Foucault distinguishes three epistemes, each one characterised by an order: the divine order, the natural order, and the economic order. With regard to the first two orders, man, as an individual being, does not take any active role: the order exists regardless of the individual and he cannot modify it. These orders transcend individual wills: for example, with regard to the classical order, 'The term 'natural' signifies the fact that economic phenomena have their own internal dynamics, just like natural phenomena, and operate, as Francois Quesnay observed, in a way that is 'independent of men's will'. (Tsoulfidis 2017, p.104).

In the order linked to modernity, and more specifically to Economics, man, as an active subject, is being introduced into the centre of analysis (a) in his productive activities, in his capacities to control nature, in Classical Economics; (b) as a fundamental unit, from the individualism proper to marginalist theory and the theory of subjective utility value.

This change in perspective corresponds to the shift from holistic to individualistic societies. Such a change only became possible when economics became autonomous as a discipline and, at least partially, detached itself from religion and politics.

There is a tradition in economics that, from Quesnay to Mandeville, Smith, Pareto, and Hayek, denies the central role of the individual and the exercise of a substantive rationality: Mandeville's *Fable of the Bees* ([1732] 1988), Adam Smith's parable of the baker, or Hayek's spontaneous order of the market highlight the existence of an order that surpasses individual rationalities and manages to make individual wills and social welfare compatible: the myth of the 'invisible hand'. [4]

Nevertheless, this order is incompatible with the exercise of substantive rationality in the way it was conceived by Neoclassical Economics. Neoclassical economics, in its micro and macroeconomic foundations, rests on the figure of a *homo economicus*: he maximises his utility from a substantive rationality. At the macroeconomic level, the first welfare theorem shows that, in a state of pure and perfect competition, the General Equilibrium necessarily corresponds to a Pareto optimum.

In addition to the criticisms that can be levelled at this optimum (Sen 1982), the following contradiction arises: on the one hand, rational calculation is the result ‘(...) of a rigorous assessment of prospective costs and benefits (...)’ (Hirschman 1986, p.8): the rational individual is able to assess, *ex-ante*, all the effects linked to his choice. Specifically, this individual can only assess individual costs: he does not know the social cost. Consequently, their rationality is intrinsically limited. Public economics, starting with the pioneering works of Pigou, Musgrave, and Samuelson, studies this type of situation.

Thus, although rationality is bounded, the neoclassical conception of saving, for example, presupposes substantive rationality: (a) as a function of preference for the present, the rational individual compares utility levels at different time horizons, based on the update made to the interest rate base; (b) in growth models, saving is an intertemporal consumption choice.

Keynes's refutation of neoclassical theory in the General Theory is built mainly on the refutation of this conception of the interest rate (GT, chapters XII, XIII and XIV): investment cannot depend on prior saving because the income from which the saving comes does not exist in the period in which the investment is being made (Chick 1991). The other schools of thought do not make use of substantive rationality.

- In classical economics, the pursuit of individual interest is not linked to the exercise of substantive rationality: for example, the natural rate of profit, which constitutes one of the components of the natural price, is defined by the ‘[...] profit which [the capitalist] can reasonably expect to obtain from the sale of his product.’ (Smith [1776] 1980, vol. I, p. 160). Here, profit is not the product of maximization of an objective function, but simply corresponds to a

‘satisfactory’ level. In Marx, within the same sector, there can be differentiation of individual profit rates (Herscovici 2002, p.179).

In Keynesian Economics, due to the strong uncertainty that characterises the economic universe, and the refutation of the ergodic hypothesis (Davidson 1996), it is not possible to match the marginal cost of capital with its marginal productivity; consequently, it is not maximisation. As Keynes states, entrepreneurs' expectations will fail (GT).

For entirely different reasons, Hayek (1958) refutes the concrete possibility of maximising individual objective functions.

The generic concept of the invisible hand is explained by the presence of externalities, which are beyond the reach of *homo economicus*. What is the nature of these externalities and what is the nature of the coordination implemented by the market?

- i. For schools linked to ‘liberal’ thinking, the market produces positive externalities that make it possible to reconcile individual interests and collective welfare: with regard to the invisible hand, these positive externalities are manifested by the fact that private interests implement social welfare; for Hayek, ‘[...] prices act to coordinate the separate action of different people in the same way as subjective values help the individual coordinate part of his plant.’ in such a way that an efficient allocation of resources is achieved (Hayek, 1945, p. 526). In Neoclassical Economics, pure and perfect competition allows, for a given initial distribution of income, reaching a social optimum.
 - ii. The various heterodoxies highlight the paradoxes and contradictions present in the ‘liberal’ argument.
- Concerning the tendency for the rate of profit to fall, Marx states that the necessary depreciation of a part of the capital stock to momentarily maintain the rate of profit translates into a struggle between the different individual capitalists ([1876] 1976, Book III, p. 269): the invisible hand has failed, and the regulation operated by the market game implies a partial destruction of a part of the capital stock (Idem).

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- In Keynes' General Theory, the equilibrium represented by the point of Effective Demand is an equilibrium without full employment, which constitutes a contradiction in terms employed by Neoclassical Economics. On the other hand, Harrod's model perfectly illustrates the coordination failures inherent to the market (Herscovici 2006).
- The analyses of Grossman and Stiglitz (1980), based on the refutation of the homogeneity postulate and the existence of information asymmetries, highlight the paradox of the efficient markets hypothesis: the stability of the competitive equilibrium is explained by the positive externalities produced by informed agents in favour of uninformed agents. Nevertheless, the existence of the speculative cycle shows that (a) the equilibrium is by nature unstable and (b) that the externalities produced explain the fact that the gain of informed agents is realised to the detriment of uninformed agents, which does not allow the conditions of Paretian optimality to be verified (Herscovici 2019, p. 147 and following).

The construction and deconstruction of economic facts

Economic Science provides a perfect illustration of Foucault's (1966) and Kuhn's ([1962] 1991) theses: facts are, by nature, historically constructed. What is considered as a relevant fact within a given paradigm may be totally ignored in another:

- Neoclassical Economics rules out, at least in the long run, the existence of coordination failures. In the Walrasian general equilibrium model, prices adjust instantaneously to the equilibrium position. However, these are 'false' trades, as trades do not take place while the price is different from the equilibrium price.
- Similarly, Rational Expectations Theory rules out the problem of coordination failures: by hypothesis, there is continuous market clearing (Greenwald and Stiglitz 1987). Any deviation from equilibrium is interpreted as the absence of rationality on the part of the agents who draw up their expectations.

- Finally, the analysis of speculative bubbles, in terms of rational expectations (e.g., Fama 1998), proceeds from the same *démarche*, stemming from the hypothesis of the neutrality of finance. Since, by hypothesis, there are no information asymmetries, the price system provides the same information, in the same periods, to all agents participating in exchanges: instability will be explained from the random walk, the price system being fully informative.

The facts constructed by other economists are totally different: Keynes ([1936] 2009), with respect to the beauty contest, clearly shows (a) that there are asymmetries of information between different agents; (b) that agents elaborate different expectations; and (c) that the gains of speculators are explained by the asymmetries existing between them and the ‘general public’.

From a similar perspective, it is possible to construct models of financial cycle in which (a) equilibrium is intrinsically unstable; (b) the pricing system does not provide the same information at the same time to all agents; and (c) certain informationally privileged agents realise gains at the expense of most of the majority of agents intervening in these speculative markets (Herscovici 2019, p. 153 and following).

Classical Economics develops tools to analyse the concrete modalities of competition (Kanalı 2015, p. 24, Tsoulfidis 2017, p. 108); it is a ‘realistic’ approach, in the sense that it is not normative. This dynamic is explained by the fact that this economy is an economy of disequilibrium, in which equilibrium is (eventually) realised *ex-post*: this notional equilibrium is the result of the agents’ reaction to an initial disequilibrium (Duménil, Lévy 1987).

Deviations between market prices (the prices really observed) and the equilibrium position represented by natural prices (or production prices) are explained by the initial inequality between demand and supply. Intersectoral transfers of capital, and eventually of labour (i.e., the reaction of agents), should progressively reduce these deviations. The natural price (or production price) represents, in fact, the ‘abstract’ price that corresponds to the reproduction of the system (Kanalı 2015, pp. 24-25).

To a certain extent, I can make the same observations with regard to Keynesian Economics: it is an economy of disequilibrium. Relaxing the assumption of constant long-term expectations allows us to provide an endogenous explanation

of the cycles (Herscovici 2019, p. 120), and to build dynamic models in which the movement is explained by the reaction of agents to an initial disequilibrium (Setterfield 1999).

Marshall's interpretation of market prices and natural prices radically modifies the content attributed by classical economists to this concept: for the latter, the market price is the product of an initial disequilibrium between demand and supply (Kanalou 2015, p. 8). The eventual convergence towards natural prices is the result of the agents' reaction: (a) the eventual 'long-run' equilibrium is not realized *ex-ante*, but *ex-post*; (b) adjustments are made gradually and not instantaneously. In contrast, Marshall assimilates the market price with the short-term equilibrium price: 'The market price of everything, that is, its price for short periods, is determined mainly by the relations in which the demand for it stands to the available stocks of it [...]' (Marshall 1920, p.333).

In contrast to the Classical Economics' 'realistic' approach, Neoclassical Economics is essentially normative: it analyses economic reality on the basis of the deviations it presents from a state of pure and perfect competition. It is not in a position to spell out the actual modalities of competition, its dynamics, or the modalities by which, from an initial disequilibrium, the system returns to this equilibrium. While classical and Keynesian analyses allow for the analysis of competitive dynamics, the neoclassical construction assumes that competition has already taken place and that equilibrium has already been reached.

The Walrasian general equilibrium is an equilibrium realized *ex-ante*, centralized by the auction mechanism, and 'fictitious': it is determined before the agents act – it is centralized by the fact that the Walrasian auctioneer centralizes the responses provided by the different components of demand – it is fictitious by the fact that exchanges are not realized as long as prices do not allow matching supply and demand. In this respect, it is interesting to note that the neoclassical methodology has been the target of several criticisms, both from Classical Economics (notably the neo-Ricardian school) and Austrian economists (Hayek 1950).

Similarly, Keynesian macroeconomic equilibrium is not systematically associated with the equalization of demand and supply: within the framework of path-dependence mechanisms, it is the result of the reaction of agents to an

initial disequilibrium, in the form of a change in long-term expectations, depending on their degree of realization (Setterfield 1999). Finally, Stiglitz (2003) demonstrates that in the presence of information asymmetries, markets are rationed.

In the light of these observations, it is possible to conclude that all attempts to integrate Classical and Keynesian analyses into the neoclassical framework fail. In order to implement this integration, it is necessary to empty some or all of the components of its hard core. This allows us to think of Classical Economics and Keynesian Economics as different stages of the same evolution. This integration can only be achieved by violating the hard core of the Research Program to be integrated, i.e., by emptying it of its epistemology: it is an 'epistemological break portraying itself as one of continuity' (Kanal 2015, p. 4).

The interpretation of Keynes made by neoclassical authors (Friedman and/or Mankiw, for example) limits Keynes' analysis to the short term and does not work with uncertainty, nor with the path dependence that, in my view, characterises Keynesian analysis. I will cite just two examples:

- i) The demand functions for money elaborated by Friedman (1974), for example, consider that the demand for money depends, in the framework of a negative correlation, on the interest rate. This is contrary to what Keynes states in chapter XIII of the *General Theory*: money fulfilling the function of store of value, its demand depends on the Preference for Liquidity, and not on the interest rate; on the contrary, the interest rate depends on the demand for money, via the Preference for Liquidity (Herscovici 2020a).
- ii) Menu cost analyses (Mankiw 1985) study only the response of the different components of supply to an exogenous demand shock: what is left of a Keynesianism that ignores, by hypothesis, the modalities of demand formation?

Final remarks

The evolution of SRPs, or paradigms, should be studied from the following perspective: in the short term, according to Lakatos' concepts (1970, 1978), compatibilities can only be identified within the same SRP: the different models

developed modify the auxiliary hypotheses, but share the same hard core. The long term, on the other hand, is characterised by the modification of the hard core, which corresponds to a fundamental rupture. The epistemological study cannot be limited to the changes that occur within the same SRP but must study the '(...) underlying world-view which generated them.' (Dow 1985, p.2), that is, the changes that relate to the hard core. Limiting the analysis to a single SRP does not allow us to exercise the *reflexivity* necessary for the evolution of any science (Boyer 2021).

The incompatibilities between the orthodoxies and the heterodoxies can be defined in the following manner: 'A particular contrast is drawn by the critical realists between an open-system ontology, which requires some kind of open-system methodology, and the closed-system ontology identified as implicit in orthodox methodology' (Dow 1985, p.2), that is, *by the way in which historicity is incorporated, or refuted, in each of these theoretical matrices studied* [5].

Foucault's and Kuhn's epistemology allows us to draw the following conclusions: the neoclassical paradigms, on the one hand, and the classical and Keynesian paradigms, on the other hand, are incommensurable, in the sense that they are built from totally different elements, from different hard cores. Consequently, outside a given paradigm, or episteme, it is not possible to speak of progress in science: *in the long run, the evolution of economic science is characterized by fundamental ruptures, and not by a linear progression.*

Finally, from this perspective, the potential convergences between Keynesian, neo-Ricardian, Stiglitzian and Institutionalist SRPs appear to be a promising field of investigation (Herscovici 2019).

Endnotes

[1] Author's translation: 'The subjective representation of the social world as legitimate is part of the complete truth of this world.' If not otherwise mentioned, the English translations come from the following works of Voltaire: 'Rien n'est plus heureux, disait-il, qu'un philosophe qui lit dans ce grand livre que Dieu a mis sous nos yeux. Les vérités qu'il découvre sont à lui: il nourrit et il élève son âme (...)' (*Zadig ou le livre du destin. Zadig or the Book of Fate*, translated from

the original French by M. Voltaire. Online: <https://www.gutenberg.org/files/18972/18972-h/18972-h.htm> (retrieved on 08.12.2023); ‘Eh bien, mon cher Pangloss, lui dit Candide, quand vous avez été pendu, disséqué, roué de coups, et que vous avez ramé aux galères, avez-vous toujours pensé que tout allait le mieux du monde?’ ; ‘Je suis toujours de mon premier sentiment, répondit Pangloss ; car enfin je suis philosophe, il ne me convient pas de me dédire, Leibnitz ne pouvant pas avoir tort, et l’harmonie préétablie étant d’ailleurs la plus belle chose du monde, aussi bien que le plein et la matière subtile.’ (*Candide and Related Texts*, translated with an introduction by David Wootton, Indianapolis, Cambridge: Hackett Publishing Company, 2000).

[2] It must be made clear that, according to Foucault (1966), classical economics is not the product of the classical episteme, but of the episteme that corresponds to modernity.

[3] These fundamental ruptures correspond to the concept of bifurcation, as defined by Balibar (2020, p. 141).

[4] Although Ricardo and Marx succeeded in ‘emancipating economics from morality’ (Dumont 1985, p. 102), this emancipation is only partial in Smith's work: elements linked to Catholic morality remain: (a) the parable of the baker reconciles Christian charity and individual interest; Pareto's optimum also follows this logic. (b) Labour is perceived as a ‘disutility’ due to the concept of original sin. Although Smith contributed to the development of concepts later expanded upon by Ricardo and Marx, he maintained certain moral principles specific to the Christian religion, which explains the ambiguities that run through the whole of his work, particularly the presence of elements that would later be developed by the neoclassical school (Herscovici 2023, p. 53).

[5] For example, in the neo-Ricardian resolution, the closure of the system is determined by a historical element, i.e., the value of the distributive variables; in this sense, it is possible to speak of an open system. In the General Equilibrium model, this closure is based on a purely mathematical solution; it is a closed system.

Conflict of Interest Statement

The author declares that this research has no conflict of interest.

References

- Arrow, Kenneth J. (1974), 'Limited knowledge and economic analysis', *American Economic Review*, 64(1), 1-10.
- Arrow, Kenneth J. (1985), 'The potential and limits of the market in resource allocation', in G.R. Feiwel (ed.), *Issues in Contemporary Microeconomics and Welfare*, London: Macmillan, pp. 107-124.
- Balibar, Étienne (2020), *Passions du concept. Épistémologie, théologie, politique. Écrits II*. Paris: La Découverte.
- Bourdieu, Pierre (1984), *Questions de Sociologie*, Paris: Les Éditions de Minuit.
- Boyer, Robert (1987), *La Théorie de la régulation : une analyse critique*, Paris: La Découverte.
- Boyer, Robert (2021), *Une discipline sans réflexivité peut-elle être une science? Épistémologie de l'Économie*, Paris: Editions de la Sorbonne.
- Chick Victoria (1991), *Macroeconomics after Keynes. A reconsideration of the General Theory*, MIT Press.
- Clark, John B. (1891), 'Distribution as determined by a law of rent', *Quarterly Journal of Economics*, 5 (April), 289-318.
- Dahan, Dalmenico Amy (1992), 'Le déterminisme de Pierre Simon Laplace et le déterminisme aujourd'hui', in Dahan Dalmenico A., Chabert J.L., Chemla K. (eds.), *Chaos et Déterminisme*, Paris: Editions du Seuil, pp. 371-406.
- Davidson, Paul (1996), 'Reality and economic theory', *Journal of Post Keynesian Economics*, Summer, 479-508.
- Descartes, René (1647), *Les méditations métaphysiques de René Descartes*. Online: http://palimpsestes.fr/textes_philo/descartes_textes/descartes_meditations.pdf (retrieved on 22.03.2022).

Deleuze, Gilles (1986), *Foucault*, Paris: Les Éditions de Minuit.

Dow, Sheila (2020), 'Economic methodology, the philosophy of economics and the economy: another turn?', Division of Economics, Stirling Management School, University of Stirling, UK.

Duménil Gérard, Lévy Dominique (1987), 'The dynamics of competition: a restoration of the classical analysis', *Cambridge Journal of Economics*, 11(2), 133-164.

Dumont, Louis (1985), *Homo aequalis. Genèse et épanouissement de l'idéologie économique*, Paris: Editions Gallimard.

Fama, Eugene F. (1988), 'Market efficiency, long term returns and behavioral finance', *Journal of Financial Economics*, 49(3), 283–306.

Foucault, Michel (1966), *Les mots et les choses*, Paris: Gallimard.

Foucault, Michel (1969), *L'archéologie du savoir*, Paris: Gallimard.

Fournié, Françoise, Rigal Elisabeth (2007), 'Gérard Granel et l'analyse heideggerienne du "scandale pour la philosophie"', *Cahiers philosophiques*, 3 (111), 115-116.

Friedman, Milton ([1962] 2002), *Capitalism and Freedom*, Chicago: University of Chicago Press.

Friedman, Milton (1974), 'Comments on the critics', in R.J. Gordon (ed.), *Milton Friedman's Monetary Framework: A Debate with His Critics*, Chicago: University of Chicago Press.

Greenwald Bruce, Stiglitz Joseph E. (1987), 'Keynesian, new Keynesian and new classical economists', *Oxford Economic Papers*, 39, 119-132.

Grossman, Sanford J., and Joseph E. Stiglitz (1976), 'Information and competitive price systems', *The American Economic Review*, 66 (2), 246-253.

Grossman Sanford J., Joseph E. Stiglitz (1980), 'On the impossibility of informationally efficient markets', *The American Economic Review*, 70 (3), 393-408.

Harris, Donald J. (1978), *Capital Accumulation and Income Distribution*. Stanford, CA: Stanford University Press.

Hayek, Friedrich A. (1945), 'The use of knowledge in society', *American Economic Review*, 35 (4), 519-530.

Hayek, Friedrich A. (1948), *Individualism and Economic Order*, The University of Chicago Press.

Hayek, Friedrich A. (1950), *The Pure Theory of Capital*, Norwich: Jarrold and Sons Ltd.

Hayek, Friedrich A. (1952), *Scientism and the Study of Society*, The Free Press.

Hayek, Friedrich A. (1958), *Individualism and Economic Order*, The University of Chicago Press.

Hicks, John (1967), 'The Hayek story', in *Critical Essays in Monetary Theory*, Glasgow: Oxford University Press, pp. 201-215.

Hodgson, Geoffrey M. (1988), 'The approach of institutional economics', *Journal of Economic Literature*, 36 (1), 166-192.

Heidegger, Martin ([1927] 1985), *Être et temps*, translated by Emmanuel Martineau, Paris: Editions Joël Lechaux, Eric Ledru.

Herscovici, Alain (1994), *Économie de la Culture et de la Communication*, Paris: L'Harmattan.

Herscovici, Alain (2002), *Dinâmica macroeconômica: uma interpretação a partir de Marx e de Keynes*, São Paulo: EDUFES/EDUC.

Herscovici, Alain (2006), 'O modelo de Harrod: natureza das expectativas de longo prazo, instabilidade e não linearidade', *Economia e Sociedade*, 15 (26), 29-55.

Herscovici, Alain (2019), *Essays on the Historicity of Capital*, New York: Palgrave Macmillan.

Herscovici, Alain (2020a), 'Preferência pela Liquidez, Financeirização e Efeito de propagação: da não neutralidade da moeda à não neutralidade da finança', *Revista de Economia Contemporânea*, 24 (2), 1-23.

Herscovici, Alain (2020b), 'Valor, Ciência Econômica e historicidade: Reflexões a respeito da Hipótese Substancial (Um estudo preliminar)', *Geografares*, Julho-Dezembro, 86-113.

*Herscovici Alain (2024), The historicity of economic sciences:
the main epistemological ruptures, The Journal of Philosophical Economics:
Reflections on Economic and Social Issues, XVII (Annual issue), 119-155*

- Herscovici, Alain (2023), *Value, Historicity, and Economic Epistemology. An Archaeology of Economic Science*, Cham: Palgrave Macmillan.
- Hirschman, Albert (1986), *Vers une économie politique élargie*, Paris: Les Éditions de Minuit.
- Israël, Giorgio (1992), 'L'histoire du déterminisme et ses rencontres avec les mathématiques', in Dahan Dalmenico A., Chabert J.L., Chemla K. (eds.), *Chaos et Déterminisme*, Paris: Editions du Seuil, pp. 249-273.
- Kanalu, Naveen (2015), 'Krishna Bharadwaj's "Return to Classical Theory": an attempt towards an archaeological reconstruction', *The European Journal of the History of Economic Thought*, 22 (5), 1-21.
- Keynes, John Maynard ([1936] 2009), *The General Theory of Employment, Interest and Money*, New York: Classic Books America.
- Kirman, Alan (2016), 'The complex nature of liberalism', *History of Economic Ideas*, XXIV (3), 47-76.
- Kuhn, Thomas S ([1962] 1991), *A estrutura das revoluções científicas*, São Paulo: Editora Perspectiva.
- Lakatos, Imre (1970), 'History of science and its rational reconstructions', in *Proceedings of the Biennial Meeting of the Philosophy of Science Association*, pp. 91-136.
- Lakatos, Imre (1978), 'The methodology of scientific research programs', in John Worrall and Gregory Currie (eds.), *Philosophical Papers*, vol. 1, Cambridge: Cambridge University Press, pp. 1-257.
- Lucarelli, Stefano, Lunghini, Giorgio (2012), *The Resistible Rise of Mainstream Economics. The Dominant Theory and the Alternative Economic Theories*, Bergamo University Press.
- Lucas Robert E. (1975), 'Equilibrium model of the business cycle', *Journal of Political Economy*, 83 (6), 1113-1144.
- Mandeville, Bernard ([1732] 1988), *The Fable of the Bees or Private Vices, Publick Benefits*, Indianapolis: Liberty Fund.

*Herscovici Alain (2024), The historicity of economic sciences:
the main epistemological ruptures, The Journal of Philosophical Economics:
Reflections on Economic and Social Issues, XVII (Annual issue), 119-155*

- Mankiw, Gregory (1985), 'Small menu costs and large business cycles: a macroeconomic model of monopoly', *The Quarterly Journal of Economics*, 100 (2), 529-538.
- Marshall, Alfred (1920), *Principles of Economics*, 8th ed., London: Macmillan and Co.
- Marx, Karl ([1859] 1972), *Contribution à la critique de l'Économie Politique*, Paris: Éditions Sociales.
- Marx, Karl ([1867] 1976), *Le Capital. Critique de l'économie politique*, Livre III, Paris: Editions Sociales.
- Marx, Karl, Engels Friedrich ([1845] 1976), *L'idéologie Allemande*, Paris: Editions Sociales.
- Neary Peter, Stiglitz Joseph (1983), 'Towards a reconstruction of Keynesian economics: expectations and constrained equilibria', *Quarterly Journal of Economics*, 98 (Supplement), 199-228.
- Ong-Van-Cung, Kim Sang (2018), 'Certitude et inquiétude du sujet. Foucault et Heidegger lecteurs de Descartes Certitude and Disquiet of the Subject. Foucault and Heidegger as Descartes' Readers', *Methodos* 18. Online: <https://journals.openedition.org/methodos/4983> (retrieved on 05.12.2023).
- Orléan, André (2011), *L'empire de la valeur. Refonder l'Économie*, Paris: Éditions du Seuil.
- Phelps, Edmund (2011), *Keynes vs. Hayek: Stumbling Blocks to Spending Our Way to Prosperity*, Produced by Reuters, 8 November. Online: <https://docplayer.net/21251369-Keynes-vs-hayek-stumbling-blocks-to-spending-our-way-to-prosperity-edmund-phelps.html> (retrieved on 06.02.2020).
- Piketty, Thomas (2013), *Le Capital au XXIe siècle*, Paris: Editions du Seuil.
- Popper, Karl ([1976] 1988), *Misère de l'Historicisme*, Press Pocket.
- Prigogine, Ilya (1996), *La fin des certitudes*, Paris: Editions Odile Jacob.
- Ricardo, David ([1821] 2001), *On the Principles of Political Economy and Taxation*, Third Edition, Ontario: Batoche Book.

Robbins, Lionel (1932), *An Essay on the Nature and Significance of Economic Science*, London: Macmillan Press Ltd.

Root, Hilton L. (2018), 'Keynes, Hayek, and the roots of complexity theory in economics', *Policy and Complex Systems*, 4(1), 151-168.

Samuelson, Paul A. (1962), 'Parable and realism in capital theory: the surrogate production function', *Review of Economic Studies*, 29 (3), 193-206.

Sargent Thomas J., Wallace, Neil (1975), 'Rational expectations, the optimal monetary instrument, and the optimal money supply rule', *Journal of Political Economy*, 83(2), 241-254.

Schefold, Bertram (2017), *Great Economic Thinkers from The Classics to The Moderns*, Routledge.

Schumpeter, Joseph A. ([1954] 1983), *Histoire de l'analyse économique*, Paris: Gallimard.

Setterfield, Mark (1999), 'Expectations, path dependence and effective demand: a macroeconomic model along Keynesian lines', *Journal of Post Keynesian Economics*, 21(3), 479- 501.

Sen, Amartya (1982), *Choice, Welfare and Measurement*, Oxford: Blackwell.

Smith, Adam ([1776] 1980), *Inquérito sobre a natureza e as causas da riqueza das nações*, Lisboa: Fundação Calouste Gulbenkian.

Sobel, Richard (2017), 'Production et infini : l'hypothèse Marx-Granel sur l'origine du capitalisme', *Æconomia History – Methodology – Philosophy*, 7 (4), 513-544.

Solow, Robert (1956), 'A contribution to the theory of economic growth', *Quarterly Journal of Economics*, 70, 65-94.

Sraffa, Piero (1925), 'Sulle relazioni fra costo e quantità prodotta', *Annali di Economia*, II (1), 277-328.

Sraffa, Piero (1932), 'Dr. Hayek on money and capital', *The Economic Journal*, 42 (165), 42-53.

Herscovici Alain (2024), The historicity of economic sciences:
the main epistemological ruptures, *The Journal of Philosophical Economics:
Reflections on Economic and Social Issues*, XVII (Annual issue), 119-155

Stiglitz, Joseph (2003), 'Information and the change in the paradigm in economics, Part 1', *American Economist*, 48(1), 6-26.

Tsoufidis, Lefteris (2017), 'Economic theory in historical perspective', *The Journal of Philosophical Economics: Reflections on Economic and Social Issues*, X (2), pp. 102-124.

Vico, Giambattista ([1725] 1993) *La science nouvelle*, transl. by Christina Trivulzio, Gallimard.

Vercelli, Alessandro (1985), 'Keynes, Schumpeter, Marx and the structural instability of Capitalism', in G. Deleplace, P. Maurisson (eds.), *L'hétérodoxie dans la pensée économique*, Cahiers d'Economie Politique, Paris: Anthropos, pp. 280-304.

Vercelli, Alessandro (1991), *Methodological Foundations of Macroeconomics: Keynes After*, Cambridge and New York: Cambridge University Press.

Voltaire, François-Marie (1747), *Zadig ou la destinée*, Lyon.

Voltaire, François-Marie (1759), *Candide ou l'optimiste*, Édition princeps, Genève.

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