THE SOCIALIST PLANNING DEBATE: A HISTORICAL AND ANALYTICAL RECONSIDERATION*

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In this article we claim that the decision-making contexts (DMCs) assumed by Austrian economists and market socialists are incompatible. This has implications from both historical and analytical viewpoints. From a history of thought perspective, the analysis of the process of characterisation of the two DMCs allows light to be shed on the growing confusion arising from the debate. From an analytical perspective, the comparative analysis of socialist and capitalist organisational structures leads to the conclusion that a value-free ranking is impossible on both the Austrian and the market socialist DMCs and that the Austrian criticism of socialist planning is inconsistent.

> *Socialism is the abolition of rational economy.*
> Mises (1920)

> *From each according to his abilities,*
> *to each according to his needs!*
> Marx (1891)

1. Introduction

The academic debate on socialist planning has witnessed confrontation between different schools of thought (Austrian and neoclassical) whose arguments have not always been correctly understood by rivals.

The beginning of the debate is generally brought back to Mises's (1920) article "Economic Calculation in the Socialist Commonwealth". However, Barone's (1908) article "The Ministry of Production in the Collectivist State", outlining the formal analogy between capitalism and socialism as regards efficiency conditions, is sometimes considered as a previous critique to the economics of socialism. It is

Barone's reference to the Walrasian general equilibrium model, we believe, that offers historians the incentive to refer to Mises, the originality of Austrian arguments being, in our view, one of the central issues at stake in the debate.

From a perspective of the history of economic thought, what is interesting is that the controversy gave the debaters the opportunity (and made evident the necessity) to clarify their apprehension of reality and their analytical method. This does not mean that the positions of the debaters have become clearer during the debate[1]. In this respect, we agree with Lavoie when he claims that "the debate was never resolved [but] was simply dissipated in confusion"[2] and that, as a manifestation of this persistent confusion, "both sides still claim to have won"[3].

The objective of the article is twofold: (1) to understand the theoretical origin of some elements of confusion and misunderstandings which emerged and grew during the debate; (2) to discuss the analytical implications of the arguments developed by each side, in an attempt to establish who would have won had the debaters understood each other.

Our analytical contribution consists of the introduction of the concepts of decision-making context and organisational structure as analytical tools for the definition of a methodologically coherent comparative analysis and for the interpretation of the confusion emanating from the debate.

The article is structured in seven sections. In *section two* we discuss the main arguments of the Austrian and the neoclassical market-socialist schools. In *section three* we define the concepts of decision-making context and organisational structure which are used in the following sections as theoretical instruments from both historical and analytical viewpoints. In *section four* we use such concepts in order to specify the theoretical positions of the Austrian and the neoclassical schools and to explain the nature of some elements of confusion originating between them: according to our interpretation, these elements of confusion can be explained by examining the process by which the two schools of thought progressively defined their own decision-making contexts. In *section five* we focus on a particular aspect of the Austrian attack on socialist planning consisting in its pretence of objectivity. The power of the Austrian theoretical critique lies, in fact, in its af-

1. LAVOIE (1985), IOANNIDES (1992).
2. LAVOIE (1985), p. 183.
3. LAVOIE (1985), p. 4.

firmed value-free content. This is rather obvious, since if a critique of planning is developed on explicit ideological prejudices, there is no need to bring in the scientific arena. In *section six* we analyse a particular aspect of the value-judgement problem discussing the question of distribution and its relations with production. In *section seven* we develop the analytical implications of the assumption of both neoclassical and Austrian decision-making contexts, carrying out a comparative analysis of socialist and capitalist organisational structures on each decision-making context. Our conclusions are presented in *section eight*.

2. The socialist calculation debate

Our attempt to understand the theoretical origins of the debate confusion is based on a methodological characterisation of the schools of thought involved. According to Vaughn it is thanks to the planning debate that the Austrian school has become aware of its radical methodological distance from the neoclassical approach[4]. The problem is that the making the Austrian originality explicit is a process which is not at all independent from the evolution of the debate itself. Mises, in particular, underrated the substantial difference between the Austrian and the neoclassical schools. He writes in 1933[5]:

"Within modern subjectivist economics it has become customary to distinguish several schools. We usually speak of the Austrian and the Anglo-American Schools and the School of Lauzanne [...]. [The fact is] that these three schools of thought differ only in their mode of expressing the same fundamental idea and they are divided more by their terminology and by peculiarities of presentation than by the substance of their teaching."[6]

However, the methodological distance between Austrian and neoclassical schools is not secondary at all. The proof is that in the process of outlining the central features of the Austrian approach, the neoclassical school, from an ally of the Austrian school against the Marxian threat, itself became the object of the Austrian theoretical attacks. The process of the Austrian school moving away from the neoclassical one has made communication between planning-critics and planning-sup-

4. Vaughn (1980).
5. Translated in English in 1960.
6. Mises (1960), p. 214.

porters difficult and, in a sense, has led the debate to develop along two separate methodological trajectories.

The most important figures on the anti-planning front are Mises and Hayek. They raise two analytical problems against central planning: (1) incentive and (2) knowledge[7]. Let us consider them in sequence.

2.1 The incentive problem

Mises's thesis against the rationality of socialist planning rests on two arguments: (1) the price system is the *unique* rational incentive system; (2) the price system is a peculiar feature of market economies[8]. Mises is not interested in showing that the capitalist price system is a perfect instrument for economic calculation[9]; on the contrary his point is that without monetary calculus (based on market prices) the rational functioning of economic system is impossible. A necessary condition for the price system to signal the existing profit opportunities is that prices express individual rivalries, i.e. that they result from the subjective calculation of the parties to a transaction. In order to let the price system express such rivalries, a *real* competitive process must take place. This implies private ownership of the means of production and a maximum decision-making autonomy of each individual.

Mises's point thus concerns the coherence of economic co-ordination mechanisms and the nature of individuals participating in social interaction. In Mises's view, public property and opportunistic indi-

7. In fact, Mises and Hayek begin focusing respectively on the incentive and the knowledge problems but they both converge, developing the two aspects in direct relation with each other. In Mises's case, starting from the incentive problem the analysis leads him to emphasise the driving role of the capitalist entrepreneur for his ability to react to unpredictable changes in the information set of the economy in contrast to the lack of motivation of socialist bureaucrats at the head of public companies whose responsibility is limited to the application of directives of the central planning office and does not involve any incentive to enlarge the information set. Symmetrically, in Hayek's theory, the starting point is the problem of gathering, transmitting and discovering the relevant information but its analysis takes the direction of the incentive system guiding these procedures in different OSs.

8. The incentive argument against planning presented in Mises's 1920 article is developed in a book published in 1936, *Socialism: An Economic and Sociological Analysis*. Mises's most organic discussion of the incentive problem, although not directly addressed to the question of socialist planning, is his 1949 book, *Human Action*.

9. "Admittedly, monetary calculation has its inconveniences and serious defects, but we have certainly nothing better to put in its place". Mises (1920, [1972]), p. 79.

viduals are incompatible with economic efficiency since rival individuals are called to pursue social objectives without any possibility to manifest their subjective calculations in the exchange. That is why, Mises concludes, "socialism is the abolition of rational economy."[10]

2.2 The problem of knowledge

According to Hayek the mechanisms of assembling, co-ordinating and discovering knowledge must be regarded as basic elements in the comparative analysis of capitalism and socialism[11]. In "The Use of Knowledge in Society"[12], Hayek turns the problem of designing a desirable economic system upside down: the pretence of the planner to consciously co-ordinate all economic processes is a limit, not a merit; the problem indeed is to expand the use of resources out of the control of a single mind. The idea that designing a desirable system means *planning* is thus rejected; the desirability of a system lies, on the contrary, in the mechanisms that allow the society to go beyond the constraints imposed by conscious control of economic processes. According to Hayek, the efficiency of the market system stems from the peculiar property of the price system to be an automatic co-ordination mechanism which assembles dispersed knowledge, drives individual processes of discovering new knowledge and leads to spontaneous order[13].

The reply to Mises's and Hayek's attack on socialist planning, within the Western debate, is developed by Lange, Lerner and Taylor through a formal procedure aimed at proving analytically the theoretical rationality of planning and its concrete workability in socialist systems.

Lange-Lerner procedure is a device through which plans incompatibilities deriving from problems of knowledge can be solved in the

10. MISES (1920, [1972]), p. 80.

11. Hayek's fundamental contribution to the planning debate is the book "Collectivist Economic Planning: Critical Studies on the Possibilities of Socialism" published in 1935. The problem of knowledge has then been explored in depth in a series of essays in which the focus shifts from the weaknesses of the socialist system as far as the problem of knowledge is concerned to the virtues of the capitalist system. HAYEK (1937, 1945, 1946, 1974, 1978).

12. HAYEK (1945). In the strict context of the planning debate, this argument is anticipated in HAYEK (1935).

13. HAYEK (1935, 1974, 1978).

planned system[14]. According to Lange-Lerner procedure[15] there exist real markets for consumer goods and labour, whereas production goods (all, but labour) are assumed to be public property, their price being determined by the planner through an iterative *trial-and-error* procedure aimed at simulating market mechanism in the convergence towards equilibrium[16].

Lange-Lerner procedure works on the formal analogy between capitalism and socialism outlined by Barone[17]. The problem of why decentralised managers of the socialist system should be willing to act according to the Lange-Lerner procedure is explicitly put aside and the attention is focused on the information exchanges necessary to solve the planner's problem. With respect to the two problems raised by Mises and Hayek, thus, the Lange-Lerner procedure deepens only the knowledge problem, abstracting by the incentive one[18].

The attempt of Lange and Lerner to prove both theoretical rationality and practical workability of socialist planning has given rise, in

14. By Lange-Lerner procedure we refer to the mechanisms presented in LANGE and TAYLOR, eds. (1938). The fundamental contribution to this book is constituted by LANGE's (1936) article published together with LERNER's (1936) critical remarks. The second part of Lange's article with his reply to Lerner appeared in 1937. The article of TAYLOR (1929) contains the first description of the *trial-and-error* mechanism which characterises the Lange-Lerner procedure.

15. We refer to the first model described by LANGE (1936, 1937) (cf. LANGE and TAYLOR, eds. (1938), pp. 72-98); in the same article Lange presents two variations of the model, one in which the planner also determines consumption plans and the other in which the planner expresses his order of preferences through the determination of managers' shadow prices for consumer goods, letting consumers express their preferences in the market.

16. Market convergence towards equilibrium was at that time taken for granted on both the pro-market and the pro-planning sides. The attempt to analytically prove the stability of general equilibrium, as well known, has proved to be one of the unsuccessful chapters of the general equilibrium research program. In this connection it is singular that even once most neoclassical economists have admitted the failures of such a research chapter, modern Austrians (the Rothbardian and the Kirznerian streams in particular) are continuing to reason as if a general equilibrium existed and were stable. Cf. COWEN and FINK (1985) for a critique of the Mises-Rothbard stream, and PALERMO (1997b) for a critique of the Hayek-Kirzner stream.

17. However Lange considers also a number of reasons which point to the superiority of his model of socialism with respect to capitalism: the capability to efficiently manage the problems of what we now call market failures and the possibility to fix the politically desired accumulation rate and the rules that govern income distribution; moreover, even in the cases of market efficiency, Lange's point is that, in order to implement it, a planned socialist economy is much more suitable than a decentralised capitalist one.

18. A modern attempt to manage also the incentive problems within market socialism is developed by Jossa and Cuomo (1997) through a proposal of market socialism with labour-managed firms.

the context of the planning debate, to interpretative problems regarding the abstract or concrete content of the iterative procedure[19]. In other words, Lange-Lerner procedure is simultaneously an attempt to show the possibility of a rational working of the planned system (in terms of real convergence of the system towards its equilibrium position) and a theoretical answer to the calculation problem (inspired by the Walrasian abstract *tâtonnement*)[20].

In any case Lange-Lerner procedure can be considered a proof of the rationality of socialism only as long as capitalism is assumed to be rational. Different would be the case if, like in Marx's theory, markets and other capitalist institutions were considered as dynamically contradictory. In the Marxist context, Dobb (1955), in particular, criticised the debaters for taking for granted the desirability of the principles governing market interactions, pointing out the antidemocratic contents of the principle of consumers sovereignty (which, moreover, according to Dobb is doubt to exist in real capitalism) and of the fact that in market interactions individuals' relative importance is determined by their incomes[21]. Moreover, according to Dobb, the debaters failed to grasp the importance of the dynamic aspects of the problem consisting in allocating resources according to long run growth objectives[22].

19. In the interpretation of Jossa and Cuomo, LANGE's (1936, 1937) articles did not add much to the earlier propositions of Barone and Taylor (JOSSA and CUOMO (1997), p. 25. Taylor's proposal was in fact a practical one consisting in leaving to the market the task of fixing equilibrium prices. In the type of organisation proposed by Taylor (and reproposed later by Lange), moreover, the planner does not need to collect the information required to work out the demand curves at the desk and effectively solve the general equilibrium model (like in Barone's discussion) so that the planner's task is less arduous and practically executable. However, Hayek in particular (and Lange after him), failed to understand the step forward made by Taylor in the debate. The point is that "[...] although Taylor's paper attracted scant attention on being published, the authors who carried on the debate years later had doubtlessly read it, so that theirs was an unpardonable scientific error" (JOSSA and CUOMO (1997), p. 19. In fact, "Hayek's analysis of *whether* socialism could work in practice had been preceded by Taylor's lucid discussion of *how* socialism could work (JOSSA and CUOMO (1997), p. 17).

20. From a theoretical viewpoint, if, as the reading of LANGE's (1936, 1937) and LERNER's (1936) articles suggests, the iterative procedure takes place within time, then the problematic tackled by Lange-Lerner procedure is theoretically equivalent to that of the stability of general equilibrium. If, instead, as for instance LANGE (1960) himself suggests, the procedure consists of the definition of an algorithm for the determination of the existing equilibrium, then the problematic is one of equilibrium existence and the procedure is homologous to that of Walrasian *tâtonnement*.

21. It is interesting to note that Dobb's intervention was criticised in the Marxist environment for being too moderate and for not developing the radical Marxian critique of capitalism.

22. LANGE's (1936, 1937) model responds, to some extent, to this problem. Dobb

Notwithstanding these critiques, both Austrians and market socialists continued to argue agreeing on the idea of the rationality of the market (an idea based on the static allocation properties of the price system)[23] and, in fact, it is indeed by exploiting the idea of market rationality that market socialists *prove* the rationality of socialism.[24] Market socialists' view of the market thus explicitly sets a distance from the Marxian view according to which markets are institutions intrinsically contradictory and socialism should not have anything to do with them[25].

3. Decision-making contexts and organisational structures

Let us define a *decision-making system* (DMS) by (1) the decision-makers who act in it, (2) the environment in which they act and (3) the way in which they interact. Points (1) and (2) define the *decision-making context* (DMC); point (3) defines the *organisational structure* (OS).

Different kinds of assumptions about the features of DMC are possible. Three interrelated and partly overlapping aspects need our attention: *information, time* and *uncertainty*. The specification of differ-

however also emphasised that in a dynamic context consumer preferences should not be assumed as given, for a process of growth changes also human needs and preferences, and stressed that decisions concerning the good to be produced are, at least partly, political and should not be delegated entirely to the market.

23. A rigorous proof of these properties was still lacking at the time and the argument was derived intuitively (but on wrong mathematical bases).

24. The mathematical proof of the efficiency-desirability of a particular economic organisation form is simply nonsensical in a Marxian view, since the superiority of the socialist mode of production over capitalism, in a Marxian approach, is argued at a historical (and, to some extent, political and ethical) level and does not require any mathematical proof. The Pareto criterion as efficiency principle then is clearly incompatible with a revolutionary view since revolution cannot evidently receive the unanimous consensus implicit in the Pareto principle. However, if, as a theoretical exercise, a comparison between capitalism and socialism on the pure ground of efficiency has to be derived by Marx's work, the superiority of socialism can be derived by the idea of wastes elimination and by its growing properties.

25. CHILOSI (1992) distinguishes two main approaches to market socialism, the 'Manchesterian' in which market competition is considered a virtue leading to social optimal results, and the 'sober' in which markets are considered simply as convenient devices to allocate resources without any reference to social optimality. According to this characterisation Lange's view belongs to the Manchesterian group; however, as Chilosi notices, formally LANGE's (1936, 1937) model is not a market socialist one but one that can be called "general equilibrium socialism", since it is a planning procedure which imitates the market in the Walrasian sense.

ent sets of assumptions concerning the informational structure of the system and the forms in which time and uncertainty are conceptualised and formalised define different DMCs. On the same DMC we can then define different DMS specifying expediently the OS.

Let us define the *perfect DMC* as a static and deterministic DMC in which information is free and completely accessible to all decision-makers. An OS working on the perfect DMC defines a *perfect DMS*.

As an example of a perfect DMS, consider the Walrasian general equilibrium model. Its OS is non-hierarchical, horizontally based and characterised by a maximum decentralisation level. On the same DMC we can define other OSs in which decision-making processes are structured hierarchically with different levels of centralisation. As a limit case, at the other extreme with respect to the Walrasian model, we can consider the model of perfect planning, in which the central decision-maker has total and absolute decision-making power with respect to decentralised decision-makers.

In Table 1 we consider three different ways of specifying information, time and uncertainty in the definition of a DMC.

Table 1.
DMC DIMENSIONS

	(a)	*(b)*	*(c)*
1. INFORMATION	Perfect	Imperfect	Knowledge Processes
2. TIME	Static	Logical	Historical Time
3. UNCERTAINTY	Certainty	Risk	Radical Uncertainty

Let us consider the three dimensions in more details.

3.1 Information

Information set is defined by (i) the set of state of nature (its numeracy being greater than one if the model entails uncertainty), (ii) the set of decision opportunity and (iii) the set of consequences derived from the combination of one decision and one state of nature. According to classical decision-making theory the three topological sets are

exhaustively known, which implies that information too is exhaustively known. Starting from such a definition, knowledge is conceived as processed information. The causal relation is thus from information to knowledge. Such a relation is a strong one in *(a)* and *(b)* DMCs, whereas it is a weak one in DMCs of *(c)* type: in *(a)* and *(b)* DMCs, once assumed an information set, the passage from information to knowledge is developed by defining the subset of the information set to which each agents has access (in the limit case of perfect information every agent is supposed to have access to the entire information set). In a *(c)* DMC, on the contrary, it is supposed that agents can derive different knowledge from the same information set: the derivation of particular knowledge stems from the individual's interpretation of the information at his disposal. Here it is convenient to distinguish two alternative ways of considering the process of formation of knowledge: (1) when the subjective interpretation does not modify the information set (so that the latter is either unchangeable or subject to exogenous dynamics), we will talk of processes of *discovery* of knowledge; (2) when, on the contrary, the information set is itself (to some extent) the product of the cognitive and decision-making activity we will talk of processes of *creation* of knowledge (which implies that the information set changes endogenously in time).

3.2 Time

Logical conceptions of time (column *(b)*) stem from the analogy with mechanics. Time passing is represented as a point moving along a line. In this way, the time dimension is made analogous to a spatial dimension, so that all time concepts (duration, change, etc.) can be translated into geometric ones and dealt with using mathematical tools. The most important implication of such a conception of time is the symmetry with respect to forward and backward movements of time: past and future have the same analytical properties. This symmetry does not hold in the historical definition of time dimension. According to Shackle, "transience of thought is our intuition of time"[26]. *Memory* of the past and *imagination* of the future, as qualitatively different thoughts, define the unidirectional and irreversibility properties of historical time.

26. SHACKLE (1979), p. 1.

3.3 Uncertainty

A situation of risk (column (b)) is a situation in which it is possible to exhaustively describe the space of the states of nature and define a probability function on it. For a situation of uncertainty (column (c)) we mean a situation in which at least one of the two following conditions holds: (1) it is not possible to exhaustively list the states of *natures*, (2) it is not possible to assign a probability to each of the imaginable states of nature.

In order to point out the contrast between the column (c) and the columns (a-b), Loasby speaks respectively of *ignorance* and *knowledge*: columns (a-b) represent both forms of knowledge, one deterministic, the other probabilistic; ignorance (column (c)) is lack of knowledge[27].

The perfect DMC is defined by the column (a) of table 1. Columns (b) and (c) represent respectively the ways in which the introduction of imperfections in the perfect DMC is compatible or not with the other features of the perfect DMC[28].

The central features of the (a) DMC are that (i) its decision-makers solve constrained optimisation problems and (ii) individuals' interactions are restricted to equilibrium.

Column (b) DMCs are those in which imperfections are introduced in such a way as to preserve these general features of the (a) DMC. Starting from the (a) DMC, the introduction of imperfections can be developed gradually according to each dimension: for instance, if we consider the general equilibrium model, we can index goods according to time period preserving the assumption of certainty and perfect information; or we can assume imperfect information in a static and deterministic context; or, also, we can consider a probability function defined on the space of states of nature maintaining the assumptions of statics and perfect information[29]. None of these cases creates inconsistency problems for the DMC, since the three dimensions are defined independently from one another and we can thus modify each of them without necessarily modifying the others.

In the (c) DMC, on the contrary, the three dimensions are interrelated so that the internal coherence of the (c) DMC implies that if one

27. LOASBY (1976).

28. A more general and detailed analysis of DMCs in which we consider two other dimensions (rationality and the legal one) is developed in PALERMO (1997a), ch. 1.

29. The same holds if we introduce simultaneously two or three imperfections in the perfect DMC.

imperfection is defined according to the (c) meaning, the entire DMC results of (c) type. For instance, if time is historical in Shackle's sense, it turns out to be inconsistent to assume that agents have perfect information or that they act in a context of certainty, for it would also mean that they know exactly and with certainty the future, thereby denying the assumption of historical time.

The reason for the decomposition of DMSs into DMCs and OSs is that, intuitively, one may think that the OS influences the results of decision-making processes and, in such a case, one may be induced to seek the optimal OS (or simply a desirable one)[30]. Anyway an optimal OS which works efficiently in any DMC may not exist. Moreover, there is no guarantee that, taking a DMC as given, it will be possible to define a ranking of OSs from the point of view of their efficiency-desirability properties. What is sure is that a methodologically correct comparative analysis among OSs must be developed on homogeneous DMCs.

4. Two divergent trajectories

The characterisation of DMCs plays a central role in the ability of different schools of thought to communicate with each other. The same words have different meanings in different DMCs and the analytical methods assumes different features in different DMCs. Our interpretation of the confusion emanating from the debate rests on the process of characterisation of DMCs which, in our view, led to increasingly different DMCs being specified in the analyses of anti-planning and pro-planning economists.

Three DMCs are involved in the debate: the Austrian, the perfect and the Lange-Lerner. Let us compare them two by two.

(1) Mises-Hayek vs. Lange-Lerner

One of the greatest problems in comparing the DMCs of Mises-Hayek and of Lange-Lerner stems from the ambiguous position of Mises and Hayek during the 1930s with respect to the analytical role of

30. Desirability being defined according to some particular principles.

the concept of equilibrium[31]. On the one hand, equilibrium analysis is assumed as a necessary theoretical reference but, on the other hand, the temporal dimension is clearly introduced into the analysis[32]. Mises indeed explicitly takes into account the problem of change in the data defining the equilibrium position of the economy: in Mises's theory any attempt at planning which aims at reproducing the (optimal) condition of equilibrium at a given moment in time, in fact, ends up reproducing an inefficient system to the extent that changes in data are continuous[33]. The efficiency of the market economy, within such a DMC, is based on the ability of the market to adapt to the unpredictable changes in the data by means of its peculiar procedure for the discovery of the relevant knowledge, based on the signalling role of market prices[34].

Notwithstanding this ambiguous role of equilibrium, it is clear that the introduction of the time dimension becomes more and more intrinsically related to the dimensions of uncertainty and knowledge. As a matter of fact, in the Austrian DMC the definitions of time, uncertainty and knowledge are strictly dependent on one another. Austrian processes of knowledge discovery are not simply processes of communication of information[35]. Knowledge is time-specific and takes the form of an unpredictable time-process: it is discovered, modified and transmitted (to the extent that it can be transmitted) in time and is relevant only in connection with the specificity of place and time where it takes place[36]. The process of knowledge discovery takes place in an uncertain context and its results depend on the procedures of so-

31. An ambiguity that will be definitely resolved in 1937 (i.e. after the reply of Lange) with the publication of Hayek's "Economics and knowledge".

32. Mises, for instance, states that "the problem of economic calculation is of economic dynamics: it is no problem of economic statics". MISES (1936), p. 139.

33. "In the world of reality there is no stationary state, for the conditions under which economic activity takes place are subject to perpetual alterations which it is beyond the human capacity to limit". MISES (1936), p. 139.

34. The implicit assumption being that competitive (disequilibrium) prices convey correct signals about the direction and size of change necessary to reach the evolving equilibrium position.

35. Hayek's position on the problem of knowledge has evolved in the course of the debate. In his 1935 book his critique of socialism regards its workability from the viewpoint of the possibility for the planner to collect all the relevant information; no trace can be found on the problem of interpretation of information and knowledge discovery, which leads us to conclude that at this time Hayek's DMC is basically a (b) one in which problems of knowledge are basically problems of communication of information. It is only in the 1940s that Hayek focuses on the problem of knowledge as a problem of subjective interpretation and discovery.

36. HAYEK (1945).

cial interaction, competition being, in Hayek's view, the most powerful one[37].

On the contrary in Lange-Lerner DMC there is no uncertainty and the dimensions of time and information are defined independently from each other. The problem of knowledge is not considered in its necessarily time-consuming dimension. Knowledge instead arises instantaneously from the very act of communication of information. The independence between time and information on the other hand is not a secondary aspect of the Lange-Lerner DMC. In fact, it is precisely this independence that allows Lange-Lerner procedure to work: information exchanges occur (conceptually) in a moment of time; time passes only between two iterations (i.e. between two information exchanges). Knowledge is transmitted in the instant in which communication of information takes place; from this moment onwards no knowledge problem worries the planner. If the planner finds an equilibrium solution it is precisely thanks to the separation between time and information. Remove the analytical separation between time and information and, under general conditions, Lange-Lerner procedure does not converge and cannot work. We conclude that the two DMCs are incompatible.

(2) Lange-Lerner vs. Barone-Pareto

The presence of historical time in Lange-Lerner procedure implies disequilibrium and makes Lange-Lerner DMC qualitatively different from the perfect DMC assumed by Barone and Pareto. However, for the duration of intervals between two communications with the planner tending to zero, the Lange-Lerner DMC tends to the perfect one; at the limit, disequilibrium disappears and the two DMCs coincide. In this sense Lange-Lerner DMC can be seen as an extension of the perfect DMC. Such an interpretation is confirmed by Lange's considerations about the developments of mathematics and computer power. After almost thirty years since the historical answer to Austrian attacks, Lange writes:

"Were I to rewrite my essay today my task would be much simpler. My answer to Hayek and Robbins would be: so what's the trouble? Let

37. HAYEK (1978).

us put the simultaneous equations on an electronic computer and we shall obtain the solution in less than a second."[38]

The reference to a simultaneous equation system implies that the Lange-Lerner DMC is, in fact, reabsorbed into the perfect DMC, once again proposing the co-ordination problem as one of equilibrium and raising doubts on the effective historicity of time in Lange-Lerner DMC. From the analytical point of view, Lange-Lerner DMC can thus be seen as a logical development of Barone's definition of the problem of planning[39].

(3) Barone-Pareto vs. Mises-Hayek

The exercise of letting the interval in which plans cannot be changed tend to zero is not admissible in Mises-Hayek DMC. Crucial, in this sense, is that the break in the hypotheses of the perfect DMC concerns all the three dimensions simultaneously. In Hayek's perspective, the duration of the interval cannot be zero otherwise the problem of knowledge would collapse: information to be discovered and choice to be taken would become contemporaneous.

Since "Economics and Knowledge"[40] it is clear that Hayek considers equilibrium suitable only to the analysis of a single individual decision-making process, whereas he rejects the possibility of using the equilibrium concept as an instrument for the analysis of individuals' interactions. According to Hayek the individual's decision-making process can be analysed according to the *information → rationality principle → decision* pattern. Individual's equilibrium, in such a framework, means that actions are part of a coherent program. This means (1) that every change in knowledge breaks the equilibrium relation (unless it does not alter the program) and (2) that the equilibrium concept has validity only *in time*[41].

On the contrary, the individual scheme becomes contradictory as soon as we consider individuals' interaction: what constitutes informa-

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38. Lange (1967), p. 158.

39. Although uncertainty is not present neither in the perfect DMC, nor in that of Lange-Lerner, its introduction does not raise conceptual problems in either of them. However, the conditions of internal consistency of the DMC imply that only a particular specification of the uncertainty dimension can be considered, namely the one that we have defined as *risk*.

40. Hayek (1937).

41. Hayek (1937, [1988]), pp. 230-231.

tion for individual i, Hayek (1937) explains, includes expectations about individual j's decision and for plans to be compatible it is necessary that such expectations and real actions coincide. The assumptions of historical time and uncertainty, on the other hand, denies the problem a solution: in order to know the data of the decision-making problem at time t, individual i must know with certainty j's action at time $t+1$, which is a contradiction since historical time is unidirectional[42]. "Economics and Knowledge" is thus an explicit attack on the perfect DMC. In this sense it is an attack on the entire neoclassical trajectory in both *pro-market* and *pro-planning* versions.

The analysis of the relations among the three DMCs can explain the nature of the confusion originating in the debate: on the *anti-planning* side the debate gave rise, after some initial uncertainty, to a move progressively away from the perfect DMC, towards an awareness of a certain Austrian originality and to an explicit specification of the features of the Austrian DMC as an independent DMC, incompatible with the perfect one, which, with respect to table 1, implies column (c); on the *pro-planning* side, on the contrary, the imperfections introduced have been gradually removed until approaching the perfect DMC has been completed. In terms of the columns of table 1, the evolution of positions taken during the debate can thus be interpreted as a process of making explicit the (c) DMC by the Austrian school and a movement between (a) and (b) DMCs by market socialists[43].

As we have seen, once the perfect DMC (column (a)) is defined as the benchmark DMC, every kind of imperfection to be introduced leads to the definition of a (b) DMC. The definition of imperfections according to column (b) is indeed the only one that allows the general features of the perfect DMC to be maintained without creating any internal coherence problems. In this context it is thus natural that Lange-Lerner's inspiration from the Walrasian *tâtonnement* led to the definition of a (b) type DMC. The attempt of Austrian theory was, on the contrary, to define an independent DMC, whose collocation with respect to table 1, is column (c). The problem is that although to some

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42. The fact that individuals' interactions must necessarily take place without any guarantee of plans compatibility in turns is the ultimate source of the radical uncertainty of the DMC and is an irremovable condition which individuals have to cope with in their processes of plans formulation.

43. The impression is that Lange takes inspiration from the (a) DMC of Barone-Pareto in order to define his own (b) DMC and, precisely for this reason, he then has no problem to go back to the (a) DMC, considering it a simple limit case of his (b) DMC.

extent the features of the Austrian DMC were already present (but latent) since the beginning of the debate, it is only with the debate itself that Austrian economists made them explicit[44].

The two trajectories, thus, are not only separated, but also divergent, thereby explaining why elements of confusion not only have not been resolved but, at the most, have been growing. From an analytical point of view, Lange-Lerner's reply to anti-planning attacks would have been more consistent if directed at Barone and Pareto, instead of Mises and Hayek. If only Lange-Lerner procedure were addressed at the neoclassical trajectory, the discussion would probably have generated less confusion. From a historical point of view, however, the Austrian school is not free from responsibilities for its simplistic acceptance of the alliance with the neoclassical school, despite the methodological divergence between them.

5. The Austrian doctrine of Wertfreiheit

If the process of defining the respective DMCs of the debate participants can help us to understand the reasons for their reciprocal incomprehensions, there remains the analytical problem of appraising the scientific significance of the Austrian criticism of socialist planning. We thus now have to discuss the criteria for a methodologically correct comparative analysis of OSs on the Austrian DMC.

According to Austrian epistemological principles, economic analysis must be completely free from value judgements and the comparison of different OSs must be based on pure objective considerations. Austrian authors indeed adhere to the doctrine of Wertfreiheit (value-freedom) and vehemently reject any fusion of economics with personal views on social justice and morality[45]. The Austrian defence of the Wertfreiheit ideal is as radical as was the position of Weber – the initiator of the Wertfreiheit campaign – who affirmed that when combining ethics with pure analytical statements a scientist may confuse the reader about the scientific

44. Vaughn (1980, 1994), Kirzner (1987), Gloria-Palermo (1999).

45. In (a) and (b) DMCs the great majority of economists agrees on the reference to Pareto efficiency. It is well known, however, that the normative prescription of the Pareto principle is not free from value judgements (cf. Graaff 1957). Our discussion of the different theoretical solution of Austrians and Neoclassicals in their attempt of managing the problem of value judgements is developed in Gloria-Palermo and Palermo (1998).

validity of his own conclusions and described the intervention of ethics in scientific propositions as "the work of the devil"[46].

The problem here is not so much that of questioning the effective value-free content of the Austrian polemical works against socialist planning; in those works, notwithstanding the formal statements against value-judgements, the political element is so obvious that to interpret them as pure objective and value-free contributions would be simply to distort their meaning[47]. The point is instead to discuss the analytical implications of the Austrian critical approach and the possibility itself of maintaining (some of) the political conclusions of such an approach once value judgements are precisely identified and eliminated from the theoretical framework.

The most clear and explicit statement of the Austrian approach to the problem of value-judgements in social sciences is the work of Mises (1949), "Human Action". Although this book appeared after the official closure of the planning debate, it provides, a posteriori, the most limpid and complete presentation of Mises' argumentation since it already incorporates the reflections that led to the characterisation of the Austrian paradigm as independent and alternative to the neoclassical one and is thus free from the analytical ambiguities that characterised the development of the debate.

Mises's book represents an ambitious attempt to organise the different arguments characterising the Austrian position into a formal and coherent system: the praxeological system[48]. Praxeology is "the general theory of human action"[49]. It concerns the set of implications logically deduced from the sole axiom of human action according to which action is purposeful. Economics and politics thus play two distinct roles in the study of society: economics provides purely conceptual principles stemming from the indisputable axiom of human action and is made up of universally valid statements completely independent from the personal values of the scientist; politics involves the application of a set of ethical values to the neutral scientific statements provided by economics and does thus not belong to praxeology.

On these methodological bases, the aim of Mises consists in a scientific confrontation of the effects of different types of economic organisation going from a pure free market to a pure socialist economy.

46. See Hutchison (1964), p. 43.

47. The ethical and political elements are particularly evident in Hayek (1935).

48. The term "praxeology" was introduced by the French historian Espinas in 1890.

49. Mises (1949), p. 3.

Such a confrontation, according to Mises's approach, should take place on a praxeological level and should be free of all ethical values.

The problem, as stressed by Schuller (1950), is that Mises's book is riddled with value judgements which support a specific ethics – the liberal doctrine – and it is not clear to what extent it is indeed the reference to these value judgements which supports Mises's conclusions against socialist planning. In the face of such an accusation it is interesting to note that Rothbard, doubtless the most faithful admirer of Mises's theoretical framework, does not even attempt to prove the value-free content of Misesian praxeological propositions but organises the defence of Mises's work on the twofold nature of Mises as an economist and as a free citizen. Rothbard's answer to Schuller's criticism is the following:

"As an economist, Mises is value-free. But, if the demonstrated results of intervention and socialism are such as to lead to consequences which everyone will consider undesirable, then Mises as a citizen certainly has the right to agree that they are undesirable."[50]

The problem is that, according to Schuller (1951), it is all but an easy task to detect between the Mises-economist or the Mises-citizen, which of the two is speaking. To put it roughly it is clear that if the Mises speaking against socialist planning is recognised as being purely that of the citizen, then, as scientist, to the extent that we agree with Mises's *Wertfreiheit* approach, we probably should not pay so much attention to his conclusions.

It is outside the purposes of this paper to determine the general dependence of the Austrian normative conclusions on the liberal ideology. In order to appraise the internal consistency of the Austrian criticism we have instead to discuss in more detail a particular aspect of the problem of value judgements: the relation between production and distribution.

6. Production and distribution

The analytical relation between the processes of production and distribution is a crucial question in order to appraise the extent to which the Austrian criticism of socialist planning is effectively scientifically neutral and the extent to which ideology is involved.

50. ROTHBARD (1951a), pp. 182-3.

In the attempt to compare OSs on purely scientific basis, independent form value judgements, a very appealing solution consists in analytically separating production and distribution, and to develop the comparative analysis on the sphere of production, leaving the analysis of distribution to an explicit ethical confrontation.

The idea that production and distribution can be separated dates back to J.S. Mill (1871) who claimed that the laws of production are objective and mechanical whereas the laws of distribution are subject to human control and can be determined at the political level. This view was strongly criticised by Marx (1862-63) who affirmed that the form of distribution is simply the form of production seen from a different point of view and that the idea of modifying distribution in order to overcome the contradictions of capitalism is fallacious.

Things are different in a socialist system: here, at least theoretically, the processes of production and distribution are independent from each other and can thus be separated analytically. In a purely theoretical socialist OSs, like the one sketchily proposed by Marx (1891) and synthesised in his famous motto "from each according to his abilities, to each according to his needs!"[51], production and distribution can be separated by simply eliminating the relation between individual contribution to the production process and the reward received: individual contribution to production can be reduced to a pure *duty*; the participation of individuals in the distribution of production, on the other hand, can be defined as a pure *right* and its principles can be established by the central authority on political bases having no necessary functional relation with the individual's contribution to production[52].

The point is that, apart from this theoretical case, in general by altering distributional criteria, production changes too. And this is particularly relevant in capitalism: in capitalism, production and distribution happen together and if individual rivalries have to really manifest themselves in order to let the invisible hand work, then production

51. MARX (1891, [1978]), p. 531.

52. In real socialist system the relation between production and distribution was not at all eliminated and one of the problem of setting the parameters affecting distribution was indeed due to its consequences on production (through the structure of incentives). For a discussion of the general incompatibility between the maximisation of the social surplus and the realisation of an egalitarian distribution because of the incentive problem in Soviet-type economies, cf. CHILOSI (1980). The structure of the distributional process in Soviet-type economies is discussed in CHILOSI (1990). Empirical evidence on the non-correspondence of incomes to needs and on the degree of inequality in income distribution in the course of the Soviet experience is presented in BERGSON (1984).

and distribution must be analysed jointly and they both have to be taken into consideration in the analysis of welfare implications[53].

The interdependence of the processes of production and distribution is a fact well known to Austrian economists. The problem is that distributional aspects are never discussed.

Mises's idea is that the efficiency of capitalism (or at least its superiority with respect to socialism) can be derived from the analysis of the system of incentives to production and the hypothesis of consumer sovereignty. The efficiency of capitalist production incentives stems from the assumption that individuals can appropriate profits; this means that production process, in its (supposed) efficient working, determines income distribution too. In other words, distribution is a necessary consequence of production.

Here, however, Austrian economists surreptitiously introduce value judgements in the analysis: indeed, they assume that efficient production is a neutral social objective, but, by doing so, they implicitly affirm also that distribution must be taken as it is. According to Austrian normative principles, no social objective, different from the freedom of individuals to pursue their own objectives (given their own constraints), can be defined, since it would hamper the production process which, in capitalism, is supposed to be efficient. In this way, the *wertfreiheit* principle assumes a very particular determination in the Austrian comparative analysis: it leads to the neglect of any scientific relevance of the distributional issue.

We now have all the elements needed to develop a comparative analysis of the capitalist and the socialist OSs in the different DMCs involved in the debate.

7. Comparative analysis of organisational structures

Our method of comparative analysis of DMSs consists in comparing different OSs with a *coeteris paribus* assumption on the DMC. This means that the properties in favour or against a determined OS must be

53. In the abstract context of the general equilibrium model, although production and distribution are interdependent (since initial endowments, preferences and technology determine simultaneously both production and distribution), they can be analysed separately. The two welfare theorems state that for each value judgement concerning the criteria of distribution, market mechanism allows to maximise (the value of) production. If distribution is ethically unsatisfying one can modify it (by means of *lump sum* taxestransfers) and then let the market find the optimal production solution. This separability obviously ceases with the exit from the perfect DMC.

discussed on a homogeneous DMC, whereas arguments which presuppose different DMCs cannot be considered together. Let us develop our comparative analysis of OSs on each of the three previously determined DMCs.

(a) Barone-Pareto DMC

Assume a general equilibrium model in which equilibrium existence and Pareto efficiency conditions hold. On the same DMC we can define a completely centralised OS, which can be formalised by a convex programming model representing the planner allocational problem[54]. The fundamental results in the analysis of such models are (1) the proof of existence and Pareto efficiency of equilibrium in the Arrow-Debreu model[55] and (2) the proof of the existence and uniqueness of the optimal plan in the model of convex programming[56]. Let us compare these two models in more detail[57]:

(1) GENERAL EQUILIBRIUM MODEL. Given (i) the matrix of technology, (ii) the vector of endowments and (iii) the individual preferences, the vectors of quantities and equilibrium prices (the latter comprehending prices of final goods and production factors) are derived.

54. Although the initial formalisation of the analogy between capitalist and socialist systems in the Barone-Pareto DMG did not embody any uncertainty, in the developments of the comparative analysis along such a trajectory the uncertainty dimension has been explicitly introduced (in the form of risk) without substantially altering the analytical results.

55. The first rigorous proof of equilibrium existence is attributed to WALD (1951). More general treatments are provided by McKENZIE (1954) and ARROW and DEBREU (1954). The general modern reference is DEBREU (1959). The proof of the welfare theorems is attributed to ARROW (1951) and DEBREU (1953).

56. Linear programming (then generalised as convex programming) was first discovered by the Soviet mathematician and economist KANTOROVICH (1939) who also understood its applicability at the levels of industrial and national resource allocation. It was then rediscovered, somewhat later, in America by DANTZIG (1949). Some fundamental contributions of the Soviet mathematical school are KANTOROVICH (1959) and the essays collected in SMOLINSKI (ed.) (1977); within the American school the basic reference is KOOPMANS (ed.) (1951).

57. Although the two models are here presented as symmetrical with respect to the problem of determining the optimal OS in the perfect DMC, their historical origin is quite different: the objective of the research on the general equilibrium model was (and is) to analytically derive the conditions for the efficiency of the market mechanism; the research on linear programming instead does not originate from the attempt to prove the efficiency of a centralised system but from the need to rationalise the practice of planning (first in socialist countries and then in capitalist countries).

(2) PLANNING MODEL. Given (i) the matrix of technology, (ii) the vector of endowments and (iii) the vector of weights in the (linear) objective function of the planner (defined on the set of final goods), optimal quantities and (shadow) prices for production factors are derived.

The implication of these results for the comparative analysis of OSs are straightforward. Let us consider a general equilibrium model and solve it (assuming evidently the conditions for a solution to exist). We now ask the following question: *is it possible to obtain the same allocation in a planned system characterised by the same matrix of technology and the same vector of endowments?* The answer is yes: it is sufficient to consider an objective function of the central planner which (1) is defined on the set of final goods and (2) has, as vector of weights, the vector of equilibrium prices of final goods of the general equilibrium model (the vector of shadow prices of the planned system coincides in this case with the vector of equilibrium prices of the production factors of the general equilibrium model)[58]. To put it differently, for each vector of market prices (efficient for a general equilibrium model), there exists a linear objective function of the planner (whose weights coincide with the equilibrium prices of final goods of the general equilibrium model) the maximisation of which implies the same aggregate production as that of the general equilibrium model (and shadow prices equal to the prices of the factors of production of the general equilibrium model)[59]. But if the socialist planner can always obtain the aggregate production of the capitalist system he can obviously also replicate the capitalist distribution of resources (by assign-

ing to each individual the goods that he would have obtained in the market system)[60].

From a pure efficiency viewpoint the two decision-making systems are thus equivalent and if they can give rise to different (optimal) allocations it depends on the value systems of the decision-makers of the two systems (the objective function of the planner of the programming model and the individual preferences of consumers and workers of the GE model), not on the superiority of one allocational mechanism over the other[61]. This means that efficiency conditions are determined at a pre-institutional level and hold in any OS defined in the perfect DMC[62]. In the perfect DMC all OSs are thus equivalent, which means that no ranking of OSs is derivable[63].

(b) Lange-Lerner DMC

The definition of time dimension in a historical sense does not alter the equivalency result reached in the perfect decision-making context. Of course, the results of the perfect DMC are no longer guaranteed, as historical time, under general conditions, prevents the system from reaching the equilibrium position. However, from a theoretical viewpoint, the same obstacles in the process of equilibrium convergence hold in both centralised and decentralised models: convergence problems of Lange-Lerner procedure are formally analogous with the stability problems of the general equilibrium model[64]. Ultimately,

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58. In fact the planner *can* choose such an objective function, but *must* not necessarily do so. Ethical, political, paternalistic or other considerations may suggest defining a different objective function from the capitalist one, the latter consisting in the maximisation of the value of national product (cf. DORFMAN, SAMUELSON and SOLOW (1958)). The planner can thus do at least as the market, but can also do better (at least in principle), both resolving the problems of market failures and taking into account different social objectives.

59. The shadow prices associated with the optimal plan can be interpreted as an optimal instrument for decision-making decentralisation, in the sense that the planner can realise the optimal allocation by assigning to decentralised decision-makers the shadow prices as accounting prices to be used in the decentralised production decisions. Shadow prices thus constitute an efficient system of scarcity signals in the model of planning in exactly the same way as market equilibrium prices constitute the efficient allocational instrument in the general equilibrium model. This property of shadow prices is of a purely theoretical interest in the (*a*) DMC since real incentive problem can be defined only in an imperfect information context (if information is perfect the planner knows exactly what everybody is doing and if managers do not perform as required he can dismiss them).

60. DORFMAN, SAMUELSON and SOLOW (1958, ch. 14).

61. As already noted, the formal analogy between the efficiency conditions of the market system and the planned one is a well known fact since the contribution of BARONE (1908). Less evident was instead, up until the development of linear programming in the western academia, the possibility to analytically prove the equivalency of the two systems, since Barone's proofs (in the same wake of Walras) are not rigorous and only take account of the determinatness of the systems (which is a necessary but not sufficient condition for equilibrium existence). An important contribution in this direction is DORFMAN, SAMUELSON and SOLOW (1958).

62. The equivalency result holds, as a corollary, also with respect to intermediate centralisation OS.

63. It is not superfluous to note that these results are obtained under the assumption that no public goods, externalities and increasing returns exist (i.e. that there are no market failures). In general thus the centralised OS is superior to the decentralised one since (1) it equals the latter when there are no market failures and (2) it overcomes the latter in the case of market failures.

64. Such a result is not obtained by chance, since Lange-Lerner historical time procedure is indeed inspired to the Walrasian abstract *tâtonnement*. If then Lange-Lerner procedure is interpreted as an expositional expedient to show the *existence* of the equili-

therefore, if one accepts the features of the Lange-Lerner DMC, Lange-Lerner procedure correctly answers the challenge of market supporters: if the incentive problem is not considered (as in the Lange-Lerner procedure), both the capitalist and the socialist systems can efficiently manage the information problem; if, on the contrary, the incentive problem is taken into account, both the models encounter (similar) convergence problems[65].

Lange-Lerner DMC is characterised by a number of equivalency theorems which under general conditions prevent the superiority, from a purely technical point of view, of one OS over the other being established. Only the assumption of particular information structures (and particular cost functions for the communication of information) can make one OS superior to another, but such specific results depend heavily on the particular information structure assumed[66].

(c) Mises-Hayek DMC

As we have seen, Hayek's analysis of the problem of knowledge refuses the assumption that knowledge can be considered a datum of an economic problem: such an assumption would cancel the economic problem itself, reducing it to a pure problem of logic[67]. On the contrary, in Hayek's view, comparisons of OSs must be centred on knowledge discovery processes and it is such a statement of the problem of knowledge that leads Hayek to claim the efficiency of the market system: in Hayek's view competition is the most powerful device which has ever existed for the discovery of knowledge[68]. Here however an analytical ambiguity is introduced. In the discussion of the problem of knowledge Hayek focuses on the processes of discovery and never deals with the processes of creation. The ambiguity is serious since, if the specification of the Austrian DMC as a (c) type DMC is correct, one would expect that the processes of knowledge in presence of historical time and radical uncertainty would take the form of *creation of*

knowledge*. If individuals' interaction cannot but take place out of equilibrium and if it is such an out of equilibrium interaction that makes future knowledge unpredictable, then the information set at a given moment of time should be put in relation with the individuals' processes of plan formulation and with the forms of social interaction. In other words, the information set should be considered as a *creation* of individuals' action and social interaction. Strangely enough, instead, Hayek focuses on discovery processes but never deals with creation.

From the topological point of view, creation implies that the information set is not exhaustively definable ex ante, for activity creation is, by definition, the endogenous appearance of new elements in the information set, i.e. the shifting in time of the frontier of the information set. The assumption of an endogenously changing information set makes the comparative analysis of OSs impossible, since if different OSs create qualitatively different objects, the information sets to be compared end up being incommensurable[69].

It is a hard task for the historian to determine the reasons that led Hayek to concentrate on pure problems of discovery neglecting creation problems[70]. However, here we are not particularly interested in the causes of such a fact, but rather on its analytical implications. From the analytical point of view the explicit analysis of creation processes, by impeding a rigorous analytical comparison between OSs, would have made the Austrian criticism apparently inconsistent. On the contrary, the definition of the problem of knowledge as a problem of pure discovery and not also of creation enables the comparative analysis of OSs to be undertaken without weakening the Austrian theoretical attack against socialist planning.

The problem is that by defining the problem of knowledge as a pure problem of discovery the internal consistency of the Austrian (c) type DMC breaks up. If indeed the information set is not the endoge-

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brium its limits are exactly the same as the *tâtonnement* expedient presented by Walras to show the existence of equilibrium in the general equilibrium model.

65. Out of the perfect DMC both market prices and shadow prices do not in general provide correct signals.

66. The deepening of such a research trajectory (in which the imperfections of (b) type in the DMC have been multiplied) are developed in the so called "organisation theory". Cf., for a survey, MARSCHAK (1987).

67. HAYEK (1945), p. 519. Cf. Also HAYEK (1978), p. 182.

68. HAYEK (1945, 1949, 1978).

69. Creation, by its very nature, implies the appearance of new elements in the information set. If two different OSs create two different objects, their information sets will, in general, be incomparable from the viewpoint of the theory of sets, the only case in which a comparison may still be developed being that in which the information set of one OS is a subset of the information set of the other OS. The matter is particularly relevant as far as technological change is concerned: technological change is intrinsically different in different systems and this makes OSs incomparable unless one of them simply creates all the things created by the other plus something else.

70. If, as GLORIA-PALERMO (1999) suggests, it is true that the involvement in the planning debate played a major role in the specification of the Austrian paradigm, the hypothesis of an instrumental definition of the problem of knowledge should not a priori be discarded.

nous product of the OS, uncertainty and time dimensions end up being purely formal: it is in fact as if the information set had its own dynamic, completely independent from what agents know and do, and as if agents could at best discover a reality which is defined before their actions take place[71]. This introduces (b) type elements in the DMC since knowledge and time are, as in the neoclassical DMC, analytically separated and uncertainty is not substantial[72].

But, the point that we intend to demonstrate is that even within such a damaged definition of the DMC, Austrian criticism of socialist planning is basically untenable since it cannot avoid value judgements. Let us indeed follow Hayek's comparative analysis centred on the procedure of knowledge discovery.

Hayek's attention for the problem of knowledge allows him to maintain an optimum-based approach in the analysis of market system desirability (though, obviously, Hayekian optimality differs from the neoclassical one)[73]. Such an approach is formally consistent for, even though the set to be discovered continually changes (and in such a way that is impossible for agents to predict), it is supposed to change exogenously or, at least, independently from the institutional context in which discovery processes take place. This implies that OSs can be compared according to their ability to discover such an information set in continuous motion[74]. In such a context the efficiency of the market system would stem from the price mechanism property of signalling and providing incentives for individual discovery processes and efficiently assembling such individual knowledge at a social level.

Differently from the neoclassical DMCs, in the Austrian critique of socialist planning, incentive and knowledge problems are thus strictly interrelated: an efficient OS is one in which social relations allow individuals to develop their own discovery processes and the efficiency of the market OS lies in its ability to allocate resources to those

71. This conception of the DMC is the one that receives major attention among modern Austrian economists, KIRZNER (1973) being its most authoritative spokesman. An attempt to develop a coherent DMC suitable for the analysis of creation processes is developed, in the context of the modern Austrian school, by LACHMANN (1986). An interesting analysis of the various positions amongst Austrian authors as far as discovery and creation are concerned is developed by GLORIA (1996).

72. In the sense that it is not possible to know a priori what *will* be discovered but it is possible to know a priori what *may* be discovered.

73. In Hayek's analysis the optimal OS can be defined as the OS that allows to discover the whole information set at any point in time. The analysis in terms of optimum is developed in particular in HAYEK (1978).

74. The comparison may simply take into account the *amount* of discoveries, or also the *speed* or other aspects of the discovery processes.

agents who are better able to deal with the knowledge discovery problem in each specific circumstance of time and space and to efficiently use the knowledge acquired. According to Austrian theory, the market process, if not hampered, transfers resources from less able individuals (with respect to the specific time-space knowledge problem) to more able individuals (who are willing to pay more in order to obtain the scarce resources). The desirability of market OS should thus stem from its automatic mechanisms which constitute an efficient incentive system with respect to knowledge problems. But this means exactly to consider production as the sole relevant social objective, as if this would not have any distributional consequence.

Once knowledge has been discovered, the whole society can enjoy the beneficial effects of the discovery (provided individuals have enough money to buy the product that incorporates the discovery), but it is the discoverer alone who enjoys the beneficial effects of the discovery from the viewpoint of the profits deriving from it[75]. As we have already noted, according to the Austrian theory market incentives are efficient only if such profits can be appropriated with no obstacles. In other words Austrian normative analysis of incentive and knowledge problems leads to the definition of the *production of a big pie* as a social objective and to prescribe that scarce resources be allocated to those individuals who can give the greatest contribution to such *a big pie*. As a secondary effect these individuals are also those who have the exclusive right to *eat the pie*[76]. To affirm that capitalistic OSs are desirable therefore means that those who are more able (to discover or, more generally, to contribute to the increase of social production) should have more[77]. Such a normative conclusion is not, in our view, value-free. It incorporates a strong and counterintuitive value judgement: why should those who are more able have more instruments (a less stringent budget constraint) to pursue their own interests? That

75. In the particular DMC we are considering, the figure of the discoverer coincides with that of the entrepreneur and the typical distinction between innovators and imitators makes no sense: a discoverer is any individual who, by means of his superior *alertness*, grasps before the others the *existing* profit opportunities. Among modern Austrian economists, such a conception of the problem of knowledge is defended in particular by KIRZNER (1973, 1978).

76. According to the Austrian theory of imputation all those who participate in the production of the pie have the right to eat the pie according to their contribution to its production. In the market process it is the force of competition that guarantees that resources are allocated to those who can give the greatest contribution to (the value of) production, since these individuals, being the most able to efficiently use scarce resources, are also those with the highest willingness to pay for obtaining them.

77. As Hayek puts it: "It is, as Adam Smith already understood, as if we had agreed to play a game, partly of skill and partly of chance". HAYEK (1978), p. 186.

value judgements are involved can easily be made evident: consider, for instance, a different value system according to which those who are less able should have more instruments[78], and market OS is no longer desirable.

Note also that, in real capitalism (which is the form of capitalism that Austrians defend), working is not a *duty*[79] (as in the socialist system imagined by Marx), so that only those who are really in a condition of need, *must* effectively work, whereas those who are not in a condition of need are *de facto* exempted from the pain of work. This means that the work effort of individuals *is* (and, according to Austrian, *should be*) in direct relation to their needs. But then the definition of efficient production as social objective in a free market context implies (1) that rewards *should* depend on the ability to contribute to efficient production and (2) that participation to production *should* be in line with individual needs.

Austrian normative theory of market process thus is not value free. If Marx affirmed that in the higher phase of communist society, after the development of production forces, society can cross the bourgeois rights and values and inscribe on its banner "from each according to his abilities, to each according to his needs!"[80], Austrian (obviously implicit) motto can be stated as "from each according to his needs, to each according to his abilities!".

8. Conclusions

Rendering Austrian value judgements explicit brings to light the inconsistency of the comparative analysis research program based on considerations of pure efficiency, independent from value judgements[81]. Since the beginning of the debate in western academia, the unanimously accepted approach, at least formally, has been based on the exclusion of value judgements from the terrain of the debate. Both Mises and Hayek never hid their ideological views and political positions but they presented their criticism of socialist

78. One reason may be that an *incapable person* might need more resources to satisfy his needs.

79. If ever, in modern democratic capitalist countries, at least in principle, it is a *right*.

80. MARX (1891, [1978]), p. 531.

81. Remember that even the prescription of Pareto efficiency involves value judgements.

planning in the scientific arena as a value-free conclusion of comparative analysis[82].

In such a context, the market socialists' reply to Austrian attacks is more effective at a technical level than at a political one: by accepting the efficiency logic and the principle of market efficiency, market socialists correctly answered the Austrians on their own terrain (although confining themselves to the knowledge problem) providing in this way also an undeniable contribution on the political ground; at the same time however, precisely for the acceptance of the principle of market efficiency, they also renounced to develop a radical theoretical challenge to capitalism.

This fact sheds light on the historical confusion which arose during the debate. Though the debate developed along two divergent trajectories, an Austrian one and a neoclassical one, it has led to different criteria for comparative analysis being specified (the former based on disequilibrium processes, the latter based on equilibrium states). Such trajectories have revealed themselves incompatible and that is why confusion has grown, instead of decreasing. Nonetheless the debate took place, the two schools being involved in the same attempt to keep value judgements out of the comparative analysis by insisting on efficiency.

More difficult instead was to answer the Marxian criticism of capitalism (and conception of socialism as a superior mode of production) based on the analysis of the alienated conditions of workers, of the constraints to individual emancipation, of class exploitation and of the dynamics of the distribution of power and resources, an analysis founded on objective categories but often developed explicitly out of the *wertfreiheit* approach.

The Austrian theses of the efficiency of capitalist OSs and inefficiency of socialist OSs are in fact based on the assumption of a particular ideology, the liberal one, historically belonging to the specificity of capitalist institutions. In a sense, it is the objectification of capitalist values (i.e. of the values emanated by capitalist relations of production) which constitutes the theoretical support for the Austrian argumentation. Such a process of objectification of capitalist values finds its main manifestation within the Austrian school in the general acceptance of the distributional consequences of capitalist production as a neutral fact.

82. A different evaluation deserves the political involvement (explicitly founded on a precise ethical position) of Mises and Hayek in defence of liberal ideology but it is a matter which goes out of the purposes of this article.

In an analytical perspective the Austrian comparative analysis of OSs, based on the discussion of the pure problem of efficient production, is contradictory: it assumes (correctly) the interdependency between production and distribution, but by approving the distributional implications of capitalist production, it surreptitiously introduces value judgements, contradicting its own declared epistemological basis.

But the analytical contradiction is even more serious: not only, is the Austrian attempt to argue the superiority of capitalist OSs not free from value considerations, but it is also intimately based precisely on the ideology stemming from the capitalist system. Our analytical conclusion is that the unsuccessful attempt of the Austrian school to develop a comparative analysis independent from value judgements cost the Austrian school its defeat in the planning debate.

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