REFLECTIONS ON NEOCLASSICAL THEORY AND THE PHILOSOPHY OF SCIENCE

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The lack of predictive and explanatory capacity of the neoclassical theoretical framework has been widely criticied following the onset of the global financial crisis. However, is not attributable to the recent evolution of that theory. Rather, it results from an insurmountable deficit at the core of neoclassical theory and, in particular, in its most basic postulates.

Remarking on the weaknesses of neoclassical thought from a philosophy of science perspective is nothing new: much work by Amartya Sen and Mark Blaug, among others, was developed as such a critique (Sen 1999: 28-39; Blaug 2006: 137 ff.). It is nonetheless necessary to insist on this point, as therein lies the root of all failings of mainstream economics, both at the academic level and in public debates. This weaknesses can be summarised by two issues: a complete disregard for the empirical evidence that rejects its hypothesis, and the refusal to engage with its opposing paradigms. But the philosophical problems of neoclassical theory are not limited to the above.

Neoclassical theory employs speech genres strategically so that the discourse used by authors appears as something other than it actually is. Discourses with an essentially normative approach are presented as 'objective' and 'neutral' explanations of real phenomena. Thus, what is a mere proposal favourable to certain interests appears to have the prestige of scientific speech. The mathematical exposition of neoclassical hypotheses and conclusions (under the form of axioms and theorems) serves the same aim.

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Those characteristics determine the evolution of neoclassical theory into a true *ideology*, in the strongest sense of the term, as employed by Marxism and other schools of thought in social theory. Neoclassical theory is an ideology because it shows a distorted view of reality in a way that favours the interests that are behind the discourse.

While each of these issues merits in-depth consideration, this article presents a brief overview as an initial study that could be followed by more specific future research.

Philosophical basis of the analysis: Popper's falsificationism and the 'research programs' of Lakatos

The critique of neoclassical theory from the point of view of the philosophy of science presented here is based on two criteria for demarcating 'science' from other forms of speech: Popper's notion of 'falsifiability', and Lakatos's concept of science as a series of 'research programs.' I also look at Kuhn's concept of science as paradigm-based. They are not mutually exclusive and together they cover three crucial aspects of the discipline. These aspects are: a) the connection with 'external references,' or empirical data (falsificationism); b) linguistic particularity and consistency (Kuhn's paradigms); and c) the internal structure as a defense strategy from rival speeches (Lakatos' 'research programs').

Although there is no consensus regarding Popper's falsifiability criterion, a simplified version could be expressed as follows. 'Science' is any discourse capable of generating falsifiable statements, that is, statements that can be shown to be false based on empirical evidence (observation or experiments) (Popper 2003: 239 ff.). To be 'scientific,' a statement must contain an assertion about a factual event so that an observation or decisive experiment could be a counter-instance of such assertion. This criterion has two notable merits, the source of its enormous appeal to, and extended support from, the scientific community. First, it forces anyone claiming 'to be doing scientific work' to generate predictions about real and observable events. Second, it eliminates from science those theories and hypotheses that are so flexible as to be compatible with opposing observational statements, something that has been intuitively incompatible with 'science' for the last centuries.

Lakatos, for his part, argued that 'science' is a series of 'research programs'. 'Science' consists in addressing a sector of reality from a consistent set of statements. This set is formed by: (a) certain central laws or hypotheses — the core of the program — having (or seemingly having) great explanatory force; (b) a 'protective belt' of ancillary hypotheses that complete and add consistency to the central laws; and (c) a set of *ad hoc* hypotheses to explain any anomalous situations that cannot be explained pursuant to the central laws and their ancillary hypotheses. The failure of a research program occurs, basically, when the anomalous situations not explained within the theoretical framework of the program multiply and the program must also multiply the *ad hoc* hypotheses (Lakatos 2007: 65ff.).

Neoclassical theory as a 'research program'

For the purpose of analysing neoclassical theory from the point of view of the philosophy of science, let us describe it as a 'research program' (Loasby 1984: 404-405). Although the critique itself is shared by both a Lakatosian framework and a falsificationist one, the concept of 'research program' is especially suited for describing a theory through its external analysis. The first step of its critique consists in identifying its central hypothesis and its ancillary hypotheses; the identification of anomalous phenomena and the correlative *ad hoc* hypotheses will be elements whose accumulation could undermine the whole program, according to Lakatos. Although many other hypotheses could be isolated for philosophical analysis, the following constitute the core of neoclassical thought.

The central hypothesis of neoclassical thought is that the sole and distinct motivation for economic action is 'utility,' understood as the need a certain individual has for a given object. The central hypothesis is that economic behaviour results inexorably from the individual's calculation of 'marginal utility', the 'satisfaction' or 'welfare' that an individual obtains from selling or buying an additional unit of a given object. The 'object' comprises not just goods or physical things, but also expectation, an activity, a potential behaviour expected from another individual or the workforce, etc. For neoclassical theory, 'utility' is a universal motivation, as all economic behaviour can be reduced to it, irrespective of cultural context, the individual's previous conditions, their income, and any other

circumstance. Although utility is, in principle, subjective, it has an objective limit: the existence of a type and a volume of goods that can satisfy that need. Lastly, utility is revealed only in the act of exchange (Jevons 1914: 37-74; Marshall 1944: 81-82; Menger 2007: 114-148).

Utility is the factor that determines the price of any goods exchanged. Neoclassical theory was born as a 'theory of value' meant to refute the idea posited by Ricardo and Marx that a good's 'value is derived from the labour' used to produce it. For neoclassical theorists, value is not a property that is acquired by goods through a work process, but a consequence of the presence of such goods in the market. Moreover, the hypothesis of utility-motivated behaviour is used to argue that the attribution of value to a thing (*i.e.*, the entrance of a thing into economic life) is a result of reciprocal individual actions, and not of a social process directly or indirectly involving the entire social structure.

But there is also another central hypothesis, which is vital for understanding macroeconomic analysis under neoclassical theory: the theory of general equilibrium, initially developed by Léon Walras (Walras 1987: 279). According to this hypothesis, in a 'market with perfect competition', all utilities converge toward 'equilibrium points' in such a way that every exchange is made when those points are reached. Under such assumptions, supply and production of goods always match their demand through prices that reflect the respective needs of the agents involved. In a 'perfect competition market' each individual goes to the 'arena' of exchanges 'bringing' only their utility, without any 'interference' (a vague expression that refers elliptically to external and particularly collective agents).

Along with the theory of general equilibrium, neoclassical theory introduces an idea that could be described as an ancillary hypothesis, a part of the 'protective belt': the Pareto optimum. The idea is simple: 'welfare' in its best expression is a state in which an individual's situation cannot be further improved without detriment to the situation of another (Pareto 1945: 267-268). In Paretian terms, a social situation in which some people can only improve their situation through 'loss of welfare' for others is not considered optimal.

Another ancillary hypothesis of the neoclassical theory is the idea of the individual as sole and exclusive 'economic subject', a hypothesis that is clearly meant to counter Classical Political Economics and Marxism and

their utilisation of ‘social classes’ as agents of economic life, mainly through relations of production.

A century and a half after the initial formulation of the above theses, the essence of neoclassical theory remains founded on them. To use the mathematical terms so favoured by these neoclassical authors, almost any other conclusion of mainstream economics is a ‘theorem’ derived from those basic statements.

Utility as the sole motivation for behaviour

A first critique that one could make of the ‘utility hypothesis’ of neoclassical theory is the obvious multiplicity of individual and collective motivations involved in shaping any human behaviour, whether economic or non-economic. The hypothesis of utility and marginal utility can thus be said to be an unjustified *reductionism.* The arguments against that behavioural monism are many. Here I will consider only three critiques: those by Max Weber, Amartya Sen, and Herbert Simon.

Of the many objections Weber raises against the concept of ‘marginal utility, I will refer to two. First, Weber observes that in any business operation there are often many actions that are not motivated by a rationality based on marginal utility. These economic acts that fall ‘outside the utility rationality’ are both frequent and significant, and they trigger relevant consequences that result in the exact opposite of the achievement of maximum satisfaction. For example, that is the situation with disputes over the inheritance of the estate of a business owner (Weber 1998: 73-74). Second, Weber notes the illusory nature of the belief in the determination of the ‘needs’ of customers based exclusively on their personal conditions. A distinctive characteristic of capitalism is the exercise of different kinds of power by companies to determine the behaviour of others. Even if we admit that the prices and volumes of production are a consequence of ‘needs’ expressed by supply and demand (of everything from workforce to finished goods), those ‘needs’ are normally imposed by companies. As a conclusion, ‘utility’ as a univocal motivation for the economic behaviour of any individual is untenable (Weber 1998: 76).

Sen posited that many behaviours observed in economic life are motivated by something other than the pursuit of individual utility, in

general, and the estimation of marginal utility, in particular. People perennially act without regard for their own welfare. This occurs partly as a result of the individual's assessment of an act as 'good,' even if it does not produce any benefit in terms of utility as proposed by neoclassical theory (Sen 1999: 58-62).

Summarising, as a general issue of the philosophy of science, the problem with neoclassical thought lies in its unfounded monism.

Simon made a purely intuitive, but effective, critique of utility theory. He observed that the volume of information needed to determine the course of action that achieves the maximum utility is enormous, and that such information is difficult to process, to the point that it is impossible to maintain that any human being really acts that way (Simon 1959). Economic acts *cannot be* determined by 'rational choice,' or by an estimation of the 'maximum utility,' because that hypothesis must by definition be false.

From the falsificationist viewpoint, the central hypothesis of utility as sole motivation for behaviour has been falsified categorically, and there is nothing more to add to the discussion (Blaug 232-233; Hands 2008; García Bermejo Ochoa 2005: 147).[1] However, mainstream economics has attempted 'defensive strategies' of its program, multiplying the *ad hoc* hypotheses. Many authors indicate that, although the hypothesis of individual utility cannot be maintained as an explanation for real behaviour, it is possible to preserve it as a 'model' for appraisal behaviour. They have turned 'utility' into a normative concept instead of a descriptive one, as posited by the traditional conception of mainstream economics (Simon 1959; Krugman 1997).

Such defensive strategies, far from rescuing the neoclassical program, condemn it inexorably. Following Lakatos, the multiplication of *ad hoc* hypotheses is the best proof of the weakness of a research program (Drakopoulos-Karayainnis 2005: 63-64). This issue was even observed within mainstream economics. Many decades ago Paul Samuelson noted that the theory of utility, with its efforts to resist critiques and absorb the full range of motivations of human behaviour, had committed 'theoretical suicide' (my expression). As a consequence of the mistrust of economists

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1 Popper, in *The Poverty of Historicism*, defended the reductionist idea of individual utility, although — according to Blaug and Hands — he later abandoned that position, while recognising it had been useful.

toward normative explanations, the concept of 'utility' as a moral value was discarded, as proposed by contemporary authors, along with philosophical utilitarianism (Edgeworth, for instance). Also discarded was the idea of 'utility' as a psychological-internal state of human beings, as such 'states' were deemed unobservable. Finally, in order to preserve a supposed 'empirical fidelity,' neoclassical authors came to understand 'utility' as all economically significant acts or, more precisely, every act that is performed for a price. Thus utility was no longer considered a prior explanation for actions; it became an adjective applicable to any *ex post facto* appraisal of behaviour. At this point, Samuelson observes, the concepts of 'utility' and 'marginal utility' collapse due to the fact that they are empty terms, adaptable to any circumstances and thus theoretically useless (Samuelson 1977: 92ff.).

Far from surrendering, neoclassical thought raised the stakes and made a partial reading not only of empirical data, but also of the critiques emanating from the philosophy of science. That is Loasby's strategy, when emphasising the difficulty in determining what is understood as a 'decisive experimentation' that can falsify a hypothesis, in particular when the observational event is interpreted by a theory (held as absolutely right) (Loasby 1984: 402). A stronger strategic defence can be seen in Loasby's comments about 'economics' (read neoclassical theory) as a refutation of Kuhn's and Lakatos's science models (Loasby 1984: 406-407). When the differences between mainstream economics and the models of science are impossible to hide, the strategy is to attempt to discredit the philosophy of science itself.

The most significant issue is perhaps the 'mutation' of the self-understanding of marginal utility theory into a non-explanatory discipline. The admission of the normative status of the concept of marginal utility, as well as of the distance between theory and useful scientific models, reveals a self-awareness of marginal utility economics as strategic, political, and rhetorical rather than as descriptive or explanatory. Contrary to McCloskey's claim (McCloskey 1983), the discourse of marginalist economists is fully rhetorical, although most mainstream economists do not have an expert use of specific rhetoric devices when discussing *within* their paradigm. Moreover, mainstream discourse is perhaps one of the most effective kinds of rhetoric – the discourse that appears as traditional and formalised science. In any case, that level of reflection is only found in a limited circle of marginalist economists with philosophical concerns. For the majority of economists

the severe weaknesses of their own discipline remains completely obscured, and this in turn acts as a strategic self-defence for the theory.

This persistent defence, against all odds, of its central hypothesis, using both theoretical and meta-theoretical strategies, is one of the basic grounds for considering mainstream economics as a true *ideology,* as analysed below.

The general equilibrium hypothesis

Many verified events have been mentioned as decisive refutations of the general equilibrium hypothesis. Here I comment on just one, as it is supported by thorough fieldwork, spanning decades of documents and sequences of behaviours analyzed: namely, Bourdieu's study of the shaping of the housing and real estate market in France during the 1960s and 1970s (Bourdieu 2003: 235ff.).

The motivations found to guide the behaviour of home buyers differed significantly from 'utility' understood as a maximization of profit. For example, the preference for houses with gardens and located in green areas could be linked to symbolic representations, unconscious legacies of the old rural-based economy.

Most interesting in Bourdieu's work is the direct observation of how the process of structuring a section of 'the market' works. As neoclassical analysis would have it, all companies are involved in structuring a market, through a series of reciprocal actions that spontaneously generate an equilibrium, which can only be broken by exogenous action — for example, by the state. However, in the case of housing and real estate activities in France, things evolved differently — or rather, completely opposite to the neoclassical prediction. Around the mid 1960s, various agents (banks, construction companies, professionals, trade unions, political parties, etc.) launched into a struggle for power, outside any exchange operation. Each group aimed to achieve a growing influence in the different government bodies, with the obvious expectation that the government would adopt certain measures (under the form of 'laws'). Such measures would provide, according to each group's expectation, the most enabling framework for a future real estate market, where they could best promote their own exclusive interests, irrespective of the interests of the other 'competing' groups.

Subsequently, ‘fields of positions’ were formed by the alignment of primary groups with similar or convergent interests. In the case of state bodies, the alignments were cross-sectional. One field was led by banks, which sought to implement a public policy of direct subsidies for accessing personal houses and tax exemptions on loans for that purpose. Another field was led by construction firms, interested in a public policy of tax exemptions for construction activities as well as house purchases. Approximately ten or fifteen years after the start of this power struggle, the French government finally established a legal framework that literally structured the market in a way that was more favourable to banking interests. From that moment on, every sector and firm ‘accepted the terms’ and started to operate within a context derived from a struggle between rival business groups, which culminated with the victory of one group and the defeat of another, although the defeated group was not eliminated.

From Popper’s falsificationist perspective, the evidences collected by Bourdieu falsify Walras’ hypothesis of general equilibrium. The market is not a place of convergence of utilities matched at reciprocally satisfactory points, but a battlefield where the interests of some destroy or corner the interest of others. The volume of goods supplied and demanded, as well as their corresponding prices, is not determined by utilities, but by strategic games where the needs of the most powerful take precedence over the needs of the weakest. Prices were not established as functions of utility, but as consequences of social power. Moreover, the agents involved are groups rather than individuals. Finally, a tendency of economic agents to freely agree through ‘contracts’ was not observed. Rather, the observed tendency was to wield symbolic power, invoking the ‘state’ or ‘laws’ to obtain certain economic structures *from them* (or be helped decisively by them). Bourdieu’s empirical observation can be easily generalised. ‘Markets’ formed through power struggles (companies against other companies, capitalists against trade unions, etc.) are the rule, not the exception.

Some econometric models based on the general equilibrium hypothesis are certainly capable of making some ‘predictions,’ including ‘deviations’ from the ‘natural point of equilibrium.’ But it demonstrates that the ‘general equilibrium’ is an *a priori* condition — an axiom — posited in a closed way. The econometric data incorporated in the ‘empirical phase’ of the use of such models are thus predetermined by the same general equilibrium hypothesis. From a strictly falsificationist perspective, the *a*

priori characteristic of a hypothesis is precisely what falsificationism tries to eradicate from the field of science. Consequently, the general equilibrium must be rejected if many observed events are opposed to its core statements.

If the general equilibrium hypothesis was turned from an explanatory hypothesis into a normative model (Krugman 1997: 72-76), it would lose all its theoretical relevance. As I argue below, normative speech falls outside the scope of scientific speech because it pre-dates every sophisticated model of 'scientific' reasoning. If it is 'science' it must necessarily be descriptive speech.

Neoclassical theory and the strategic use of speech genres

Mainstream economics makes strategic use of certain speech genres, in some cases to get around the normative nature of neoclassical speech, in others to benefit from the prestige of the speech genre behind which it hides. This issue requires a brief introduction into the uses and divisions of speech.

The use of any speech involves a calculation of comprehension or understanding. Assuming that interlocutors accept certain rules, when they perceive visual, audible, or any other kind of signs, they are expected to have some representation, experiment some emotion, follow certain behaviour, etc. (Wittgenstein 2002: 103-105). A speech act between two persons does not imply achieving or seeking identical representations by the speech partners, an effective 'transmission of ideas,' but rather two different things. From the viewpoint of the speaker, this means attempting to produce an effect in the listener, not necessarily purely a representation, but also an emotion, perhaps a change in behaviour. From the viewpoint of the listener, the speech act entails a real effect caused by speech (Wittgenstein 2002: 55, 57, 199).

When we identify a certain use of speech, we can consider that use as a property for configuring a set of speeches with that property. Of all the possible uses of speech, and the respective sets of speeches formed by each use, I focus on two: the 'descriptive' and the 'normative.' The normative use of language, and therefore normative speech, tends to determine, directly or indirectly, the acts of an individual or a group. This could happen as an effect recognised as such by the receptor, or as a suggested or hidden effect, whereas descriptive use and descriptive

speech tend to indicate external reference (things, people, behaviours, etc.), with no purpose other than the indication itself.

The above concept of 'sets of speech' can be complemented with Mikhail Bakhtin's 'speech genres' theory (Bakhtin 1999: 60ff.). According to Bakhtin, many 'speech genres' are generated within a language as a result of the different needs of groups of speakers. A speech genre is defined by speaking or writing styles, the use of certain terms (nouns or adjectives), emphasis, etc. When speakers previously familiarised with a speech genre consider a given text or oral expression, they will frame that piece of language within a speech genre, taking into account the style, the terms used, the emphasis, and so on. This conception is crucial for our purposes, because it suggests that speakers can strategically employ characteristics of a speech genre to induce listeners or receptors to believe that their words belong to that genre.

According to logical empiricism, in a position intuitively accepted by traditional scientific communities, scientific speech is descriptive: its claims identify references that are external to the speech, and propose relations between such references (Carnap 1993). Consequently, a speech that seeks to be accepted as 'scientific' must be primarily descriptive. It is impossible to avoid the use of normative portions (at the very least, language usage rules) even in scientific language. This characteristic is closely connected with the possibility of falsifying statements. A non-descriptive statement cannot be falsified, in the same way that it cannot be, strictly speaking, 'true.'

Purely normative sets of statements abound in neoclassical theory. Normative statements are presented as if they were descriptive, with the aim of being recognised as 'scientific' by the speech's receptors. Buchanan's theory on the role of the state in the economy is an example of this strategy (Buchanan 1968: 3-16).

Buchanan takes as his starting point an 'economy without a state,' admitting, however, that the hypothesis is not realistic because it does not correspond to any actual social structure. Buchanan argues that, in spite of being unrealistic, the premise is useful for 'deducing' other statements about the role of the state in the economy. Buchanan does not clarify if the 'deductions' he mentions are explanations of the material functioning of society, the state, and the economy, or if they are situations resulting from Buchanan's proposals concerning the organisation of society, the state, or the economy.

This defence leads us to the problem of 'models' in economics. The use of models to explain reality is a valid scientific strategy, but only if by model we understand a simplified version of reality, which retains the essential properties of the phenomena and discards the non-essential or irrelevant (Klimovsky-Boido 2005: 128-129). Buchanan's model, as all neoclassical models, is different: it is a scheme devoid of any elements consisting in, or derived from, a realistic description or an observation. The model is conceived as completely unrealistic, even by its author. Thus this model is not a summary of scientific hypotheses, but a summary of a design of Buchanan's idea of desirable social life. It is an entirely normative and non-descriptive proposal. What we have is not a theory that maintains obstinately falsified hypotheses, but the presentation of obviously normative proposals as 'descriptive' or 'scientific' models.

That characteristic is evidenced immediately when Buchanan claims that an 'economy without a state' would naturally and spontaneously lead to the emergence of a 'market' with division of labour, specialisation of production, and the exchange of goods. It is further evidenced in Buchanan's assertion that such a society would be peaceful and respectful of property rights. Such an 'economy without a state' is nothing but an idealised version of a pure (but unreal) form of capitalism. No capitalist economy exists or has existed without the state; rather, the modern state emerged together with the capitalist economy.

In this transposing of 'normative' into 'descriptive' we can see the strategic game played with speech genres, as described above from the viewpoint of Bakhtin's theory. The use of models suggests that we are dealing with scientific speech, where those devices are often used to develop an explanation. Buchanan's text is presented as 'scientific,' although it is really a political and normative defence of capitalism by the obfuscation of the latter's character.

Another frequent practice among neoclassical theorists is the use of mathematical formulae to express implicit claims, which also involves a strategic game of speech genres. As of the Peano axioms concerning natural numbers, the Zermelo-Fraenkel system, and Russell and Whitehead's *Principia Mathematica*, mathematics can be said to be a formal system, or a set of formal systems (Klimovsky-Boido 2005: 109ff.). Such a system consists of a set of rules, terms, vocabularies, etc., for deriving certain statements (called 'consequences') from others

(Alchourrón and Martino 1988). When a system is described as 'formal,' it is akin to an 'empty structure,' which can be filled with a wide variety of statements. The operation whereby formal statements are replaced by specific ones is the 'logical interpretation' (Wittgenstein 2005: 122; Haack 1991: 32ff.). Thus mathematics is not a 'science' in the proper sense, nor is it an exclusively scientific 'tool'. Literally every language can be formalised mathematically.

Nonetheless, the use of mathematical formulae is part of the style of the speech genre called 'science,' since the 'hard sciences' have widely incorporated such a means of expressing their statements. Therefore, the presence of mathematical formulae induces the reader into thinking that the speech used belongs to the 'scientific speech genre'. Mathematical formalisation gives the language that uses it the prestige of scientific speech. That is the strategic game in which the neoclassical theory is engaged: statements that are non-scientific, and not even descriptive, are presented mathematically to lead the reader (indeed the authors themselves) to believe they are really 'descriptions' and 'science'.

The strategic use of mathematics to present the mainstream thesis is not a simple matter of understanding non-statistical mathematics as a 'qualitative tool' (McCloskey 2002: 11-16). Whether quantitative or qualitative, mathematic deductions lack explanatory force if the assumptions they are based on are not real, or at least descriptive.

For example, consider the mathematical expression of marginal utility by Samuelson. Representing marginal utility with a *U*, Jevons's original notation is as follows:

$$U = V1\,(x1) + V2\,(x2) + \ldots. + Vn\,(xn),$$

where *V* is equal to the function represented by the marginal utility for diverse sets of goods represented by *x*. After transformation, utility can be represented as follows:

$$U = F\,[\varphi(x1, \ldots, xn)],\ F(\varphi) > 0$$

where φ represents any utility index, *F* is the function and *x* diverse type of goods.

That shows that, starting from a certain utility index for a certain type of goods, it is possible to deduce the corresponding index for all of the selected goods. But the choice of a utility index is arbitrary, and it is not part of the formula (Samuelson 1977: 95). In this instance, mathematics has no relevance in the patterns of behaviour taken as measures of utility,

and it does nothing to avoid any empirical objection to the concept of 'marginal utility'.

An example that combines the abusive use of models to present normative proposals and the use of sophisticated mathematical tools is Arrow's formal model of general equilibrium (Arrow 1974). The Arrow model is not a 'simplified version' of a real economy, but a set of entities created by the author himself (although with labels suggesting Arrow took into account material facts), added to arbitrary premises. The explanatory force of such model is zero; but its mathematical, complex and rigorous form makes us think we are dealing with 'science.'

Neoclassical thought as an ideology

I have reviewed some objections to neoclassical theory above, spanning many fields: methodological or philosophic issues, confusion of speech uses, and strategic use of speech genres. If mainstream economics is vulnerable to so many objections, how can it maintain its dominant position in economic thought? From a normal perspective, this is like saying that the physical sciences still have Aristotle as their normal framework, even after the works of Kepler, Galileo, Newton, and Einstein.

This situation leads us to the notion of *ideology.* This is one of the most important and controversial concepts of the philosophy of social sciences, owing much to Marx and Marxism but adopted even by such non-Marxist authors as Mannheim (Marx and Engels 1968: 25-27; Marx 1978: 45-54; Marcuse 1969: 128-130; Mannheim 2004: 89ff.). Some authors understand as 'ideology' any socially-influenced speech (Eagleton 1991: 1-31), but I use the term in a definition closer to Marxian tradition. First, it is a speech generated by the influence of interests, in particular the interests of the dominant classes or dominant groups within each class. Second, it is a speech that presents itself as 'neutral' or 'scientific' but which in a veiled way proposes a slanted and interest-determined 'version of reality', or defends a current or possible social situation favourable to some class or group. The existence of such speech plays an important role in social and economic life, because it reproduces the beliefs that generate the behaviours required for maintaining social relations (Althusser 1988: 13-16). We can say that ideologies have a 'complex level', in which relatively sophisticated

versions of the functional beliefs take root within the well-educated sector of society. Among the general population, simplified versions of ideologies (often in the form of short sentences or slogans) become a-critical assumptions, contributing to the masses accepting the conditions of social life or performing the acts necessary to continue the chain of social relationships.

The characteristics of neoclassical thought share the main properties of an ideology. For example, the maintenance of the general equilibrium hypothesis, despite all the evidence against it, can be explained because it supports the belief that capitalism is a naturally stable economic structure. Similarly, the utilisation of the Pareto optimum is overwhelmingly ideological. Although many mainstream economists are careful about the normative status of such a concept, the foundation of such normative model is generally omitted. Normally it is presented as the best conceivable social status without providing any reason. In particular, Pareto-based models omit the fact that the 'optimum' is compatible with every social situation, with the only condition that no one could improve his or her position without diminishing anyone else's situation. So even the normative value of Pareto's optimum is zero, since it could justify a society with widespread and extreme poverty as well as an extremely wealthy society, and extreme inequality as well as a absolutely equal society.

We must also mention the shift in the marginal utility concept in order to silence its possible egalitarian effects. Although decreasing marginal utility led some authors to propose it as a basis for progressive income redistribution measures, the assertion of the impossibility of interpersonal comparisons invalidated that internal tendency of neoclassical thought.

All the characteristics mentioned above are part of a general and deep function of neoclassical theory. Mainstream economics is not primarily a description or an explanation of the economy, but a *de facto* defence of capitalism, by discrediting any form of socialisation or any intervention by the state in the economy, even if such intervention does not entail modifying its central structures.

That is the reason that neoclassical theory is practically devoid of any predictive and explanatory capacity. As an ideology, its social function is not to explain reality or predict events, but to preserve the capitalist system.

The above examples of the ideological contents of mainstream economics referred to the 'complex' or 'educated' level of ideology I mentioned. Indeed, there are academically-oriented speeches aimed at keeping the 'knowledge makers' aligned with the set of beliefs that ensure that capitalism will be reproduced over and over again. This level of ideology influences the public sphere through economic policies and politics, as such proposals are assumed by political parties, authorities, civil servants occupying 'technical' positions (central bank, economy ministries, or fiscal office advisors).

For example, let us look at how limiting state intervention in the production of goods and services is justified. The Pareto optimum generates, or is closely connected with, the notion of 'efficiency.' When in a society every individual can make every decision only as a function of his or her marginal utility, such a society can be said to be 'efficient.' Such situations coincide with a Pareto optimum, since no one can improve without prejudice to anyone else. If the state intervenes in production, for example protecting a sector through import taxes, it causes an 'unequal' scenario for decisions on the purchase of the same product depending on whether it is produced locally or abroad. This entails a deviation from 'efficiency,' so that in principle these kinds of measures should be avoided. Even if other elements (national employment, strategic nature of the protected industry, etc.) are taken into account, the introduction of the 'efficiency' notion limits the scope of protective measures, irrespective of the literal lack of factual content and the normative nature of 'efficiency'.

Neoclassical theory also extends its ideological nature to the private sector. By means of its predominance in universities, academic bodies, and other technical or teaching institutions, sophisticated or standard versions of the central (or derived) concepts of mainstream economics (for example, public budget constraint, the lack of efficiency of taxes and public expenditure) disseminate and spread across strategic positions in business, mass media, etc. Mainstream economics supplies the 'types of decision,' and it also turns into a public discourse that is heard, read, and learned by non-academic sectors of society (Bourdieu and Boltanski 2009).

The current state of economics and possible futures

A review of economics would not be complete if we did not mention the rival paradigms to mainstream neoclassical theory, commonly known as 'heterodox theories': such as Institutionalism, Marxism, and post-Keynesianism. These theoretical frameworks have in common their opposition to the central and ancillary neoclassical hypotheses, as well as producing contrary claims regarding certain aspects of capitalism, such as its cyclical tendency (in opposition to general equilibrium), and the idea of collective groups as economic agents.

Prominent authors belonging to the Institutionalist school of economic thought include Thorsten Veblen, Gunnar Myrdal and Douglass North, among others. The common points shared by these authors include the importance afforded to 'non-economic institutions' (such as the state, culture, traditions, etc.) in the configuration of the economic structures, instead of specifically economic behaviors. They also give central importance to differences in the historical processes of regions to explain the differences in economic performances. I think the comparatively little influence of this line of thought is due to the need (typical of the Western way of thinking about the world) for holistic and totalizing explanations. However, Institutionalism merits attention, in particular its concept of constant interaction between the various spheres of social life.

Marxism could have an important internal consistency as a 'research program,' as Marxists share some central hypotheses, such as the concept of surplus, the theory of value, the interpretation of the economic structure as a 'mode of production' composed by a material base and a set of social relationships of production and distribution, etc. In terms of Lakatos' conception, other hypotheses by Marx, such as the controversial tendency of the profit rate to fall, could be considered as 'ancillary hypothesis', even when many Marxian economists do not share some of them (as an example, see the debate around the 'Okishio theorem') (Kliman 2017: 341 and ff.). Furthermore, and in spite of Ward's opposite opinion (Ward 1972: 70), a number of researchers in economics have been working along within a Marxist framework.

'Post-Keynesianism' is a vague term used to describe a heterogeneous set of theories (perhaps) unified by emphasis on the central role of demand in determining the dynamic of capitalist economy, the key role of endogenous credit, as well as the naturally cyclical nature of capitalism.

In the past this school has been considered as a paradigm (Eichner and Kregel 1975), but this is unclear because of the divergence of sources of the 'post-Keynesians" basic premises. While the 'Keynesian' school (strictly speaking) does not propose a specific social structure, or a particular economic motive of behavior different from the 'marginal utility,' the 'Kaleckian' viewpoint has been traditionally connected with certain heterodox forms of Marxism. We face the same problem as with Marxism and every economic or social theory: until now, except for some isolated cases (linguistics maybe), Kuhn's concept of 'paradigm' is not met by any social theory.

Both Marxism and Post-Keynesianism have higher 'scores' than mainstream economics when considered from the philosophical and methodological viewpoint. Many hypotheses of Marxism and post-Keynesianism are themselves, as well as their derivations, falsifiable statements in Popper's framework. Consider the example of the tendency of the profit rate to fall. Although the way to measure the rate of profit is a matter of wide discussion, the hypothesis in itself is perfectly refutable on empirical basis. Paradoxically, under the Lakatos' concept of 'research program', the existence of several ancillary hypotheses allows the program to change in accordance with the appearance of anomalies. In this way, both Marxism and Post-Keynesianism have an important arsenal of ancillary hypotheses: the tendency of the rate of profit to fall, or the Kaleckian explanation of the investment decisions of capitalists are among them.

Anyway, the social sciences face major – maybe insurmountable – obstacles in trying to achieve the same status as the natural sciences. First, even if we work within a paradigm or research program provided with a 'better set of hypothesis', the evaluation of observational data requires a heuristic (negative or positive) given by the program, one that indicates what we must take into account and what we must not. In this way, every paradigm or research program of social sciences, economics in particular, seems to provide a much wider negative heuristic in comparison with the natural sciences. That is a signal of an excess of anomalies not covered by ancillary hypotheses.

Besides, economics displays (and that may be the case for all so-called 'social sciences') a multitude of rival research programs or theoretical frameworks. These frameworks are incommensurable: their categories of analysis and observation and their 'taxonomies' (the catalogue of

'entities' that each theory admits) differ to the point of making dialogue relatively impossible (Kuhn 1989). And this problem is independent from the proposal of refutable statements.

In Kuhn's terms, economics would be a pre-science, understood as the step of knowledge prior to 'normal science': its many 'schools' have, at the same time, different explanations and interpretations for a set of phenomena (Kuhn 1993: 36-50). But there is an essential difference in the cause of the divergence in economics, in comparison with the plurality of paradigms in the birth of contemporary physics described by Kuhn. In the latter, the divergence was resolved as a race for 'better explanations' for the same phenomena. In economics and the rest of the 'social sciences,' the divergences instead have their origin in the 'immersion' of the discipline in its own object, as Marx stated in the mid 1800s (Marx 1978: 45-54). The diversity of 'paradigms' cannot be resolved by pursuing 'better explanations', because economists are involved, consciously or not, in a struggle of opposing social interests. Moreover, few are ready to accept the empirical rejection of any hypothesis favourable to their interests.

This is not meant to imply that economic analysis is useless; rather it seeks to put this kind of 'research' in perspective: as part of a political debate about the current and future conditions of social life. Perhaps it is a sign that no social discipline can achieve the status of a 'science' in similar terms as physics, biology, or the so-called 'natural' or 'traditional sciences'.

Beyond the discussion about the status of economics and social sciences in general, I think there is one thing that is undeniable: neoclassical theory has been the main obstacle to the rational development of economics, as well as the source of the probably vague, but also widespread, belief of the uselessness of economics for predicting and solving economic problems. Consequently, the future of economics is dependent on ending the predominance of neoclassical theory.

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