On the Criticism to the Classical Method*

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Summary: 1. Introduction; 2. The classical method; 3. The criticism on long-run equilibrium; 4. The criticism on classical gravitation; 5. The criticism on the concept of free competition; 6. Addressing the criticism on equilibrium; 7. Addressing the criticism on gravitation; 8. Addressing the criticism on free competition; 9. Concluding observations.
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This article addresses the most common criticisms on the "surplus approach". It shows that the classical method avoids the excess of abstraction of neoclassical general equilibrium theory, which produces models that have no empirical content, and the lack of abstraction of the post-Keynesian school which does not accept equilibrium. Taking reality as a chain of accidental events connected in a dynamic logical process, the neoclassical school conceives market prices as empirical phenomena that nevertheless gravitate around moving equilibrium prices thanks to the adjustment mechanisms. Though this gravitation process should be conceived as an axiom of logic, it can be modeled in such a way as to produce stable results under quite reasonable assumptions. Finally, it shows that the classical concept of competition can be used for explaining profit rate differentials, which are the bases of the theory of oligopoly pricing.

Este artigo analisa as principais críticas à "abordagem do excedente econômico". Ele mostra que o método clássico evita o excesso de abstração da teoria neoclássica do equilíbrio geral, que produz modelos sem conteúdo empírico, e a falta de abstração da escola pós-keynesiana, que não aceita o conceito de equilíbrio. Considerando a realidade como uma cadeia de eventos acidentais conectados num processo dinâmico, a escola clássica concebe os preços de mercado como fenômenos empíricos que gravitam em torno dos preços de equilíbrio graças aos mecanismos de ajustamento. Ainda que o processo de gravitação deva ser concebido como um axioma lógico, ele pode ser modelado de forma a produzir resultados estáveis sob hipóteses bastante razoáveis. Finalmente, o artigo mostra que o conceito clássico de concorrência pode ser utilizado para explicar os diferenciais de taxa de lucro que representam a base da teoria de preços em regime de oligopólio.

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1. Introduction

The publication of Sraffa's *Production of commodities by means of commodities* brought with it the rebirth of the classical approach, which was created by Quesnay and developed by Smith, Ricardo, and Marx. The classical approach has its center in the notion of "social surplus" and relies on the twin concepts of free competition and long-run equilibrium (Clifton, 1977; Garegnani, 1978; Shaikh, 1978; Eatwell, 1982; Milgate, 1982 and 1987; Eatwell & Milgate, 1983a; Green, 1982 and 1987; Dúmenil & Lévy, 1987; Vianello, 1989; Kurz & Salvadori, 1997:2; Schefold, 1997:7-9). These concepts ensure that actual prices "gravitate" around their "normal" levels, so that deviations from these long-run positions are accidental and temporary (see also Caminati, 1990, and Caminati & Petri, 1990).

Though this approach has shown internal consistency (Hahn, 1982:353), it has been subject to strong criticism on methodological grounds. This criticism encompasses the supposedly unrealistic character of the classical method, especially the concept of long-run equilibrium, the deficient stability features of the classical adjustment process, and the unfitness of the concept of free competition to the modern economy. The objective of this paper is to address these criticisms, showing that the classical method has strong basis that can not be easily shaken.

The layout of this paper will be as follows: a summary in section 2 of the classical method based on long-run equilibrium and gravitation; criticisms of the same in section 3 (long period equilibrium), section 4 (stability of the classical adjustment process), and section 5 (free competition); addressing of such criticisms in sections 6, 7, and 8; and a summarizing of the conclusions in section 9.

2. The Classical Method

The classical method was born with Quesnay's *tableu economique* (1758), which, following Newton's methodological breakthrough, showed how it is possible to have an entirely rational (theoretical) system that explains empirical reality.[1]

[1] *Although the search for social laws compatible with human freedom was previous to Quesnay, his work seems to be the first one to satisfy the scientific requirements for a social science.*

Quesnay's method is very clear and relies on two necessary axioms. The first axiom, which is interchangeable with the concept of a scientific construction, establishes that there are "natural laws" regulating transactions among different social classes (Afannasiev, 1967:20; Meek, 1963:19). The second is the axiom of reproduction. It requires that the production and the circulation of social wealth must reproduce society's material bases and its social structure (Afannasiev, 1967:19; Meek, 1963:19-22; Pasinetti, 1977:4; Dadayan, 1980:8).

The same basic principle of necessity can be found in Adam Smith's *Wealth of nations* (first published in 1776), which is based on the axiom of competition.[2] If consumers can move from one shop to another, and labor, capital, and land, from one sector to another, there is a tendency for only one price for each specific commodity, and only one rate of remuneration for each productive factor.[3] The prices that meet the law of one price and the law of only one rate of remuneration for each factor of production are called "natural prices" (Smith, 1976:62). These prices are long-run equilibrium prices because they imply that no flow of productive factors from one sector of production to another takes place whey they prevail. The price system is at rest.

Following the principle of realism, Smith shows that natural prices (theory) govern empirical prices (reality). This is accomplished by defining actual prices as market prices, which depend on the balance between the quantity supplied and the level of "effectual demand" (the quantity that would be demanded if long-run equilibrium prices prevailed in the market). As a function of temporary and accidental (historical) factors, market prices may be either above, below, or exactly the same as natural prices (Smith, 1976:63). If the quantity of a commodity brought to the market exceeds the level of effectual demand, its market price falls below its natural price. In this case, at least one component of its price (profits) must be paid below its natural rate. If there is no non-economic restriction to factor mobility, capital leaves the sector in search of higher remuneration elsewhere. This decreases commodity supply,

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[2] *"(...) only through the principle of competition has political economy any pretension to the character of a science" (Mill, 1965:242).*

[3] *This notion of free competition does not need, as supposed by Salanti (1990), the hypothesis that capitalists and consumers have a maximizing behavior in the neoclassical sense because Okishio's Theorem (Roemer, 1981:97-105) ensures that entrepreneurs minimize costs in order to survive and classical duality (Garegnani, 1984) establishes that equilibrium prices are determined independently from consumers' preferences.*

making room for higher prices and for a higher rate of return in the sector. As soon as the increasing profit rate reaches its natural level, capital ceases leaving the sector. The opposite takes place whenever the quantity brought to the market falls below the level of effectual demand (Smith, 1976:65). Finally, when the quantity brought to the market meets the level of effectual demand, market price coincides with natural price and capital movement ceases altogether.

Smith (1976:65) concludes by considering natural prices as *centers of gravitation* of market prices: "The natural price, therefore, is, as it were, the central price, to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it" (Salanti, 1990:96).

These same aspects are stressed by Ricardo in 1817, who, though not adding anything new to Smith's analysis of long-run equilibrium prices,[4] emphasizes the fact that it is the tendency for a uniform profit rate across sectors that brings about the gravitation of market prices around natural prices. "It is then the desire, which every capitalist has, of diverting his funds from a less to a more profitable employment, that prevents the market price of commodities from continuing for any length of time either much above, or much below their natural price" (Ricardo, 1975:91).

Marx, in 1894, holds the same position regarding long-run equilibrium prices. He asserts that "it is competition of capital in different spheres, which first brings out the price of production equalizing the rates of profit in the different spheres" (Marx, 1984:180). By price of production Marx understands prices that yield the average profit rate, that is, natural prices. Like Smith and Ricardo, Marx asserts that the price of production "is, in its turns, the centre around which the daily market-prices fluctuate and tend to equalize within definite periods" (Marx, 1984:179).

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[4] *Ricardo remarks that "in the 7th chapter of the* Wealth of Nations, *all that concerns this question [the difference between market prices and natural prices and the gravitation of the formers around the latter] is most ably treated" (Ricardo, 1975:101).*

Although Marx's theoretical construction incorporates the Smithian-Ricardian concept of long-run equilibrium prices, it has important methodological innovations. These innovations, nevertheless, can be conceived in some sense as natural developments of the previous classical principles, so that Marx's "scientific methodological revolution", to use Althusser's (1867) words,[5] can be considered as a radicalization of Ricardo's and Smith's methods. This is so because the Marxian method is largely based on Hegel's dialectic (Likitkijsomboon, 1992; Zeleny; 1980, Lenin, 1961),[6] which incorporates not only Newton's scientific procedure, but Adam Smith's methodological contributions as well.[7]

It is true that, starting from the "general principle" (commodity), Marx's developments differ from Smith's and Ricardo's, but this is due to the fact that Marx was a philosopher and disciple of Hegel, and therefore was very conscious about the scientific method. Instead, Smith and Ricardo made science without worrying so much about its philosophical foundations. This is one of the reasons why the logic of *Capital* appears in a dialectic fashion, following the self-unfolding process of the capitalistic mode of production from its simplest category (commodity) to a fully developed capitalist economic system. In contrast, the order of categories in Smith and Ricardo looks more like a juxtaposition than an organic construction following an immanent logic of self-development. Nevertheless, their systems also proceed from the more simple and abstract categories (trade or exchange value) to the more complex and concrete concepts (like ground rent and international trade).

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[5] *It should be stressed that Althusser's view that the Marxian method is entirely new has little support in the philosophical literature and in Marx's writings (Giannoti, 1975).*

[6] *The controversy around the relationships between Hegel's dialectic and Marx's method bears witness to the importance of the Hegelian method for the Marxian theory. Marx himself confesses he was a "pupil of that mighty thinker" as well as having "coquetted with the modes of expression peculiar to him" in the chapter on the theory of value (Marx, 1984:29, v. 1). As it will be shown later, Lenin (1961:180) is completely right when he asserts that "it is impossible to completely understand Marx's* Capital, *and especially its first chapter, without having thoroughly studied and understood the whole of Hegel's* Logic*".*

[7] *According to Chamley (1965), Hegel arrived at the concept of civil society (Bürgerlichgesellschaft), which means the sphere where the individual has to satisfy his necessities, from the study of James Stuart and Adam Smith. For Hegel, in modern society the individual is submerged into an autonomous sphere of economic rationality which has its own objective laws.*

3. The Criticism on Long-Run Equilibrium

As far back as 1934, Kaldor pointed out that "it is not possible (...) to determine the position of equilibrium from a given system of data since every successive step taken in order to reach equilibrium will alter the conditions of equilibrium (the set of prices capable of bringing it about) and thus change the final" (Kaldor, 1989:16). This theme was also under consideration in his 1972 paper, where he stated that "the habits of thought engendered by 'equilibrium economics' has become a major obstacle to the development of economics as a *science*" (Kaldor, 1972:1.237). Although he restricted the meaning of "equilibrium economics" to the "general economic equilibrium originally formulated by Walras, and developed, with ever-increasing elegance, exactness, and logical precision by the mathematical economists of our own generation" (Kaldor, 1989 and 1972:1.237), he accused Adam Smith of being responsible for the birth of "equilibrium economics" and established a continuous line of the price theory from Smith to Debreu, passing through Walras and Marshall.

A similar position can be found in Joan Robinson (1962), who asserted that the very notion of long-run equilibrium should be abandoned since the "real world" with an irrevocable past and an unforeseeable future "in which expectations are liable to be falsified cannot be described by the simple equations of the equilibrium path" (Robinson, 1962:25). Besides, the equations of such a model "may determine a path through time. (...) But the time through which such a model moves is, so to speak, logical time, not historical time" (Robinson, 1962:23-4). Finally, "a model applicable to actual history has to be capable of getting out of equilibrium; indeed, it must normally not be in it" (Robinson, 1962:24).

The same idea is also found in Robinson (1979a), where she conceives equilibrium as incompatible with "the uncertainty that surrounds expectations of the outcome of a plan of investment, of the course of technical progress, of the behavior of future prices, not to mention the effects of natural and political cataclysms" that "cannot be reduced to a 'calculated risk' by applying the theorems of mathematical probability", so that its place should be taken by history (Robinson, 1979a:48). Besides, the concept of *stability*, which is "based on a mechanical analogy", is viewed as inappropriate in economic analysis.[8] "If", for instance, "we construct the [von Neumann] equations for a single self-reproducing system and then confront it with an unforeseen change, an

[8] *Robinson (1977:8) resorts to the same criticism.*

event taking place at a particular date, we cannot say anything at all before we have introduced a whole fresh system specifying how the economy behaves in short-period disequilibrium" (Robinson, 1979a:50). The same thing happens when a Walrasian model of general equilibrium is considered. "A change in the pattern of production must involve investment and disinvestment, at least in work-in-progress, and windfall losses and gains on stocks that have become inappropriate. To say how long it will take, or by what path, to find a new equilibrium (if there is one) we have to fill in a whole story about the behavior of the economy when it is out of equilibrium, including the effect of disappointed expectations on decisions being taken by inhabitants" (Robinson, 1979a:52).

Although the main target of such criticism is undoubtedly the Walrasian model of general equilibrium, particularly the version of Arrow-Debreu, Robinson seems to extend it to the classical school as well in so far as she states that "the specification of a self-reproducing system such as that of Sraffa or von Neumann exists in logical time, not in history" (Robinson, 1979a:50). The same impression is felt when she asserts that, in spite of intending to have a model in historical time, Ricardo resorts to timeless equilibrium, when he assumes that resources can move instantaneously from one industry to another in each country, and when he relies upon gold flows and the quantity theory of money to establish equilibrium in the price levels of trading countries (Robinson, 1977:25). Finally, Robinson textually declares that Garegnani's "conception of the long period, particularly of the normal profit rate", as it is developed in his article on the question of effective demand (Garegnani, 1978), "is not easy to grasp", being difficult to see if it means "what the profit rate on capital will be in the future or what it has been in the past" or even a rate that floats "above historical time as a Platonic Idea" (Robinson, 1979b:180).[9]

These few indications that Joan Robinsons' criticisms against Walrasian notion of equilibrium could also be used against the classical method have become a source of inspiration for some authors. Post-Keynesians argue that the classical approach suffers from the same endogenic disease of unrealism and lack of specification of the behavior of the economy when it is out of equilibrium, including the effect of disappointed expectations.

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[9] *It is interesting to stress that the same criticism was made regarding the Marxian concept of labor-values, considered as an metaphysical idea by Joan Robinson, in her book* Economic philosophy *(Robinson, 1962:27). Nevertheless, this "metaphysical idea" is the very bases of many empirical/analytical recent works.*

This is the case of Possas (1987:21-33), who rejects the very notion of equilibrium, conceived as opposed to dynamics, arguing that equilibrium ignores that agents' decisions are autonomous and interdependent in relation to expectations regarding the future. In this sense, the only possible use for "static equilibrium" "refere-se à possibilidade e mesmo à necessidade de formular, ao nível estritamente *conceitual* e *atemporal*, os níveis de preços, salários, taxas de lucros, o conjunto de fluxos intersetoriais etc., que correspondam às condições ideais de *reprodutividade* (não do processo *real* de reprodução, que é necessariamente *dinâmico*) de um sistema econômico capitalista sob dadas condições técnico-produtivas e de concorrência" (Possas, 1987:22-4).

Another critical but different view is held by Carvalho (1992:29), who thinks that, though the long period equilibrium method does not take into consideration "volition and the freedom that the existence of money in a modern capitalist economy confers on individual agents", it should not be abandoned altogether. To reconcile these two elements, order and freedom, without surrendering to either of them, as did the classical determinists who saw order, or the Austrian irrationalists, who could only see the individual", Carvalho (1992:29) proposes Keynes' method.

Amadeo and Dutt (1990:49-60) share the same view that the followers of the long-run equilibrium method "take too many things as given". According to them, since the scale and composition of output and the size and composition of capacity are adjusted one to the other, the method is not suitable for studying disequilibrium situations in which capacity does not correspond to its normal level. In the second place, it does not take into consideration the expectations, the determinants of investment demand, or the relation between the distribution of income and the level of consumption demand. Third, neglecting expectations and uncertainty imposes serious limits on the analysis, especially regarding the short-run. Since "the notions of equilibrium and disequilibrium (and steady state path) (...) are powerful instruments of analysis" (Amadeo & Dutt, 1990:45), the followers of the long-run equilibrium method (the neo-Ricardian) "are probably right to the extent of arguing that if an equilibrium concept is not employed, nothing can be said regarding the economy" (Amadeo & Dutt, 1990:150). However, they should take disequilibrium into account to deal with the issues for which equilibrium analysis is not suitable.

4. The Criticism on Classical Gravitation

Doubts regarding the stability of the classical adjustment mechanism described in section 2 came initially as a result of Jorgenson's dual stability theorem, which confirmed Solow's conjecture that, if the balanced growth path for a Leontief dynamic input-output scheme is stable, "then it seems likely that the [equilibrium] price model will be unstable" (Solow, 1959). Indeed, the dual stability theorem establishes that "if the output system is globally relatively stable, then the price system is unstable in this sense, and vice versa" (Jorgenson, 1960:893).

A direct criticism came with Donald Harris (1988 and 1991), who pointed out that the central problem of the classical conception of competition – to demonstrate how the classical concept of competition, "correctly conceived as a turbulent process or as 'creative destruction', may be considered to converge or gravitate towards a state of uniform profit rates as a condition for continuity and reproduction of the economic system as a whole" – has not been solved (1988:142).

Harris' conclusions are based in four points. To start with, he resorts to Steedman (1984) to show that the direction of the price deviation need not be the same as the direction of the profit deviation. Therefore, if classical competition prevailes, capital may flow out from a sector where market price is above production price and vice-versa, so that unbalance between supply and demand will increase instead of decrease. The result would be a divergent process that would carry the economy even farther from its equilibrium position.

Second, the classical mechanism is largely based on the presumption that "capitalist firms are passive price-takers, in the strict sense of adapting their product prices and profit margins to the specific requirements of a predetermined general profit rate perceived as a norm" (Harris, 1988:146). However, modern corporation is part of "a structure of oligopolistic firms in which price competition is simply one component, and a highly modified and subsidiary one at that, of a broader process of strategic rivalry among leading firms" (Harris, 1988:146).

Third, as stressed by Kaldor, the dynamic economic process is *path dependent*, so that the very position of equilibrium toward the system is supposed to converge does not exist independently of the very process of convergence

(Harris, 1988:147). Besides, the classical concept of competition assumes that "the technique in use is the best available under existing conditions" (Harris, 1988:150) but does not explain "by what process a shift occurs from one technique to another" (Harris, 1988:151).

Finally, the construction of choice of technique "entails a conception of competition that not only is independent of the process of technical change but also is a passive adjustment to the given conditions of the production that technical change independently generates" (Harris, 1988:153).

The same criticism is made by Nell (1996:387), who points out that "critics of the long-period method (LPM) have long argued that the very competition that tends to form a uniform profit rate also engenders rapid and substantial technological change. Such change would then invalidate the long period method, since the coefficients defining a long period position will change before long-period prices can be established. This criticism can be combined with another – that convergence to long period positions appears to require both price flexibility and a short-run perspective on investment (i.e. a willingness to move capital in response to short-run price changes). Such a price mechanism may well have characterized the advanced capitalist economies of Marshall's time, but it has no place in the mass production economies following World War II, in which technological change has become a major driving force of investment" (Nell, 1996:379-80).

A more formal criticism of the classical concept of gravitation can be found in Nikaido (1983 and 1985).[10] Dealing with a two sector input-output model with simple and expanded reproduction, he concludes that "the dynamic equalization of profit rates vitally hinges on how sectors differ in their organic compositions of capital, rations of constant to variable capital, and that if the capital good sector (the department producing means of production) has a higher organic composition than the consumption good sector (the department producing wages and luxury goods), market prices tend to diverge from prices of production, as capital moves, disproving profit rate equalization" (Nikaido, 1983:338).

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[10] *Nikaido's first criticisms on the classical concepts of competition and gravitation came in his paper* Refutation of the dynamic equalization of profit rates in Marx's schemes of reproduction *(Department of Economics, University of Southern California), but since this draft was not published in a technical journal it is not considered here. However, it had a strong impact upon economists' opinion, since it was believed until the conference on classical dynamics held in Paris, at the OFCE, that the classical model was not stable.*

5. The Criticism on the Concept of Free Competition

For many political economists, such as Maurice Dobb, Paul Sweezy, Joseph Steindl, Donald Harris, and Edward Nell, the price theory described in the previous sections, whatever its self-consistency may be, does not take into account the fact that capitalism has already gone beyond the phase of free competition and has entered the phase of oligopoly. The 19th century is usually considered as the competitive stage of capitalism, with free entry ensuring the equalization of profit rates among different sectors, and price flexibility producing a uniform market price for all producers within each industry. According to those economists, at the end of the last century, capitalism revealed an inherent tendency toward oligopolization, with increasing concentration and centralization of capital. In this new industrial structure based on large corporations and oligopolies, capital movement across sectors has been restricted and prices become sticky. As a result, the old tendency for a uniform profit rate has been substituted by profit rates differentials among sectors, and price uniformity has been substituted by price differentiation within each sector. Harris, for instance, stresses that in modern economy there are various forms of "barriers to entry" derived from intrinsic production features, innovation, financial markets, labor markets, and the formation of demand, preventing capital (and labor) from moving from one sector to another. As a consequence, instead of a tendency toward a uniform profit rate, "there are in actuality powerful factors at work to oppose that tendency and to push the economy in the opposite direction towards a persistent differentiation in profit rates" (Harris, 1988:147). The same position is held by Nell, who, following the post-Keynesian tradition of Eichner (1973), asserts that in modern economy mark-up pricing, that generates different profit rates across sectors, prevails (Nell, 1992, 1993, and 1996).

6. Addressing the Criticism on Equilibrium

The Kaldorian-Robinsonian rejection of any notion of equilibrium, based on the idea that equilibrium is path-dependent and that the "real world" is a historical one with an irrevocable past and an unforeseeable future does not seem defensible, since it does not take into account the radical differences between the Walrasian and the classical conceptions.

It seems clear that the first editions of Walras' *Elements of pure economics* were based on the classical method of long-run equilibrium, since equilibrium prices are set to be equal to costs of production, and the achievement of the long period position was conceived through a process of trial and error (groping). Soon, however, this concept had to be abandoned, since it was realized that any trade that might happen at disequilibrium prices would change the endowments and, then, change the very position of equilibrium, rendering it path-dependent, that is, useless. The solution for his problem was to construct an ideal process of adjustment that would be carried out by a fictitious auctioneer that would not allow any exchange to take place at "false" prices. Another solution was to admit the hypothesis of recontracting so that any transaction out of equilibrium would be retaken at equilibrium prices.

It is clear that, if uncertainty and/or market imperfections (failures) and/or historical accidents were introduced in this ideal world there could not be any tendency toward equilibrium prices – there would be as many equilibria as the actual paths of trading, as pointed out by Kaldor and Joan Robinson (see also Jaffé, 1967). If the initial conditions were not those of equilibrium, there would not be any convergence to the equilibrium position unless the initial conditions could be resettled. But, since in the *real world* this does not take place and trades at disequilibrium prices actually occur, there is thus a clear cleavage between the logical requirements of the theory and the historical contingencies of the real world. Equilibrium theory becomes a Platonic ideal that floats above reality (Duménil & Lévy, 1987:138).

This failure to consider real world phenomena, however, is not a feature of the classical price theory (Duménil & Lévy, 1987; Bharadwaj, 1991; Walsh, 1992). As discussed in section 2, the classics do sustain that actual prices are, in general, different from equilibrium prices due to historical contingencies. "The economy generally is considered to be in *disequilibrium*" (Duménil & Lévy, 1987:135). Nevertheless, in any disequilibrium situation there are economic forces at work to bring the system back to its equilibrium position.[11]

[11] *"The genius of the classicals was to contend that decentralised competitive processes were governed by a certain degree of rationality. But they were wise enough not to caricature this determinism by referring to an ex ante equilibrium deprived of any operating mechanism for adjustment" (Dúmenil & Lévy, 1985:341). Davidson (1985:26), for instance, is mistaken when he states that "all equilibrium models by their very nature of focusing on the equilibrium position are unable to handle situations of disappointment", since this is only valid for general equilibrium models.*

Thus, "the classical analysis of competition envisions a *dynamic sequential process.* The situation towards which the economy ultimately tends is a fixed point, an equilibrium of the dynamic process" (Duménil & Lévy, 1987:135). To discard equilibrium analysis implies to ignore those forces, that is, to get rid of reality as well. In other words, the classical school takes both history and theory in their price model into account, avoiding the excess of abstraction of the Walrasian system or the excess of realism of the post-Keynesian theory.[12,13]

As it was shown in section 2, Smith, Ricardo, and Marx envisage long-run equilibrium prices not as a Platonic idea but as a center of gravitation that does attract actual prices such that the real (immediate) price vector can assume any value at a given moment due to any set of historical circumstances (Salanti, 1990).[14] "Equilibrium is, as Adam Smith might have put it (though he did not use the term), the centre of gravitation of the economic system – it is that configuration of values towards which all economic magnitudes are continually tending to conform" (Milgate, 1987:179). Therefore, there is nothing similar to the Walrasian requirements regarding "false trading", and changes out of the equilibrium position can and indeed do take place without damaging the classical competitive mechanism that is both logical and historical at the same time: it gives a necessary law that imposes itself, ordering the otherwise chaotic behavior of the historical chain of economic events. In this sense it is an error to consider Smith, as it was done by Kaldor, as belonging to the same group of Walras and Debreu. Joan Robinson is also mistaken when including Ricardo, Sraffa, and Garegnani in this same group. As stressed by Walsh (1992:27), "competition in Smith, Ricardo or Marx is not the timelessly (or intertemporally) perfect competition, based *inter alia* on perfect information (or calculable risk) of the neo-Walrasian class

[12] *It is interesting that the very idea of "normal" (equilibrium) profits does appear in the post-Keynesian literature, in spite of the rejection of the idea of equilibrium. Thus, in Kaldor (1959) the average cost curve includes "normal" profits and if previous profit expectations have been exactly fulfilled firms make only "normal" profits. In Davidson (1985:33-43) the same idea is present as well.*

[13] *This very idea is accepted even by some critics to the classical equilibrium method as well, like Donald Harris (1988:143).*

[14] *Although Roncaglia (1990) seems to defend exactly the idea that long-run equilibrium prices neither are persistent nor attract market prices, being then a highly notional construct, like the Walrasian prices.*

of models".[15] The classical analysis "reflects the fundamental character of competition in capitalist economies: it is *dynamic, decentralized*, and occurs in *disequilibrium*" (Duménil & Lévy, 1987:137).

However, in a sense, the Kaldorian-Robinsonian criticism of the idea of equilibrium is valid: both Smith and Ricardo envisage the market economy as a harmonic system where crisis can happen only due to financial mismanagement. But since capitalism is crisis-prone, a method committed to analyzing *stable positions* "is not likely to be helpful in understanding unstable economies" (Nell, 1996:384), particularly for the period after the Word War II, characterized by sharp economic instability (Nell, 1992, and Nell & Phillips, 1995). "Convergent gravitation models exhibit the wrong dynamics for contemporary conditions" (Nell, 1996:390).

Nell's remarks seem to put the classical approach in a dilemma: either it keeps the concept of gravitation and loses realism or it abandons the process of adjustment to explain the endemic instability of modern economy and it loses coherence. However, it should be stressed that Nell also gives some hints about what would be a sound treatment of the problem of instability preserving the classical notion of equilibrium. The first step would be to interpret the classical price equations "as showing the average profit rate and the average input coefficients, averaged over all the vintages currently in operation, weighed by their normal contributions to output" (Nell, 1996). The second step would be to take the uniform profit rate not as floating above historical time, but "firmly anchored in the present by the fact that it rests on technical coefficients defined as averages of the vintages currently in operation" (Nell, 1996:397).

These steps are important to avoid Morishima's conception that prices and profit rate are determined only by the most profitable techniques. This notion is based on the Marshallian concept of a representative firm that is a price taker and uses the most efficient method of production. In contrast, according to the classical analysis, particularly of Marx, "the technique which is 'dominant' in the determination of prices is not necessarily dominant technologically. A superior technique may be used by a limited number of producers,

[15] *Commenting on the classical concept of equilibrium, Walsh (1992:25-6) asserts that, while Joan Robinson's long-period equilibrium is an imaginary state of affair in which there are no incompatibilities in the existing situation, "for the classics, a long-period position was precisely a state of affairs which would* tend *to become established if there were no disturbances to prevent the working out of the deep underlying forces in an economy over a* long stretch *of historical time".*

yielding them 'super-profits', yet be insufficiently generalized in use to affect current price determination. Conversely, some 'fossils', embodying out-of-date methods, are also used. (...) Neither 'superior' technique nor 'fossils' are relevant to the determination of value and distribution" (Eatwell, 1990:342-3), which depend on the average technique that reflects "the conditions of production normal for a given society" (Marx, 1984:129). "Finally, the Classical equations can be interpreted in line with the very traditional concept of the long-period; namely, as the hypothetical fully adjusted position of the economy that would exist if there had been time for everything to work out" (Nell, 1996:398).

Actually, in some sense, Nell's requirements for a dynamic analysis of capitalism can be found in the work of Marx, who tries to conciliate the idea of convergent gravitation with endogenously generated cycles. According to Marx, even disruptive crises (breakdowns), can be interpreted as a violent way to reestablish forcibly the balance between supply and demand, that is, the "unity between elements that have become independent and the enforced separation from one another of elements which are essentially one" (Marx, 1984:513, v. 3).

Following the classical tradition that springs from Quesnay, Marx is well aware that the concept of reproduction is as necessary as the hypothesis of convergent gravitation in order to have economics as a science. That is why his analysis is based on both the schemes of reproduction and production prices. Nevertheless, he does not accept the Smith-Ricardian concept of capitalism as a harmonic economic system. On the contrary, he sees in the separation between sales and purchases the possibility of crisis. With the advance of social division of labor, the function of commodity circulation – to convert commodity-capital into money-capital and money-capital into commodity-capital, that is, the activities of buying and selling – becomes an independent business of a special group of capitalists. This separation is important because it allows for an expansion of the productivity powers of society, since the industrial (or productive) capitalists can dedicate all their energies to the productive activity.

Since large scale production must be taken in a continuous fashion while consumption is seasonal, one important function of trading capital is to make them compatible with each other, which is made through movements of stocks of inventories. However, since there is no perfect foresight, production can out-

distance consumption without being noticed until it is too late to take corrective measures. It is true that this is a remote possibility if the merchants use only their own capital, which is always limited (implying that the possibility of having great stocks of inventories is very low).

That is why Marx considers crisis only as a formal possibility when he studies the question of reproduction, which follows the movement of commodity-capital. To take account for real crisis, that is, how this formal possibility becomes a necessary reality, credit should be introduced into the analysis, because it is the mechanism that allows the separation between production and consumption through the financing of stock accumulation to go to a point where it is finally perceived that the stocks of inventories cannot be sold but with a loss. Since crisis is the mechanism equilibrating reproduction, Marxian gravitation does not guarantee "stability" in the sense of smoothly converging to a harmonic equilibrium position. In other words, it fulfills Nell's requirements.

Another point that should be stressed is that neither technical progress nor path-dependency troubles the classical theory of long-run prices. To start with, as the word *gravitation* suggests, there is no need for the centers of gravitation to be stationary: as in the case of the sun that is always moving and attracting the planets at the same time, production prices may be changing as well, offering a moving target for actual prices.[16] Regarding the question of path-dependency, it should be pointed out that the determination of equilibrium prices depends on the concrete adjustment process only due to two factors. The first one is that, as stressed by Nell, prices of production do not correspond to the best technique available, as would be the case if the classical competitive process were like that of Marshall, but reflect the "average technique", that is to say, a set of techniques of different vintages. The less productive techniques that are kept in use, however, do not depend on historical factors, but on their capability to produce commodities with variable costs below the average price. The second factor is associated with the abandonment of the hypothesis of constant return to scale that is implicit in most classical models in so far as they use constant input-output coefficients.[17] The problem arises because,

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[16] *"(...) the stability of long-period-positions would be more correctly posed as a problem of path-stability, where short-period magnitudes adjust towards a moving position" (Caminati, 1990:14).*

[17] *Mainwaring (1990), for instance, considers a change in the normal real wage, which affects output and methods of production through modifying demand conditions.*

when the hypothesis of constant returns does not hold, price vector depends on the level and composition of quantity vector, which seems to contradict the classical tenet that prices and quantities are determined independently.

This criticism does not take into account, however, that, first, there cannot be identified any *systematic* way in which prices and profit rate change when returns are not constant. Actually, it is possible to determine a clear relationship between returns to scale and profit rate as far as the very concept of returns is redefined. If, thus, decreasing (increasing) returns is associated with higher (lower) technical coefficients of production then it is possible to assert an inverse (direct) relationship between the level of production and profit rate. This relationship was identified by Ricardo and represents the basis for his explanation for the falling profit rate. The problem, however, is that this does not invalidate the classical theory, since it does not allow for the determination of any relationship between marginal productivity and the remuneration of the factors of production. Besides, as stressed by Scheffold (1985), there cannot be found any relation between relative prices and returns to scale, since interindustrial connections prevent any systematic regularity between these variables.

Moreover, the very definition of increasing (decreasing) returns for the production of the generic commodity j makes sense only when there is an increase (decrease) of at least one of its input-output coefficients and the others remain constant when production expands. However, in many cases it should be expected that some coefficients decrease (increase) when production rises and in this case there is no clear definition for decreasing (increasing) returns to scale in an input-output framework.[18] Another situation in which equilibrium prices depend on the composition of output is joint production. It is clear that, in these cases, gravitation is not a process that takes place around given magnitudes, but it does not follow that the concept should be abandoned altogether. Neither is it necessary to determine the adjustment path itself, since there cannot be any systematic way to do so because the concrete adjustment process depends on historical and accidental factors.[19] The correct method for dealing with such a question is to consider prices

[18] *Note that* locally constant returns *are required to explain historical phenomena to make sure that the given technique has a sufficient degree of persistence.*

[19] *The concrete adjustment mechanism is important for explaining concrete facts, but cannot be incorporated in the scientific body, which is not constructed for representing* reality, *but for* explaining *it. The confusion between scientific representation and scientific explanation is a common mistake among economists who mix up history and logic.*

of production as moving centers of gravity: as the level and composition of production change, so do equilibrium prices, which drag actual prices in their movement.

7. Addressing the Criticism on Gravitation

In relation to Harris' claim that the convergence of market prices toward their long-run equilibrium position lacks a formal proof, it should be recognized that, in the first place, the mechanism described by Smith/Ricardo/Marx stands on its own, since it is a logical consequence of competition. It is just not credible that capital would not move to those sectors where profitability is higher and try to abandon those sectors where profitability is lower. It is not credible either that the new capital would not expand output in the sectors where it flows and that the increasing amount of product may lower the market prices. By the same token, if capital is leaving, it is reasonable to assume that production will decrease, which might result in a higher price in the future. Moreover, as it will be seen below, most counterproofs regarding stability depend upon precarious representations of the classical adjustment process, particularly of the reaction coefficients, so that "the stability results obtained remain partly undermined" (Caminati, 1990:11).[20] That is why Schefold's proposal to take gravitation as an axiom cannot be disregarded (see Schefold, 1988a and 1988b). Finally, since, at least in the case of Marx, gravitation does not mean harmony it is not even clear why convergence is so important for the classical theory.[21]

In any case, it is interesting to examine Harris' arguments, which are largely based on Steedman's contempt that since an above (below) normal market price does not necessarily mean a higher (lower) profit rate due to interindustry links, and since a higher (lower) profit rate does not imply necessarily a market price higher (lower) than the corresponding price of pro-

[20] *It is interesting to remember that, as Garegnani (1983) pointed out, Smith's formulation of the classical adjustment process eludes any exact quantity specification, in so far as it depends upon accidental factors.*

[21] *"The theory of the formation of prices of production which represents a theory of the dynamic movement toward a long term equilibrium is paralleled in Marx's analysis by a conviction of the instability of capitalism, not as the result of the action of perverse agencies, but as the expression of its inner properties and tendencies. This apparent contradiction is responsible for the disdain that some radical economists express toward the theory of convergence, that they mistakenly interpret as a theory of natural stability of capitalist production" (Duménil & Lévy, 1986:164).*

duction, it follows that the classical price adjustment mechanism does not hold.

Assuming (only for the sake of simplification) an economy with constant returns to scale and without fixed capital, the difference between market price (p_m) and production price (p) of commodity j depends on the difference between the markup of commodity j and the homogeneous profit rate and between the market prices and the production prices of its inputs:

$$p_{mj} - p_j = \mu_j[\mathbf{p}_m - (1+r)\,\mathbf{p}]\mathbf{A}_{.j} + w\,a_{0j}(\mu_j - 1 - r)$$

where μ_j is the markup for commodity j and $\mathbf{p}_m$ is the price vector of market prices. Now, suppose that the price of commodity j is higher than its price of production but its production is less profitable than the average. In this case, it is not difficult to show that its costs of inputs in terms of market prices will be higher than its costs of inputs in terms of equilibrium prices,[22] $\mathbf{p}\,\mathbf{A}_{.j} < \mathbf{p}_m\,\mathbf{A}_{.j}$, which requires that at least some market prices of its inputs be above prices of production. This implies that at least some sectoral markups be higher than the homogeneous profit margin $(1+r)$, i.e., that profitability in these sectors be higher than the average. But according to the classical competitive mechanism, this situation makes capital moves in these sectors (let say k and l). The increasing supply of commodities k and l will sooner or later make their prices to decrease, reestablishing profitability of sector j.[23] Actually, as shown by Duménil and Lévy (1987 and 1989), paradoxical relations between prices and rates of profit do not impede convergence toward a uniform profit rate.

In relation to Jorgenson's dual stability theorem, later studies showed that "the dual stability-instability of Leontief models (...) is essentially due to the unrealistic assumption of perfect foresight" (Aoki, 1977:143), or, more specifically, "due to the assumption of myopic perfect foresight in the price and quantity equation" (Filippini, 1983:195). By removing this assumption, Aoki (1977:143) established that "a dual stability property for both quantities

[22] *The proof is as follows. From the equation expressing the difference between the market price of commodity* j *and its price of production and from the hypothesis that the sector has a lower profitability but a higher price, it follows that the product of its markup by its costs of inputs in terms of market prices will be higher than the product of the "gross" profit margin* $(1+r)$ *by its costs of inputs in terms of equilibrium prices:*

$$\mu_j \mathbf{p}_m \mathbf{A}_{.j} - (\mu_j + \delta)\mathbf{p}\mathbf{A}_{.j} = \mu_j(\mathbf{p}_m - \mathbf{p})\mathbf{A}_{.j} > \delta \mathbf{p}\mathbf{A}_{.j} > 0$$

where $\delta = 1 + r - \mu_j > 0$.

[23] *This mechanism is described by Garegnani (1990:330-1).*

and prices holds", while Fillipini (1983:195) found, after assuming an adaptive expectation model for price adjustments and a golden rule approach for investment adjustments, non-negative solutions and dual stability properties holding well for both prices and quantities.

In relation to Nikaido's conclusions regarding the Marxian schemes of reproduction, it is not difficult to identify the sources of instability. As analyzed above, the classical gravitation process is based on the idea that output changes as a result of profit rate differentials and that market prices change due to deviation of supply and demand from long-run average demand ("effectual demand", in Smith's words). But in Nikaido's study, there are no feedback effects, since prices respond to quantity imbalances but the change of relative levels of output does not depend on differentials in profitability in investments. Besides, the supply brought to the market is not compared to "effectual demand", but to actual demand. As stressed by Flaschel and Semmler (1985:8) "the instability of prices of production in his model comes from the fact that the quantity dynamics, which have no or little feedback effects on relative prices and differential profit rates, is unstable by itself". By taking into consideration these effects, Flashell and Semmler show that the classical gravitation process yields stable fluctuations around the steady state of input-output models with single or joint production or even asymptotic stability if the direction of the rate of change of differential profit rates is also taken into account when capital flows from areas of low to high profit rate (Flashell & Semmler, 1985:2).

The first proof that, under appropriate conditions, the classical adjustment mechanism can yield appropriate stable results came with Duménil and Lévy (1983 and 1987),[24] who formalized crossover dynamics as would be suggested by Flaschell and Semmler (1987) as well. In the 1983 study, Duménil and Lévy construct a dynamic model without fixed capital with asymptotic stability of production prices for cases where there are substitution possibilities, and the reaction of investments to profit rate differentials, as well as the reaction of prices to quantity imbalances, is "small".

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[24] *Duménil and Lévy's 1983 paper was presented in the conference on dynamics held in Paris at the OFCE. In 1984 the same authors presented the paper* The dynamics of competition: a restoration of the classical analysis *in the seminar of the RCP, Systems of Prices of Production, on the topic* gravitation, *in Nanterre. This paper was published in the* Cambridge Journal of Economics *in 1987.*

The latter model (1987), which does not allow for direct substitution between two consumption goods, reveals stability and convergence under the condition that prices, total capital used for production, and supply are not very far from their equilibrium values, and that the degree of reaction of the agents is appropriate, "neither deficient, nor excessive" (Duménil and Lévy, 1987:149). Beyond these limits, severe perturbations take place, but this does not dismiss the classical mechanism, which does not require strict convergence at any circumstances. Similar conclusions are also present in the papers of 1990, where they address the question of local stability in a global way, using a dynamic disequilibrium model, and of 1991, where, beginning with a situation in which profit rates are not uniform and supply differs from demand in the various activities, they show that "the reactions of investors and producers to the evidence of these disequilibria create centripetal forces capable of achieving a convergence toward long-term equilibrium" (Duménil & Lévy, 1991:369).

Stable results were also found in Duménil and Lévy (1985, 1986, 1989, 1990, and 1991). In the 1986 article,[25] they presented a microeconomic model of the competitive process, based on the classical principles that the agents react to disequilibrium situations regarding profitability differentials, undesired inventories, and the occurrence of shortages. Duménil and Lévy (1986:163) concluded that "the mobility of capital and the correction of prices lead the economy toward a situation in which prices of production prevail and supply is equal to demand (at least in some sense). However, as a result of the numerous imperfections and perturbations which are inherent in real economies, prices and quantities produced 'gravitate' around this target, which constitutes a long-term equilibrium reference". Actually, "invariant behaviors on the part of economic agents can lead in given circumstances, to balanced growth (where prices of production and associate proportions of outputs prevail with normal capacity), stagnating levels of growth, or recessions where the rate of growth of production suddenly declines and eventually turns negative" (Duménil & Lévy, 1986:132-3). An analytical treatment of the local stability of classical long-term equilibrium in a framework of fixed capital came with the 1989 article, which shows that a reasonable range does exist for the reaction coeffi-

[25] *This paper was presented in the Conference on Competition, Instability, and Nonlinear Cycles, held at the New School for Social Research, in New York in 1985.*

cients that yield asymptotic stability.[26] As in the case of the previous studies, they found that stability depends upon specific degrees in the reactions of the economic agents to disequilibrium. Moreover, "disequilibria must not be excessive. Reactions must also not be excessive; yet they must be sufficient to produce convergence. These results are consistent with our findings in other studies and confirm the view that the stability of long-term equilibrium in capitalist economies is obtained only under certain conditions" (Duménil & Lévy, 1989:52).

Models that allow for local instability provided that the state of the system is attracted by a bounded set of states that contains the long-run position even when there are no restrictions on initial conditions (models that show global stability "in the large") are found in Flaschell (1990), Goodwin (1990), Kubin (1990), and Semmler (1990). Some of these models are based on the idea that reaction mechanisms start working only when the system is far from its equilibrium position.

One important point is that in most models for classical gravitation, stocks of inventories are not taken into consideration. Besides, rationing does not affect entrepreneurs' reactions. The absence of these elements strengthens the instability effects of the adjustment mechanism, which depend heavily on *ad hoc* reaction functions.

Suppose, for instance, that as a result of an unstable nature, sectoral imbalances tend to grow. This may cause the production of many sectors to be insufficient to match the demand, which results in a ceiling for the further development of imbalance. However, this stabilization effect is not considered in the models available so far.

Imbalances are also met by fluctuations in inventories rather than changes in market prices, because if stocks of inventories are not far from their desired levels it is very likely that firms place the burden of the adjustment of a given excess demand on inventories more than on prices. Since prices are conditioned by costs of production, firms may find it profitable to reduce production rather than to lower prices when there is a situation of "excess supply".

Another stabilizer element that is absent is the cost of transference and barrier to entry/exit. Capital flows are not as fluid as the models assume,

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[26] *Actually, using computer simulation, they found a set of values of the parameters for which the convergence is ensured far larger than the set that is referred to in the analytical proof of stability (Duménil & Lévy, 1989:48).*

due to both costs of transference and barriers to entry and exit, like scale of production. To decide to enter (exit) a sector, a capitalist has to be sure that the rate of return will be above (below) average for a long period of time so that it can cover the costs involved. The problem of scale has also to be weighed, since the entry of a new enterprise may cause the whole business to be spoiled, and this is well known among entrepreneurs.

Another point is that price fluctuations are either bounded or non-linear for many reasons, and most of these models do not put any restriction on price movements. In other words, capital transference and price fluctuations are very sticky and quantity imbalances are bounded. These elements are important stabilizers and are not considered in most of the models available so far.

Finally, while some models allow for production substitution, most do not consider them, though this idea seems to be the basis for the classical inverse relationship between prices and demand. As it is known, product substitution has an expressive stabilizing effect.

It is also important to remember that the idea of a necessary convergence to the long-run equilibrium position has not been formally established by the classical authors and at least Marx admits a permanent oscillatory movement of market prices around production prices. This can be concluded from his statement that "supply and demand never equal one another. In any given case, their differences follow one another in such a way – and the result of a deviation in one direction is that it calls forth a deviation in the opposite direction – that supply and demand are always equated when the whole is viewed over a certain period, but only as an average of past movements, and only as the continuous movement of their contradiction" (Marx, 1984:190, v. 3).[27] As stressed by Semmler, "In Marx's concept [of center of gravity], an equilibrium price never exists and supply is never brought into equilibrium with demand" (Semmler, 1984:28), so that "competition of capital does not bring about a smooth process of adjustment and convergence toward equilibrium prices and quantities, but disequilibria and deviations from the regulating price" (Semmler, 1984:36). That is why models like those of Duménil and Lévy, that show stability when the values of the variables are close to their long-run equilib-

[27] *See also Mill (1965:414).*

rium positions and instability when they are far from these positions, are quite adequate to describe classical dynamics.

8. Addressing the Criticism on Free Competition

It should be stressed that differentials of profit rates among sectors and within a sector can be expected from a classical perspective (Semmler, 1982:41-2). To start with, as discussed before, Marx sees competition between capitals as an unbalanced process that creates disequilibria and deviations from the centers of gravity. Therefore, differential rates among capitals of different sectors can be expected because of deviation of market prices from production prices. Although competition acts toward eliminating these differentials in the long run, the equalization process may take indeed a long time, since, as Marx points out, the time required to adjust supply to demand depends upon the concrete conditions of commodity production and circulation. The reason is that the time and the amount of investment required to build up new capacity in industries where profit rate is above average or to withdraw capital from sectors of low profitability may be very large (time and capital requirements are then important restrictions on the mobility of capital that inhibit the process of profit rate equalization).

Marx also sees differences in natural conditions as barriers to capital mobility that can produce differentials in profit rates among sectors, particularly when agriculture, mineral extraction, and raw material production are compared with manufacturing. While Ricardo admits only differential rent, Marx states that natural resources ownership inhibits competition, allowing the owner to put a charge on society for exploiting natural resources. This charge may appear as extra-profits when the producer is himself resources' owner.

Actually, even Ricardo's theory of differential rent can explain profit rate differentiation among sectors. Suppose, for instance, that a country has oil fields of above average productivity. Even assuming no other barriers to capital mobility in this country, the oil industry will show a profit rate above average in the long run. There are two reasons for this. First, if its assumed an open economy, price of oil is determined at the field of lowest productivity, which is

located outside the country. As a result, oil production will yield extra-profit in the mentioned country. Now, if, for historical reasons, either oil producers are oil field owners or they pay an amount inferior to the amount of extra-profit as rent, the oil production sector will show a profit rate higher than average. Second, even if it is assumed a closed economy, oil production may show a higher profit rate, since, as it can be concluded from Ricardo's theory, oil production price is determined in the highest cost field. Since the fields of higher productivity yield extra-profits, the oil sector as a whole may show a profit rate higher than the average.[28,29]

As Semmler concludes, analyzing Marx's theory of competition, "when the access of capital to conditions of production (like natural resources or means of production) or other input factors are restricted, then the entry of new capital is limited. In this case there will be constraints on the reproduction of commodities. The market price can be higher than the price of production, and a profit rate above average can arise. On the other hand, there may be constraints on the movements of single capitals out of industries if the transfer of capital faces considerable difficulties. If, in certain industries, large amounts of fixed capital are required, capital can not be transferred easily when profit rates are declining. Thus, the Marxian theory analyses three causes of differential profit rates. The *first* is a disequilibrium of supply and demand, and a long turnover time of capital in certain spheres of production. The *second* takes place when access to the conditions of production is restricted and the entry of new money capital, or the exit of old established capital, is limited. The *third* is the productivity of some capitals within one industry being above the average productivity (surplus profits for more efficient capitals and lower profits for the least efficient capitals)" (Semmler, 1982:42).[30]

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[28] *It should be stressed that differentials between technologies can bring differentials between profit rates within a sector (Semmler, 1982:42).*

[29] *From the above it should not be a surprise to find some economists who, like Dutt (1987 and 1995) sustain that there is no necessary contradiction between monopoly power, which implies different profit margins, and the uniformity of the profit rate across sectors.*

[30] *Actually, it is very interesting how easily the classical notion of competition can be used as to set the limits of pure "monopoly power", which is defined as the supposed capacity of big enterprises to set a "pure" profit rate (a profit rate that does not include any portion of ground rent) that can be higher than the average rate even in the long run, since it allows the determination of the minimum rate of profit. The notion of a minimum profit rate is a central element in Bain's theory of "barriers to free competition" (Bain, 1949, 1951, and 1956) and in Sylos-Labini's oligopoly theory (Sylos-Labini, 1956). From Labini's work it can be concluded that,*

9. Concluding Observations

In the light of the discussion unfolded in this paper, the classical method can be conceived as a solid construction that conciliates the necessary and systematic character of scientific laws with their power of explaining empirical phenomena, conceived as belonging to a logical process.

To start with, classical abstraction produces concrete (real) categories, concepts that are abstraction in action, to use a Hegellian-Marxian expression. Besides, the classical scientific system intends to be a subjective human construction that nevertheless reproduces the inner logic of capitalism. In a logical way, the classical theory starts with simple categories (division of labor in Smith, exchange value in Ricardo, and commodity in Marx) and follows a process of development that completes a whole circle that has no other hypotheses than reproduction and free competition. Finally, the classical method has a strong commitment to reality, which is conceived as a chain of accidental events connected in a logical process.

This is why the classicals refuse to identify any law governing market prices, which are subject to accidental factors, concentrating their analysis on equilibrium prices, which are the only possible way to find a inner logic underlying market price phenomena. The connection between equilibrium prices (theoretical construction) and market prices is given by the adjustment mechanisms, which ensure that the latter gravitate around the former. Thus, the classical method avoids the excess of abstraction of neoclassical general equilibrium theory, which produces models that have no empirical content, and the lack of abstraction of the post-Keynesian school, which does not accept the very concept of equilibrium.

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if the optimum size of the firm is great, in the sense that a new plant influences significantly either market price or the market shares of competitors, causing profitability to fall, then the already established firms can set a price that yields extra-profits in the long run under the condition that this price be lower or equal to the exclusion price. Note that, to maintain this price, the established firms should make all the investments required to match demand. Otherwise, market price would be higher than the exclusion price, and other firms would enter in the sector. This is remarkable, since it represents the same classical market mechanism, with the only caveat being that in each sector the long-run equilibrium ("oligopolistic") price can be higher than the long run "competitive" price. But, in any sector, the amount of extra-profit will be strictly determined, since it will depend on the amount of extra-profits compared with the amount of capital necessary to set a new plant.

From these considerations it is not difficult to conclude that most of the criticism against the classical method is based on hasty judgements. First, the classical concept of equilibrium is neither ideal nor static, but real and dynamic. Second, classical gravitation, though it should be conceived as an axiom of logic, may be modeled in such a way as to produce stable results under quite reasonable assumptions. Third, the classical concept of competition can be used for explaining profit rate differentials in an economy with barriers of entry.

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