

INTRODUCTION

The Austrian tradition offers an exciting sphere of investigation for any historian of economic thought, each stage of its development presenting a real challenge to the theorist. The explanation lies in a very particular circumstance: this trend of thought displays a large number of paradoxes. From its beginnings, at the time of the marginalist revolution until the present day, the Austrian tradition has seen its evolution marked by various contradictions.

The most obvious of these paradoxes arises from the diversity of answers to the following simple question: who are the Austrians? The term can indeed cover a whole host of definitions and may mean the theoretical movement incarnated by the triumvirate Menger -- Wieser -- Böhm-Bawerk, to the same extent as the tradition led by Hayek and Mises during the inter-war period, which was fiercely opposed to socialism during the debate on planning; the term 'Austrian tradition' may also refer to the modern revival developed since the 1970s around the themes of Lachmann, Kirzner and Rothbard, to the neo-Austrian theory on capital inspired by Hicks or, possibly to the evolutionary tradition based on Schumpeter's theory of creative destruction.

First of all, it is possible to summarise the history of the birth and evolution of the Austrian tradition by referring to the successive paradoxes which marked its development. The scenario would basically be the following.

The Austrian tradition came into being through the writings of Carl Menger at the end of the nineteenth century. This author is usually presented as one of the founders of the marginalist movement. However, the consequence of such a description is that the very originality of the author may be hidden and his work engulfed within a tradition from which Menger himself kept his distances. Such is the nature of the first paradox on which the Austrian tradition is founded: Menger is considered as a marginalist despite his claim of originality and whilst strongly denouncing certain aspects of Walrasian developments. From the outset, the originality of the Austrian tradition is questioned because of its supposed proximity with marginalist logic from which it nevertheless can be substantially differentiated.

The second generation of Austrian authors is represented by Böhm-Bawerk and Wieser. Although neither of them was a student of Menger, they both claimed his legacy. Böhm-Bawerk, for instance, declared that he was directly inspired by Menger's principles. However, the theory of interest and capital developed in

The Positive Theory of Capital (Böhm-Bawerk, 1889), was, quite unexpectedly, wholly and completely rejected by Menger as being ‘ [...] one of the greatest error ever committed’.¹ As for Wieser, despite being recognised and academically encouraged by Menger, the analyses developed in Natural Value (Wieser, 1889) finally led to an extremely interventionist view of the role of the state. The paradox lies in the fact that although Wieser is unanimously recognised as one of the founder of the Austrian tradition, his normative positions are in sharp contrast with the liberal view which has guided Austrian authors throughout their entire developments.

The inter-war period witnessed more than one paradox, the first being particularly impressive. Whilst Menger was vehemently opposed to any incursion of functional mathematics into economics, the Viennese milieu was the stage for a true paradigmatic upheaval which marked the beginnings of formalism within economics. Functional mathematics penetrated the area of economics by means of a collaboration linking mathematicians and Viennese economists of the 1920s -- the latter being the direct heirs of Mengerian logic -- over the question of the demonstration of the existence of Walrasian general equilibrium. The second paradox between the wars refers to the Austrian theory of business cycles as developed by Mises and Hayek. Their analysis in this area seems to indicate a neo-classical logic, imposing itself as the predominant trend, rather than a Mengerian approach.

The Austrian revival clearly points to an awareness of the originality lost in the inter-war period. Again the main actors in this revival were Mises and Hayek. Their influence in this perspective did not come from the developments related to cycles but rather from their commitment at the heart of the debate on planning and, more widely, from developments which were later -- post 1940 -- to result from it. However, even if Mises and Hayek were united in their criticism of planning, there was one aspect in their respective developments which was to remain irreconcilable: this was methodology. Hayek clearly rejected Mises apriorism, preferring an empirical orientation. The implications of this opposition are important to the extent that the core of Mises’ approach, namely praxeology, is based solely on an apriorist view of scientific method. By rejecting apriorism, Hayek also rejected the entire praxeological approach which characterises Mises’ logic. The two authors, although often compared and placed on the same plane, in fact pursued substantially different logics.

Kirzner and Lachmann, the main leaders of the contemporary modern revival, both claim similar origins. Clearly, they both base their work on Mises’ conception of the individual as an economic actor and on the question of knowledge as presented by Hayek as early as 1937. Their theories, however, reveal themselves to be difficult to reconcile. Kirzner analyses the market as a process which, driven by the equilibrating action of entrepreneurial agents, converges relentlessly toward a state of equilibrium. Lachmann’s view is non-determinist, recognising the coexistence of stabilising and destabilising market forces. In reality, despite undeniable similarities in the logic of the two authors, Lachmann distinguishes himself irremediably from Kirzner when he extends the subjectivist dimension of the analysis of preferences to actors’ individual expectations. Kirzner

does not question the foundations of this extension. On the contrary, the author appears to admit its relevance but rejects the logical consequences of this modification. This identified paradox indeed stems from the fact that the origin of the cleavage, even if easily identifiable and identified, has never been discussed by authors inspired by Kirzner and who have concentrated on the analytical consequences of the specificity introduced by Lachmann rather than on the relevance of the specificity itself.

Hicks and Schumpeter are deliberately excluded from the present analysis. This choice may at first appear surprising and paradoxical to the reader to the extent that, as previously underlined, these two names are often associated with the Austrian tradition in the everyday language of economics. The reasons justifying such a choice stem from the analytical perspective within which our present approach is situated and which we will endeavour to clarify. We will then be in a position to justify why these two authors are kept out of the debate.

Following the previous description of the way in which the Austrian tradition emerged and evolved, one obvious fact stands out. The extreme diversity of developments prevents any general definition of the Austrian stream of thought from being made, a definition which would assemble all authors considered within a unified and coherent analytical framework. Such an undertaking seems bound to fail, bringing a disappointing result.

In short, the only means to arrive at a definition of the Austrian tradition in this perspective would consist in stating extremely general principles in order to create a common framework, with the risk of losing the specificity and originality characterising the logic analysed. If we aim to capture this specificity we must embark upon a different perspective. An analytical choice should be made. We must restrict our field of investigation to a more precise reference. From this viewpoint, instead of concentrating on researching the originality of the Austrian tradition in its widest sense, we will limit ourselves to emphasising the Mengerian essence. From the moment the field of investigation concerns a current of thought in its entirety, attempting to be exhaustive would be unwise. Therefore, given the variety and eclecticism characterising the group of authors quoted above, we have decided to consider all the essentially Mengerian theoretical developments as coming under the Austrian tradition. Menger, founder of the movement, will be the major reference around which our reflection is organised.²

We will justify our choice in three ways. First of all, from the point of view of history of thought, Menger is unanimously accepted as the founder of the Austrian movement and each of the authors studied here specifically claims his legacy. Menger is the sole point of reference common to all authors over several generations. Moreover, from an analytical viewpoint, the author set out the principles and concepts which were to be continued and expanded by his successors. More particularly, Menger was the first to develop an extended subjectivist concept of the economic agent and to offer an analysis of the emergence of economic phenomenon rather than following a logic of equilibrium and rejecting, on a theoretical basis, the use of a certain type of mathematical tool in economic analysis. Finally, from a methodological point of view, Menger developed an alternative

approach to that of marginalist orthodoxy. Economics, considered as a social science, must be constructed on the model of theoretical science by elaborating exact universal laws. The aim of theorists must be to seek out the essential causes of complex socio-economic phenomenon.

From the moment that Menger indeed becomes the reference with which we will compare the contributions of the various Austrian authors, it appears easier to justify the exclusion of the work of Hicks and Schumpeter. Indeed, the neo-Austrian denomination that Hicks awarded himself for the theory of capital he developed, originated from the claim that his ideas were related to those of Böhm-Bawerk. However, as we will see in more detail during this study, it appears that Böhm-Bawerk's theory of capital and interest does not fit accurately into the continuation of Menger's logic. From this point onwards, the developments that the latter inspires, such as Hicks' neo-Austrian theory, can hardly be said to belong to what we are considering here as the nucleus of the Austrian approach.³ As far as the developments of Schumpeter are concerned, the problem is different. Firstly, it is difficult to locate Schumpeter in a definite stream of thought. On the one hand, his development clearly attest to his admiration for the Walrasian logic while on the other hand, the author is legitimately celebrated as a founder of the evolutionary tradition in economics. Secondly, most of the time, Schumpeter's results are in direct conflict with Austrian conclusions, especially regarding the role of credit and of the entrepreneur within the dynamics of the market process.

The object of this book is to capture the essence of the Austrian movement, understood as the entirety of the extensions and researches into the principles put forward by Menger in 1871, with the aim of presenting the elements which may lead to a modern reformulation of the Mengerian approach. Our goal is not, therefore, to attempt to grant the Austrian movement, taken in its widest accepted sense, a definition which would seek to include the whole of the developments of the authors studied. As has previously been argued, such a task would seem bound for failure. Instead of trying to unite the various authors, it appears preferable to pick out and isolate what each author introduced in the context of the Mengerian logic.

In this perspective, we must first of all point out the basic principles and concepts underlying Menger's analysis and which make up the core of the logic we are seeking to identify. Following this, we will examine how these foundations have evolved in line with the developments of which they were the subject. To this end we will follow a chronological presentation. Our objective here is not to give a detailed historical description of how the tradition came about but rather to follow the evolution of the approach begun by Menger down the generations. In other words, our approach will consist in situating the major representatives of the Austrian tradition in relation to Menger's logic, in order to assess to what extent these authors have indeed contributed to the evolution of this research programme. We will thus seek to establish how Menger's original message has been altered following various reformulations, deviations and enrichments introduced from one generation to the next.

At the end of this analysis, we will offer a certain number of elements upon which a modern reformulation of the Mengerian approach may be founded. Of course, we will not be suggesting a new research programme. In that case indeed we would need to venture outside a pure framework of history of economic analysis and would be led to undertake a strictly positive analysis. We will content ourselves here with bringing to the fore the elements likely to be organised into a modern approach through theoretical research into historical thought analysis.

In the majority of the analyses of history of thought, the author at the outset must justify the choice of subject by relating it to one or more contemporary controversies. By doing this the author hopes to avoid Schumpeter's criticism denouncing a practice in the history of thought having no other reason than 'the care of a few specialists' for 'the old stuff'.⁴

As far as we are concerned, such a justification would appear relatively simple to the extent that the period covered runs from the end of the nineteenth century to the present day and that contemporary developments by the modern representatives of the Austrian tradition, their interests and limits, are analysed in the same manner as those of authors such as Böhm-Bawerk or Wieser. Such are the contemporary implications underlying this work. By defining the essence of the Austrian tradition through the adoption of a history of thought perspective, we are now able to tackle the question of its prospects for development. The modern Austrian tradition represented by Rothbard, Kirzner and Lachmann conveys a historical abundance which forces the future evolution of its logic to take a particular direction. Given its origins and its essence, on what analytical basis can the Austrian tradition hope to develop as a unified and coherent research programme?

The implications of our research thus also appear at the same time analytical and seem, a priori, to break with the purely historical perspective into which this investigation falls at the outset. In reality, there is no conflict in our opinion between analytical and historical perspectives. Studying history of economic thought does not involve abandoning pure analysis in order to take an interest only in biographical and anecdotal aspects of authors with the view to adding to the cultural heritage of economic science without in fact participating in its progress. Conversely, it seems difficult to arrive at a completely independent analysis of historical, philosophical and political circumstances into which the authors analysed fit. The alternative is obviously excessive but reminds us in a caricatured way of the distinction drawn by Blaug (1962) between retrospective analysis and historical analysis or between absolutism and relativism.⁵ More precisely, retrospective analysis is the foundation of his 1962 publication, Economic Theory in Retrospect. The object of the author is clearly stated in the preface to the second edition:

Presented with the ultra-marxist thesis that the economic theory of a given period is nothing but a reflexion of the prevailing historical and political circumstances, I have wondered whether the diametrically opposite thesis -- economic theory for economic theory's sake -- is not less misleading.

(Blaug, [1962] 1968, p. xi)

We shall adopt an intermediary position in between pure relativism and pure absolutism, thereby following the approach initiated by Schumpeter. A priori, the viewpoint of this author seems to be located in the absolutist camp. Indeed, Schumpeter describes from the very outset of his History of Economic Analysis how he considers the history of economic thought:

By History of Economic Analysis I mean the history of the intellectual efforts that men have made in order to understand economic phenomena or, which comes to the same thing, the history of the analytic or scientific aspects of economic thought.
(Schumpeter, 1954, p. 25)

In concrete terms, however, his analyses are constantly enriched with narrative and political considerations, as Blaug pointed out ([1962] 1968, p. 5). Indeed, Schumpeter includes aspects related to philosophical climates and to the historical environment as often as he deemed appropriate when it comes to the understanding it is possible to gain from an author or a theory.

Our method of analysis will remain the same throughout the study, referring to the position laid out above: that of a theoretical analysis in the field of the history of economic thought, at a mid-point between pure absolutism and pure relativism. Historical and analytical perspectives are closely linked and their complementarity is a feature which is to be found throughout the research study.

Our developments are not the product of a pure historical analysis of the relationships and breaks between the major protagonists of the Austrian tradition. Links between authors are analysed using the retrospective model proposed by Blaug, enriched with historical considerations deemed relevant. For example, the analysis we offer of the originality of Menger is a faithful application of the retrospective approach. Indeed, we use an ex post definition of the marginalist movement to compare Austrian and marginalist logics rather than to proceed with a direct comparison between authors from the end of the nineteenth century. In order to make a coherent presentation of the major actors of the Austrian tradition and the ties between them, we have decided to concentrate on the way the Austrian tradition was absorbed into the neoclassical camp. At this point, it appears essential to include the historical circumstances coming into play in this argumentation, so as to coherently explain the process in question. For example, Viennese philosophy during the inter-war period is an explanatory element whose influence cannot be neglected and taking it into account enables us to progress in the understanding of the reasons of the absorption of the Austrian tradition into the neoclassical approach.

The final chapters, although more analytical, are far from being exempt from historical considerations. The interpretation we offer to facilitate the analysis of the various lines of development of the Austrian revival lies undoubtedly within a relativist perspective. In our opinion, modern authors can only be perfectly understood by recognising the influences which give rise to their analyses and of the legacies they convey. Let us quote, as an illustration, the analysis of the market process proposed by Lachmann. In our view, it is only possible to totally compre

hend these developments after having replaced the author's attempt within the evolution of the subjectivist paradigm that he admits to supporting.

The results we attain at the end of the analysis do not aim to rigorously define a modern Mengerian research programme but rather to suggest possible avenues for further research into Austrian logic, enriched by the progress made willy-nilly by Menger's descendants over more than one century. Our contribution thus consists in identifying and organising convergent elements (with regard to the results of our retrospective analysis) which will enrich the Mengerian essence within a specific analytical framework.

PART ONE

THE ORIGINALITY AND FOUNDATIONS
OF MENGER'S LOGIC

The object of this part is to demonstrate that we are justified in referring to a Mengerian logic in its own right. Our intention is to define the analytical and methodological originality attached to Menger's analysis, in order to identify the foundations upon which the Austrian tradition will progressively be built. The major implication here, of course, consists in questioning traditional interpretations which turn Menger into a marginalist author so that he may be associated with an original and distinctive approach.

Whatever the interpretations given or terms used, the majority of historians of economic thought are in agreement that the end of the nineteenth century was the stage for a particularly important theoretical revolution where Menger is presented without discrimination as one of the essential figures along with Jevons, Marshall and Walras.⁶ Our aim is to bring to light the traits which denote Menger's originality with regard to the marginalist tradition within which the author is so generally and indistinctly included.

A PARTICULAR INTERPRETATION OF MENGER

The object of this chapter is to provide the foundations for the study of Menger's work which differs somewhat from traditional interpretations. The main problem encountered by the commentator lies in the identification of the analytical aim sought by Menger. In our view, the solution consists in reading the analytical developments of the author in the light of his later methodological considerations. If, on the contrary, Menger's methodological writings are limited, as it is often the case, to an attack on the German historical school, two problems will be created. Firstly, it will lead to a fallacious appraisal of Menger's relationship with the German economic tradition and secondly, to an underestimation of the coherence of Menger's overall project.

1.1. Limits of traditional interpretations

The main work of Menger, the Grundsätze der Volkswirtschaftslehre, gives rise to different and basically incompatible interpretations. This certainly arises from the fact that the author never states the analytical goal pursued. Menger never clearly defines the object of his reasoning unlike Walras and Jevons who state that their aims are, respectively, to elaborate a pure theory of the determination of relative prices in a context of perfect competition and to define economics as an exercise of maximisation of individual satisfaction. Nothing of this nature appears with Menger and we never know precisely if the logic of his developments emanates from exchange -- determining prices and repartition -- or from production -- how to increase overall wealth. Hence it is natural to see two totally different interpretations of Menger's work clash: one of them, traditional, placing Menger in a central role within the marginalist revolution (Stigler, 1941) whilst the other, heterodox, considering the Grundsätze as a contribution to the logic of production (Streissler, 1972).

More precisely, Streissler reveals the dynamic aspect of Menger's analysis and offers an interpretation centred on the problem of determining the causes which govern the level of wealth. In fact, according to Streissler, Menger is said to have reopened the programme begun by Smith in The Wealth of Nations. However, in place of the principle of the division of labour, Menger is said to have substituted the process of acquisition of information as a means likely to increase the

well-being of agents. Stigler, on the contrary, reads Menger through the neo-classical prism. In his opinion, the author's problematic is a typical example of resource allocation. The emphasis is on the unification of the principle of value based on marginal utility. The theory of imputation enables marginalist logic to be extended to the realm of production.

For various reasons, neither of these two interpretations satisfies us. As far as marginalist interpretations are concerned, two types of problems may be outlined. Firstly, they do not deny the presence within Menger's logic, of elements belonging to an alternative analytical framework than to that of allocation. We are referring here to the temporal dimension of the production process, to the importance given to elements of uncertainty, to the process of acquisition of information, to qualitative and extra-economic aspects which come into the analysis -- so many elements, which are difficult to introduce in the marginalist logic and hardly fit into the Walrasian framework. In fact, marginalist commentators explain that these elements appear in the initial chapters of the Grundsätze and that they only represent 'introductory considerations' which are subsequently abandoned. Menger is then situated without any doubt, within the static framework of a problem of the allocation of resources. We will demonstrate how these elements were on the contrary to make up the very core of Menger's originality.

Neoclassical commentators, instead of questioning their interpretation, denounce the weakness of Menger's theory: they blame the author for omitting the hypothesis of decreasing returns to scale, which is essential for the coherence of the marginalist view; Menger is said to use an unprecise terminology;⁷ the author does not express the theorem of Euler according to which the total product is entirely used up by the amount of productive contributions from various factors. We believe that these criticisms may also be interpreted as sufficient counter-arguments in the face of the marginalist interpretation. Had Menger really had such a view of the economic system, the representation he gives of it would indeed be somewhat succinct.

As far as the interpretation of Streissler is concerned, two limits deserve to be emphasised. Firstly, the Menger -- Smith link may appear a priori surprising to the extent that the Grundsätze are clearly out of balance with classical tradition and this opposition itself represents a point where it is akin to the German economic tradition. This argument should not be overestimated however, in the sense that the target of criticism common to German authors and Menger concerns to a lesser extent the Smithian logic than the objective theory of value in the manner it was developed by the Ricardian school. In reality, the criticisms Menger directs at Smith are much more selective as for instance Menger's disapproval of Smith's justification of exchange on the basis of a possible 'natural propensity to exchange' inborn in man. Menger turns exchange into the essential desire for the search to satisfy individual needs.

Nevertheless, Menger's logic presents a certain number of affinities with the developments of Smith. Remember, for instance, that the lectures Menger gave to the Austrian Crown Prince Rudolf in 1876, abound with passages taken from The Wealth of Nations.⁸ Streissler's interpretation brings one fundamental aspect of Menger's

thought to the fore, this being the division of knowledge. However, this does not, in our opinion, constitute the central element of the Grundsätze.

It is clear that, for Menger, the roots of progress are not in an improved allocation of resources, and here he is in total agreement with Smith, but in a better use of resources thanks to improved knowledge of production processes.

If this is the major theme of the book, then it is curious to notice that subsequently, Menger's interest falls on questions of the value and the determination of relative prices and that the author henceforth makes no further reference to questions of production. Would Menger so accurately reproduce the outline of Smith in the way that Kaldor presents it? In his famous article Kaldor ([1972] 1989, p. 378) clearly locates the moment when economics began to stray in the wrong direction: in the middle of the fourth chapter in the first book of The Wealth of Nations where '[Smith's] interest gets bogged down in the question of how values and prices for products and factors are determined'; the author loses sight of the goal he gave himself at the outset, i.e. to explain how it is possible to increase the level of national wealth.

Reminiscent of Smith, Menger discusses the production process, the causes governing its improvement in the sense of a greater well-being for society and goes on, with no logical transition regarding this aim, to interest himself in the question of the value of goods.

The interpretation of Smith given by Kaldor is relevant to the extent that the author of The Wealth of Nations had clearly defined his goal and context of analysis beforehand. It is true that the importance given to the theory of value seems exaggerated when we consider the initial objective of the author. However, an ambiguity remains in Menger's writings in the sense that the author never explicitly defines his analytical objective. Be that as it may, the rest of the book, which is more than half, is given over to the problem of value, determination of prices and money. It is clear that this is the section favoured by marginalist commentators.

The marginalist interpretation and to a lesser degree that defended by Streissler, do not do full justice to the originality of Menger's thought. Indeed, they both leave to one side the importance, in our opinion, of the theme of institutions within the logic of Menger. This fact originates from circumstances common to both marginalist and heterodox interpretations: they are both mainly based on the analysis of the Grundsätze and consider the fundamental points of Menger's contributions to economics, from an analytical point of view, to be contained therein. The second work of Menger, the Untersuchungen über die Methode der Socialwissenschaften, is considered solely as a contribution to the realm of methodology as it represents the answer to the critics of German historicists and illustrates the war of methods dividing them.⁹

Our aim is to grasp the originality of Menger's logic and to positively reject the notion of Menger as being vague and unclear, in whose writings a most varied number of elements are to be found. This impression may well emerge precisely following the clash between marginalist and heterodox interpretations. In this perspective, it appears essential to systematically base our work on the author's two books.¹⁰ Indeed, there is without doubt a continuity in the reasoning between the

Grundsätze and the Untersuchungen.¹¹ In fact, it is only during the developments of the second book that Menger finally reveals the object of his analysis: economics comes within the scope of social sciences and in that light, the economist's major objective should tend toward the understanding of the origin and evolution of complex economic phenomena. Such an aim is in total harmony with the specific methodological position to which Menger adheres.

1.2. Essentialism and causality: the two bastions of Menger's methodological position

In the preface to the Grundsätze, Menger never specifies his analytical objective, thereby paving the way for distinct interpretations, as we have already pointed out. The author only clarifies at this stage the methodological approach he considers relevant for economics and which will later underlie the whole of his analyses in a coherent manner.

In Menger's view, economics belongs to the group of theoretical sciences, which means that it automatically receives the status of an exact science. This concept of economics as an exact science clashes directly with the position of the German historical school which favours a historical approach with the intention of highlighting empirical regularities. For Menger, on the contrary, the status of exact science stems from the fact that it is possible to develop precise and universal theoretical laws explaining economic phenomena. The scientific approach defended by Menger is thus purely analytical and consists in breaking down complex economic phenomena into their most simple elements, a logical decomposition in terms of relations of causality. On a methodological level, his objective is thus:

[...] to reduce the complex phenomena of human economic activity to the simplest elements that can still be subjected to accurate observation, to apply to these elements the measure corresponding to their nature, and constantly adhering to this measure, to investigate the manner in which more complex phenomena evolve from their elements according to definite principles.

(Menger, [1871] 1950, pp. 46--7)

In reality, the individual and his behaviour are the most basic elements by means of which Menger will explain, through the relation of cause and effect, the most complex economic phenomena and draw up universal laws.

The introductory remarks of Menger cease here. The author does not venture outside the realm of methodology and does not clarify his approach on an analytical level. The first chapter of the Grundsätze begins with the general theory of goods with no further explanation. In fact, from the outset Menger ([1871] 1950, p. 51) seeks to apply the previously defined methodological orientations and opens the chapter by declaring that 'all things are subject to the law of cause and effect. This great principle knows no exceptions, and we would search in vain in the realm of experience for an example to the contrary'.

Here Menger insists on the idea that any dynamic process, any change in state, is governed by the principle of causality. In economics, at the simplest level of the individual, the primary cause explaining behaviour reflects the human need to have certain goods at one's disposal in order to live, this translating into the search to satisfy one's needs. Throughout his work, Menger emphasises the individual as a starting point for causal explanation of all economic phenomena. The author considers human behaviour which seeks to satisfy needs as the most simple premise upon which everything may be built. This is defined as the principle of 'economizing'.¹²

Economics, considered as a theoretical science, falls into the group of social sciences and, in this respect, must be construed using the same methodological principles. The scientists approach should thus be guided by the search for universal laws which enable to acquire general knowledge of phenomena, by means of a causal breaking down into their basic elements.

If, with the Grundsätze, Menger reveals the methodological approach he intends to develop, it is not until the Untersuchungen, published more than a decade later, that the author finally clarifies the analytical object that, in his view, is covered by economics.

In his 1883 work, Menger continues and goes deeper into the methodological foundations which, in his opinion, should underlie any theoretical science and economics in particular. Essentialism and universalism, which were already present in the developments of the Grundsätze, are here confirmed and justified. The scientific approach, whose ultimate aim is to acquire general knowledge on phenomena (in contrast to concrete and particular knowledge), consists in systematically researching ultimate causes which are the very essence of these phenomena, by establishing general laws having a universal character, i.e. knowing no exceptions:

The goal of scholarly research is not only the cognition, but also the understanding of phenomena. We have gained cognition of a phenomenon when we have attained a mental image of it. We understand it when we have recognized the reason for its existence and for its characteristic quality (the reason for its being and for its being like it is).

(Menger, [1883] 1963, p. 43)

1.3. Menger's analytical objective and the importance of the theme of institutions

The scientific approach outlined above is applied to a particular area of economics: the analysis of organic institutional phenomena. As Hayek (1934) points out, the interest of the Untersuchungen should not be confined to questions of a purely methodological nature. According to Hayek (1934, p. 405), the Untersuchungen is just as much an accomplishment as the Grundsätze and, in his view, the basic interest of the work lies in the precision with which Menger addresses the question of the origin and nature of economic institutions:¹³

Probably it [The Untersuchungen] did more than any other single book to make clear the peculiar character of the scientific method in the social sciences, and it had a very considerable effect on professional "methodologists" among German philosophers. But to me, at any rate, its main interest to the economist of our days seems to lie in the extraordinary insight into the nature of social phenomena which is revealed incidentally in the discussion of problems mentioned to exemplify different methods of approach, and in the light shed by his discussion of the development of the concepts with which the social sciences have to work. Discussions of somewhat obsolete views, as that of the organic or perhaps better physiological interpretation of social phenomena, give him an opportunity for an elucidation of the origin and character of social phenomena which might, with advantage, be read by present-day economists and sociologists.

(Hayek, 1934, p. 406)

In effect, it is indeed in the Untersuchungen, that Menger finally clarifies his objective: 'How can it be that institutions which serve the common welfare and are extremely significant for its development come into being without a common will directed toward establishing them?' One page later, Menger finally states that this is the fundamental question any theorist of social sciences should aim to resolve: 'The solution of the most important problems of the theoretical sciences in general and to theoretical economics in particular is thus closely connected with the question of theoretically understanding the origin and change of "organically" created social structures' (Menger, [1883] 1963, p. 147).

It thus becomes apparent that understanding the institutional structure of an economy is Menger's main objective. Indeed, the institutional environment conditions the well-being of individuals from the point of view of the system's ability to answer their needs. Production structure along with that of consumption stem from the nature of the social institutions underlying their organisation.

Menger points out two types of social phenomena: 'organic' institutions and 'pragmatic' institutions. The former category concerns social phenomena of a spontaneous origin, whilst the latter defines social organisations resulting from a conscious decision imposed by law, or from a voluntary agreement between individuals. Understanding the process of the birth of pragmatic institutions is not a relevant question to the extent that their existence is the very product of human will. The whole challenge dwells in the ability to master the process which leads to the setting-up of organic institutions. As we have pointed out, this is the basic question which should, in Menger's view, funnel the investigative efforts of theorists in economics. In this way, the author concentrates on analysing the essence of organic social phenomena, more clearly defined as institutions which,

[...] do not prove to be the result of an intention aimed at this purpose, i.e., the result of an agreement of members of society or of positive legislation. They, too, present themselves to us rather as "natural" products (in a certain sense) as unintended results of historical development.

(Menger, [1883] 1963, p. 131)

As an illustration, Menger gives the example of organic social institutions such as language, communities and states, morals, the legal system and, as far as the realm of economics is concerned, the phenomenon of money, markets and prices of exchange.¹⁴

1.4. Menger and the German economic school

From the date of his nomination in 1879 to a chair of economics at the university of Vienna, Menger was in a particularly powerful academic position. The author could not be escaped, taking charge of all recruitments and of the accreditations to supervise research. His position and his quite extraordinary personality led Streissler (1972, p. 429) to talk of a genuine 'Mengerian reign'.

Although Menger is undoubtedly recognised as the founder of the Austrian tradition, it may, however, seem strange to note that the Grundsätze were not acclaimed as a revolutionary piece of work. One would be misled to confuse the impact of this publication with that of the Untersuchungen, at the root of the famous war of methods, the 'Methodenstreit', which brought Menger into conflict with the new generation of economists of the German economic school.

Indeed, contrary to the publication of the Untersuchungen, the Grundsätze did not give rise to any conflict with the German economic tradition and were greeted with some detachment.

There is a possible explanation for the relative indifference which the publication of the Grundsätze received.¹⁵ The book appears to fit perfectly into the continuity of the German school and apparently does not comprise any analytical break with this tradition which has, for many years, been entrenched in a subjectivist perspective of demand. Interestingly enough, Roscher (1874) extensively quoted Menger as being among the economists who are continuing the path of Hermann:

[...] with his very abstract, always original and frequently quite fruitful conceptual analysis which is usually founded on a thorough knowledge of the history of thought. For instance he [Menger] examines price formation first for the case of isolated exchange, then for monopoly trading and only finally under the influence of competition on both sides.¹⁶

(Roscher, 1874, p. 1040)

This remark leads us to tackle a question which must be answered before being able to legitimately demonstrate the existence of genuine originality in Menger. The issue addressed here concerns the relationship between Menger and the German economic tradition. To what extent is Menger's achievement original in this confrontation?

The fact is that Menger himself saw his work as firmly entrenched in the German economic tradition shaped by authors such as Hermann, Rau, Kneis, Roscher, Schaffle etc. In fact Menger dedicated his major work precisely to Karl Roscher and via him to the German tradition. Contrary to Walras, there is no sign that Menger had been of the opinion that his work could usher in a new age in economics. The

author merely considered himself as continuing an already well-established tradition. And this is true if one looks strictly at the concepts used by Menger. A rapid overview of the main theses and analyses in the German economic tradition at the end of the nineteenth century shows that there is no novelty in basing oneself on a subjective theory of exchange value (Hufeland, Scaffle, Rau), in reasoning in terms of decreasing marginal utility (Hildebrand), in declaring the equality of marginal utility a condition of exchange equilibrium (Mangoldt), or indeed in speaking of opportunity cost (Hermann).¹⁷ One can but accept the honesty and precision of Menger when he declares at the end of the preface of the Grundsätze: 'It was a special pleasure to me that the field here treated, comprising the most general principles of our science, is in no small degree so truly the product of recent development in German political economy [...]' (Menger, [1871] 1950, p. 49).

So, what is new about Menger?

First of all, concerning methodology, it is obvious that Menger's position is totally out of line with the German historical school. Although the methodology underlying the Grundsätze closely foreshadows developments to come, the clash will not happen until twelve years later upon the publication of the Untersuchungen, at a time when Schmoller succeeds Roscher at the head of the German tradition. For German historicists, economic theory does not have the scientific nature of natural science. Only a historical approach will enable empirical regularities to be absorbed into the theory. Menger, to the contrary, asserts the scientific nature of economic analysis as early as 1871 and offers to rebuild economics on new foundations which have little in common with purely historico-institutional foundations. Subsequently, Menger turns increasingly toward the realm of methodology and openly clashes with historicists. There is no clear winner at the close of the methodenstreit. Whilst Menger puts his energy into this basically sterile quarrel, Wieser and Böhm-Bawerk pick up on the analytical developments and give substance to the Austrian school of which they still consider Menger to be the founder.¹⁸

Concerning analysis, Menger's originality regarding the German economic tradition does not stem from the elaboration of new concepts but rather from the nature of the analytical framework within which these concepts are expressed. Menger introduces inter-dependence of economic activities, an inter-dependence whose most immediate expression is to be found in the classification of goods into different orders. Let us remind that Menger defines goods according to the role they perform in the production process in which they are embedded: first order goods correspond to final consumption goods and higher order goods corresponds to 'productive goods as not yet fully ripened consumption goods' (Rothschild, 1973, p. 210). The activity of production is thus defined as a causal interconnection between goods of different orders. Such a picture of productive activity enables the author to generalise the subjective determinants of demand on the supply side using the theory of imputation. Menger thereby modifies the principle of price determination as defined by Rau, Hermann, Schuz and Roscher for whom the price interval sees buyer's utility as its upper limit and production costs of the seller as its lower limit.

The specific picture Menger gives of production enables us to highlight an important peculiarity of the general analytical framework proposed in the Grundsätze.

Production is a process which puts goods of different orders in contact with one another within a necessarily temporal framework. The introduction of a concept of real time implies introducing the dimension of uncertainty and the process of acquisition of information by agents into the analysis. From this point, it becomes obvious that the theoretical framework of inter-dependence of economic activities underlying Menger's logic is not that of pure and perfect competition, but that of imperfect competition.¹⁹

At present, it is appropriate to go more deeply into these original aspects of Menger's thinking by means of a more precise confrontation with marginalist logic to which the author is often confined.

CONFRONTATION WITH AN A POSTERIORI
DEFINITION OF MARGINALISM

Although the title of founder of the Austrian tradition has clearly been granted to Menger, the role he played in the ‘marginalist revolution’ is quite a different matter. According to Walras, there is no question that Menger belongs to the revolutionary movement of which he himself claims to be the instigator. After reading the *Grundsätze*, Walras wrote to Menger: ‘it is in our interests that you and I should be in agreement; we would be much the stronger for it. Please believe that I shall do my utmost to achieve this’;²⁰ and at a later date, Walras added: ‘[...] let us learn to understand one another and to agree with one another and then we will see the emergence of a school which is destined to persist [...] and of which you will be one of the most eminent instigators’.²¹

Menger’s answer to the enthusiastic letters of Walras are much more reserved: ‘There is indeed a resemblance between us. There is an analogy of concepts on certain points but not on the decisive questions’.²²

Our object, here, is to clearly identify the nature of these differences on the decisive questions. In this sense, we will continue by confronting Menger’s work with the following definition of marginalism.

The basic question interesting marginalists and, at a later date, neoclassical authors, is the search for the conditions enabling the optimal allocation of a given set of resources to take place. Marginalism may, in our view, be defined using three distinct elements: specific mathematical tools are introduced to define a state of equilibrium; seeking optimal allocation of a given set of resources is equivalent to concentrating solely on the equilibrium configuration of the economy under consideration; the satisfaction of individuals represents the ultimate criterion for the evaluation of the efficiency of an economic configuration. In this way, marginalist reasoning, equilibrium and subjectivism appear to us to form the basic features of the marginalist paradigm.

We admit that this definition does not enable us to clarify the importance of certain particularities as far as equilibrium and subjectivism are concerned. As regards the concept of equilibrium, although Marshall develops a theory of partial equilibrium in contrast to the general view of Walras, the final state of the economy, be it a general or partial equilibrium, nevertheless constitutes the central theme of their analyses. In the same way, marginalist authors do not necessarily have the same conception of subjectivism. By subjectivism, we especially mean

the explicit wish of marginalist authors to introduce subjective factors into the analysis on value which will counterbalance the influence of objective determinants still arising on the supply side.

Our definition is however sufficient to clarify Menger's position with respect to marginalist authors. In what follows, the objective is to show that in relation to each of these aspects -- subjective determinants of value, interest for the analysis of equilibrium and formal marginal reasoning -- Menger's position conveys specific and original aspects which bring into question the marginalist label, traditionally associated with these developments.²³

2.1. Marginal reasoning and mathematical tools

The concept of marginal utility is the traditional element put forward by commentators to argue in favour of the thesis of unity, bringing the works of Walras, Jevons and Menger together into a 'marginalist revolution'. The aim of Jaffé (1976) is, on the contrary, to break with the notion of a possible grouping of the three authors. Jaffé does admit however that the concept of marginal utility is a common point in all the compared developments. Nevertheless, although the theoretical tool is similar, the theoretical structures into which it is integrated are different from one author to another. It is on the basis of such an argument that Jaffé attempts to dismantle the idea of unity.

We will begin our analysis still further upstream, by questioning the very nature of the analytical tool: does the concept of marginal utility developed by Menger reflect the notion traditionally conveyed in the marginalist tradition?

2.1.1. Utility and subjectivism

Walras, Jevons and Menger are not the only authors to base their analyses on the concept of utility. Walras and Jevons explicitly refer to numerous forerunners on this point. Depending upon who makes use of it, however, the concept of utility does not take on the same meaning. As such, the notion of utility referred to by French liberals born of the J. B. Say tradition, relies on a clearly distinct conception of the individual and of subjectivism, comparable to the meaning given to these notions by J. S. Mill: the marginalist economic agent is defined by his individual preferences. Say's economic individual does not reflect a theoretical abstraction but rather a legal fiction born of the French revolution. The economic individual is a sort of representative agent of the preferences and tastes of the whole of society. A use-value is thus bestowed upon each object but it corresponds to an intrinsic feature of the object itself, a sort of social utility, in contrast to the subjective conception in marginalist terms, which associates each individual with each object and combination of objects in a specific relationship of needs satisfaction.

It is clear that Walras, Jevons and Menger all see the concept of utility in this latter perspective. It is not a question of the utility of any given good as such, but of the satisfaction an agent obtains from using the good. This is a subjective evaluation which varies from one individual to another and which has nothing to do

with any particular property of the object itself. Even if Walras begins with Say's and Condillac's tradition of utility, the author develops a distinct concept of a subjective nature. In the same way, Jevons' point of departure is Bentham's utilitarianism which turns economics into the science of pleasure and pains, with purely personal and subjective values. As for Menger, the individual is automatically placed at the origin of any explanation of economic phenomena, be it those of demand, as it is for the two other authors (evaluation of prices of exchange), or those reflecting supply (subjective dimension of productive activity); Menger thus presents methodological individualism and a particular, enlarged conception of subjectivism as two of the foundations of the Austrian tradition. However, the question is now to see if this enlarged definition of subjectivism leads to the same marginalist principle of Walras and Jevons.

2.1.2. Formal definition of the marginalist principle

Even though Walras, Jevons and Menger all construe a concept of utility of a similar nature, the formal definition given to marginal utility by these authors is not necessarily the same. The aim here is to show to what extent Menger's definition differs from the traditional one.

First of all, Menger does not use mathematical formulae to define the concept of marginal utility. This, after all, may appear trivial given that any mathematical formula has its literary equivalent and, even if a literary demonstration rapidly becomes very complex, it can still remain an exact translation. However, if the formal demonstrations of Walras and Jevons are compared with Menger's literary presentations, substantial differences appear. This comparative work has been undertaken by a mathematical economist well versed in Mengerian thought, as he was the economists' own son: Karl Menger (1973) shows that the Austrian literary demonstration is not equivalent to the marginalist mathematical formula.²⁴ The author explains more particularly how far Menger's definition of 'marginal utility' is more general but not less precise than that of marginalists. The difference lies in their dissimilar views of economic reality, which comes in a variety of continuous variables amongst marginalists, whereas Menger develops a concept of utility in terms of discrete variables for which the mathematical tool of differentiability is not relevant.

K. Menger gives a literary definition of the Austrian principle of decreasing marginal utility introduced by his father as:

For each good, the utility of a larger quantity is greater (or at any rate not less) than that of a smaller quantity, whereas the marginal utility of the larger quantity is less (or at any rate not greater) than that of the smaller.

(K. Menger, 1973, p. 39)

K. Menger could have directly quoted his father's wording:

[...] the satisfaction of any one specific need has, up to a certain degree of completeness, relatively the highest importance, and that further satisfaction has

progressively smaller importance, until eventually a stage is reached at which a more complete satisfaction of that particular need is a matter of indifference. Ultimately a stage occurs at which every act having the external appearance of a satisfaction of this need not only has no further importance to the consumer but is rather a burden and a pain.

(Menger, [1871] 1950, p. 125)

Obviously, marginalist mathematical expression is much lighter. It consists in simply defining utility as an increasing function of quantities, with a negative second-order derivative.²⁵ If we take u as the satisfaction of a given agent, utility is a function of quantity q of the good available. Therefore:

$$u = f(q), \quad \text{such as } f'(q) \geq 0 \text{ and } f''(q) \leq 0$$

This formal version relies on implicit hypotheses of continuity of utility function and differentiability, which are not to be found in the Austrian formulae.

What is questioned here is not whether or not it is relevant to use a mathematical formulation, but rather to know if the meaning of the two versions is identical. In fact, according to K. Menger's confrontation, the Austrian literary presentation appears as being more general than the Walrasian formula to the extent that it is not confined to the case of continuous and differentiable functions. This difference demonstrates the existence of a more profound distinction regarding the concept of utility. The Austrian tradition conveys an ordinal concept of utility not recognisable in Walrasian formulation as ordinality forbids all operations of division, multiplication and derivation upon the utility function, allowing only comparisons of level to be drawn. From the moment this ordinal interpretation of the concept of utility is adopted, the entire reasoning revolves around discrete variables and the gap with the Walrasian formulation widens.

The conceptual differences we are seeking to bring out here between Menger and marginalists no longer concerns the gap between ordinality and cardinality; what is essential now is to focus on the divergence which appears as to the relevance attached to the use of continuous and derivable functional relationships.²⁶

The same conclusions are reached when comparing the Austrian expression of 'marginal utility' with that provided by Jevons: the latter defines marginal utility as 'the final degree of utility' which corresponds to 'the degree of utility of the last addition or the next possible addition of a very small, or infinitely small quantity to the existing stock'.²⁷ Mathematically, this comes down to determining the limit of the following expression:

$$[f(q+h)-f(q)]/h \quad \text{for } h \text{ tending to zero.}$$

This definition implies, on the one hand, the cardinality of utility because division should be feasible and, on the other hand, the differentiability and derivability of function f as this definition corresponds mathematically to that of the first derivative of f in q .

The fact that Austrian and marginalist definitions are not equivalent does not mean that Menger's concept of utility cannot be translated into formal language, nor that the basic opposition between these authors arises from the use of mathematics in economics. The contradiction dividing them is to be found rather in the analysis of the content they give to the concept of utility; the division between a cardinal and an ordinal conception is symptomatic of a deeper split between the authors regarding their view of economic reality: a discrete versus a continuous conception.

K. Menger gives us a mathematical translation of the Austrian definition in terms of an ordinal view of value, i.e. without using implicit hypotheses of continuity or differentiability:

Let x_1 , x_2 and h be different quantities of the same good, with $x_1 < x_2$ and f , the satisfaction function of an agent, thus:

$$|f(x_1 + h) - f(x_1)| \geq |f(x_2 + h) - f(x_2)|$$

and for any quantity x of the good,

$$f(x) - f(x - h) \geq f(x + h) - f(x)$$

that is to say:

If two quantities of a good are both increased or both decreased by the same amount, then the utility of the greater changes less (or at any rate not more) than that of the smaller. [...]

For any quantity of a good, the increase in utility due to the addition of an increment to the quantity is less (or at any rate not greater) than the loss of utility due to the subtraction of the same amount.

(K. Menger, 1973, p. 43)

This characteristic refusal of Austrians and of Menger in particular to use mathematics, is often quoted as an essential element of distinction. There is a double origin to this feature of the Austrian school. First of all, it is clear that economists of that period who belonged to this tradition did not have sufficient experience of mathematics to enable them to carry out such formalisations. They originated essentially from the fields of law and politics. Their knowledge of mathematics was limited to the amount of personal effort they put in both spontaneously and individually to acquire a grounding in this field. Menger, for example, began to throw himself into self-taught mathematics in the 1890s. However, his son ruthlessly declared : 'I am afraid that he did not acquire an operative knowledge, let alone a critical insight into calculus' (K. Menger, 1973, p. 45).

A further argument may also be advanced, the idea being that it is not the mathematical tool in its entirety which is rejected by Menger and the Austrians, but it is rather the dominating form of the formal apparatus which puts them off, differential calculus to be precise, at the foundation of marginalist demonstrations; such a tool does indeed imply a view of the economic system in terms of differentiability, continuity and cardinal utility.

The formal differences highlighted by K. Menger may be symptomatic of a deeper rift than of a mere clash between ordinal and cardinal conceptions. One may argue this idea using the analysis of the correspondence between Menger and Walras. Two facts are then brought to light: the author of the Grundsätze does not dogmatically reject the use of any formal tools and the methodological difference separating the two authors as to the role of the mathematical approach, often thought to be anodyne, in fact reveals a much deeper opposition.

Through a close look at the correspondence between Walras and Menger, it is possible to understand the circumstances giving rise to the differences in their positions regarding the use and the type of mathematical tool in economics.

For Walras, mathematics is much more than just a mere demonstrative tool enabling him to give a simpler and more rigorous presentation than a literary equivalent. Mathematics is indeed a real investigative tool, a 'research method' in itself.

For the non-mathematician it is natural to believe that mathematical form, where it can be used, conveys nothing more than ordinary language, and is only used to explain things to those who cannot understand them in any other form; however this assertion will bring a smile to the lips of anyone aware of services rendered by mathematics to all sciences to which they can be applied: mechanics, astronomy, physics, chemistry.

(Letter by Walras, 16 January 1882)²⁸

It is precisely here that the methodological rift between Walras and Menger lies: the author of the Grundsätze categorically refuses to consider mathematics as a method of investigation. In this perspective the author remains strictly loyal to the analytico -- compositive approach guiding his developments as a whole. Menger clearly states that it is not mathematics in itself he rejects but rather the role attributed to it by Walras as it goes beyond the scope of mere exposition.²⁹

The object of my research is to reduce complex economic phenomena to their true causes, and to seek out laws according to which these complex phenomena of political economy are repeated. The results of my research may be represented by mathematical formulae. Mathematical representations may help with the demonstrations: however, the mathematical method of representation is in no way the essential part of the task I have undertaken.

(Letter by Menger, 1 June 1883)³⁰

The mathematical method used by Walras seems far from being appropriate to Menger's objective, i.e. knowing how to determine the essence of complex economic phenomena. Menger is quite explicit as to the extent of the differences separating his approach from that of Walras. It is obvious that they do not ascribe the same objective to economics. These differences are perfectly summarised in a letter Menger wrote to Walras in February 1884:

My opinion is actually that the method that should be adopted within pure economics cannot be simply called mathematical or rational. We should not only investigate relations between magnitudes but also the essence of economic phenomena. But how could we know this essence, for instance, the essence of value, of entrepreneurial profit, of labour distribution, of bimetallism, etc... in a mathematical way? Even if the mathematical method was purely and simply justified, in any case, it would not fit with the solution of the mentioned part of the economic problem.

However, I cannot accept the mathematical method at all, even for the determination of the laws of economic phenomena [...].

The problem which you consider to be the most important is the formation of the laws according to which goods exchange with goods. Using the name of goods, we, German people, include means of production as well as products, more precisely all the things that contribute directly or indirectly to the satisfaction of human needs. Are the quantities of goods which we exchange in trading (quantities that change according to time and places!) arbitrary or are they ruled by fixed laws? This is the question. Did I understand you well in considering that the investigation of these laws is the main concern of your research?

Now, if this is the case, it is at the same time clear that the purpose of your investigations will never be reached through the mathematical method. It is rather necessary that we come back to the simplest elements of the phenomena which are generally very complex -- therefore that we determine analytically the last constitutive factors of the phenomena [...].

Let us consider the theory of prices. If we want to have access to the knowledge of the laws which rule the exchange of goods, it is first necessary to return to the motives which lead men to act within exchanges, to the facts which do not depend on the will of traders, which have a causal relation with the exchange of goods.

We should come back to the needs of men, to the importance they give to the satisfaction of needs, to the quantities of different goods which different economic agents own, to the subjective importance (subjective value) that different economic agents confer to given quantities of goods and so on.

(Letter by Menger, February 1884)³¹

Despite the above quotations, it would be misleading to believe that Walras sees no interest whatsoever in questions of a methodological nature. Indeed, the author is clearly inspired methodologically by the example of natural science whose rigour he wishes to introduce into economics. His approach is guided by explicitly adopting the analogy with mechanics and Walras' aim is precisely to raise economics to the level of classical physico-mathematical sciences. The author highlights the existing parallel between pure economics as he sees it and physics. For example, the notions of mass and equilibrium in physics and of scarcity and satisfaction in economics are of a similar conceptual nature: goods are exchanged in an inverse ratio to their scarcity, in the same way that bodies attract in direct ratio to their mass and

inversely to the square of their distance. Still further, maximal satisfaction is proportional to the scarcity -- value ratio in the same way that the equilibrium of a set of scales is an inverse function of the force of its arms. The methodology of Walras is clearly based on the analogy with mechanics: the model developed by the author gives a formalised representation of reality. The theory is devised as an abstraction of what is real, that is to say a formalised abstraction of reality. Walras is convinced that pure economics can be formalised entirely and that, in this way, it can be compared to mechanics. Walras is one of the first authors to clearly state that economics should be mathematical. Its central concepts, as with the foundations of physical mechanics, are a simplification of reality, a purification of what is real.

In this way, Walras extends the mechanical analogy to the domain of social science and places himself out of step with the French philosophical tradition which draws a very harsh line between hard science and moral science. Walras totally agrees with D'Alembert when the latter declares the world to be 'a problem of mechanics'.

The mechanics of the end of the nineteenth century provided Walras with the analytical techniques that seem to him to be the most appropriate to his preoccupation with pure economics. This analogy also guides him regarding the direction his research should follow and which theoretical questions to examine. The main question thus interesting Walras in the Elements d'Economie Politique Pure is that of price determination in a hypothetical regime of free competition. This field of investigation is centred around the fundamental concept of equilibrium, a direct consequence of importing the approach associated with Newtonian mechanics into economics. The approach referred to by Jevons is no doubt of the same nature: in the preface of the first edition of the Theory of Political Economy, the author explains that:

The theory of Economy thus treated presents a close analogy to the science of Statical Mechanics, and the laws of Exchange are found to resemble the Laws of Equilibrium of a lever as determined by the principle of virtual velocities. The nature of Wealth and Value is explained by the consideration of indefinitely small amounts of pleasure and pain, just as the Theory of Statics is made to rest upon the equality of indefinitely small amounts of energy.

(Jevons, [1871], 1965, p. vii)

The fact that Menger does not adhere to the methodological approach defined by the mechanical analogy has far-reaching consequences as far as his belonging to the marginalist movement is concerned. Apart from the rejection of the mathematical method as a means of investigation, it is the very concept of equilibrium which is brought into question.

2.2. Equilibrium versus process

There is no doubt that certain elements are, by their very nature, difficult to take into account within an analytical framework built around the concept of equilibrium. We refer here to the idea of uncertainty and the occurrence of errors of

judgement coming from agents, to the temporal dimension of economic activities, to the indeterminism of phenomena, or still further to the imperfection of information which must undergo a process of selection in order for decisions to be made. All these elements are absent from the original marginalist formulations. They have only been integrated into the neoclassical approach at a cost of a certain number of technical manipulations but have, from the outset, been included in the Austrian version presented by Menger.

As we have already stated, the presence of such elements within Menger's logic somewhat hampers marginalist interpretations of the Grundsätze. Stigler rids himself of these disruptive factors by interpreting them as mere 'introductory considerations' that are marginal compared to what the author believes to be the main aspect of the book.

However, considering these elements as only introductory remarks cannot surely be true in the sense that they play no further role in the work of Menger. On the contrary, this may well be true in the sense that they anticipate more substantial and rigorous developments to come in the Austrian tradition. Indeed, Menger's heirs did develop precisely the elements laid out in an embryonic fashion in the Grundsätze and the Untersuchungen: Böhm-Bawerk (1889) systematises the idea that production takes time and develops a theory of capital in terms of roundabout processes of production; Hayek (1937) believes that the basic question to be solved by economists is that of coordinating the knowledge scattered amongst agents, defining competition as a process of knowledge discovery; Mises (1949) radicalises Menger's essentialism by basing all the knowledge of the economic system on the only axiom of human action turned toward the satisfaction of individual needs; Schackle (1972) and Lachmann (1976a) highlight the fundamental non-determinism guiding economic phenomena and reflect within a framework of radical uncertainty; in the same light, O'Driscoll and Rizzo (1985) describe economics as 'the science of time and ignorance'.

2.2.1. Time, uncertainty and acquisition of information: much more than mere 'introductory considerations'

Jaffé (1976) describes Menger as an economist of disequilibrium and, as such, differentiates him from Walras and Jevons. The author maintains that, although the three economists use the marginal utility tool, it is not sufficient to establish the idea of a marginalist revolution. According to Jaffé, the analytical framework within which Menger incorporates the principle of 'decreasing marginal utility' is radically distinct from that of Walras. The marginalist principle is essential for Walras to establish the internal coherence of the analytical outline of generalised inter-dependence of markets by recognising a connection between utility and demand.³²

Menger is not to be situated within such an analytical framework. Basically, it is the static aspect of Walras' system of inter-dependence which is incompatible with Menger's perspective. The temporal dimension in fact represents the essential rift separating marginalist and Austrian analyses. This difference is the outcome of the

distinct methodological positions of the authors. Causality in itself involves the idea of time, whereas the analogy with mechanics provides economics with a static analytical framework centred around the study of equilibrium positions. Menger has set a non-determinist view of economic phenomenon against the determinism structurally inherent in the marginalist approach and later in the neoclassical movement. The author is more intent on understanding economic processes than a point of equilibrium in the relationships of economic actors.

The determinism of Walras' logic is quite clear. Given a particular configuration of the economy in terms of technology, endowments and tastes, there will exist, under certain conditions, a single state of equilibrium in the system which enables optimisation programs for agents overall to come to fruition. This aspect of standard theory is at the roots of Hayek's 1937 criticism characterising 'the pure logic of choice' as a mere formal and tautological exercise. Individual decisions are mechanical and predetermined by circumstances. Pareto ([1906] 1927, p. 170) clarifies the radically determinist view of economics when he reduces the analytical interpretation of the economic agent to the set of indifference curves representative of individual preferences: 'the individual can disappear as long as he leaves us a photograph of his tastes'.

Menger's economic system is not determinist in that sense and the underlying reason for this stems from taking the temporal dimension and the whole of its analytical implications into account. In Menger's framework, economic action takes place over time. This does not mean that the temporal dimension is absent in the Walrasian logic; but Walras' conception differs from that of Menger and refers to a logical view of time whereas a real approach of temporality is developed in the Grundsätze. O'Driscoll and Rizzo (1985), more precisely, place the Newtonian conception of time, which was adopted by marginalists following the logic inherent in the analogy with mechanics, in opposition to the Bergsonian conception which highlights the subjective and discontinuous nature of time for economic agents in the Mengerian framework.

Marginalist logic introduces time into the analytical outline using a process of spacialisation which leads to a continuous, homogeneous and logical conception of time. The variables are given a new index and the coordinates of the temporal dimension match those of the points situated on a continuous straight line. Not only time is continuous and homogeneous, it is also logical. At the end of the tâtonnement process, a purely virtual process, exchange is instantaneous and takes place directly at equilibrium prices and quantities. To resume the difference between Menger and Walras in this respect, Streissler (1972, p. 440) declares that 'Walras's tâtonnement takes a minute; Menger's tâtonnement takes a century!'.³³

Economic action, in Menger's logic, takes place in real time. In this respect, the privileged area of analysis concerns production: as we know, Menger characterises production as a causal process which connects goods of different orders. This process is sequential and definitely refers to a temporal perspective: 'The idea of causality, however, is inseparable from the idea of time. [...] However short the time periods lying between the various phases of this process may often appear, [...], their complete disappearance is nevertheless inconceivable' (Menger, [1871] 1950,

pp. 67--8). The simple assertion that economic action takes place in real time allows the introduction of two fundamental factors into the analysis: uncertainty and knowledge. These two factors, in turns, form the basis of the non-determinism of economic phenomena. Let us consider the consequences of the introduction of real time within Menger's logic.

There is a fixed time lapse between the moment when goods of higher order are gathered and obtaining the good from the corresponding first order. At the outset of the process, there is an uncertainty as to the quantity and quality of the good which will finally be available to satisfy the needs in question. This type of uncertainty is, in Menger's opinion ([1871] 1950, p. 71), 'one of the most important factors in the economic uncertainty of men'.

The fact that production is described as a temporal process also leads to emphasise the role of producers' expectations. To be precise, economic activity for the agent consists in providing goods which are directly or indirectly necessary to satisfy needs: 'the concern of men for the satisfaction of their needs thus becomes an attempt to provide in advance for meeting their requirements in the future [...]' (Menger, [1871] 1950, p. 79).

The agent must anticipate his future needs before beginning the production process. Taken in this light, the production process forces the Mengerian economic agent to gather a certain quantity of information before being able to go ahead with planning economic activity. More exactly, the individual must have at his disposal not only the information relative to the quantity of goods of the first and higher orders necessary to meet his future needs, but also relative to the quantity of goods actually at his disposal. Uncertainty again comes into play. A priori, the quantity of consumption goods of the first order is a direct function of the intensity of the individual's needs. This, again, may vary between the moment the agent carries out his forecasts and the moment when the causal production process comes to an end. Moreover, the factor of uncertainty arises in the quantity and quality of goods of the first order which will actually be produced.

The importance Menger gives to the factor of uncertainty is also explicitly explained in his monetary theory and more especially in the analysis of money demand.

The first motive of holding money is a motive of transaction. Money allows agents to implement the exchanges related to their normal economic activities. However, money is not only used to enable everyday transactions. Menger also takes a precautionary motive into account whose existence stems precisely from the importance Menger attributes to the concept of uncertainty in the analysis. Uncertainty indeed appears as a fundamental characteristic of the logic developed in the Grundsätze. It would have been surprising or even inconsistent if Menger's theory of money had been developed in a different decisional environment.

Uncertainty is strongly related to production activity and entrepreneurial decisions provide the locus for the introduction and definition of the precautionary motive. In the context of a monetary economy, entrepreneurs have to forecast and evaluate the cash flows coming from payments and receipts as well as all the possible technological and financial difficulties that may occur during their productive

activity. The entrepreneur is led to hold a variable volume of precautionary money according to his specific ability of dealing with these kinds of obstacle:

Commercial skills of the entrepreneur and his accurate forecast and distribution of receipts and payments [...], the minor or major knowledge of technical or legal difficulties related to credit operations, exert a noticeable influence on the volume of liquid balance necessary for ensuring the stability and the regularity of firm management.

(Our translation, Menger, [1892a] 1923, p. 448)

Notice that, in contrast with Menger, Walras never went beyond the transaction motive and his neglect of uncertainty excluded any possible reference to the precaution or furthermore, to the speculation motive.

The fact that economic activity occurs over time also leads us to look at the question of information and knowledge of agents from a dynamic point of view.

Indeed, within a Bergsonian conception, the passage of time does not take on the neutrality of a Newtonian concept. It is more a question of time turned, in a causal manner, toward the efficiency of decision-making. As it will later be clarified by Lachmann (1976a, pp. 127--8): 'As soon as we permit time to elapse, we must permit knowledge to change and knowledge cannot be regarded as a function of anything else'.

The passing of time, indeed, does not leave the state of agents' knowledge unchanged. From this point, Menger's conception of time is revealed as being heterogeneous and subjective. The passage of time enhances the individual in an unforeseeable and continuous manner. It is in itself a source of change and novelty which alters the information the economic actors go on when drawing up their expectations and making their economic decisions.

If it is generally correct that clarity about the objective of their endeavors is an essential factor in the success of every activity of men, it is also certain that knowledge of requirements for goods in future time periods is the first prerequisite for the planning of all human activity directed to the satisfaction of needs. [...]. The second factor that determines the success of human activity is the knowledge gained by men of the means available to them for the attainment of the desired ends. Wherever, therefore, men may be observed in activities directed to the satisfaction of their needs, they are seen to be seriously concerned to obtain as exact a knowledge as possible of the quantities of goods available to them for this purpose.

(Menger, [1871] 1950, pp. 89--90)

Menger's homo-economicus has little in common with the calculator -- maximiser of Walras. It does not refer to an actor with perfect information. The Mengerian homo-economicus makes his decisions on the basis of his perception of the economic world around him and constantly reviews his expectations as his knowledge changes with time and as he realises the mistakes he may have made in the past.

The opposition between neoclassical determinism and Austrian indeterminism is clearly visible through the confrontation of the marginalist and Mengerian conception of time. Walras takes an interest in the conditions for equilibrium of an economic system with generalised inter-dependence. The set of data defining the initial configuration also defines the nature of the state of equilibrium associated with it. Menger takes a greater interest in the process of agents' decision making and the evolution in economic phenomena than in a final state of equilibrium. It is impossible a priori to form an idea on what results from agents' economic interaction. This interaction takes place in real time and represents a non-determinist process of evolution to the extent that it is not possible to be aware of the new information the actors will acquire during the sequence of economic activity.

2.2.2. An illustration: Menger's theory of prices

Taking account of the passage of time, in a Bergsonian perspective, leads Menger to reason within a framework of uncertainty involving agents in an information collecting process, a priori non-determinate. The interest of the author then turns to the analysis of the causes governing the evolution of economic processes and in no way concerns the analysis of situations of equilibrium. The most striking illustration of this basic difference between Menger and marginalists concerns the theory of the determination of exchange prices.

Menger's theory of price determination is particular in that it gives no explanation of the equilibrium level of prices. Indeed, in line with the methodological approach guiding his developments as a whole, the author goes into the determination of the essential causes at the origin of the mechanism of price determination. In this context, the essence of the explanation of monetary exchange lies in the economizing behaviour of man. The problem here is to understand why two agents are inclined to exchange the goods they are endowed with. It is clear that exchange will only occur if both agents find a specific advantage in performing it. Now, because of the subjective character of their calculations, agents do not generally evaluate goods in the same way. The level of relative or monetary prices should be included in an interval whose limits correspond to the respective values defined by the subjectivity of both agents and the final actual price level will result from a bargaining process between agents:

In the description of price formation in isolated exchange, we saw that in each particular case there is a certain range of indeterminacy within which price formation can take place without the exchange losing its economic character, and that the extent of this range depends upon the nature of the particular exchange situation.

(Menger, [1871] 1950, p. 199)

This definition of a possible range of prices sharply contrasts with the emphasis Walras put on the unique equilibrium price. The idea of a unique market price is definitely rejected by Menger:

It is an error in economics, as prevalent as it is patent, that all commodities, at a definite point of time and in a given market, may be assumed to be linked in a definite relation of exchange, in other words, may be mutually exchanged in definite quantities at will. (Menger, 1892b, p. 243)

We are thus able to see to what extent, at this stage of the analysis, pure economic theory should be enriched with an analysis of the role and the dynamics of contingent factors exerting an influence upon economic variable and whose action alters over time, this is to say with a theory of institutions. The capacity of pure theory to predict is limited to determining a potential price interval. If such a result is too imprecise and insufficient for a marginalist framework, it is well-suited to Menger's perspective, his aim being to define the essence of the phenomenon in question and to justify his interest for the analysis of institutional phenomena.

2.3. Static subjectivism versus dynamic subjectivism

As we have just seen, the adoption of a Bergsonian concept of time is at the root of the deep rift between Menger and marginalists. The Austrian tradition concentrates on analysing the evolutionary processes of economic phenomena whose indeterminate nature is in no doubt. Marginalists, on the contrary, concentrate their interest around the static positions of equilibrium of economic systems. Moreover, Menger's conception of time gives rise to a second fundamental difference with marginalists. This concerns the form and nature of subjectivism in the analysis.

The 'marginalist' revolution is often given the title of a 'subjectivist' revolution. Marginalists have set a theory based on the relationships of men and needs to object and their ability to satisfy such needs against the objective theory of value in terms of production costs construed by the classical authors.

Of the three fundamental features of marginalism already brought to light in this study, it is subjectivism which appears, a priori, to present the fewest problems. We can certainly not deny the subjectivist foundation of Menger's approach. Indeed, subjectivism is often depicted as being the basic and unifying feature peculiar to the Austrian tradition. In this respect, White (1977, p. 4) defines the Austrian tradition in the following words: 'What unifies this school of thought -- what might be called its theme -- is the methodological outlook of its members: subjectivism'.

It may at first seem contradictory to see in subjectivism both the unifying feature and at the same time a factor testifying to the Austrian originality compared to the orthodox stream of thought. In fact two alternative conceptions of subjectivism are highlighted in the same way that two distinct conceptions of the temporal dimension clash regarding marginalist and Mengerian approaches. Static subjectivism, present in the marginalist tradition should be distinguished from dynamic subjectivism in Menger's approach.³⁴ We will show how the essential elements in the differences between Austrians and marginalists may be summarised using this distinction. It should also be noted that the subjectivist dimension of marginalist analysis is

restricted to the introduction of subjective factors on the demand side, the aim being to counterbalance the importance of objective factors passed down from classical theory on the supply side. Objective production costs determine supply in the analysis of Jevons and Marshall rejects the theory of opportunity costs offered by Wicksteed and Davenport.³⁵ On the Austrian side on the contrary, the introduction of opportunity costs as a determinant factor of supply enables subjectivism to be extended to the field of production.

The marginalist movement develops a subjective theory of value in reaction to the classical theory of production costs, but the field of application of marginalist subjectivism is limited to individual preferences. Moreover, given his preferences, decision-making by a marginalist homo-economicus is completely mechanical and predetermined. From an analytical point of view, the agent is totally defined by his preferences. Coming back to the description Veblen gives of the Walrasian homo-economicus:

The hedonistic conception of man is that of a lightning calculator of pleasures and pain, who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact.

(Veblen, 1919, p. 73)

Austrian subjectivism, as Menger introduces it, is much more radical than the Marginalist conception: it is not limited to preferences but is rather enlarged to expectations, costs, the conception of time (Bergsonian), knowledge perception. In that perspective, Hayek asserts: 'It is certainly no exaggeration to say that every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism' (Hayek, 1952a, p. 52).

Austrian subjectivism considers human choices in terms of a means -- ends framework, individual choice being the result of a two step process: the adoption of a specific objective and the laying down of a plan of actions intended to best satisfy the objective. This scheme is much more general than the Marginalist one in which individual objectives are limited to maximisation of utility and individual choice results from the comparison within a closed set of alternatives of all available possibilities. Austrian subjectivism challenges such a mechanical conception of human behaviour, limited to mere calculation.

2.3.1. The theory of imputation: the extension of subjectivism to supply

Faithful to his conception of scientific method, Menger attempts to offer a universal theory of value which is valid for all types of economic good. In this perspective, the author develops what Wieser is to call the theory of imputation a decade later. All the specific elements of Menger's approach come into play here, i.e. time, uncertainty and knowledge.

The general principle of imputation consists in evaluating production factors by

attributing to them the fraction of the value of the finished product that they enable to produce. In the Austrian context where production takes time, the value of factors corresponds to the fraction of the expected value of the good that they contribute to produce. In reality, at the point where higher order goods join the production process, one unknown factor remains: the quantity and quality of the first order good to be produced. The agent, at the moment when higher order goods are evaluated, can rely solely on the expected value of the consumption good with all the potential risks for error. This uncertainty diminishes as individuals gradually acquire more knowledge about the temporal interconnection between goods.

[...] the value of a concrete quantity of a good of higher order is equal to the difference in importance between the satisfaction that can be attained when we have command of the given quantity of the good of higher order whose value we wish to determine and the satisfactions that would be attained if we did not have this quantity at our command.

This law corresponds exactly to the general law of value determination.

(Menger, [1871] 1950, p. 165)

So we have come full circle. Menger has shown the universality of the theory of value. Schumpeter (1954, pp. 912--17) sees the unification of the theory of value as the main achievement of Menger. It is unanimously celebrated by marginalists to the extent that it enables the principal of 'marginal utility' to be extended to the realm of production because through imputation theory, production factors are treated in the same way as consumption goods. What seems to us to be more important to Menger, however, is to provide a principle with a universal vocation. The writer remains faithful to the outline of causal decomposition of complex economic phenomena in its most simple elements, these being crystallised at the heart of the concept of economizing. The individual will inevitably be the point of departure for all explanations.

2.3.2. The Mengerian homo-economicus

As far as the conception of economic agent is concerned, the essence of the difference between Menger and the marginalists lies once again in a distinct conception of time: The marginalist Homo-Economicus makes his decision in a neutral temporal setting; the passage of time leaves his objective and preferences unchanged, his answer is mechanically a function of his tastes and of the quantitative constraints of the environment. Austrians reject this static conception of subjectivism and advocate a dynamic view: agents makes their decisions within a continuously changing environment, the passage of time being the cause for the evolution of individual perceptions. Decision-making takes into account the creative activity of the human mind and becomes a non-determinist process. According to O'Driscoll and Rizzo (1985, p. 22), dynamic subjectivism '[...]views the mind as an active, creative entity in which decision-making bears no determinate relationship to what

went before', whereas static subjectivism is characterised by the fact that '[...] the mind is viewed as a passive filter through which data of decision-making are perceived. To the extent that the filter can be understood, the whole process of decision-making is perfectly determinate'.

The Mengerian conception of subjectivism is, from many aspects, of dynamic nature: the means -- ends framework is at the core of Menger's definition of economizing; agents are engaged in a process of acquisition of knowledge in order to modify and improve their plans of action; knowledge depends on the informations agents could acquire about causal connection between their desires and economic goods; Mengerian agents live in a world of uncertainty where the occurrence of errors is indeed possible; decisions should be based upon expectations agents make about an unknown future, leaving a room for their creative abilities. Jaffé describes the Mengerian homo-economicus as follows:

Man, as Menger saw him, far from being a "lightning calculator", is a bumbling, erring, ill-informed creature, plagued with uncertainty, forever hovering between alluring hopes and haunting fears, and congenitally incapable of making finely calibrated decisions in pursuit of satisfactions. Hence Menger's scales of the declining importance of satisfactions are represented by discrete integers. In Menger's scheme of thought, positive first derivatives and negative second derivatives of utility with respect to quality had no place; nothing is differentiable.

(Jaffé, 1976, p. 521)

Such a different conception of homo-economicus allows us to better understand Menger's position with respect to the use of mathematics. The refusal of mathematical method used by Walras has its origins in Menger's non-determinist view of economic phenomena taking place within the framework of a Bergsonian conception of time. It is impossible to capture the subjectivity of agents within continuous and stable functional relationships in time and limiting the principle of economizing by maximising such functions. In this light, the passage from reasoning in terms of discrete variables to reasoning in terms of continuous relationships is not a mere generalisation but a genuine qualitative jump implying that a very distinct perspective from that of Menger has been adopted. As we shall see in the following chapter, it is in this direction that Böhm-Bawerk embarks.

PART TWO

THE PROGRESSIVE NEGLECT OF
MENGER'S ORIGINALITY

The aim of this part is to analyse the successive steps of the absorption of the Mengerian originality into the marginalist logic as defined in part I. In our view, it is possible to provide a complete picture of this absorption process via the analysis of three paradoxes running through the evolution of the Austrian tradition from the end of the nineteenth century until world war two.

The first paradox concerns Böhm-Bawerk's extension of Menger's legacy. Whereas Böhm-Bawerk presents himself as pursuing a strict continuity of Menger's logic, the latter is more than reluctant to support the Böhmian theory of capital and interest which the author of the *Grundsätze* even describes as 'one of the greatest errors ever committed'.³⁶ We identify the reasons for this rejection in the way Böhm-Bawerk is progressively led to treat the subjectivist dimension of the analysis.

The second paradox is rather striking. How is it that the first demonstrations of the existence of general equilibrium indeed came about in Vienna during the inter-war period, that is to say in the very depths of the Austrian school, traditionally fiercely opposed to formalism and to the importance given to equilibrium? The answer lies essentially in the way in which the analytical problem of imputation had been interpreted within the specific philosophical environment of the so-called Vienna circle.

The third paradox concerns the nature of the 'Austrian' theory of cycles. It is curious indeed that Mises' and Hayek's theory of the trade cycle, the official achievement of the Austrian school during the inter-war period, does not present the typical features of the Mengerian logic in terms of (radical) subjectivism and (non determinist) dynamics.

The following chapters give an assessment of the deviations from Menger's logic introduced by the successive generations of Austrian authors. Starting from the aspects forming the fundamental traits of Menger's originality as defined in Part I, let us anticipate our results and give a brief analysis of the nature of the deviations to which Menger's work has given rise.

The Mengerian originality is built around three dimensions. The author develops a dynamic conception of subjectivism leading to the consideration of the agent as a true economic actor and not as a mere reactor to environment. The subjectivist dimension of the analysis constitutes the essential explanatory basis of all analyses of complex economic processes and is in no way restricted to the field of demand.

The search to satisfy individual needs represents the elementary unit at the basis of any explanation. The theorist should aim at identifying the essential causes of economic phenomena in these terms.

Proof of adhesion to a causalist approach is seen in the refusal of the static and predetermined view related to the logic of equilibrium. The final economic configuration of a system depends on the way activities actually take place and not on the initial conditions. The emphasis is put on the understanding of the processes of emergence of phenomena in contrast to the analysis of the conditions enabling a given equilibrium to come into being.

The mathematical tools used for functional analysis reflect a conception of the economic system which is clearly appropriate to an analysis of equilibrium, taking a mechanical conception of the economic agent as an explanatory point of departure. Adopting dynamic subjectivism and an interest for the understanding of the processes of the emergence of phenomena involves the refusal to use functional relations and simultaneous equation systems, i.e. more generally the formalist approach.

In relation to these three dimensions, the decades following the publication of the Grundsätze and the Untersuchungen were to be particularly disastrous.

As far as the first dimension is concerned, two circumstances reflect a deviation from Menger's originality. 'The greatest error' committed by Böhm-Bawerk is interpreted as a process of objectivation, consisting in progressively moving further away from the dynamic conception of Mengerian subjectivism and finally ending up adhering to the traditional conception of marginalist subjectivism. Hayek's theory of the cycle rests on a Böhmian conception of the production structure, resuming the synchronic view developed by Clark and is based upon an implicit assumption of perfect elasticity of expectations with regard to the monetary interest rate, reflecting the adhesion to a mechanical conception of the economic agent.

As far as the rejection of formalism is concerned, the inter-war period witnesses a clear betrayal of Menger. The question of imputation comes to the forefront of traditional Austrian economists in a rather non-legitimate fashion and is reformulated in terms of the demonstration of existence of Walrasian general equilibrium. The demonstration of existence illustrates the triumph of logical positivism and heralds the domination of formalism in economics.

Finally, the logic of equilibrium also takes over from the non-determinist view advocated by Menger regarding Hayek's theory of cycles. This deviation from the Mengerian essence is even more complex as the theory of cycles represents the official form under which the tradition extends beyond the frontiers of Austria and especially to the London School of Economics.

The end of the 1930s marks the culmination of the process of absorption: there is no longer any aspect of Menger's originality that is upheld or developed. The term 'Austrian school' no longer has any specific meaning in the eyes of a neoclassical movement in full bloom. We are required to wait until the 1940s to witness the appearance of the awareness of an Austrian originality.

BÖHM-BAWERK'S 'GREATEST ERROR'

This chapter aims at solving the following conundrum: Böhm-Bawerk expresses his indebtedness whilst explicitly asserting his loyalty toward Menger. However, the result of his investigations -- the theory of capital and interest -- turns out to be violently rejected by Menger himself.

Our objective is to investigate the reasons for such a reaction. Our point is that the split with the Mengerian logic concerns Böhm-Bawerk's conception of subjectivism. In the following sections we give an analysis of Böhm-Bawerk's work as a sort of objectivation process. More precisely, we will endeavour to identify the three following stages: the objectivation process begins with the definition of the concepts of economic goods and capital, is spread through the theory of value and is at its climax with the theory of interest.

Böhm-Bawerk starts from a Mengerian conception of subjectivism (dynamic subjectivism) but is gradually led to support a traditional (static) view of subjectivism. The issue at stake concerns the identification of these two distinct conceptions of subjectivism and their theoretical implications.

3.1. First stage: economic goods and capital

We are concerned here with Böhmian definitions of basic economic concepts such as goods and capital; whereas Menger defines the status of goods according to their relation to individual judgement and appraisal, Böhm-Bawerk is progressively led toward a narrower definition taking into account the intrinsic nature of goods. Such definitions enable the 'average period of production concept' to be introduced, contributing to the relegation of the role of individual behaviour into the background.

3.1.1. The concept of economic good

In the Grundsätze, Menger accurately defines the concept of economic good on strict subjectivist lines. Items have no proper theoretical existence before their recognition as an expedient means for the satisfaction of human needs. The intrinsic nature of things plays no role in their becoming economic goods; only individual judgement and appraisal matter.

At first glance, Böhm-Bawerk adopts the same viewpoint. As Endres (1987) points out, the author presents the five conditions an object must fulfil in order for it to acquire the status of economic good: (1) the item should serve a human need; (2) it should contain useful properties to satisfy this need; (3) individual agents should have the knowledge of the causal process through which the item could effectively fulfil the need ('knowing that'); (4) individual agents should know how to use the item in order to reach their goal ('knowing how'); (5) individual agents should indeed have the good at their disposal.

In Menger's writings, the economic character of goods depends on four conditions only: the 'knowing how' condition is implicitly contained in that related to the disposal power of the item. According to Endres (1987), this is a crucial difference. By defining the 'knowing how' condition separately from the disposal power condition, Böhm-Bawerk provides the good with intrinsic characteristics, with 'purely objective requirements to be fulfilled by the thing itself'. The direct consequence of this first divergence concerns property rights. According to Menger, property rights could acquire the character of an economic (higher order) good as soon as they play a role in the process of production of first order goods (consumption goods). On the contrary, property rights are a priori excluded by Böhm-Bawerk from the realm of economic goods, whatever their relation to need fulfilment.

Menger's definition of economic goods turns out to refer to a much wider concept than that of Böhm-Bawerk. It is not from their intrinsic nature that goods gain the character of economic goods, but through their relation to men and through their ability to lead, directly or indirectly, to the satisfaction of human needs.

3.1.2. Toward a generic definition of capital

Böhm-Bawerk distinguishes between two concepts of capital: social capital and private capital. Social capital, a key concept in his theory of production, brings together all the means of production such as installations, warehouses, machines, tools, stock, raw materials and draft animals. The concept of private capital, at the heart of his theory of interest, refers to capital as a specific source of income and consists of all goods composing social capital and first order goods not used for consumption. Böhm-Bawerk (1889, p. 70) lists the content of these two concepts in detail, thereby arriving at a generic classification of goods according to their very nature. At this stage of the analysis, subjectivism is set aside; the role of individual judgement in the characterisation of goods has vanished. Böhm-Bawerk provides a narrow definition of capital goods and in particular, a close definition which is meant to be exhaustive for each category of good. The relationship between items and human needs is no longer the main determinant factor for an object to acquire the character of capital good as in Menger's definition of higher order goods. An objective dimension has been introduced into the analysis.

It seems that the deviation regarding goods initiated by Böhm-Bawerk has reproduced itself at the level of capital. The author defines (social) capital as the set of intermediary equipment goods derived from the combination of land and labour, the two original factors. Debt and credit are excluded from such a definition. On the contrary, according to Menger, as soon as these assets enter directly or indirectly into the production process, i.e. as soon as their utility for human need satisfaction has been recognised, they attain the character of economic goods and more especially, of higher order goods. The nature of the good itself plays no part in this and Menger rejects the distinction Böhm-Bawerk draws between capital goods on the one side and elementary factors on the other. From Menger's point of view, land and labour derive the quality of capital goods from the same circumstances as the whole set of higher order goods, precisely because they enable production processes to function and there is no theoretical distinction between these elementary factors and intermediary goods.

Menger explicitly and sharply criticises the idea that goods derive their character of capital goods from their intrinsic nature. The author is most eager to define open concepts of goods and capital, whose content is continuously changing according to the conditions of the production process and to the nature of the individual plans having originated that process.

3.1.3. The concept of period of production

The way in which Böhm-Bawerk examines production also leads him to overlook the importance of individual judgements in the analysis, thereby moving further away from the subjectivist claims of Menger.

According to Böhm-Bawerk, the essence of capitalism stems precisely from the roundabout nature of production and not from the fact that production is controlled by capitalists. In this light, the concept of capital represents the set of auxiliary forces which supports labour and land throughout the production process. Böhm-Bawerk' (1889, book I) objective is to grasp the essence of capital. Like Menger, the author focuses upon essential causes of complex phenomena rather than on their manifestations. For instance, Böhm-Bawerk explains that capital is not the fundamental cause but the symptom of the phenomenon of higher productivity of more roundabout production processes. The introduction of capital into a process is the result of a deliberate choice by economic agents to undertake more and more advantageous (i.e. longer) production processes. The use of capital in a process results from individual judgements. Individual behaviour is at the beginning of the causal chain explaining the complex phenomenon of capital; it represents the essential cause of its economic existence. However, the introduction of the concept of average period of production leads Böhm-Bawerk away from Menger's essentialism and at the same time away from a radical subjectivist perspective.

The concepts of period of production and average period of production synthesise the principle of higher productivity of more roundabout processes of production which bring together two variables: duration and productivity of processes. The period of production represents the span of time elapsing from the moment the first

action is implemented to produce the first intermediary good required to make the final consumption good to the moment this good is indeed produced. It aims at representing a sort of capitalistic intensity of the production process. In order to understand more precisely how capital is spread over a given period of time, Böhm-Bawerk defines the concept of average period of production. It is the average of the different lengths of time from the moment work is provided to the moment it is paid for during the process. In this way, two production processes, equally time consuming and labor consuming, may have two different average periods of production according to the way in which labor has been spread over time in each process. The average period of production leads the whole capital structure of a process to be represented by one single objective figure.³⁷ At this level, Streissler (1972) emphasises the one-dimensional nature of Böhm-Bawerk's analysis which definitely contrasts with Menger's subjectivism based upon the infinity of dimensions produced by the human mind. Here, on the contrary, only the technical aspect of production matters, irrespective of any human appraisal. Böhm-Bawerk focuses upon the material point of view of production whereas Menger always maintains a subjectivist foundation of production in his analysis by using a definition of productive activity considered as an economic relation between human needs and means at one's disposal.

According to Garrison (1990), the definition of the concept of average period of production represents the breaking off point from Menger's subjectivism and a decisive step toward what Garrison calls formalism. In order to calculate the period of production, Böhm-Bawerk has to define economic relations in terms of physical quantities of input, output and time duration. Here again, Menger's rejection of mathematics finds another justification. As soon as Böhm-Bawerk formalises his theory of production and capital using the concept of average period of production, the author permanently breaks with the subjectivist foundation of the Mengerian logic. The debate opposing Böhm-Bawerk and J. B. Clark over the theory of capital and the concept of average period of production perfectly illustrates this. The idea is that Böhm-Bawerk could have countered Clark's attack with an argumentation based upon Menger's subjectivist principles.

Let us go into more detail here. In his Positive Theory of Capital, Böhm-Bawerk gives a graphic representation of the concept of maturity classes of goods. The author depicts a cross section of processes through a series of concentric circles (Böhm-Bawerk 1889, pp. 106--7). There is however an ambiguity attached to this representation, stemming from the fact that all the stages of production are placed within the same framework. It is thus possible to give a synchronic interpretation of production, in terms of simultaneity of the different stages of the process. Böhm-Bawerk's view is then perfectly compatible with that developed by Clark (1899), based upon the concept of synchrony.

Clark gives one of the most rigorous representations of the theory of marginal productivity which aims to demonstrate the natural law according to which wealth distribution between agents is governed by their respective productive contributions. His view of production removes the time dimension from the analysis permanently, since it assumes synchronism between production and consumption. In the Mengerian logic, the description of production as a synchronised flow is a

particular case of no theoretical interest: a case in which needs structure and means at one's disposal remain unchanged over time. Synchrony distances the role of individual judgements from the production process: following Clark's well-known illustration, a tree is planted not because another is simultaneously chopped down and in order to maintain the capitalist structure of the system but rather because at this moment agents expect that they will need it in the future. The tree planted today has no relation in a subjectivist perspective with the one cut down at the same moment. They represent the expression of two different individual plans. Synchronisation implies stability of plans and this has no relevance in the pure Mengerian logic, where individual plans express the primary cause for the implementation of a productive process.

Böhm-Bawerk barely returns to this essential explanation of phenomena. According to Menger, individual behaviour is the point of departure for all explanations of economic phenomena and Böhm-Bawerk begins his argumentation one step ahead, basing his whole argumentation upon the principle of marginal evaluation.

Alter (1986) perfectly illustrates this idea when confronting Menger with neo-classical economists. Alter questions the traditional interpretation which deduces indifference curves from the Grundsätze tables. In the neoclassical logic, utility functions consist of a one to one correspondence between goods and utility levels. One step is missing compared to Menger's approach where the functional relation is twofold and, according to Alter, refers to a 'double mapping'. In the first stage, agents attribute value not to goods themselves but rather to their needs and only then is the set of needs related to the set of goods. The need level disappears in neoclassical analysis, introducing another kind of subjectivism. In Böhm-Bawerk's developments, a similar process is set in motion. The needs level is not totally dismissed but is anyway relegated to the background. Ultimately, the role of human needs is downplayed and supplanted by the influence of competition and market games. This clearly appears when Böhm-Bawerk explains the evolution of the capitalist structure of the system. The objectivation process is under way, entrepreneurs deciding how to orient production processes not according to expected consumer needs but rather according to prices. The evolution of the system is thus led by a logic of profit, with no further reference to the primary determinant of individual behaviour as defined by Menger. In this way, Böhm-Bawerk strays from the framework outlined in the introduction of the Positive Theory of Capital which was very close to Menger's logic. Now, firms follow the impulse given by actual prices of produced goods. Production is increased where demand is high thereby raising prices. It is reduced where a low demand determines a price which is insufficient to pay for profit (Böhm-Bawerk, 1889, p. 117).

Whereas with Menger every economic agent is governed by the same universal principle of economizing, Böhm-Bawerk makes a distinction between producer and consumer, the former being motivated by a logic of profit and the latter by the principle of economizing.

The nature of Böhm-Bawerk's deviation is becoming ever clearer. To speak in Mengerian terms, the analysis of symptoms is progressively taking the upper hand over the analysis of the essence of complex economic phenomena.

3.2. Second step: the theory of value and the principle of marginal utility

The second stage of the objectivation process under analysis concerns the theory of value. Although Böhm-Bawerk begins by using a Mengerian conception of 'marginal' value -- in terms of discrete variables -- the author gradually moves toward neoclassical logic in terms of supply and demand curves and of equilibrium values. The aim of this section is to show how Böhm-Bawerk progressively deviates from a Mengerian to a neoclassical notion of marginal reasoning.

At the beginning of his analysis of value, in book III of the The Positive Theory, Böhm-Bawerk's position is indeed very close to that of Menger in that the author develops a double mapping view of utility, putting the reference to human needs as the primary cause for evaluation to the forefront. The law of marginal utility is presented as an intermediary cause between essence and symptom of the phenomenon of economic evaluation and is defined without alluding to any assumption of continuity or differentiability. The term 'marginalist' applies to discrete and not to continuous functional relations: 'the gradation of concrete wants occurring in any one category is not always either uniform nor continuous' (Böhm-Bawerk, 1889, p. 173).

This position is often interpreted as a formal weakness (Stigler, 1941). Our argument here is that Böhm-Bawerk begins defining marginal utility in line with the perspective of Menger and what is interpreted as a mathematical weakness may be seen in fact as the expression of a discrete vision of reality stemming from the pure subjectivity of man. The term 'margin' then designates not an infinitesimal quantity of a good but rather the last unit consumed. This position demonstrates the subjectivist interest Böhm-Bawerk shows throughout the first part of the The Positive Theory.

Menger firmly fights against every attempt to formalise human behaviour because of the determinist vision attached to the mathematical tools then available. Böhm-Bawerk's point of departure is similar. However, Böhm-Bawerk gradually veers toward a position in which the primary role of the individual is increasingly downplayed, leaving the door open to formalism.

A clear manifestation of Böhm-Bawerk's deviation can be found in the role played by the law of marginal utility, which suddenly finds itself at the forefront of the analysis.

And in view of that the doctrine of marginal utility may be regarded as the crux, not only of the theory of value, but of every explanation of man's economic behaviour, and hence indeed of the entire field of economic theory.

(Böhm-Bawerk, 1889, p. 143)

In this way, the idea of double mapping is permanently put to one side and Böhm-Bawerk comes akin to the neoclassical framework which directly links value of goods to utility levels. The goods -- needs relation is not completely expunged from the analysis but is relegated from the status of primary cause to that of an

implicit determinant explaining value. The author exclusively focuses thereafter upon the principle of decreasing marginal utility.

It is a facet of human experience, as familiar as it is deep-seated in human nature, that the same act of enjoyment continually repeated, affords decreasing pleasure from a certain point on until it is finally transformed into its opposite and arouses disgust and revulsion.
(Böhm-Bawerk, 1889, p. 139)

Böhm-Bawerk does not seem to be aware of the specificity of Menger's analysis when compared to marginalist authors. As a matter of fact, Böhm-Bawerk puts Walras, Jevons and Menger on the same level as co-founders of the marginal theory of value (Böhm-Bawerk, 1889, footnote 5, p. 422). Menger's criticism probably has its roots in this fact, as Böhm-Bawerk has neither grasped nor acknowledged the originality of the Mengerian theory of value.

Böhm-Bawerk's complete adhesion to marginalism becomes then obvious when dealing with the question of price determination. This represents a crucial step in the process of deviation towards orthodoxy.

At first, the author reaches the same result as Menger, i.e. there is no such thing as a single theoretical price. Theory can only provide an interval of possible prices and the effective level is established according to a bargaining procedure between agents and their power relationships. However, in order to reach a much more general level of explanation than with the case of isolated exchange, Böhm-Bawerk is progressively led to introduce more restrictive assumptions and especially the assumption of infinite divisibility of goods. This assumption allows the author to switch to an argument in terms of continuous variables and 'infinitesimal partial quantity' (Böhm-Bawerk, 1889, p. 231). At this point, the concept of equilibrium enters into the analysis and is given a central role. Theory is capable of defining the unique equilibrium price of exchange and not only an interval of values. Böhm-Bawerk clearly violates Menger's anti-formalist position. Not only does the author accept and demand the use of mathematics in economics but it is also clear that the nature of the technical tools to which Böhm-Bawerk is referring -- differential algebra, functional relations, continuous variables, derivatives -- proves his adhesion to marginalism in its purest sense.

3.3. Third stage: the theory of interest

The last stage of the objectivation process concerns the theory of interest. Böhm-Bawerk's theory is torn between two competing directions; the first, which is compatible with Menger's subjectivist foundation, presents interest as a phenomenon of exchange -- the expression of individual preference for present goods as compared with future goods. The other, which is the one finally asserted, tends toward the traditional theory of marginal utility, according to which interest is a mere technical consequence of productivity of roundabout production processes.

Book IV of The Positive Theory is devoted to the theory of interest. It begins as

follows: ‘Present goods are as a general rule worth more than future goods of equal quality and quantity. That sentence is the nub and the kernel of the theory of interest which I have to present’ (Böhm-Bawerk, 1889, p. 259). Interest is directly depicted as a phenomenon of exchange, resulting from the difference in evaluation between present and future. The theory of value thus plays a central role here and its scope is widened to future goods. Böhm-Bawerk lays the foundations of the inter-temporal theory of value as Fisher was to develop it. However, the introduction of inter-temporal comparisons of value leads to the range of uncertainty, a fundamental feature of the Mengerian tradition, being underrated in the analysis. As a matter of fact, exchange between present and future goods implies the assumption of perfect information, agents being able to reliably appraise their future needs and endowments. Uncertainty is not permanently removed from the analysis but is dealt with rather poorly. Uncertainty becomes a subdued phenomenon, the expected utility of a future good decreasing with a risk subsidy that represents uncertainty. But ‘the lesser valuation of some future goods by reason of their uncertainty contributes nothing at all to the genesis of the phenomenon of interest’ (Böhm-Bawerk, 1889, p. 265). The role of uncertainty is thus insignificant for it can be controlled through the establishment of a risk subsidy. It is a stable phenomenon which plays no role in the theory of interest. Uncertainty only generates a slight reduction in the expected value of future goods.

Menger considers uncertainty in a radically different way. It is a fundamental determinant of the evolution of an economic system. In that perspective, committing errors is a permanent feature of economic behaviour originating in the subjectivist foundation of the analysis. In Böhm-Bawerk’s writings, on the contrary, error is put to one side through the formalisation the author proposes in terms of risk subsidy. Böhm-Bawerk’s attempt at quantifying uncertainty leads thus to an equilibrium logic in which agents do not make real errors. This is the price to pay for extending value theory to future goods.

The Böhmian theory of interest is at first based upon the idea of individual preference for present goods as regards future commodities.

Present goods have in general greater subjective value than future (and intermediate) goods of equal quantity and quality. And since results derived from the ascribing of subjective value determine objective exchange value, present goods have in general greater exchange value and a higher price than future (and intermediate) goods of the same kind and number.

(Böhm-Bawerk, 1889, p. 265)

This assertion is given three justifications.

(1) The economic motive according to which agents generally overrate their future endowments as regards their present situation.

A first principal cause capable of producing a difference in value between present and future goods is inherent in the difference between the relation of supply and demand as it exists at one point in time and that relation as it exists at another point in time. [...]. If a person suffers in the present from appreciable

lack of certain goods in general, but has reason to hope to be more generously provided for at a future time, then that person will always place a higher value on a given quantity of immediately available goods than on the same quantity of future goods. This situation occurs with very great frequency in our economic life.
(Böhm-Bawerk, 1889, pp. 264--5)

(2) The psychological motive according to which, on the contrary, agents usually underrate their future needs. 'We systematically undervalue our future wants and also the means which serve to satisfy them' (Böhm-Bawerk, 1889, p. 268).

(3) The technological motive, according to which present goods have a technical superiority compared to future goods simply because they can be presently used in production processes.

As a general rule, present goods are for technological reasons preferable means to the satisfaction of wants and for that reason they are a warranty of higher marginal utility than are future goods.

It is an elementary fact of human experience that time consuming roundabout methods of production are more productive.

(Böhm-Bawerk, 1889, p. 273)

These three circumstances represent the basis upon which Böhm-Bawerk builds the theory of interest; the preference for present goods represents the primary cause, the essence indeed, of the phenomenon of interest. Interest is a phenomenon of exchange. This starting point is perfectly compatible with the former distinction the author made between social and private capital. Indeed, production is concerned exclusively with social capital whereas interest, related to private capital, concerns the domain of exchange. More precisely, interest is linked with inter-temporal exchange. However, as argued below, this first assertion becomes less and less obvious as Böhm-Bawerk progresses in his analysis from the simplest to the most complex situation and finally, the author reaches an explanation of interest in sharp contrast to this starting point.

A loan is the simplest case where interest appears. It is depicted as a phenomenon of inter-temporal exchange of one and the same good. Interest results from the difference in the evaluation of the good between the beginning and the end of the loan period. Therefore, according to Böhm-Bawerk, interest constitutes the most direct consequence conceivable of the difference in value between present and future goods. 'The natural difference in value between present and future goods, [...] is the fountainhead from which all interest takes its origin' (Böhm-Bawerk, 1889, p. 290).

Böhm-Bawerk then turns his analysis to the nature of the agent concerned by the loan: if the agent is a consumer, then interest will be as high as the individual need is felt urgent, his future situation is underrated and his future endowments are overrated. The first two causes are included here to justify interest, its subjective nature being reasserted at the same time.

If the agent is a producer, interest stems from the fact that production takes time. At this point, Böhm-Bawerk describes production as an inter-temporal

exchange of present production goods with future consumption goods. The entrepreneur is considered as ‘[...] a merchant who offers present goods for sale’ (Böhm-Bawerk, 1889, p. 337). The ownership of capital goods is equal in value to the holding of a stock of future consumption goods: ‘[...] means of production, when compared in value with present goods, are equal in value to a smaller number of units of the consumptible end product than can be produced from those means of production’ (Böhm-Bawerk, p. 300). This difference in value represents interest and its level is determined using the same principle governing all evaluation phenomena. At least, this is the result Böhm-Bawerk planned to reach. However, as soon as he attempts to analyse the case of the producer in greater depth, the author suddenly veers towards a different conception of interest which has little to do with the subjective field of exchange. As far as capitalists are concerned, only the third cause of interest is implied, the first two being unexpectedly expunged from the analysis. ‘We said above that in his subjective circumstances the capitalist as a rule places the same valuation on a sum of present goods as on an equal sum of future goods’ (Böhm-Bawerk, 1889, p. 353).

In other words, Böhm-Bawerk is explaining here that the former proposition concerning individual preferences for present goods over future commodities, a proposition which was indeed supposed to lay the foundations for the phenomenon of interest, no longer plays any role. The only determinant for interest now consists of the difference in productivity brought about by additional investments. There is no longer any room for subjective factors: ‘- On which figure is the capitalist to base his valuation? The answer might well be "according to the product that is turned out when that method of production is adopted which is economically the most reasonable"’ (Böhm-Bawerk, 1889, p. 353). The only remaining determinant for interest is thus a mere technical element.

The dualism brought to the fore above questions the overall coherence of the Böhmian theory of capital. On the one hand, the author goes on defining interest as a result of inter-temporal exchange, applying the same logic as for price determination: ‘The agio will be established at that level at which supply and demand [of labour] are in equilibrium, and which lies between the valuations made by the members of the last competing pairs to consummate an exchange’ (Böhm-Bawerk, 1889, p. 352). On the other hand, Böhm-Bawerk deviates towards a purely objective determinant. This ambiguity has raised the criticism of Wicksell (1901) who reproaches the author with not defining interest once and for all as a consequence of capital productivity, permanently leaving aside the competing explanation in terms of subjective preference for present goods.³⁸

As stated above, Böhm-Bawerk provides an explanation of interest which is supposed to follow the same principle as that of price determination:

The rate of interest under the foregoing assumptions is limited and determined by the productivity of the last prolongation of the production period which is still economically permissible and that of the next further prolongation which is not so permissible.

(Böhm-Bawerk, 1889, p. 360)

Interest is considered as a price and, in the same way as for the analysis of prices, an interval of values is at first determined. The upper limit for interest is delineated by the rate of

return of the optimal production technique which may be implemented given the subsistence funds of the economy. Such an optimum exists due to the principle of decreasing returns of roundabout processes of production.³⁹ The return of successive production techniques (that is to say longer roundabout processes) brings a lower return to the producer and represents the bottom limit of the interval. If we suppose the rate of interest to be lower than this limit, then this later technique would become more convenient than the previous one, but production would then be bound by the amount of resources in the national subsistence fund.

When dealing with price determination, 'marginal pairs of exchange' are defined in the last resort by individual subjectivity. As far as interest is concerned, marginal pairs represent successive portions of capital invested in production and they are defined according to a pure objective criterion: their rate of return. In such a framework, producers take the same decisions provided they are under the same technical conditions. The individual is no longer at the root of the explanation. The interval of values of interest is derived from purely technical conditions. Interest is constrained by the productivity of the best possible technique of production (for the upper limit) and by the level of the subsistence fund (for the bottom limit).

At this point, Böhm-Bawerk repeats the switch in terms of continuous variables which allowed him to reduce the interval of prices to one equilibrium point. The author implicitly alleges that the principle of decreasing marginal productivity can be formally represented by a continuous functional relation: 'In actual practice such abruptly graduated changes are virtually non-existent. Ordinarily the figures for the productivity of the last permissible and the first non permissible prolongation are very close together' (Böhm-Bawerk, 1889, p. 360). Hence, the interval is reduced down to a point and there is no longer any use in determining the value of the two limits previously identified, one being sufficient to establish the equilibrium level of interest. Böhm-Bawerk decides to focus on the upper limit authorised by the productivity of the last roundabout process and marginal productivity of capital turns out to be the ultimate determinant of interest: 'That rate is determined by the surplus product of the last prolongation of the production process that is still permissible' (Böhm-Bawerk, 1889, p. 361).

At this point, the objectivation process is completed. Böhm-Bawerk's idea is now clearly that of ordering all the existing techniques of production according to their intrinsic profitability, defined as a pure objective feature of the technique itself.⁴⁰

Wicksell's (1901) and Stigler's (1941) criticism of dualism appears here to be justified, Böhm-Bawerk defining interest using two distinct and independent explanations: at first, his objective is to provide a theory of interest within the realm of the logic of exchange. Interest is then associated with a problem of intertemporal evaluation and stems from the principle of individual preference for present goods. However, Böhm-Bawerk progressively deviates from this orientation as soon as he distinguishes between consumer and producer. The latter only reacts to a productivity criterion and no further subjective factor is involved. Finally, Böhm-Bawerk develops a theory of interest in which the final criterion refers to the productivity of the last portion of capital engaged.

It is obvious that Menger cannot subscribe to such a result. Formally, Böhm-Bawerk views interest as an equilibrium variable flowing from the confrontation between supply and demand for available resources; not only is equilibrium the very reference, but also there is no room for any disruptive force such as uncertainty or error making. All subjective criterion have been permanently put aside and interest is mechanically determined according to technical and purely objective criteria.

At the end of our analysis, Menger's rejection appears justified. Böhm-Bawerk represents an essential link in the more general process we are striving to analyse, i.e. the absorption of the Austrian school into neoclassical logic. His work has given rise to numerous interpretations which, in the main, have tended to draw the Böhmian theory toward purely marginalist interpretations. In fact, the very expression of Austrian theory on interest traditionally reflects the interpretation given by Wicksell of Böhm-Bawerk's developments in terms of marginal productivity theory, side-stepping in this way the direction taken by the tradition that Menger began.

FROM IMPUTATION TO THE PROOF OF EXISTENCE OF GENERAL EQUILIBRIUM

The object of this chapter is to understand one of the most striking paradoxes characterising the Austrian tradition. Between the two wars, Viennese university circles, in the field of economics, are marked by the strong influence of Carl Menger prompting the development of an original economic approach. However, although the author is traditionally associated with the marginalist movement of the end of the nineteenth century, Menger stands out from his peers because of his categorical refusal to use mathematical methods in economics. In this respect it may seem ironic that the Austrian tradition is indeed the stage for the advent of formalism in economics. The initial, rigorous demonstrations of existence of general equilibrium foreshadowing the more general and definitive proofs by Arrow and Debreu (1954) are indeed presented within the Mathematical Colloquium directed by Karl Menger. Vienna is the stage for the birth of a formalist logic which will to dominate economics to the present day. How can it be that the question of the demonstration of general equilibrium steals the limelight at the very heart of the Austrian school which, as we have seen, vehemently criticises the use of mathematics in economics and which refuses the static view, in terms of simultaneous equation systems, of an economy centred around a predetermined concept of equilibrium?

One of the essential explanatory elements to this process goes beyond the scope of pure economic analysis as it concerns the influence of the philosophical and epistemological Viennese context in the inter-war period. This is the effect of Logical Positivism. The undeniable influence of this movement on the scientific population of Vienna, where it was born, found expression in a growing interpenetration of scientific subject areas. The unification of sciences around a universal language, free from all metaphysics, becomes one of the major goals of this truly philosophical programme. Seen from this angle, it is not surprising to observe mathematicians and economists working together. The former help to solve technical problems that Austrian economists have never been able to examine due to their weaknesses in mathematics. Given the formulation of Austrian economic theories handed down from their predecessors however, the potential chances for contact with mathematicians were relatively few and far between. It is understandable, therefore, in such conditions that the problem of imputation, re-opened and formalised by Wieser in 1889, is brought to the forefront, thereby becoming the issue of utmost importance within the mathematic and economic communities.

We examine in this chapter how the problem of imputation leads scientists to concentrate their efforts on a derivative question which is that of proving the existence of Walrasian general equilibrium.

4.1. Reconsidering the role of Wieser

The theory of factor evaluation or the theory of imputation, is the only analytical aspect to which the Austrian authors and more especially Wieser (1889) in Natural Value give a formal representation. We shall nevertheless question the prevailing interpretation which limits Wieser's contribution to the area of value theory (marginal utility, opportunity costs and imputation) without grasping his overall approach and general aims. Indeed, the author seeks to develop a general theory of social evolution based on power conflicts between various categories of economic agent. Despite this, the theory of imputation is the main aspect to be remembered by the Viennese scientists of the 1920s.

4.1.1. Wieser's theory of imputation

Wieser's formulation in 1889 is the starting point for investigation by Viennese economists of the 1920s interested in the problem of imputation. This question is at the forefront of the economic seminar directed by Mayer, Wieser's successor to the chair of political economy at Vienna university. In 1928, Mayer publishes an article summarising all the research on this matter. The problem of imputation consists of the following question: 'how do the values (prices) of first-order goods (i.e. consumption goods) give rise to certain values (prices) of higher-order goods (means of production) which serve to produce them?' (Mayer, [1928] 1994, vol. II, p. 19)

The starting point for the analysis developed by Wieser is a difficulty at the heart of the approach to imputation of Menger and Böhm-Bawerk. In modern terminology, this would be called the problem of adding-up. In Menger's work, a factor is attributed the share of the expected value of the corresponding first order good which would be lost should the last portion of this factor not be available. In the case of production processes with limited substitutability between inputs, depriving the activity of a portion of a factor leads to a considerable decrease in the final value of the product. Moreover, if the whole of this loss is attributed to the value of the factor in question, the sum of the attributed values of a given production process may easily be higher than the expected value of the corresponding consumption good. This result clashes with the first principle of imputation according to which the value of higher order goods is exclusively derived from the expected value of the corresponding consumption good.

Wieser, aware of this problem, approaches this question in a different manner ([1889] 1893, p. 84). The author begins with two empirical observations: in reality, production factors may be combined in varied proportions and may supply different products; whatever these combinations and their nature, each factor type is always given the same value, i.e. the productive contribution of a factor is the same for all applications ([1889] 1893, p. 88). From this point onwards, Wieser is able to

imagine a system of simultaneous equations which, when solved, enables the imputed value of each type of productive factor to be calculated. The values of higher order goods are the only unknown elements of the system and there are as many equations as there are productive combinations between the factors. As Punzo (1991) suggests, it is possible to rewrite Wieser's system in matrix form:

$$v \cdot K = p \cdot X \quad \text{with,}$$

v = vector of imputed values of production factors
 K = matrix of technical coefficients
 p = expected values of first order goods
 X = vector of produced quantities

As Punzo explains, this formalisation in fact reduces the question of imputation to a simple problem of calculation. If the number of equations is less than the number of unknowns, it is always possible to enrich the system by other production processes which combine production factors in different proportions thereby solving the equations. However, if the economy described by the system contains more linearly independent equations than unknowns from the outset, Wieser's system comes up against a problem of over-determination, thereby becoming impossible to solve.

Wieser, apparently unaware of the problem, again offered the same solution method in his 1914 book, Social Economics.

We consider it misplaced to give pride of place to the theory of imputation within Wieser's overall scheme. The fact is that neither Menger nor Wieser believed that this problem of imputation constituted the main question to which economics should endeavour to give a clear and precise answer, failing which they would fall into disrepute. It is true that Wieser's mathematical skills did not allow him to become aware of the problem of over-determination, letting him believe that the advances made compared to the treatment undertaken by Menger were sufficient and satisfactory. The fact that this question suddenly came to the fore can, in all probability, be put down to the influence of the Viennese philosophical community.

4.1.2. Wieser, a theoretician of value or a theoretician of socio-economic dynamics?

If one takes the entire intellectual plan of Wieser into account, as revealed by the approach guiding his work, the role given to the theory of value in general and to the theory of imputation in particular loses the central position it subsequently came to have in Viennese circles and a much vaster question appears to be central, that of understanding the evolution of social movements. Seen in this light, Wieser's plan fits perfectly into Menger's approach which we have shown to be concerned with the question of the emergence and evolution of organic institutional phenomena.

Despite Wieser being unanimously acclaimed historically as an undisputed member of the Austrian founding triumvirate along with Menger and Böhm-Bawerk,

his analytical developments are rarely presented or researched. Indeed, in spite of Streissler's (1986) opinion which presents Wieser as being a central figure of the Austrian school, central in time, central by way of the ideas the author put forward, central regarding his intellectual skills, it remains a fact that the writer is completely scorned by modern Austrian critics. Understanding the reason for this new paradox enables an answer to the question of the role of the theory of imputation within Austrian thinking to be put forward.

There is certainly an ideological element which comes into play thereby explaining the relative neglect of the work of Wieser. The explanation seems to have its roots in the radical ideology guiding his developments. His clearly interventionist political stance turns out to be an explicit expression of praise for fascism. His last work, *Das Gesetz der Macht* (1926), is full of Wieser's admiration for authoritarianism and dictatorship. The author declares that '[...] if fascism were able to keep itself as pure as it was conceived it would become a blessing to the country' (Wieser, 1926, p. 407).⁴¹

Confronted with this, economic commentators naturally adopt an attitude which analyses Wieser's thought by totally disregarding the underlying ideology and concentrating solely on the purely analytical aspects of his developments. Such an attitude is all the more understandable on the part of modern Austrians as their normative implications, smacking of libertarianism, are in direct contrast to the heavily interventionist proposals of Wieser.

The whole problem lies in the fact that restricting oneself to the purely analytical contributions of the author prevents one from understanding the overall coherence of his research project. The logic underlying his developments can only be grasped following the integration of his analytical analyses of pure economics on the one hand, amongst which are the question of imputation and the theory of value, and his sociological analyses in terms of power conflicts on the other. Concentrating on pure economic developments to the exclusion of the rest, especially the sociological dimension, results in Wieser being limited to a theorist of marginal utility, in the neoclassical sense, thereby depriving him of any originality. The theory of value then takes the limelight and along with it the theory of imputation. The fact that Wieser himself was at the origin of the expressions 'marginal utility' and 'imputation' as well as the law of opportunity costs or 'Wieser's Law' is, in that respect, emphasised.⁴²

In this context the traditional interpretation is that given by Mitchell (1917, p. 25), who sees Wieser's aim as '[...] to exhaust the entire sphere of the phenomenon of value without any exception', or, in the words of another famous interpreter of Wieser, to concentrate his thought on the study of marginal theory and all its implications (Higgs, 1927).

In our opinion, this reduction is not a fair representation of Wieser's contribution to the Austrian tradition and seems anecdotically to contradict Menger's preference for Wieser's work rather than that of Böhm-Bawerk. We believe that Wieser's developments lie in the extension of Menger's programme considering economics as a social science, the theory of value no longer being considered to stand at the forefront.⁴³

To support our position, we will base ourselves essentially on an analysis of Wieser's publication of 1917, Theorie der gesellschaftlichen Wirtschaft, translated as Social Economics, as well as on the preface to his last book (1926), Das Gesetz der Macht in which the author explains and reviews his intellectual career. Here, Wieser clearly states that his initial intellectual attraction was for history and explains, through the influence Herbert Spencer's work, First Principles, had on him, as well as Tostoi's War and Peace, how his interest finally came to rest on the study of social phenomena. Wieser then explains that

From now on, it was my dream to write history without names. The most conspicuous social relationships are the economic ones. How could one dare to penetrate more obscure relationships without having first explained these? Economics, however, cannot be understood without an understanding of value. This became my starting point, and soon I found myself drifting on the plank of value theory into the boundless ocean of social phenomena.

(Wieser 1926, translated in Hayek, [1926] 1952, p. 556)

From this point on, the place occupied by the theory of value and the principle of marginal utility is quite clear. They are not the core of investigation but the point of departure for research indeed directed toward the understanding of the dynamics of social phenomena. The forces guiding the evolution of the realm of economics constitute, in Wieser's view, the most powerful engine within this dynamic. The organisation of the 1914 publication perfectly illustrates this intellectual approach. The aim is not in fact to concentrate on the overall implications of the principle of marginal utility as Mitchell (1917) points out. The theory of value is an indispensable theoretical element and the point of departure Wieser needs to reach his true goal which, as the title of the book of 1914 suggests, is to develop a normative social view of the economy. In this perspective the author states in the preface of Social Economics that his

[...] aim was to show that the entire social economy is built up with a view of management and value. To be sure, only a part of the organization may be explained in purely social terms. Another part must be explained in terms of those who possess power in the Nation and in the World.

(Wieser, [1914] 1967, p. xxii)

From the outset, Wieser merges an economic theory of value and a social theory of power in his approach. The underlying ideology may be captured by the vision the writer gives of social evolution. Despite its radicalism, it is difficult to leave aside this ideological aspect which is part and parcel of Wieser's overall logic. The political connotations linked to the interventionist implications arrived at by the author are without doubt guided by an argumentation seeking to justify the existence of a strong leadership. In Social Economics however, Wieser does not praise

fascism in the manner developed in the latter publication of 1926. The social and economic fields interact in order to explain the structure of the economy as Wieser sees it, i.e. a social economy and any analysis not taking both of these aspects into account would inevitably be incomplete.

4.1.4. A social economy

Social Economics is made up of four books and contains a logical evolution guided by the method of 'idealised simplification' (Wieser, [1914] 1967, p. 412). This consists in starting from the purest theoretical form in order to arrive, through the progressive introduction of increasingly realistic assumptions into the basic model, at a theory which is sufficiently close to reality that it may be used as a guide to intervention. The objective is therefore clearly normative. The theme of the first book is the analysis of the idealised model, a type of Robinson Crusoe economy in which several agents interact, enabling the complexity of the productive structure to be taken into account. In fact, Wieser focuses on the case of a representative agent as all agents have the same structures of taste, income and endowments. Moreover, it is an economy with no private property and a situation of perfect information. This ideal economy, 'the simple economy', in fact reflects the idea Wieser has of an abstraction of the communist state, free of all inequality. The principle of marginal utility and the question of imputation are the prevailing evaluation mechanisms within this ideal static framework.

Book II marks a step towards realism. Wieser introduces diversity amongst agents, the simple economy thereby becoming one of exchange. The state is absent at this level of the analysis. Interaction between economic agents by means of exchange is at the root of the nature of the social structure emerging from this fiction, i.e. an economy of private property. Introducing variety brings about inequalities in power between economic agents, be it political, economic (in terms of purchasing power for instance) or any other type of power. At this level, Wieser completes his view of the economy by a theory of social evolution in terms of power conflict.

The typical example of economic power is represented by the existence of monopolies or of entrepreneurs in a dominant position.⁴⁴ The author then analyses the dynamics of the capitalist system in terms of power games and more particularly in terms of constant interaction between the masses of individuals and the fraction of leaders. Due to its own dynamic, the development of capitalism gives rise to power conflict which leads it increasingly farther from the ideal state model where no inequality exists. The inequalities thereby created and highlighted by Wieser are all of the same nature in the sense that they lead to the domination of the weakest and to the strengthening of the leaders' position toward autocracy and despotism.

The role of the state is thus justified and analysed in detail in book III. Wieser's interventionist instructions represent the normative conclusions at which the author arrives at the end of his investigation. The state should intervene in harmony with the social attitude of the economy and struggle against the despotism

of capitalism: 'The State may, without fear of harmful results, take energetic measures against the capitalists' (Wieser, [1914] 1967, p. 413).

The final book extends Wieser's theory of power to the international context and protectionist measures are justified to the extent that legislation should come to the aid of the weakest nations to protect them from an abuse of power by the most powerful nations.

It is clear that Wieser's normative conclusions are difficult to reconcile with the libertarian leanings of modern Austrians. One understands to what extent an author such as Wieser can be destabilising, especially when presented as being a founder of the tradition. It thus becomes natural to limit one's interpretations to purely analytical aspects and then to consider Wieser as simply a representative of marginalist logic, bringing little original to the Austrian traditional theory of value.

4.1.5. The theme of institutions

Questions of economic interaction between different social groups seem much closer to the core of Wieser's preoccupations than that of the theory of value and of imputation. In this field, the distinction the author makes between leaders and mass fit into the Mengerian continuity without question. Leaders are a category of anonymous agents whose actions can affect the other individuals. Leaders make up a genuine social class whose structure and specificity alter over time. In this way, in the middle-ages, leaders were made up of men of the church and of the state whereas the capitalist period saw the advent of economic power with the entrepreneur representing the anonymous figure of the leader. They are particularly wary agents endowed with numerous qualities: enterprising, quick perception, independent forcefulness to regulate their business according to their opinions, courage to undertake risks, gamblers with an enterprising spirit and joyful power to be creative (Wieser, [1914] 1967, p. 401). The phenomenon of leadership reinforces itself in an even greater manner when it is a success: 'the superiority of leadership, securing success to the masses, results in power to the leaders. This power ultimately becomes autocracy and despotism' (Wieser, [1914] 1967, p. 401).

Only the masses (workers within the capitalist system) have the power to curb this process by selecting new leaders. In this sense, Wieser emphasises the role of unions and of the state.

Wieser's explanation of the way in which institutions have emerged is then more complex than that of Menger. Indeed, a theory of power conflict is added to the explanation in terms of interaction between two types of rationality: the creative rationality of leaders and the imitative rationality of the masses. In Wieser's view, efficient institutions do not automatically have a spontaneous or organic origin. Indeed, the author introduces a pragmatic dimension through the role given over to leaders in the process of building an economic and social unit. Institutions (money, market, division of labour) are neither the result of an organised social will nor the unexpected result of individual interaction; '[...] much more satisfactory is an explanation based on gradual historical evolution, which takes into account the powerful factor of time' (Wieser, [1914] 1967, p. 163).

In reality, institutions emerge from a process of interaction between masses and

leaders. The evolution of society is due to permanent power conflicts between these two groups of agents with the institutions crystallising the successive influence of different categories of leader. Indeed, institutions are the fruit of a historical process and reflect both an organic and a pragmatic origin. The invisible hand is directed (pragmatic dimension) by the efficient behaviour of leaders and pushed forward by the strength of masses (organic dimension). These phenomena cannot be controlled to the extent that leaders give the impetus to a social movement whose result, through the action of masses, goes well beyond the expected effects: 'Only a part of the force that builds social institutions is directed by purposes; the final decisive mass-influence operates beyond the purpose' (Wieser, [1914] 1967, p. 165).

The problem of imputation as presented by Wieser, is one of the factors which leads to the Austrian originality being absorbed into neoclassical logic. In this sense, Wieser plays an active role in the process of standardisation we are analysing. This idea is backed up by the traditional interpretation usually given to this author. If the social theory of power developed by the author in parallel to his analyses of pure economics is put to one side, it becomes a hard task to grasp the overall logic underlying his approach and the true nature of his research project. Moreover, the analytical sphere of value becomes the centre of interest and the question of imputation takes the limelight. In the ideal system of the simple economy, the principle governing the relations between evaluation is that of marginal utility. In such a case (static framework, perfect information, rational agents), the concept of evaluation is no doubt of the same nature as for marginalists. Limiting Wieser's analysis to this aspect of his work, i.e. to the first phase of his work, makes of him an author with no originality compared to a marginalist movement in full swing.

In the light of our analysis, it would appear that the real objective of Wieser is in total pursuit of Menger's problematic. For Böhm-Bawerk, Menger's analysis represents the point of departure for his investigations, whereas the point of arrival is, to a certain extent, closer to a formalist view of economics. Wieser's approach, based on the method of idealised simplification, is the opposite: the author begins from a view where the absence of inequality between individuals enables, in a first stage, the social dimension to be put to one side, economic method then being based around the principle of marginal utility. If one concentrates exclusively on this part of the work, the door is open to possible formalist developments. In a second stage, a growing quest for empiricism leads Wieser to gradually include the phenomena of power in the realm of economics then conceived as a social science. In this sense, as it was for Menger, the primary aim of scientists is to understand the consequences of interaction between individuals. From this moment, institutional phenomena take the place of marginal utility and come to the forefront.

If this aspect of Wieser's work is highlighted, then the idea that the author would represent an active link in the process of absorption into the neoclassical tradition should be seriously reconsidered. On the contrary, Wieser positions himself within the continuity of Menger which considers economics as a fundamentally social science whose task it is to concentrate on the emergence and evolution of institutional phenomena resulting unexpectedly from the interaction of economic

actors. The fact is that, given the specific philosophical and epistemological Viennese context in the 1920s, the theme of imputation inevitably takes the limelight to the detriment of the institutional aspects of the analysis.

4.2. The influence of the Viennese philosophical environment: the Vienna circle

The Vienna circle described a specific scientific context. The members of this group were brought together by Schlick, director of the chair of philosophy of inductive sciences at the University of Vienna. The circle was made up of mathematicians (Gödel, K. Menger, Hahn, Wald) economists (Morgenstern, Schlesinger), philosophers (Carnap) and sociologists (Neurath). These scientists were in close contact with the University of Berlin (von Neumann, Hempel, Reichenbach) and with various researchers of international repute (Einstein, Russell, Popper). The arguments of the circle soon became well-known across Europe (except in France where a certain reticence to analytical philosophy remained) and subsequently in America due to the dynamism of its members. Most of them belonged to several different study groups. For example, the mathematical colloquium directed by K. Menger brought together both economists and mathematicians; K. Menger also had an active role in the philosophical Wiener kreis of Schlick and Neurath; Schlesinger and Wald collaborated in the economic seminar directed by Mayer, etc.

In 1938, the circle was disbanded because of the disappearance or the departure of its most brilliant members. Carnap emigrated to Chicago, Neurath to England, Hahn and Schlick having died a few years earlier. However, the epistemological conceptions outlived the Vienna circle and logical positivism, transformed into a less radical international movement, logical empiricism, continued to be discussed for another twenty years, even imposing itself as the dominant scientific approach in economics.⁴⁵

4.2.1. Logical analysis and positivism

The main arguments of logical positivism were clearly presented by Neurath, Carnap and Hahn in an article of 1929: 'The scientific conception of the world: the Vienna circle', better known under the name Manifesto of '29. Logical positivism comes within the scope of the positivist programme of Comte, Hume and Mach whose objective was to eliminate all metaphysics from science. The members of the Vienna circle used the recent developments in modern logic of Frege, Peano, and Russell to this end.

Logical positivism was clearly born of the introduction of logical analysis into positivist reasoning. Logical analysis consists in reducing scientific propositions down to experience, i.e. to the immediate data from which the rest ensues according to the axioms of pure logic and its concepts. Russell is considered as the father of logical positivism as being the first to systematically apply logical analysis to scientific propositions.

One of the most important consequences of logical analysis was to replace the true -- false dichotomy of classical logic with the true -- false -- nonsense trilogy. If a proposition has an empirical content then it is either true or false in relation to reality (synthetic proposition). If a proposition is purely logical or mathematical then it is also true or false in relation to the fundamental rules of logic (analytical proposition). If then, a proposition is not synthetic a priori, that is to say if it has no empirical content and is neither analytical (i.e. originating from pure logic), then it is necessarily paradoxical and devoid of all meaning (nonsensical proposition).

Wittgenstein (1921), a corner-stone of this philosophy, takes up the above trilogy modifying it into true -- false -- metaphysical propositions. Metaphysical propositions are propositions which neither can be reduced to the experiment, nor are tautological. The aim of logical analysis becomes in this way to identify metaphysical propositions and to eliminate them from the scientific discourse.

4.2.2. The principle of verification and the rejection of metaphysics

The major contribution of logical positivism is to have applied logical analysis to the inductivist way of thinking. Indeed the members of the Vienna circle applied Russell's principle of extensionality to an empiricist conception of science, inherited from Comte and Mach. This consists in expressing the whole set of scientific propositions solely according to logic and data, a direct experience of senses.

From that moment on, philosophy is seen as an activity whose aim is to clarify and to give meaning to propositions. On this point, Schlick talks of a genuine turning point for philosophy as it has become analytical:

Philosophy is that activity through which the meaning of statements are revealed or determined. [...] Then, it will no longer be necessary to speak of philosophical problems for one will speak philosophically concerning all the problems, that is clearly and meaningfully.

(Schlick, [1930] 1959, p. 56)

The position of the members of the Vienna circle is nevertheless less radical than that of their positivist predecessors. Hume ordered all books on metaphysics to be burned and Comte described metaphysics as a pre-scientific stage to necessarily go beyond. The negative attitude toward metaphysics took a somewhat milder form in the work of logical positivists. Carnap for instance considered metaphysics as a relatively interesting conception of life, even a (bad) substitute for art.

The objective of the members of the circle was then to define a criterion enabling them to distinguish between meaningful propositions (synthetic or analytical) and those devoid of meaning (metaphysical). The purpose of the verification criterion is not to establish with certainty whether a proposition is true or false but whether it is or not empirically significant.

The criterion offered by the logical positivists evolved at the same rate as criticisms

were levelled at it. Starting from Waismann's proposal of a strict criterion of verification, the Viennese gradually moved toward a much less restrictive notion of degree of confirmation. At the same time, the movement became less radical and following the break-up of the circle, logical empiricism took over from logical positivism. Let us analyse this process of evolution in more details.

Logical positivists find in Wittgenstein the first expression of the principle of verification enabling the propositions within the aforementioned trilogy to be classified. For Wittgenstein, a proposition only takes on a meaning when it represents a possible state of affairs. Tautological propositions, although they do not respect this condition, play an important role in structuring our knowledge. They enable a logical relation to be made between significant empirical propositions. Metaphysical phrases in themselves are of no interest as regards knowledge and it is important to distance them from scientific discourse because they have no meaning.

In this perspective, Waismann announces the first verification criterion adopted by the members of the Vienna circle using the famous formula by which the meaning of a proposition is the method of its verification. That is to say that a proposition is empirically meaningful if it is possible for it to be experienced. What is important is not to know whether the phrase is true or false but whether it has an empirical content, a meaning, or, in other words, whether it is verifiable. A metaphysical proposition is an assertion that cannot be verified and is thus meaningless.

Popper criticises this first version of the verification criterion due to certain over-restrictive aspects and propose the falsificationist criterion in its place. Logical positivists were unable to accept this offer, however, as it required the inductivist view to be dropped in favour of a deductivist pattern of knowledge.

Carnap and Neurath in the 1930s then propose a verification criterion, based upon a new empiricist language which would, by its very nature, eliminate all metaphysical discourse.⁴⁶ At this point however, other problems arise tied to the difficulty of expressing theoretical concepts in such a language. Indeed, theoretical concepts have the distinctive feature of not being expressible in terms of observable objects and cannot thus be translated into Carnap's universal language of science. The solution put forward is then to apprehend these concepts indirectly, through the definition of dispositional terms which describe the observable properties of the theoretical concept. Dispositional terms express the ability of objects to react under certain conditions. However, this manner of taking theoretical concepts into account using dispositional terms generates a paradox of empirical verification, known as Hempel's paradox. This paradox is usually illustrated by the following example: saying 'all crows are black' is logically equivalent to saying 'all non-black entities are non-crows'. From this point on, all experiments verifying that non-black entities are non-crows -- for instance the observation of a red fish -- verify that all crows are black. In the case of dispositional terms, Hempel's paradox appears in the following way: all objects not undergoing the experiment aimed at testing their dispositional property are considered as having this property. To overcome these difficulties, Carnap (1936) then proposes a particular procedure which consists in reducing propositions into partial definitions, doing away with

objects not undergoing tests. In fact, it comes down to replacing dispositional terms by descriptive terms. This passage in terms of partial definitions has far-reaching consequences and marks an evolution towards a hypothetico-deductive structure.

Finally, logical positivists abandon the idea of developing a restrictive verification criterion and replace it with the more flexible notion of confirmation level according to which a theory is empirically meaningful from the moment one of its consequences becomes observable.

The passage from pure inductivism to the hypothetico-deductive structure accompanying the advancement of the verification criterion toward a notion of degree of confirmation, marks the end of logical positivism to the advantage of logical empiricism. During its developments and due to its critics, this movement never ceased to advance, tending toward more subtle ideas. Nevertheless, logical positivism is more a research programme aiming at the unification of subject areas, than a strictly philosophical movement.

The members of the Vienna circle indeed came from very different scientific walks of life and applied the 'directives' originating in the philosophy they had developed. Economics was involved in the philosophical programme of the Vienna circle through the active interaction between Mayer's economics seminar and the mathematical colloquium of K. Menger.

The movement is clearly to reduce economics to the common language of mathematics, this being a natural consequence of the plan to reunite sciences. The application of the principle of verification is reflected by the growing interest of scientists for the demonstration of existence of general equilibrium, a logical implication of their former interest in the problem of imputation. The tools of modern logic are introduced into the subject area and the very notion of economic model is altered. Finally, economics forms itself into a metatheory. This is a triumph for formalism and the emergence of the general equilibrium paradigm. The inter-war period is, from this point of view, as Punzo (1986 and 1989) argues, the scene of a true scientific revolution. It is this mutation in its entirety that we intend to analyse here by examining how the question of imputation had been handled.

4.3. In the pure Viennese spirit: the Wald -- Schlesinger collaboration

The question is at present to understand why solving the problem of imputation inherited from Wieser gradually slides towards a model which was clearly the inspiration of Walras, i.e. the Walras -- Cassel model, and subsequently leads to the question of demonstrating the existence of general equilibrium.

The problem of imputation comes to the fore during Mayer's seminar in economics, the latter taking over from Wieser in the chair of political economy at the university of Vienna. Schlesinger, author of a publication on monetary theory falling into the Walrasian tradition, takes a particular interest in the problem of imputation. If we were to pinpoint the turning point directing the inter-war Austrian tradition inescapably toward the formalist camp of the general equilibrium

paradigm, then it would be Schlesinger's decision to go beyond the problem of over-determination inherent in Wieser's framework by introducing the famous 'Walras' clever idea'.⁴⁷ The idea here is to treat consumption good prices endogenously. In fact, Schlesinger and the Viennese who begin studying the problem believe they can go beyond the question of over-determination by completing Wieser's system using another set of complementary simultaneous equations which would determine the price of consumption goods endogenously.

In Wieser's system, prices of factors are the only unknown elements as prices of consumption goods are supposed as given. The theory of imputation consists in deducing from prices of first order goods (originally expressed as expected prices of first order goods) the value to be given to each of the higher order goods involved in the production process. As we have already pointed out, in this context it is purely an accounting problem and it is not possible to go beyond the problem of over-determination if another framework is not adopted. The new framework proposed by Schlesinger is no other than Walras' scheme of general inter-dependence. Prices of consumption goods are endogenised using a different set of equations -- quantities block-- which completes Wieser's partial system -- prices block.

Formally, introducing 'Walras clever idea' leads to replace the partial system,

$$v \cdot K = p \cdot x, \quad \text{where only vector } v \text{ of factor prices represents the unknowns,}$$

with the inter-dependence system:

$$\begin{aligned} v \cdot K &= f(x) \cdot x \\ K \cdot x &= S, \quad \text{where } S \text{ is the quantity vector of production factors.} \end{aligned}$$

In this manner, prices are endogenised according to the principle of marginal utility. Prices of consumption goods depend on the available quantities of these first order goods whose supply in fact represents an indirect demand for production factors:

$$P = f(x) \quad \text{and} \quad K \cdot x = S$$

It really is a radical change here which affects the very nature of the problem of imputation. From the moment the framework of inter-dependence is adopted, the question is no longer that of knowing how prices of factors may be deduced from those of consumption goods, but that of knowing whether there exists a configuration of economic equilibrium which is represented by the equation system. By solving this, the prices of consumption goods and of production factors are determined simultaneously. The causal structure -- from prices of first order goods toward prices of higher order goods -- is dropped in favour of a functional structure of simultaneous determination.

The problem of demonstrating the existence of a configuration of equilibrium comes in this way to the forefront of the Austrian tradition, especially as Walras' solution of merely counting the number of equations and unknowns is unanimously recognised as being insufficient.

In reality however, the mathematicians of the Vienna circle having addressed the problem of the existence of general equilibrium, worked on models inspired by Walras but not on the original model. In particular, the first demonstration of existence, announced in 1934 by Wald, is based on the so-called Walras -- Cassel model which, in fact, is a version of Cassel's system modified by Schlesinger in 1933.

4.3.1. Introducing the rule of free goods: Walras -- Cassel model

Cassel is behind the interest of the Viennese for Walrasian marginalism at the beginning of the century. His book, The Theory of Social Economy, was translated into German in 1918 and became one of the theoretical references in Europe due to its clarity.⁴⁸ The presentation Cassel gives of Walras' general system of equilibrium is the most widespread version used until the 1930s, even in America where the translation appeared in 1932.

From an analytical point of view, The Theory of Social Economy brings few improvements when compared to Walras; Cassel's presentation is often seen as a simplification of the model of general equilibrium developed in Les Principes d'Economie Politique Pure, a simplification which evades the microeconomic foundations of the economic system.⁴⁹ Walras builds up theoretical functions of demand, born of agents' maximisation behaviour under constraint. The author begins by using individual idiosyncrasies, preferences, subjective utilities and rational optimisation behaviour, in order to elaborate demand functions for consumption goods which associate the optimal quantities exchanged by each person to each possible price vector. Such an approach is not to be found in Cassel's work. His model and the whole book in general, have been bled of any notion of utility. The microeconomic foundations are avoided. Cassel's model thus follows the same logic as that of Walras, using the same structure but simplified on two levels: the available quantities of production services are exogenous and no longer determined by behavioural relationships; the demand functions for consumption goods are emptied of the effects of repartition.⁵⁰

The members of the Vienna circle and Schlesinger in particular, retained nothing but Cassel's mathematical representation of an inter-dependent economic system in a stationary condition. It is this formalisation which is the point of departure for the debate rousing the Viennese and which supplies the framework through which the question of the demonstration of existence of general equilibrium is to be partially solved.⁵¹

Regarding the 'demonstration of existence', Cassel commits the same errors as Walras by merely counting the number of equations and unknowns and by neglecting the possibility of economically irrelevant solutions. Such remarks have been originally raised by Stackelberg and Neisser at the beginning of the 1930s and

furtherly developed by Schlesinger.⁵² The latter modifies the equations of Cassel by introducing the rule of free goods and it is precisely such a formulation of the Walras -- Cassel model that will be used by Wald as a basis for the first demonstrations of existence.

In reality, Cassel rids his work of the problem of negative prices by using ad hoc assumptions: only scarce goods and factors enter into the field of economics. Free factors are, by definition, available at will and it is therefore absurd to endow them with a price which in itself indicates scarcity. Cassel's model only analyses the principle of how prices of scarce goods are determined. The division between free goods and scarce goods is thus prior to the solution to the model.

Schlesinger's criticism is aimed at the relevance of Cassel's ad hoc assumption: how is it possible to determine beforehand, i.e. before the model has been solved, which factors will be in over-supply and which will be fully used? Cassel, in fact, makes the supposition that all factors entering into a system of equations are necessarily fully utilised, the others being left outside the economic sphere and as such irrelevant. Schlesinger who in part uses Cassel's notation believes it is impossible to differentiate at the outset between scarce and free factors. A special rule thus becomes necessary, enabling free goods to be distinguished from fully utilised factors. In this way, Schlesinger alters Cassel's model by introducing the rule of free goods.⁵³ The same approach was in fact anticipated in 1933 by Zeuthen, a Danish economist, according to whom,

[...] one does not know in advance which productive inputs are free goods, so that in the corresponding equations one should include a final term that represent the unused portion of the input, with the simultaneous requirement that either this unused portion or the price of the input be equal to zero.⁵⁴

(Zeuthen, 1933)

Zeuthen's 'final term' is formally introduced into Cassel's model by Schlesinger: should the excess quantity of a production factor j be zero, then it is a fully utilised factor whose necessarily positive price reflects scarcity. If, on the contrary, the supply of factor j is higher than its utilisation, j is therefore abundant and we have here a free good which is not within the economic sphere. It has no market value and its price is nil. Introducing these conditions not only enables to endogenously differentiate free factors from fully utilised factors, but also by introducing inequalities into the model to definitively reject any demonstration of existence based on the counting of equations and unknowns.

4.3.2. The demonstrations of Wald

After having redefined the Cassel model, Schlesinger asks a young Hungarian mathematician, Abraham Wald, to solve the duly completed system. The Wald -- Schlesinger association is a perfect symbol of the spirit of the Vienna circle and heralds the coming of the neoclassical tradition, of which it represents a decisive step.⁵⁵ In this way, the economic model directly inspired by Walras ends up being studied by a pure mathematician.

Wald produces three articles inspired by the collaboration with Schlesinger, which were presented at K. Menger's mathematical colloquium between 1934 and 1936.⁵⁶ As the articles progress, the mathematician perfects the formal conditions required to demonstrate existence and turns his attention to the question of their economic significance.

In the first article, Wald provides a demonstration by contradiction of the existence of a configuration of equilibrium in a simplified version of the Schlesinger model. In this first model, the demand function of a specific good only have the quantity of that good as an argument. There thus remains the question of demonstrating the existence and unicity of the price system solution, by making demand also depend on available quantities of all other goods.

In this perspective, Wald offers a new demonstration a few months later within the framework of the original demand functions of Schlesinger. As Weintraub (1985, p. 70) remarks, Wald introduces the weak axiom of revealed preferences, as expressed by Samuelson in 1938, as well as the principle of diagonal dominance, required for the demonstrations of unicity and stability.

In the final article, Wald particularly examines the question of the economic meaning of assumptions and allows the influence of logical positivism on the course of his research to appear. The influence of the verificationist doctrine is to be found particularly at the level of the quest for realism in the hypotheses which, as Le Gall explains (1991, p. 133), should be related to '[...] a solid basis, that of sensitive experience. One may consider the work of Wald as an attempt to apply in a practical manner, the principle of progressively reducing concepts to reality.'

4.4. The Austrian formalist revolution

Demonstrating that general equilibrium exists by following the logic of mathematics is the equivalent of establishing the internal consistency of the model. The principle of verification directly finds expression in this field by the demands for formal proof of solution to the model (i.e. the proof of existence of general equilibrium). The principle of verification takes thus great steps forward during the discussions between the members of the Vienna circle and also thanks to the criticism directed at it. The result of this evolution is, for theorists, the justification of the adoption of a hypothetico-deductive logic. The theory of general equilibrium is elaborated following such a logic and the proof of the existence of a relevant solution emerges as the indisputable demonstration of the general consistency of the theory. In this light, the principle of verification perfectly matches the proof of existence of a relevant equilibrium solution.

The influence of the philosophical environment is also to be felt directly through the introduction of modern logic into economics, the notion of model being deeply altered. Up until the formalist revolution of the inter-war period, an economic model traditionally reflected a mechanical conception: the model should reproduce reality and conform to it. From this point of view, each theory is associated with a single model because, according to the mechanical conception, reality exists outside our interpretations. There is only one reality and it is that controlled by universal laws.

The contribution of modern logic has been to redirect the methodology of model based on the mechanical analogy toward the mathematical analogy. As Favereau (1987, p. 81) explains, '[...] speaking of "reality" or of the "real world" can be tolerated providing it be agreed that there are several -- this is the message of the modelising logician to his economist colleague'.

From here on, several models may be attached to a theory, each propagating its own reality according to the syntax and semantics peculiar to the model in question. In logic, a model is defined as a specific interpretation of a formal system. A formal system is composed by the set of propositions that can be derived from a given set of axioms and inference rules. The notion of formal system reflects thus the pure syntactic aspects of the model. Semantics comes into play when the formal system is given an interpretation. Beginning with one and the same formal system, it is thus possible to construct as many models as there are different interpretations of its symbols. A model can thus be conceived as the description of a particular universe, according to the rules laid down by the formal system from whence it comes.

Wald's research places the analysis of a generalised inter-dependence model in the limelight of the preoccupations of the Viennese economists. General equilibrium comes to the forefront in the very heart of the Austrian tradition. Menger's attitude when brought face to face with the use of mathematics in economics is completely betrayed. Any notion of causality vanishes in favour of an approach in terms of simultaneous determination of variables.

The fact that the vast majority of the economic community adheres to this conception of economics based on the idea of general equilibrium may be seen as a true scientific revolution. The Viennese milieu of the inter-war period sees the birth of the neoclassical paradigm, whose final formulation is that of Debreu in 1959. Whereas, at the light of our investigations, Menger can hardly be regarded as an active member of the marginalist revolution, paradoxically the next generation of Austrian authors appears to have played a major role in the formalist revolution of the inter-war period.

THE 'AUSTRIAN' THEORY OF CYCLES

Between the wars the Austrian tradition is split into various groups. We have already analysed the developments emerging from Mayer's seminar on economics, based around the question of imputation, as well as those of the mathematical colloquium presided by K. Menger regarding the demonstration of existence of general equilibrium. The picture would not be complete without taking into account the influence of a third pole of development in Austrian logic: the group of economists gathered together by Ludwig von Mises in his Privatseminar and who are mainly concerned with the question of the theory of cycles and economic fluctuations.⁵⁷ Such organisation of the Austrian tradition, split into three distinct poles, leads Boehm (1992b) to question the very existence of a true Austrian school during this period.

The label "Austrian economics" is merely a shorthand expression for what is, in fact, a ill-defined body of ideas with many facets. [...] rather, it would seem to be more the point to speak, perhaps, of an (open) set of distinct Austrian themes.

(Boehm, 1992b, p. 1)

Certainly the themes given pride of place in each of the circles -- imputation, demonstrations of existence and theory of cycles -- have no obvious inter-connection and are developed independently by each of the groups. However, the theory of cycles and fluctuations developed by Mises and then continued and expanded upon by Hayek, symbolises the essence of the inter-war Austrian tradition, to the extent that it was to be under the influence of Mises' Privatseminar that Austrian logic was to cross the frontiers and spread to other academic centres (The London School of Economics). At the same time, the Austrian theory of cycles represents the peak (through the influence of the Austrian theses of Mises and Hayek on Robbins and more generally on the Anglo-Saxon academic world) and the decline (through the apparent theoretical defeat when faced with the Sraffa -- Keynes link-up) of inter-war Austrian logic.

Our object is not to proceed with an exhaustive inventory of theoretical exchanges between the members of Mises' Privatseminar nor to offer a new interpretation of the London -- Cambridge controversy on the theory of economic crises. We are more concerned with the completion of our analysis of the process of absorbing Menger's originality into the logic of equilibrium. In our opinion, the Austrian theory of cycles and economic fluctuations crystallises the set of deviations

presented above. The theory conveys a determinist view of economic phenomena based around the concept of equilibrium and built on a static conception of subjectivism. More to the point, we question the Austrian essence (meaning Mengerian essence of course) of the traditional Austrian theory of economic cycles.

The Theory of Money and Credit (Mises, 1912), the first elaboration of the Austrian theory of cycles, has been the theoretical inspiration for numerous subsequent developments and, in particular, has profoundly marked the work of Hayek, whose theory of economic fluctuations is considered as the most important achievement of the Austrian tradition in this theme.

The Austrian theory of cycles as proposed by Hayek inspires two types of comments. On the one hand, it is possible to give a specific interpretation of the cycle mechanism in terms of signal and knowledge. Such an interpretation enables us to reconsider the idea of a break in Hayekian thought as from 1937 (with 'Economics and Knowledge'), thereby bringing out an element of continuity within the general logic of the author. On the other hand, the Austrian analysis of the cycle allows Hayek's position regarding the concept of equilibrium to be clarified. Traditional cycle theory clearly breaks with Menger's originality in the sense that the logic underlying the mechanism is a determinist logic of equilibrium. As we shall see, there is a link between these two considerations.

5.1. The Austrian explanation of economic cycles

Following Mises (1912), Hayek (1929) continues the distinction drawn by Wicksell in 1898 between natural and monetary interest.⁵⁸

In a non-monetary economy, the natural (or of equilibrium) rate of interest is determined by the direct confrontation between supply of savings and demand for investment. Equilibrium settles at the point where investment cost is equal to the marginal productivity of capital invested. In a monetary economy, a new concept needs to be introduced, the monetary (or market) interest rate, which corresponds to the actual rate offered by banks. The fact that there may be a difference between monetary and natural rates is indeed the direct result of the role of banks.

In a monetary economy, supply and demand of capital are expressed in monetary form and banks are able to modify the quantities available for capital needs through credit creation. If banks increase the credit available to entrepreneurs then the monetary rate will fall below the natural rate of interest and vice-versa. Entrepreneurs are thus encouraged to invest, i.e. to adopt roundabout methods of production, beyond the quantity of monetary savings actually held by consumers. The rate of savings reflects the inter-temporal preference of agents between present and future consumption. In this way, credit enables investment to be increased without affecting agents' preferences. Investment is reflected by a lengthening of production periods. As by assumption the factors are, at the outset, in a context of full employment, changes in technique must come about by means of an upstream transfer, i.e. a part of production factors will be shifted from production of consumption goods to production of intermediary goods. The resulting reduction in the supply of consumption goods will nevertheless be

confronted with unchanged demand as, unlike the previous case, investment is not the result of an increase in savings but of the creation of credit. The rationing of demand for consumption goods reflects a phenomenon of forced saving. Relative prices of consumption goods increase compared to production goods and the overall possibility of consumption decreases, implying either a reduction of real wages or unemployment (Ricardo effect). Relative prices of consumption goods increase not only due to the phenomenon of forced saving but also because nominal wages increase due to the competition between producers to obtain the necessary factors for the setting-up of longer production techniques. In the face of inflation, producers are led to review their expectations as to the profitability of investment. The processes will continue as long as banks pursue their policy of easy credit with the intention of compensating for the loss of investment profitability. At this point, we attain the peak of the cycle. Should banks start limiting credit issue so as to avoid a loss of confidence in the national currency which, according to Hayek, comes very close to happening in an inflationary context, then producers are led to modify their production techniques once more by returning to their former methods and thereby losing all or part (depending on its specificity) of their previous investment.

When incentive for investment is the result of an increase in the volume of voluntary savings by consumers, the system evolves painlessly toward a new stationary situation where a new relative price vector and a new, longer set of production techniques are to be found. When investment incentive arises from bank policy in credit creation, with no compensation regarding the real volume of savings, then the system's adjustment mechanism is artificially disturbed and confrontation between supply and demand of various goods gives rise to a phenomenon which is foreign to the pure logic of equilibrium: the cycle. Bank policy affects the market's natural tendency to inevitably adjust itself toward equilibrium. More precisely, the expansion of credit leads to an erroneous allocation of production factors (erroneous with respect to consumer preferences), of labour in particular, by directing them toward uses which cease to be profitable.

The logic of the sequences (stationary equilibrium -- investments -- change in the length of roundabout production processes -- new stationary situation) is identical in both cases. The difference arises from the fact that when new investments are the result of a change in the volume of savings, the final situation corresponds to a new general equilibrium where factor productivity is higher than in the initial situation. In the case of incentives to invest being the result of bank intervention on the monetary interest rate, the final situation matches that which was initially disturbed, the economy having in the meantime undergone a traumatising economic fluctuation.

5.2. An interpretation in the light of the subsequent theme of knowledge

As from the 1940s, the problem of knowledge establishes itself as the major theme in which Hayek subsequently takes a great interest. The author stresses the tacit and diffuse nature of knowledge used by agents to formulate their plans of action. The

fundamental problem of economics is now to understand by what mechanism knowledge is most efficiently distributed amongst actors and to what extent their plans are mutually coordinated because of this. The process of market competition is presented as the efficient spontaneous mechanism allowing the distribution and coordination of knowledge.

Hayek's cycle theory may be interpreted as a problem of knowledge. In particular, the cycle is the result of the spread of a bad signal between economic agents and in particular amongst entrepreneurs. The signal in question stems from an increase in the monetary interest rate with no real counterpart in terms of changes in consumers' inter-temporal preferences. For decisions on investment, entrepreneurs rely on the monetary rate of interest. In a direct exchange economy, the actual interest rate is, by assumption, equivalent to the natural rate and reflects the correspondence between marginal productivity of capital and inter-temporal preferences of consumers. Introducing the banking system brings in an asymmetry in information: agents, separated into different functional groups, do not have access to the same information. Entrepreneurs are aware of the marginal returns of planned investments; consumers are aware of their inter-temporal preferences; banks serve as an intermediary between these two groups and interfere with the link between supply and demand through the phenomenon of credit creation. Thus the actual interest rate, although it no longer circulates information about consumers' inter-temporal preferences, is nevertheless a guide to entrepreneurs' investment decisions. A fall in the monetary interest rate may just as well denote an increase in the preference for future goods on the part of consumers thereby reflecting an increase in savings as a rise in the creation of credit currency which has no real counterpart in terms of volume of savings. Entrepreneurs are incapable of distinguishing between these two sets of circumstances (a problem of knowledge) and react, in Hayek's model, in a perfectly elastic manner to a change in monetary interest whatever its origin: a fall in interest gives rise to an increase in the incentives for entrepreneurs to invest. The cycle is only generated if the monetary interest rate conveys incorrect information in terms of consumers' inter-temporal preferences, i.e. when the change in the interest rate stems from the creation of credit by banks.

Such an interpretation which gives pride of place to the question of knowledge does tend to gather the whole of Hayek's work around one central question: how does the market process enable the coordination of agents' individual plans, which are formed on the basis of each person's tacit, subjective and diffuse knowledge? In this sense, the mechanism of the economic cycle may indeed be interpreted in terms that are perfectly compatible with those used in the author's subsequent research developments.⁵⁹

5.3. The Austrian theory of cycles and Menger's originality

We are now led to evaluate to what extent the traditional Austrian theory of cycles reflects the originality of Menger as defined in part I. The previous interpretation allows us to highlight certain traits of the Hayekian logic of business cycle theory

which are in contrast with the essence of Menger's work. Indeed, it appears from our analysis that the theory suggested by Hayek on this point is to a large extent located within the continuity of the process of absorption initiated by Böhm-Bawerk. More particularly, the Austrian cycle theory deviates from the essence of Menger in two ways: the subjectivist dimension and the role taken on by the concept of equilibrium.

As far as the first element is concerned, let us remember that what is original in Menger is the development of the bases for a dynamic view of subjectivism and that the origin of the rift bringing him into conflict with Böhm-Bawerk's approach is the very deviation toward a traditional, static and limited view of subjectivism. Although Hayek finally rejects Böhm-Bawerk's simplification in terms of average period of production, the former nevertheless relies on an identical view of the production structure of the system.

Hayek returns indeed to the fundamental principle of the higher productivity of roundabout methods of production used by Böhm-Bawerk: 'The raison d'être of [the capitalistic way of] organising production is, of course, that by lengthening the production process we are able to obtain a greater quantity of consumers' goods out of a given quantity of original means of production' (Hayek, 1931, pp. 37--8).

The production structure of a given system is described by the well-known triangle diagram. The ordinate axis represents the temporal dimension of the production process. At each period, extra primary factors enter the production process. The base of the triangle, the abscissa axis, represents the monetary volume of consumption goods produced at the outcome of the process. As time passes and the production process lengthens, the base of the triangle widens.

Hayek does not perpetuate Böhm-Bawerk's ambiguity between diachronic and synchronic representation of the production system. The meaning of the

diagram is clear and contrary to the demands of a Menger-type subjective analysis, the synchronic and diachronic representations are explicitly equivalent:

[...] we may conceive of this diagram not only as representing the successive stages of the production of the output of any given moment in time, but also as representing the processes of production going on simultaneously in a stationary society. To use a happy phrase of J. B. Clark's, it gives a picture of the "synchronised process of production".

(Hayek, 1931, p. 40)

We saw in the previous chapter that such a blend reflects the fact that the structure of preferences of the system described represents but a simple set of extra data. The subjective dimension of the individual is frozen once and for all, into a set of defined functional relationships. Through the use of such a representation, Hayek places the Austrian theory of economic cycles and fluctuations within the continuity of the deviation initiated by Böhm-Bawerk.

As with Böhm-Bawerk, the Mengerian principle of economizing is relegated to a position of secondary importance: according to Menger, it is irrelevant to freeze individual preferences within a stable, functional relationship. However, the synchronic representation developed by Hayek incorporates exactly such a view of individual preferences. The productive structure of the economy is, in the Mengerian logic, the product of producers' individual decisions at each moment and the setting-up of causal relations in production stems from the producer's evaluation of future consumer needs. Proposing a synchronic structure is equal to assuming a system where the sovereign role of consumer needs guiding decision-making is eliminated or at least evaded. Individual preferences are known once and for all and the system is built around the picture of agents' needs. In a synchronic representation, the present decision to invest is not based on the search to satisfy future consumer needs but on reproducing the system in place, thereby answering consumer needs in the way they have been evaluated once and for all by the past. The subjectivist dimension is static and implicit to the analysis; the principle of economizing is no longer the engine of economic dynamics but becomes of secondary importance.

The interpretation in terms of signal and knowledge enables us to highlight a second argument in favour of the interpretation of deviation toward static subjectivism. If we examine the behavioural assumption of investment choices, it appears that entrepreneurs are endowed with perfectly elastic expectations regarding the monetary interest rate. Indeed, in Hayek's model, investment decisions are directly linked to the monetary interest rate that banks offer entrepreneurs. Any reduction in this rate, whatever the real rate of savings, will automatically give rise to an increase in investment. Entrepreneurs interpret a fall in the monetary interest rate as an equivalent increase in investment profitability, with no reference whatsoever to the evaluation of consumers' inter-temporal preferences, which are presumed stable. Such behavioural assumption is perfectly compatible with the neo-classical concept of economic agent, but is in conflict with the view developed by Menger.

In this model, the Hayekian agent simply reacts to signals (sometimes erroneous) transmitted to him by the interest rate. All entrepreneurs react in the same manner, using elastic expectations and the character of agent -- actor is thus wiped from the analysis.⁶⁰

Another aspect of Menger's originality consists in giving pride of place to market analysis, considered as a non-predetermined process, rather than studying the conditions enabling a situation of equilibrium to be established. Although the theory of cycles fits neatly into a logic of equilibrium, it remains a theory of the market process which analyses the reasons and mechanisms at the root of economic fluctuations. However, in contrast to the Mengerian logic, we have here a totally determinist process. At this point, Hayek is in conflict with his subsequent positions where the emphasis is on the predictive limits of theory as soon as the problem of knowledge comes to the forefront. A priori it is impossible to know what knowledge the competitive process will enable agents to discover and it is also impossible to foresee the degree to which agents plans will be coordinated. The logic underlying the theory of cycles is different:

In place of such a theoretical deduction, we often find an assertion, unfounded on any system, of a far-reaching indeterminacy in the economy. Paradoxically stated as it is, this thesis is bound to have devastating effect on theory, for it involves the sacrifice of any exact theoretical deduction, and the very possibility of a theoretical explanation of economic phenomena is rendered problematic.

(Hayek, [1933] 1966, p. 96)

The traditional theory of cycles is profoundly determinist: the arrival situation is a stationary equilibrium determined in a univocal manner on the basis of real variables (preferences, techniques and initial endowments of agents) and the ultimate cause of the cycle is purely monetary (bank policy).

In the case of a change in the monetary volume of savings reflecting a change in agents' inter-temporal preferences, the adjustment mechanism leads, without any perturbation, to a new configuration of equilibrium, the general equilibrium associated with the new conditions of individual preferences. In the case where the origin of the split with outset conditions consists of a fall in the monetary interest rate with no real counterpart, the dynamic adjustment is a fluctuating process and the arrival configuration coincides with that at the beginning since in that case, by assumption, individual preferences have not been altered. Given the fundamentals, there does exist a configuration of equilibrium associated with them in a univocal manner and Hayek's theory analyses the mechanism by which the economy converges toward this predetermined state of equilibrium.⁶¹ The cycle is the result of an artificial alteration (introduced by banks) which affects the underlying equilibrating role of the market.

It should be noted that if Hayek subsequently abandons this strictly determinist view of the market through the introduction of a process of knowledge discovery, the equilibrating tendency of competitive activity remains a fundamental constant throughout

his work. We agree in that perspective with the interpretation given by Caldwell (1988) of 'Hayek's transformation'. Caldwell identifies three phases in the evolution of Hayek's work, the concept of equilibrium being the central criterion enabling these different phases to be defined. According to Caldwell, an initial period precedes the 1937 article. At that time, in Hayek's opinion, all legitimate economic explanations should be based upon an analysis of equilibrium. The second phase starts with the article of 1937 in which Hayek continues to convey the belief on the necessity of equilibrium analysis but replaces the traditional concept of equilibrium with his own definition in terms of compatibility between individual plans (Hayek, 1937, p. 41). A concrete attempt to apply this new concept of equilibrium to the analysis of the economic cycle can be found in The Pure Theory of Capital (Hayek, 1941). The failure of this attempt denotes the moment at which the idea of an inescapable correspondence between economic analysis and the logic of equilibrium is once and for all abandoned. From this point onward (third phase), the author breaks with the theory of equilibrium on a permanent basis and proceeds to define the central problem of economics around the understanding of the emergence of a spontaneous order with a vocation for coordination.⁶² According to Caldwell, the debate on planning is at the origin of Hayek's transformation, more particularly of his sudden awareness of the central problem of economics being a problem of coordination of fragments of knowledge spread amongst individuals.

PART THREE

MENGER'S LEGACY

During the inter-war period, the Austrian tradition faces two important theoretical mishaps: firstly, the Cambridge -- London controversy ends in failure for the Austrian theory of the trade cycle and secondly, the criticism of Mises and Hayek over the possibility of economic planning, which as we shall see discloses a deep dissatisfaction for orthodox methods, does not appear to worry neoclassical beliefs in the analytical power of simultaneous equation systems.

However, the negative impact of these two theoretical confrontations over the evolution of the Austrian tradition should be softened. Indeed, as for the first question, we have previously shown to what extent Hayek's theory of cycles was not a faithful representation of Menger's originality. From this moment on, the relative defeat of Hayek by Keynes only has a moderate effect upon the analytical credibility of the pure (Mengerian) Austrian logic.

Regarding the debate on planning, we will argue that far from having been negative, the consequences of this analytical controversy were, to a large extent, beneficial to the Austrian tradition. In particular, this debate has given rise to an awareness amongst Austrian authors of their originality compared to neoclassicals and of a return toward the Mengerian essence. Despite the confusion characteristic of the theoretical exchanges between Hayek and Mises on the one hand and the market socialists on the other, the outcome of the debate clearly favours a neoclassical victory. We shall nevertheless show that the confusion in question is precisely the result of the fact that the Austrian camp is progressively building itself up into a competitive paradigm, rendering communication ambiguous. Indeed, although Austrian authors are not immediately aware they are speaking a different language and are basing themselves upon an alternative conception of economic theory, it is precisely this confrontation with neoclassical economists which acts as an incentive for Austrians to assert their originality and to rediscover Menger's legacy.

It is not until a few years later, in the 1940s (with the exception of Hayek's article of 1937), with the publication of Hayek's articles concerning the role of knowledge in economics and the book of Mises in 1949, Human Action, that the definitive awareness of Austrian originality appears, making up the foundations upon which the Austrian revival will take shape in the 1970s.

Although Hayek was a faithful student of Mises and they had both pledged allegiance to their connections with Menger, the ideas they develop after the

debate on planning do follow two rather independent lines. Here again, it cannot be said that there is a perfectly identifiable Austrian tradition in as far as there are several theoretical points, essentially of a methodological nature, facing both authors. It will not be until the 1970s that writers attempt to summarise the contributions of Hayek concerning knowledge and of Mises regarding the nature of human action, thereby constructing a definite theoretical framework for the first time since Menger's original formulation.

In this part, we first give a brief representation of the two basic Austrian principles as they were put by Mises and Hayek during the 1940s as a consequence of their involvement in the planning debate. Secondly, we analyse the way in which these statements have been taken up again by the actors of the modern revival. Given Mises' axiom of human action (tenet 1) and Hayek's principle of knowledge diffusion (tenet 2), it is possible to classify the three streams of the Austrian revival as follows:⁶³

- Rothbard deepens the consequences of tenet (1) in full accordance with Mises' praxeological approach. We will emphasise the limits of such a methodology and stress the fact that Rothbard's renewal of Mises' praxeology turns out to be merely instrumental, aiming at legitimating libertarian politics.

- Kirzner synthesises tenets (1) and (2) in his theory of entrepreneurship. A difficulty arises here concerning the relation with mainstream economics: Kirzner explicitly positions Austrian economics as a complement to the neoclassical approach; the author criticises the excessive focus that neoclassical economists express for the state of equilibrium and suggests counterbalancing this overrated interest by an analysis of the process toward equilibrium. His theory of entrepreneurship is devoted to such a task. However, as far as the Austrian essence is concerned, we will show that the price to pay for entering the mainstream framework is high indeed: Kirzner's analysis proves in fact to be free from time dimension and uncertainty.

- Lachmann interprets the Misesian and Hayekian developments through Shackle's kaleidic view of reality. As a result, the author completely rejects the idea of equilibrium and determinacy of the economic process. Our attempt here will be to clarify how far Lachmann could go beyond this apparent theoretical nihilism.

Even though the three lines of the Austrian revival we are considering are rigorously built upon the same tenets, they target distinct objectives, they provide various degrees of potential development and they undoubtedly present specific limits. Results prove to be quite alarming: the Austrian tradition, in its modern version seems to be close to a dead-end. A way to substantially soften this rather pessimist conclusion might be, in our view, to develop Lachmann's line of thought in such a way to overcome the problem of theoretical nihilism. This will be the task of the last part of the book.

REAPPEARANCE OF THE MENGERIAN ESSENCE

The controversy over planning begins with an article by Mises in 1920, 'Economic Calculation in the Socialist Commonwealth'. The majority of the contributions to the debate are centred around this article and are either answers to the attack of Mises or defences of his arguments. The author presents a real challenge to planners, questioning them on the practical and theoretical possibility of a socialist economy. According to Mises, within the framework of an economy where the means of production are common property, it is impossible to carry out any efficient economic calculation and especially to implement a rational allocation of resources. The impossibility lies in the fact that there are no market prices on which to base economic decisions. In the opinion of Mises, market prices reflect the personal evaluations of economic actors and can only emerge from an economy of private property. Without such points of reference, the planner is unable to make any efficient decisions.

Mises also develops a further argument of a more practical nature in his article which casts doubt on the efficiency of the incentives emerging in a centralised system where economic actors are not stimulated by private means of production. More precisely, Mises confronts here the efficiency of bureaucrats in a planned system with that of entrepreneurs in a decentralised system.

The traditional interpretation of the debate on planning confirms that the question posed by Mises on the feasibility of a centralised economic system has basically been solved by the so-called market socialists, whose analyses are developed within the neoclassical framework.⁶⁴ In particular, Lange (1936) and Lerner (1936) show how socialism can, conceptually, solve economic organisational problems through a centralised process of trial and error. Thus Mises is thought to have failed in his attempt to bring into question the logical possibility of any rational economic calculation in the absence of free market.

Don Lavoie (1985) challenges this traditional version and adds a new dimension to the controversy. The main argument of Lavoie is that the protagonists of the controversy have not understood each other in the sense that Austrians and neoclassicals are related to two different paradigms and that the concepts of efficiency, equilibrium and competition that they use express in fact different meanings. The interesting point in our view is that the controversy is the opportunity for the Austrians to explicitly construct the originality of their approach in

contrast to the Walrasian orthodoxy or, as Vaughn (1980) explains, for them to revisit the themes of Menger.

During the planning debate, Austrian criticism and rejoinders are rather confused and not sufficiently clear for there to be a real challenge to neoclassical logic which once again proves its great ability to adapt. No doubt that with orthodox definitions of rationality and competition, the planning system and the market system can indeed be represented by the same formal system, as already underlined by Barone in 1908. The problem is that these terms do not imply the same meaning within Austrian logic: the market is viewed as a process of knowledge discovery; its thrust results from the interaction between individual plans; agents are seen as dynamic actors in contrast to the orthodox definition of Homo Economicus, as a mere reactor to external stimuli.

It is only during the following decade that arguments were clarified in that direction and incorporated into a specific logic, offering an incentive to re-open the controversy.⁶⁵

According to the interpretation of modern Austrians, the competitive solution put forward by neoclassical market socialists consisting in putting Walras' trial and error interaction into practice, is not a sufficient answer to the particular question put by Mises. The key to the misunderstanding between the two parties may well have arisen from the static nature of the solution offered by neoclassicals, whereas Mises' problem is said to concern the dynamics of the system in question. Kirzner (1988) manages to qualify the interpretation of Don Lavoie: the reason for the misunderstanding stems from the fact that, at the outset, Mises himself was not aware he was reasoning within a different theoretical framework from that of the neoclassicals and that it is only as conflicts arise that the Austrian paradigm is progressively revealed and constructed.⁶⁶ Of interest to us as we examine this controversy is not to establish whether Mises was or was not aware that his reasoning was based upon an original theoretical framework, but rather to capture the origins of the misunderstandings between the parties. This will enable us to determine a posteriori the nature of the originality conveyed by the Austrian position. In this perspective, we will attempt to demonstrate that the confusion typifying the debate arises from the difference in the way the temporal dimension is taken into account in the analysis. This difference manifests itself in the totally different meanings the two traditions give to the concept of competition.

Two notions of competition are in conflict during the debate: competition understood as a market structure and competition understood as a process of dynamic coordination.

Neoclassical authors define competition as an efficient market structure. To be more precise, it is a condition where a large number of perfectly informed price-taker agents take part in the supply and demand of a homogeneous good and where there are no entry or exit barriers to disrupt the perfect mobility of production factors. Solving the equations of the Walrasian configuration leads to figure out the competitive price vector which corresponds to the efficient market structure. The ambition of market socialists is to reproduce the final condition of equilibrium using centralisation. Walrasian theory is totally determinist in the sense that the state of equilibrium only depends on the given conditions of the economy in terms

of technology, endowments and individual preferences. In this light, the role of planning is to gather the necessary data and to provide a procedure enabling the corresponding optimal configuration to be replicated.

If this was the nature of the challenge laid down by Mises, then the competitive solution suggested by Lange and Lerner would indeed have solved the problem. It is not clear that the question posed by Mises and the Austrians in the 1920s and 1930s was not indeed concerned with the replication of a predetermined state. In this case there would be no doubt about a neoclassical victory. Should on the contrary the real challenge concern the capacity of a socialist system to substitute itself for competition understood as a process of dynamic coordination, then the outcome of the controversy would be much more of a problem. There is no doubt whatsoever that a posteriori, the position of Austrian authors falls into the second category and it is in this light that we shall examine the arguments of both Mises and Hayek.

According to the traditional interpretation, following the radical attack by Mises (1920) on the theoretical possibility of devising a planned system, Austrians (Hayek, 1935a and 1935b) are said to have beaten a retreat concentrating their criticisms on the practical feasibility of planning.⁶⁷ This interpretation ignores the originality of the Austrian tradition, especially the conceptual differences which will subsequently distinguish them from neoclassicals, these differences having the notion of competition at their very heart.

From this point of view, rather than attempting to establish the degree of Hayek's retreat from Mises' original attack, we find more interesting to bring out the complementarity between the argumentations of the two authors: Mises analyses the dynamic role of entrepreneurship within the market system; Hayek in turn defines the market process as a process of discovery and coordination of fragmented and tacit knowledge of agents.

6.1. The Principle of Human Action

Mises takes up and goes more deeply into the arguments put forward from 1920 onwards against planning in a book published in 1936, Socialism: An Economic and Sociological Analysis. However, Human Action which appeared in 1949, that is to say after the official closure of the debate, provides a posteriori the most limpid and complete presentation of Mises' argumentation.

The author's criticism of the impossibility of a planned socialist economy is based upon two arguments; firstly, the writer asserts the absolute necessity for a system of market price to guide all rational economic decisions and secondly, Mises emphasises the role of private ownership of means of production in encouraging entrepreneurs to display efficient economic behaviour.

Throughout his work, Mises finally manages to homogenise these two types of argument by means of an analysis of the role of the entrepreneur within competition. We shall witness how such a homogenisation is made possible by the explicit introduction of the temporal dimension into his work. Indeed, Mises is progressively forced to reject the static framework of allocation in order to concentrate on

the dynamic nature of entrepreneurial activity. At the outset, prices are the essential signals for decision-making. These are equilibrium prices reflecting consumers' real preferences. As soon as the temporal dimension is introduced, the price system, no longer associated with equilibrium values, represents the incentive structure on the basis of which entrepreneurs seek and take advantage of profit opportunities.

6.1.1. The introduction of the temporal dimension

The position of Mises during the 1930s remains ambiguous and reflects the transition toward the constitution of the Austrian paradigm. On the one hand, Mises never totally neglects the reference to equilibrium but on the other, the author clearly introduces the temporal dimension into the analysis. 'The problem of economic calculation is of economic dynamics: it is no problem of economic statics' (Mises, 1936, p. 139)

It is this ambiguity about the reference to equilibrium that is at the roots of the misunderstandings between Austrians and market socialists. Mises leaves the static framework of general equilibrium by recognising the relevance and the theoretical necessity to explicitly take into account the unceasing phenomenon of change in the initial conditions of the economy in question. This interest for the dynamics of the economic system adds a little subtlety to the importance the author gives to the concept of equilibrium. Any state of equilibrium rapidly becomes obsolete due to the evolution of data. Any attempt at planning which aims at reproducing the optimal condition of equilibrium predetermined by the data of the economy at a moment in time, in fact reproduces an inefficient system to the extent that changes in data are continuous.

In that sense, the nature of the challenge offered by Mises deals with the ability of a central bureau to react to change and not with the possibility of determining which optimal state would match a given set of initial, invariable conditions. The view Mises has of economic reality differs radically at this point from that of neo-classicals for whom equilibrium makes up the natural operational form of the system; for Mises, the world is characterised by a constant change in initial conditions which market socialists take as given. In the same way as for Menger, the dynamic in reality is a dynamic of disequilibrium: '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).

Mises' defence of the decentralised economy is based on the ability of the market to adapt to such changes. The idea of efficiency of the market does not convey the traditional Paretian meaning but the property of competitive prices to indicate the direction and size of change. Hence Mises on the one hand claims that the competitive process taking place in the market system produces automatically an efficient price system (efficient in the Misesian, not the Paretian sense) and, on the other hand, the author questions the market socialists on the nature of the institution which would replace competitive prices with the same efficiency in a planned economy.⁶⁸

The introduction of the assumption of continuous change of economic data brings Mises to emphasise the indeterminism of economic phenomena. It is clear

that the idea of indeterminism contradicts any attempt at efficient planning and especially the competitive solution offered by Lange. To the extent that, according to Mises, change is synonymous with uncertainty and indecisiveness regarding the future.

In any economic system which is in process of change all economic activity is based upon an uncertain future. It is therefore bounded with risk. It is essentially speculation. [...] Economic activity is necessarily speculative because it is based upon an uncertain future. Speculation is the link that binds isolated economic action to the economic activity as a whole.

(Mises, 1936, pp. 181--2)

In this way, Mises begins to drift irreparably away from a logic of allocation: the economic problem becomes a question of the discovery of profit opportunities based on entrepreneurial expectations which are, by nature, speculative.

It seems that the thinking of Mises is still confused up until the beginning of the 1940s: on the one hand, the author explicitly places himself within the same logic of equilibrium as that developed by the Lausanne tradition and, on the other, he emphasises the dimensions which are, a priori, foreign to this very tradition. These dimensions themselves directly reflect a Mengerian influence, that is to say the uncertain and unpredictable nature of the result of any economic activity. It is only from 1940 onwards that Mises harmonises his argumentation through the construction of a praxeological system of thought. From here on, the temporal dimension and more especially the idea of continuous change in the economic configuration, appears to stem directly from the axiom of Human Action underlying this system.

6.1.2. The role of the entrepreneur

The explicit assumption of continuous change in economic data enables Mises to homogenise the two arguments against the possibility of planning put forward as early as 1920, and to turn his mind to the driving role of the entrepreneur within the competitive process as a guarantee of the efficiency of the system to react to unpredictable changes in the economy.

As a particular aspect of the necessity of the system of market prices, Mises attacks the socialist system because of the incentive structure imposed upon managers of public companies. In the market system, competition sanctions the performance of entrepreneurs whereas without such a confrontation, 'in practice, the propertyless manager can only be held morally responsible for losses incurred' (Mises, 1936, p. 122).

To be honest, the argument is rather simple and do not involve deep analytical developments. Entrepreneurs at the head of public companies are bureaucrats whose motivation differs from that of private entrepreneurs. Their responsibility is not involved to any great extent and is limited to the application of directives of the central planning office. In other words, there is no incentive to innovate nor to undertake risk within socialist firms. Mises denounces the heaviness and inertia of

an administration which takes the place of the private entrepreneur. '[bureaucrats] content themselves with imitating what goes on in similar privately owned undertakings. But where all the concerns are socialised there will be hardly any talks of reforms and improvements' (Mises, 1936, p. 184).⁶⁹

Mises aims at emphasising the inadequacy of such an organisation of productive activity for an economic reality characterised by continuous changes in data, where speculation and risk-taking are the normal means of decision-making. The entrepreneur and not the capitalist, represents the driving force of the system of free competition. Due to the uncertain nature of the future, this actor has an incentive to undertake action, his role being above all dynamic. The Austrian homo-economicus has nothing more in common with the neoclassical price-taker that authors keep at the heart of their analyses.

The more successfully [the entrepreneur] speculates the more the means of production are at his disposal, the greater becomes his influence on the business of society. The less successfully he speculates the smaller becomes his property, the less becomes his influence on business. If he loses everything by speculation he disappears from the ranks of those who are called to the direction of economic affairs.

(Mises, 1936, p. 206)

There again, it is only from the 1940s onwards that Mises clearly defines his concept of the economic agent. The author's economic agent -- the entrepreneur or homo-agens -- differs from the neoclassical homo-economicus, the concept of human action being at the heart of the difference.

Mises describes competition as a selective process where actors' ability to take advantage from future uncertainty is put to the test. The most efficient entrepreneurs are those who best anticipate which of consumers' wishes are to be satisfied and what are the most efficient means to arrive at this. Quite the contrary, the 'competitive' solution offered by market socialists totally leaves out this dynamic aspect of competition and shows how the planner can determine and impose economic decisions reproducing an optimal state of equilibrium. Mises refuses the static nature of the solution offered. Planning, in the view of market socialists, replicates a state of affairs but does away with the institutional environment ensuring the autonomous evolution of the system in reaction to the continuous changes it undergoes. According to Mises, the socialist economy is subject to a heavy inertia as it is deprived of the driving elements in the shape of individual entrepreneurs in a competitive situation.

6.1.3. The final clarification of Mises' argumentation

The debate on planning is the opportunity for Mises to become aware of the fact that he speaks a different language to that of neoclassicals and to organise the different arguments characterising his position into a formal, coherent system: the praxeological system.

At this point, Mises' ambitions are at one with the programme of Menger: using a reflection concerning the foundations of economic phenomena overall, the aim is to offer a complete reconstruction of economics whose goal is to gain status as a universal theoretical science. This process is summarised in Human Action (1949).

Praxeology is 'the general theory of human action' (Mises, 1949, p. 3).⁷⁰ Praxeology, to be precise, concerns the set of implications logically deduced from the axiom of human action which consists in defining action as finalised behaviour.

Mises' axiom of human action clarifies the distinction between the Mengerian and the neoclassical definitions of subjectivism. The principle of human action means that individuals act purposefully:

Action is will put into operation and transformed into an agency, is aiming at ends and goals, is the ego's meaningful response to stimuli and to the conditions of its environment, is a person's conscious adjustment to the state of the universe that determines its life.

(Mises, 1949, p. 11)

Action is distinguished from reaction. It refers to conscious choices and is oriented toward subjective ends. The Austrian concept is richer than the traditional one. The neoclassical homo-economicus perpetually follows the same objective consisting in maximising his utility function, given the means at his disposal. The Austrian agent is free to choose his objectives and the means he thinks are relevant to these ends. The means -- ends framework is no longer exogenous information to which the agent has to react in an optimal way but is itself the result of a previous subjective choice.

The axiom of human action involves three direct consequences: the introduction of causality, real time and uncertainty.

For an individual to act, a condition is needed: present action must be thought to cause a positive influence on one's well-being. Agents act according to their knowledge of causal relationships between elements of the economic system. Without any knowledge of causal relationships and regularities, there is no room for action. 'In a world without causality and regularity of phenomena there would be no field for human reasoning and human action. [...] Where man does not see any causal relations, he cannot act' (Mises, 1949, p. 20).

Action is oriented toward the improvement of individual well-being, that is to say toward change; action thus takes place in time. Mises follows Menger in his adoption of a specific view of time, namely a Bergsonian conception, i.e. a subjective view of temporality, deeply different from the mechanical conception underlying equilibrium analysis. In that perspective, time is synonymous with change and human action is the driving force of change. 'Action aims at change and is therefore in the temporal order. Human reason is even incapable of conceiving the ideas of timeless existence and of timeless action' (Mises, 1949, p. 99).

Uncertainty is introduced using the same tautological method: action, defined as a real choice can only take place in an uncertain environment as regards

the future, otherwise it is replaced by mere reaction. 'Every action refers to an unknown future. It is in this sense always a risky speculation' (Mises, 1949, p. 106).

6.2. Planning and knowledge

Hayek's argumentation in the debate on planning is traditionally interpreted as a weakening of the position of Mises and more particularly as the substitution for the question of the possibility of a socialist organisation by that of its feasibility.

In line with this interpretation, Hayek accepts, from a theoretical point of view, the formal analogy established by Barone -- the mathematical solution to Mises' challenge -- but criticises the feasibility of socialism from a practical point of view. In this light, Hayek's argumentation comes up against neoclassical faith in the progress of mathematics and computing as a stopgap measure to the purely technical limits of centralised systems. Austrians, however, do not adhere to this interpretation of a possible weakening of Mises' position by Hayek. According to Don Lavoie, Hayek falls into the continuity of Mises, at the same time clarifying and positioning the nature of the challenge. The criticism of feasibility is not at the heart of the argument in this case but is shown to be the favourite type of response of neoclassical market socialists.

The question of knowing whether Hayek would indeed have beaten a retreat in relation to the position of Mises is only of limited interest as far as the subject of our research is concerned. It is more a question of an a posteriori rebuilding exercise with the aim of establishing the nature of the cleavage opposing the protagonists. In our opinion, the concept of competition is at the heart of the controversy and more especially the conflict between its static and dynamic acceptances. From this point of view, it appears essential for us to analyse the subsequent work of Hayek (including the precursory article of 1937) which, despite not being directly linked to the debate on planning, provides unquestionable clarifications. Indeed, although precursory signs of Hayek's definitive answers are to be found in articles already analysed above, it is only in 1945 that the author clearly expresses the key to the understanding of the Austrian position: Hayek defines competition as a process of knowledge discovery. The in-depth examination of the nature of the competitive process with regard to the problem of the dispersion of knowledge was to be at the roots of the Austrian revival of the 1970s.

6.2.1. The problem of knowledge

Hayek's focus on knowledge flows from his criticism of what he calls 'the pure logic of choice' (1937). The pure logic of choice is a set of tautological assertions stemming from the assumption of perfect knowledge. Given all the data and without uncertainty, it is possible to calculate formally what the coordinates of the optimal configuration are.

Hayek's objective, on the contrary, is to turn economics into an empirical science. More particularly, the author offers to give economics an empirical content

by taking into account the dispersed and tacit nature of knowledge among agents. In this light, the point of departure of economic theory is strictly empirical: the recognition of the fragmented nature of knowledge. Starting from this empirical observation, Hayek draws the parallel with Smith's point of departure and speaks of division of knowledge,

[...] but while the latter [division of labour] has been one of the main subjects of investigation ever since the beginning of our science, the former [division of knowledge] has been as completely neglected, although it seems to me to be the really central problem of economics as a social science. The problem which we pretend to solve is how the spontaneous interaction of a number of people, each possessing only bits of knowledge, brings about a state of affairs in which prices correspond to costs, etc., and which could be brought about by deliberate attention only by somebody who possessed the combined knowledge of all those individuals.

(Hayek, 1937, p. 49)

In this way, Hayek offers to take up Smith's research programme, concentrating on the question of coordination of plans of economic agents based on the fragments of knowledge of which they dispose. Hayek carries on the Smithian belief in the existence of the efficient mechanism of the invisible hand whose function is to spontaneously induce the best possible use of knowledge dispersed amongst individuals.

Let us remember that in the same perspective, Streissler (1972) interprets the nature of Menger's original programme in very similar terms. Streissler is undoubtedly right when stressing that the theme of knowledge and of its division amongst individuals is of major interest for Menger. Indeed the latter considers the increase in the knowledge agents have about causality relationships between goods of different orders as the essential source of economic progress. Hayek continues and goes into much greater depth concerning this fundamental aspect of the Mengerian message. According to Hayek, the problem faced by theorists is to understand how individual plans, formed on the basis of diffused and incomplete knowledge, can be coordinated in an efficient way. Competition, analysed as a procedure of knowledge discovery, is the solution put forward by the author: the price system resulting from individual confrontations in an unhampered market provides the indispensable signals for plan adjustments. Market prices are not necessarily equilibrium prices, market order being built precisely upon negative feedback that agents derive from these values.⁷¹ Coordination failures stem from the diffuse nature of knowledge upon which agents rely to form their plans; competition in this sense, through the role of the price system, is meant as a procedure of knowledge discovery and diffusion.

Moreover, according to Hayek competition represents the most efficient procedure for knowledge discovery and thus plays as a necessary coordinating device. This assertion leans on a strong hypothesis indeed; the author justifies the existence of a tendency toward equilibrium on the basis of empirical evidence.

It is only with this assertion [the supposed existence of a tendency towards equilibrium] that economics ceases to be an exercise of pure logic and becomes an empirical science; [...] In the light of our analysis of the meaning of a state of equilibrium it should be easy to say what is the real content of the assertion that a tendency towards equilibrium exists. It can hardly mean anything but that under certain conditions the knowledge and intentions of the different members of society are supposed to come more and more into agreement [...]. In this form the assertion of the existence of a tendency towards equilibrium is clearly an empirical proposition, that is, an assertion about what happens in the real world which ought, at least in principle, to be capable of verification.

(Hayek, 1937, p. 4)

The author analyses the nature of knowledge and breaks with the neoclassical assumption of perfect information on a permanent basis. This hypothesis is at the heart of the cleavage and at the origin of the redefinition of the concept of competition as a process of knowledge discovery.

6.2.2. The scientist illusion

Hayek distinguishes between two levels of knowledge: scientific, theoretical knowledge that the economist has at his disposal and the particular and specific subjective knowledge of economic actors proper.

In The Sensory Order, Hayek (1952b), on a cognitive basis, explains the deeply subjective nature of knowledge. The author knowingly places himself in the continuation of Kant; world order cannot be spontaneously perceived by the human being. Quite the contrary, any sensation is the fruit of a decoding mechanism and perception is an activity of the mind.

The economic problem of knowledge is the understanding of the process which leads us to a balance between the two levels of perception defined above, i.e. between real, objective facts which are observable by the theorist on the one hand and the subjective knowledge of economic actors on the other (1937, p. 46). Such is the ‘problem of knowledge’, a problem at the very heart of economics considered as a human science.

The wider aspect of the problem of knowledge with which I am concerned is the knowledge of the basic fact of how the different commodities can be obtained and used, and under what conditions they are actually obtained and used, that is, the general question of why the subjective data to the different persons correspond to the objective facts. Our problem of knowledge here is just the existence of this correspondence [...].

(Hayek, 1937, p. 50)

By insisting on the distinction between ‘scientific knowledge’ and ‘the knowledge of the particular circumstances of time and place’, Hayek ([1945]

1949, p. 80) clarifies the nature of the gap separating the Austrian position from the neoclassical view. The orthodox approach is limited to the consideration of the first type of knowledge, which '[...] is only a small part of the wider problem' (Hayek, [1945] 1949, p. 80), thereby eclipsing the question of the acquisition and diffusion of subjective and personal knowledge among agents. It is on the contrary this second type of knowledge, often being tacit and subconscious, that cannot be centralised. As Hayek explains,

[...] combinaisons of individual knowledge and skills, which the market enables us to use, will not merely, or even in the first instance, be such knowledge of facts as they could list and communicate if some authority asked them to do so.

(Hayek, 1978, p. 182)

Such a definition of the problem of knowledge allows Hayek to provide a more coherent basis for his criticism of socialism. In this perspective, planning can only be constructed around the centralisation of factual and objective information that individuals have at their disposal but only free market interaction is supposed to enable the coordination of specific and tacit knowledge to spread among actors. Neoclassical authors are victims of the scientist illusion rendering them overconfident in man's ability to control phenomena and more particularly in this respect, in his ability to reproduce an optimal condition for economic interaction.

6.2.3. Competition as a process

The solution of neoclassical authors to the challenge of Mises, be it mathematical (Pareto, Barone, Dickinson) or competitive (Lange, Lerner, Taylor), is not acceptable to Hayek's mind. Over and above a series of arguments on the practical impossibility of collecting the information necessary for the setting-up of a centralised allowance procedure, the author emphasises the necessarily dynamic dimension of the fundamental question facing economics: the problem of coordinating the plans of individual actors in a world of continuous change. Acquisition of knowledge represents the major source of evolution of the system by perpetually modifying agents' plans. For Hayek, the question is to understand and predict the occurrence of inter-temporal adjustments in agents' plans whereas for neoclassical authors, the problem consists in determining a theoretically optimal configuration, with no regard for the dynamic forces leading up to this final state. In the Austrian view particularly, the competitive market process enables questions of coordination linked to the dispersion of knowledge to be solved -- 'the division of knowledge'. This solution is provided by the market and cannot be reproduced by a central authority. The essence of Hayek's position may thus be summarised by the definition of competition as an equilibrating process of knowledge discovery.

However, it is not until 1946, with the article 'The Meaning of Competition', that Hayek truly explains the originality of the Austrian position. Hayek criticises the concept of pure and perfect competition as developed by neoclassical authors

for being too abstract and, in his opinion, devoid of any empirical content. Competition describes a static, ideal configuration of the economy and is one of the basic assumption of economic theory seen as a 'Pure Logic of Choice' (Hayek, 1937). The conditions of pure and perfect competition lead to a predetermined tautological solution: long term competitive equilibrium. Faced with the neoclassical view of competition -- state of equilibrium -- Hayek offers a dynamic definition of competition seen as a process likely to solve the problems inherent in the dispersion of knowledge, i.e. to coordinate individual agents' actions which are organised into inter-temporal plans.

Competition is essentially a process of the formation of opinion: by spreading information, it creates that unity and coherence of the economic system which we presuppose when we think of it as one market. It creates the view people have about what is best and cheapest, and it is because of it that people know at least as much about possibilities and opportunities as they in fact do. It is thus a process which involves a continuous change in the data and whose significance must therefore be completely missed by any other theory which treats these data as constant.

(Hayek, [1946] 1949, p. 106)

In his subsequent writings, Hayek reaffirms and reinforces the originality present in this position. In an article of 1978, 'Competition as a Discovery Procedure', Hayek provides the clearest definition of the dynamic conception on which his work is based: '[...] I propose to consider competition as a procedure for the discovery of such facts as, without resort to it, would not be known to anyone, or at least would not be utilised' (Hayek, 1978, p. 179).

A few pages later, Hayek explains that a situation where all the facts are supposedly known '[...] is a state of affairs which economic theory curiously calls "perfect competition". It leaves no room whatever for the activity called competition, which is presumed to have already done its task' (Hayek, 1978, p. 182).

In this light, market phenomena such as advertising, product differentiation or certain forms of monopoly analysed by neoclassical authors as imperfections are on the contrary defined by Austrians as being symptomatic of the very existence of effective competition between economic actors. As from 1946, Hayek decries the paradox linked to the current use of the term of competition and its neoclassical definition: the concept of pure and perfect competition in fact means an absence of competition between agents.⁷² Hayek warns against the dangers of the normative implications inherent in the standard concept of competition. Indeed, if pure and perfect competition is to be the reference, then any split from economic reality compared with ideal conditions is at the root of mistaken and even dangerous public intervention (Hayek, [1946] 1949, p. 102). Over and above worrying about the gap between reality and conditions of competition, the author insists on the question of the existence of genuine competition between economic actors reflected, for example, by the existence of a temporary situation of monopoly.⁷³

Considering competition as a process of knowledge discovery leads Hayek to re-define the concept of efficiency at the same time. To be precise, the author replaces Pareto's traditional concept of efficiency -- a static concept -- with that of catalactic efficiency -- a dynamic one.⁷⁴ The efficiency of the competitive process lies in its supposed ability to coordinate plans through the discovery of the most effective means available to fulfil consumers' wishes. In this sense, competition is defined as healthy emulation or a sort of social cooperation at the service of the sovereign consumer. The conflict between producers is, in this sense, an incentive for innovation, for the search for more appropriate means, for an increasingly closer analysis of what agents expect, or for a constant reappraisal of expectations. Competition enables agents' fragmented knowledge to be coordinated by directing them toward the same goal: the satisfaction of agents' needs organised into coherent plans. The problem of planning would thus have its roots not so much in the practical difficulties inherent in the collection of data, but rather in the neglect of the dynamic dimension of discovery present in the competitive process.

Given a set of initial conditions in the economy, the planner can rationally calculate the corresponding optimal condition. However, Hayek and the Austrians insist on the fact that, beginning with the same initial conditions, the process of market competition will be at the origin of the discovery of new knowledge which will alter expectations and plans subsequently leading to a different solution than that of planners which is figured out from given data and turns out to be rapidly obsolete. It is impossible to replace the market process with a central authority, thereby duplicating the result of competition, for the simple reason that it cannot be known a priori what the given process will enable people to discover.

Rejecting a determinist view of the competitive process will in fact be the fundamental argument of Austrians to counter market socialists. From the moment competition is described as '[...] a voyage of exploration into the unknown, an attempt to discover new ways of doing things better than they have been done before' (Hayek, [1946] 1949, p. 101), then, any attempt at planning can only lead, according to Austrians, to failure; indeed,

[...] it is only through the process of competition that the facts will be discovered. This appears to me one of the most important of the points where the starting-point of the theory of competitive equilibrium assumes away the main task which only the process of competition can solve.

(Hayek, [1946] 1949, p. 96)

The definition of competition as a process of knowledge discovery is the Austrians' definitive answer to the debate on planning. Such a decision summarises the overall argumentation of Mises and Hayek. Competition is a dynamic process of knowledge discovery which can only be envisaged in a world of ignorance and uncertainty where there is interaction between agents capable of modifying their plans. Should we now seek to specify the aspects of the Austrian logic enabling us to

consider competition as a dynamic process and thereby to break with the neoclassical view, two essential principles will immediately become imperative:

- Mises' conception of an active economic agent who has the opportunity to choose the decisional means -- ends context in which he will carry out his choice in contrast to the mechanical conception of an optimising economic agent;
- the taking into account of the diffuse, subjective and tacit nature of knowledge, in contrast to the neoclassical world of perfect information.

6.3. The compatibility between the approaches of Mises and Hayek

It is relatively difficult to synthesise the nature of the relations between Mises' and Hayek's works, given the scope of their respective contributions and, mainly in the case of Hayek, of the diversity of the opinions held throughout their lengthy career. The paradox of their relation lies in the fact that, as Kirzner (1992a, p. 119) observes, Hayek is definitely sceptical about certain fundamental aspects of Mises' system. In reality, as argue in the next chapters, the Austrian revival of the 1970s is built upon the synthesis of their original contributions which are respectively the concept of human action and the role of knowledge. It thus appears essential at this point to question the nature of the disagreements characterising the two writers with the aim of deciding to what extent modern Austrian attempts at merging are coherent.

There are a certain number of points on which the loyalty of Hayek to Mises are in no doubt.

Hayek's theory of cycles is an elaboration of the monetary theory of Mises; both authors emphasise the negative role played by banks, whose credit activity explains in part why entrepreneurs are encouraged to make bad investments thereby creating crises and structural imbalances. The debate on planning is another area where Hayek clearly positions himself in the perspective of Mises, despite the fact that one may wonder to what extent Hayek tones down the asserted more radical position of Mises. In fact, the loyalty of Hayek to the ideas of Mises is of no consequence until the end of the 1930s. Problems emerge with the famous article of 1937, 'Economics and Knowledge', often considered as the intellectual turning point in Hayek's career.

6.3.1. 'Economics and Knowledge': a conversion to falsificationism?

The interpretation of the 1937 article is at the heart of the question of Hayek's transformation. Whereas, as already noted, Caldwell's (1988) interpretation is centred around the meaning and the role attached to the concept of equilibrium in the Hayekian logic, Hutchison's (1981) argumentation is based on a methodological ground. Our aim here is not to analyse the overall question of Hayek's transformation but rather to identify his position as regards the theses of Mises.

We will examine here the implications of Hutchison's interpretation since the problem of the compatibility between Mises and Hayek concerns precisely their respective methodological positions.

Hutchison considers the 1937 article to be a true break within Hayek's thinking, even talking in this respect of a 'U-turn' (Hutchison, 1981, p. 125). In Hutchison's opinion, the 1937 article represents Hayek's break with praxeology, or more generally with Misesian apriorism and may be seen as reflecting his conversion to the falsificationism of Popper. Would it be exact, such interpretation would have far-reaching implications. Indeed, praxeology is antithetic with falsificationism or more generally, with any type of empirical test. Praxeological laws being logically derived from the unquestionable axiom of human action, there is no use in verifying or falsifying them.

In this perspective, Hutchison proceeds with the famous distinction between Hayek I and Hayek II. Hayek I is seen to have obvious affinities with Mises' apriorism. To argue this position, Hutchison resorts to Hayek's adherence to methodological dualism which highlights the particular traits of economics as a social science in contrast to natural science. Hutchison quotes Hayek who, in 1935, in Individualism and Economic Order (published in 1949), clearly expresses his position which is close to Misesian methodology.

The essential basic facts which we need for the explanation of social phenomena are part of common experience, part of the stuff of our thinking. In the social sciences it is the elements of the complex phenomena which are known beyond the possibility of dispute. In the natural sciences they can at best be surmised. The existence of these elements is so much certain more than any regularities in the complex phenomena to which they which give rise that it is they constitute the truly empirical factor in the social sciences.

(Hayek, ed., 1935, quoted by Hutchison, 1981, pp. 213--14, italics added)

In our view, it is necessary to introduce light and shade in Hutchison's interpretation. Our position is based upon the two following remarks.

Firstly, referring to Hayek's methodological dualism is not sufficient to explain a possible U-turn. On the one hand, methodological dualism does not constitute a fundamentally Misesian trait, in the sense that methodological dualism is not synonymous with apriorism. To put it simply, praxeology implies methodological dualism but the converse is not true. On the other hand, Hayek does not drop the dualist position following his 1937 article which appears on the contrary, to be subsequently strengthened. This is reflected in his vociferous attack on scientism in 1941. In this essay and the two which were to follow, one single question is at the centre of his pre-occupations:⁷⁵ is it valid to consider economics in the same manner as natural sciences? The answer is clear-cut and final: scientism, described as a servile imitation of the method and language of science (Hayek, 1952a) is attacked and denounced on the basis of an argumentation clearly reflecting a dualist position.

While the specific subjectivist approach of the social sciences starts, as we have seen, from our knowledge of the inside of these social complexes, the knowledge of the individual attitudes which form the elements of their structure, the objectivism of the natural sciences tries to view them from the outside; it treats phenomena not as something of which the human mind is a part and the principles of whose organization we can reconstruct from the familiar parts, but as if they were objects directly perceived by us as wholes.

(Hayek, 1952a, pp. 93--4)

Secondly, one must be careful when giving a clear-cut answer about the extent of Hayek's falsificationism. It is wise to distinguish between the statements of the author which clearly exhibit his positive feelings for Popper's principles and the nature of the methodology actually underlying his theoretical work.

The affinities are there for all to see as Hayek (II) frequently refers to Popper in his writings from 1937 onwards. The extent of the affinities are for instance clearly revealed during the Nobel speech of 1974, 'The pretence of Knowledge'.⁷⁶ Moreover, in his biography, Hayek states his adhesion to Popper's criterion immediately following his meeting with 'Sir Karl' in Vienna.⁷⁷

Now, as far as the application of falsificationist methodology to theory is concerned, our argumentation is much more cautious. Hayek (1942) points out two types of phenomena: simple and complex phenomena. The former rests upon a limited number of variables and may be correctly represented by statistical formula. The latter, reflecting social phenomena, cannot be classified in this way and may only receive an explanation of principle as opposed to an explanation of detail. However, it appears from The Poverty of Historicism that Popper (1944) himself limits the applicability of the test for the refusal of explanations of detail, which drastically restricts falsificationism to the field of the so-called hard sciences. Finally, the fact that Hayek adheres to a strict methodological dualism, a position to be found in Popper's work, is a serious obstacle to the setting up of a true falsificationist approach in economics.⁷⁸

Recourse to the falsificationist criterion is in fact used by Hayek in a negative manner, as an argument with which rival theories are confronted: the collapse of eastern European economies is the opportunity to denounce the falsification of the efficiency of planning; the failure of Keynesian theories in the 1960s to eliminate inflation and check unemployment is the chance for Hayek to have his revenge on Keynes.⁷⁹

To summarise this point, it would seem rather daring to support a clear-cut position regarding Hayek's adhesion to Popper's falsificationism. To answer such a request, one would not only need to distinguish between the various periods of Hayek's development, but also to distinguish between the different versions of Popper's falsificationism, thereby going forth into an ever more complex context of cross-fire. Our interpretation is thus restricted to the three following propositions: Hayek believed himself to be close to the conceptions of Popper; within the field of economics such an approach appears hard to reconcile with the criticism of scientism and constructivism which are nothing less than the spearheads of Hayek's

position; in fact, Hayek only uses the criterion of falsification in the shape of criticism directed at rival theories. This endowed him with a sort of indirect verification of his own positions.

6.3.2. 'Economics and knowledge': a conversion to empiricism

We here somewhat stray from Hutchison's interpretation. According to us, the article of 1937 is more a reflection of the break with the extreme apriorism of Mises than the revelation of a possible adhesion to Popper's falsificationism. In this article, Hayek criticises the relevance of the 'Pure Logic of Choice', refusing the strictly tautological nature involved by such an approach and offering to replace it with an empirical perspective. This attack is traditionally seen as a criticism of neoclassical theories of general equilibrium which are based on the assumption of perfect information. Introducing the temporal dimension implies admitting the existence of a problem of coordination between agents' plans. Indeed, this problem emerges because of the fragmented and diffuse nature of the knowledge used by individuals to make their decisions. In reality, the 1937 article is also a rather subtle but nevertheless obvious attack on the apriorism of Mises. As Hayek himself explains:

[...] the problem of my relation to Mises, which began with my 1937 article on the economics of knowledge, which was an attempt to persuade Mises himself that when he asserted that the market theory was a priori, he was wrong; that what was a priori was only the logic of individual action, but the moment that you passed from this to the interaction of many people, you entered into the empirical.

(Hayek, in Kresge and Wenar, 1994, p. 72)

Here it is the overt admission of his refusal of the praxeological approach. With Mises, Hayek supports a dualistic position enabling scientists of the social sciences to set forth from intuitive pre-suppositions which are empirically obvious or even a priori, the axiom of human action falling into this category. Hayek, however, refuses to build the entire edifice of economics with this principle as its sole cornerstone, thereby arriving at a set of irrefutable tautological propositions, devoid of any informative empirical content, reflecting the status Mises has granted to the laws of praxeology. Therefore, the extreme version of Misesian apriorism falls under the influence of the same criticisms as those Hayek directs at the 'Logic of Pure Choice'. Remember that Mises' ambition is to build the whole edifice of economics upon the single axiom of human action, using the logical deduction of its direct and indirect implications, without turning to any other empirical or analytical assumptions.⁸⁰ The outstanding theme of the criticism expresses the regret that no empirical content is to be found in the propositions advanced by the praxeological approach. Taking the logic of human action as his starting point, Hayek lays the foundations of a so-called empirical approach as from 1937. On the one hand, the problem of knowledge stems from empirical thought on the dispersed and subjective nature of knowledge used by agents to construct their plans. On the other hand, after

having defined the concept of equilibrium in terms of inter-individual compatibility, Hayek introduces the empirical assumption of an existing tendency of the economy toward equilibrium. From this point on, the problem of economics, endowed with an empirical content, is reduced to concentrating upon '[...] (a) the conditions under which this tendency is supposed to exist, and (b) the nature of the process by which individual knowledge is changed' (Hayek, 1937, p. 44). This interpretation, to our mind, appears coherent with the conception of equilibrium underlying Hayek's theory of the cycle, the belief in a tendency toward equilibrium thereby revealing an element of continuity throughout Hayek's thinking.

The author's main pre-occupation from the 1930s onwards is to demonstrate the superiority of the competitive process of free market, compared with any form of planned intervention, to coordinate individual plans based on dispersed fragments of knowledge. The concept of spontaneous order will later crystallise this argumentation.

6.3.3. A reconciliation within a dynamic subjectivist programme

The majority of modern Austrians appear to be aware of the disagreements at the heart of the relationship between Hayek and Mises and more generally of the explosion of the Austrian methodological position overall.⁸¹ Excepting Rothbard (1976) and his disciples who define praxeology as the unifying methodology of Austrian thinking, commentators overall attempt to reconcile the methodological positions of Mises and Hayek by putting the apriorism -- empiricism conflict to one side with the intention of emphasising the similarities of the subjective dimension in their analyses.⁸² In this perspective, Kirzner (1992a, chap. 7) endeavours to go beyond the apparent paradox brought to light regarding the methodological disagreements separating Mises and Hayek as from 1937. Kirzner's aim, despite this inescapable conflict, is to highlight the continuity linking the contributions of the two writers and subsequently placing himself within this continuity. At the heart of this unity is a support for a dynamic conception of subjectivism as introduced by Menger.

Kirzner quotes Hayek (1952a, p. 52) who qualifies progress in economics as the ever-widening and stringent application of subjectivism, thereby paying a tribute to the work Mises has accomplished in this field. In this perspective, Kirzner locates the origin of progress at the point where the static conception of subjectivism summarised by Robbins in 1932 was replaced by a dynamic version of subjectivism to which both Hayek and Mises contributed in a different but complementary manner. More especially, Mises, using the axiom of human action, replaces Robbins' homo-economicus by a creative actor who decides on the decisional means -- ends context within which he will make his decisions and Hayek emphasises the difficulties brought about by the recognition of the subjective nature of knowledge and of its diffusion and acquisition through the market process.

As we shall see, Austrian originality subsequently organises itself around these two principles: Mises' principle of human action and the role Hayek grants to knowledge. It is indeed using these two basic elements that the subjectivist flame of Menger is rekindled by modern Austrians.

THE LIMITS OF AUSTRIAN PRAXEOLOGY:
ROTHBARD'S LINE OF THOUGHT:

Rothbard's developments are a perfect continuation of Mises' approach, namely praxeology. In his main book, Man, Economy and State, Rothbard (1962, p. xi) works towards a precise analytical objective: 'The present work attempts to isolate the economic, fill in the interstices, and spell out the detailed implications, as I see them, of the Misesian structure'.

Praxeology refers to the set of sciences which stems by logical inference from the axiom of human action and exclusively from it, without the adoption of any empirical assumptions. In Rothbard's view, economics is part of praxeology and as such, is constituted by apodictically true statements only, these not being empirically testable. It aims at elaborating universal principles -- praxeological laws - - whose relevance is independent of any empirical condition. It is a purely conceptual science, free from any consideration of space and time. The definition of praxeology given by Rothbard (1962) brings nothing new in comparison with that of Mises. 'Human action is simply defined as purposeful behavior. The entire realm of praxeology and its best developed subdivision, economics, is based on the analysis of the necessary logical implications of this concept' (Rothbard, 1962, p. 1). Praxeology is in direct opposition to the dominant methodology in economics, namely positivism: praxeological statements cannot be submitted to any test, be it verificationist or falsificationist. This rather dogmatic position has given rise to somewhat violent reactions. Consider for instance the well-known comments from Blaug (1980):

Mises' statements of radical apriorism are so uncompromising that they have to be read to be believed. [...] In the 1920s, Mises made important contributions to monetary economics, business cycle theory and of course socialist economics, but his later writings on the foundations of economic science are so cranky and idiosyncratic that we can only wonder that they have been taken seriously by anyone.

(Blaug, [1980] 1992, pp. 92--3)

However, we share the dissatisfaction felt by Caldwell (1984) when faced with this kind of methodological criticism of praxeology and more generally with all dogmatic comments about a position which is itself dogmatic. In order to sting Mises' followers, a fruitful criticism of praxeology should take the very same logical ground

of praxeology itself as its starting point. From this point of view, an acceptable criticism should regard the internal consistency of praxeological propositions, questioning the rigour of the logical chain of deduction emanating from the axiom of human action. External criticisms are more difficult to raise to the extent that according to Mises and Rothbard, no empirical test, whatever its nature, can question the truth of praxeological principles. However, in order to correctly appraise the scientific contribution of Misesian praxeology, the relevance of the human action axiom itself should at least be discussed.

7.1. Internal criticism

According to Mises, only internal criticism questioning the rigour of logical deduction within praxeological principles, may be considered as a valid set of arguments. 'Praxeology -- and consequently economics too -- is a deductive system. [...]. No economic theorem can be considered sound that is not solidly fastened upon this foundation [human action] by an irrefutable chain of reasoning' (Mises, 1949, p. 68).

Generally speaking, internal criticisms of the praxeological approach are all of the same type: they bring out the difficulties inherent in the strict application of the praxeological logic laid down by Mises, especially the principle stating that praxeological laws are deduced exclusively using the axiom of human action, without recourse to complementary empirical hypotheses and also abiding by the strict rules of logical inference. Any possible use of empirical assumption would indeed bring into question the universal status of praxeological concepts resulting from the axiom of human action.

In his attempt of defining universal scientific principles, Mises makes those economists concerned with praxeology particularly aware of the dangers of using ideal-types.

According to praxeological logic, ideal-types are a tool for investigation for the historian but not so for the formal theorist. The historian uses the universal concepts provided by praxeology, resorting to the category of ideal-types to complete his task, which is to render past events comprehensible by identifying the means - - ends frameworks of the main actors. Ideal-types enable the historian to adopt a certain systematisation when faced with the infinity and diversity of events. Men, ideas and institutions are classified into classes or ideal-types according to their affinities of meaning.

Ideal types are specific notions employed in historical research and in the representation of its results. They are concepts of understanding. As such they are entirely different from praxeological categories and concepts and from the concepts of the natural sciences.
(Mises, 1949, pp. 59--60)

Ideal-types crystallise empirical regularities defining reality. According to Austrian praxeologists, economics, in its wish to remain outside all empirical particularity, thereby acclaiming the universal nature of its theoretical inferences, rejects all use of these categories.

It is this absolute refusal which gives rise to difficulties in the approach of Mises and Rothbard. Caldwell (1984) underlines the ambiguities running through Human Action, as far as the status of the various analytical categories needed to construct the whole system is concerned. For instance, are causality, uncertainty, action over time, teleology (exchange) apodictically certain or empirically obvious concepts? Still further, are they tautological or analytical? Caldwell's conclusion is that the praxeological construction of economics suggested by Mises and then developed by Rothbard is not at all free of empirical inferences.

The problems come to a head when the disciples of Mises attempt to closely reconstruct and develop the praxeological system. Rothbard (1957) admits that to derive a set of economic principles and concepts from the axiom of human action, a small number of additional assumptions (of empirical nature) are needed. For Rothbard (1957, p. 316), they are postulates 'small in number and so narrowly defined as to be unavoidably empirical and so generally true as to become tautological'. For example, the assumption stating that agents indirectly exchange using an intermediary good such as money is indispensable when elaborating a theory of indirect exchange. In defence of praxeology, one can note that this type of hypothesis endangers only to a limited extent the universal status of praxeological laws resulting from the analysis, especially as such hypotheses only outline the theorist's field of investigation. The problem is that there are also other more insidious assumptions in the praxeological construction whose very nature casts doubts on the whole internal consistency of Mises' and Rothbard's approach.

If indeed we go directly to the question of knowing exactly which secondary assumptions are needed in the praxeological approach, the problem of ideal-type becomes apparent. Let us consider, for instance, the nature of the proposition turning work into a means whilst leisure is considered as an end. According to Mises, this proposition is universal and can be placed on the same plane as the praxeological law of marginal utility. However, if we analyse Mises' description of the praxeological concept of labour, it clearly reflects an ideal type.

The disutility attached to labor explains why in the course of human history, concomitantly with the progressive increase in the physical productivity of labor brought about by technological improvement and a more abundant supply of capital, by and large a tendency toward shortening the hours of work developed.

(Mises, 1949, p. 133)

Although Mises' reference to the ideal-type of work (defined in terms of disutility) is only implicit, it tempers the narrow distinction drawn between conceptualisation (praxeology) and comprehension (history), thereby endangering the possibility of a rigorous development of the praxeological approach. The solution put forward by Rothbard is to resort to the principle of a small number of additional assumptions. In this perspective, Rothbard (1962, p. xi) explicitly defines the assertion that work is a means whilst leisure is an end as a plainly obvious proposition.

The present work deduces the entire corpus of economics from a few simple and apodictically true axioms: the Fundamental Axiom of action -- that men employ means to achieve ends, and two subsidiary postulates: that there is a variety of human and natural resources, and that leisure is a consumers' good.

(Rothbard, 1962, p. xi)

Once again, thus (and here we are not concerned any more with the problem of outlining the theorist's field of investigation), the intrinsic difficulties of a rigorous application of the praxeological method are overcome by Rothbard by means of additional empirical assumptions which raises legitimate doubts on the universal validity of praxeological laws. It is indeed beyond doubt that the fact that leisure is a consumers' good and that labour has disutility are not necessary truths, and propositions derived from these statements lose the quality of a priori theories.

7.2. External criticism

Two arguments are of particular relevance when we consider external criticism.

First, the axiom of human action asserts, tautologically, that all action, without exception, is the result of human will aimed at the achievement of a particular goal. From this point onwards, the very fact of identifying one type of aimless human action would be sufficient to endanger the whole of Mises' construction. An interesting example in this sense is provided by Nozick (1977). There are types of behaviour which are not action and which then do not endanger the universal validity of the axiom of human action. For instance, the conditioned Pavlovian-type behaviour is not a satisfactory counter-argument to the human action axiom as it concerns reflexes rather than action. Problems emerge when Nozick considers the case of operantly conditioned behaviour. Nozick (1977) defines operant behaviours as 'processes of operant conditioning by use of rewards and punishments, positive and negative reinforcements, on various contingencies of reinforcement, [that] raise and lower the probability of various behaviours and introduce various patterns of extinction'. This example is a legitimate counterexample to the axiom of human action only to the extent that operant behaviour falls under the category of action and not reaction. This is precisely what Caldwell (1984, p. 375) tries to prove. The argument is rather simple and may seem trivial but it deserves attention since it questions the very foundation of the whole praxeology. Operantly conditioned behaviour is interpreted as purposeful action from an external observer, but, as it is in fact conditioned behaviour it is not the expression of human choice and hence it is non purposeful action.⁸³

A second problem stems from the fact that praxeology is not the only a priori method used in economics. Other authors have indeed constructed economic theories on the axiomatic approach despite starting from axioms other than human action. In this perspective, Prychitko (1994, p. 81) blames Mises' neglect of alternative analyses, such as those developed by eastern European economists (Slutsky, Lange) whose normative conclusions, albeit sharing the same scientific stature, clash with Mises' praxeological principles.⁸⁴ Caldwell (1984) confronts in that connection Mises' logic against the axiomatico-deductive system developed by Hollis and Nell (1975)

built upon the axiom of reproduction of the system and inserted into a classical perspective. More precisely, the question Caldwell (1984) addresses to Mises is the following: how is it possible to choose between two competing axiomatic systems, both of which stem from rigorous, logical deduction and founded on unquestionably true axioms but reaching opposite conclusions? Ideology is perhaps responsible for part of the answer.

7.3. From praxeology to politics

The question of the role of ideology in the development of the praxeological method is deepened by Schuller (1950; 1951). The author accuses Mises of mixing praxeological principles and ethical values when deriving praxeological propositions. In particular, Schuller highlights the arbitrary nature of the contrast between the conception of the individual -- consumer and that of the individual -- citizen in the writings of Mises. On the one hand, consumer choices are depicted as totally rational, thereby justifying Mises' set of developments based on the sovereignty of consumer. On the other hand, the individual -- citizen is introduced as an agent who can be totally manipulated and have irrational political choice criteria. This dichotomy reflects the double-sided strategy played by Mises throughout all his work. Mises' position is faithfully defended by Rothbard (1951a; 1951b) in his answer to Schuller.

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.

(Rothbard, 1951a, pp. 182--3)

The aim of Mises hence becomes clearer: the author wishes to confront, on a scientific basis, the effects of different types of economic organisation going from a pure free market to a pure socialist economy. Such a confrontation takes place on a praxeological level, which should be free of all ethical values. However, the book is riddled with value judgements which support a specific ethics -- the liberal doctrine -- and which provides the basis for a normative evaluation of the purely conceptual results of praxeology.

It must be recognised that Mises does exhibit a certain intellectual honesty to the extent that the author openly recognises and puts his name to this way of proceeding. Problems however arise from the fact that the distinction is not always clear and it is all but an easy task to detect between the Mises -- economist or the Mises -- citizen, which of the two is speaking.⁸⁵

Mises defines liberalism as a political doctrine whose aim is to apply to the principles supplied by praxeology and especially by economics a set of ethical values concerning the content of ultimate goals sought after by individuals. The ethical values upon which liberalism rests are not universal values but they are nonetheless general enough according to Mises to be thought as being a priori

supported by the large majority of individuals: '[liberalism] presupposes that people prefer life to death, health to sickness, nourishment to starvation, abundance to poverty. It teaches man how to act in accordance with these valuations'. (Mises, 1949, p. 154).

The application of these somewhat general values to the theoretical results of praxeology defines the framework within which the Mises -- citizen attempts to scientifically deduce the superiority of free market systems over socialist or interventionist systems. Ultimately, this is the basic objective of Human Action; the continuity with the attacks on planning during the 1920s is evident.

Rothbard adopts the same goal as Mises and uses the praxeological approach to demonstrate the efficiency of free market in comparison to any form of economic coercion. However, the author goes further than Mises arguing the necessity to setting forth free-trade principles even outside the strict field of economics proper. Rothbard thereby becomes the spokesman for libertarian philosophy, replacing the principle of consumer's sovereignty as a catalyst for catallactic competition by the more radical and general principle of individual's sovereignty.⁸⁶ The individual is master of himself, of his actions and of his private property. This is one of the rare occasions on which Rothbard avoids quoting Mises who still relies on the principle of consumer's sovereignty, preferring to criticise Hutt's use of this concept. Ethical principles clearly enter the field of praxeology which increasingly becomes the theoretical justification for libertarian ideology.⁸⁷

Rothbard's later developments confirm the notion that praxeology is nothing more than a theoretical alibi supporting libertarian conclusions. Rothbard's career increasingly distanced itself from the academic field of economics in favour of his political ideology.⁸⁸ The problem seems to be difficult to overcome. Indeed, the very nature of praxeology radically limits the scope for development -- on a purely analytical level -- and politics seems to be the only possible opening for Mises' and Rothbard's approach. We are confronted here with a strong limit indeed. If, like Rothbard, one aims at following Austrian praxeology as faithfully as possible, it turns out that, analytically speaking, nothing more can be added to Mises' statements and Rothbard himself does not really go beyond mere display and repetition of arguments previously expressed by Mises.

Ultimately, the very problem of praxeology is that, in line with axiomatic method, it gives rise to a closed system of theoretical propositions limited to the set of statements that may be deduced from, and exclusively from, the axiom of human action. From an analytical point of view, the only possible development of this line of thought is in the clarification of Mises' previous explanations or in the reinforcement of its consistency by eliminating all possible empirical assumptions from the logical chain of inference. Rothbard's book of 1962 is an attempt to follow both these directions. The choice to explicitly introduce empirical assumptions to overcome Mises' ambiguities does not seem however particularly fruitful as far as the overall consistency of the Misesian project is concerned.

In the face of these analytical weaknesses, the alternative consists in leaving the sphere of theoretical analysis and entering explicitly the field of politics and ideology. This path is the one finally chosen by Rothbard in the latter stage of his

career.⁸⁹ In this perspective, praxeology represents nothing else but the theoretical foundation which could justify the political, libertarian principles advocated by Rothbard. Given the analytical limits of this approach, this appears to be the main area of relevance for praxeology nowadays -- a theoretical foundation for new right-wing policies.

THE THEORY OF ENTREPRENEURSHIP:
KIRZNER'S LINE OF THOUGHT

With the development of the theory of entrepreneurship, Kirzner becomes the official leader of the Austrian revival. Although the streams of Lachmann and, to a lesser extent, of Rothbard, play also a significant role in the Austrian revival, the most influential analytical developments of the Austrian school are undoubtedly linked with the name of Kirzner. There are two reasons for this.

On the one hand, the theory of entrepreneurship summarises the contributions of both Hayek and Mises. Indeed, Kirzner's theory is explicitly founded upon the two main analytical principles developed by these authors, i.e., the concept of human action and the recognition of the problem of knowledge. Kirzner's entrepreneur is a Mises-type agent who ensures the setting-up of the equilibrating market process using his ability to promote the discovery and diffusion of information. Kirzner's entrepreneur thus represents a stabilising force, a coordinating element of the free market process which enables knowledge to be spread amongst agents.

On the other hand, Kirzner clearly defines his approach as an attempt at a reconciliation with traditional microeconomic theory, or more precisely, as a complementary contribution to neoclassical general equilibrium approach.

It is mainly thanks to his book of 1973, Competition and Entrepreneurship, that Austrian theory gains ground amongst the orthodoxy and that Kirzner becomes the official spokesman for the movement.

8.1. The theory of entrepreneurship

Kirzner introduces a new dimension into the concept of human action inherited from Mises: that of entrepreneurship. This expresses itself through the quality of alertness. An alert individual is able to detect unexploited profit opportunities. Profit opportunities consist of price discrepancies between sellers and buyers, reflecting the imperfection of the economic configuration. In a perfectly coordinated world, all profit opportunities have been exploited and there is no room for entrepreneurship; in a world of disequilibrium, coordination failures are the result of imperfect information and imperfect information is precisely the source of profit opportunity.

Profit opportunities arise when prices of products on the product market are not adjusted to the prices of resources on the factor market, in other words, "something" is being sold at different prices in two markets, as a result of imperfect communication between the markets.

(Kirzner, 1973, p. 85)

The hypothesis of imperfect information is thus at the basis of the concept of entrepreneurship. '[The] "pure" entrepreneur observes the opportunity to sell something at a price higher than that at which he can buy it. It follows that anyone is a potential entrepreneur' (Kirzner, 1973, p. 16). Hence Kirzner uses the character of the entrepreneur Mises had introduced, enriching the explanation with the concept of alertness and thereby placing the problem of knowledge, as described by Hayek, in a prominent position. 'Ultimately, then, the kind of "knowledge" required for entrepreneurship is "knowing where to look for knowledge" rather than knowledge of substantive market information. The word which captures most closely this kind of "knowledge" seems to be "alertness"' (Kirzner, 1973, p. 68).

An alert agent is not an individual possessing more information than the others but an individual whose incentive, through the existence of profit opportunities, is to give rise to new knowledge.

Entrepreneurship consists of the exploitation of profit opportunities detected by alertness. This category of action is supposed to have an equilibrating effect on the economic configuration: by exploiting profit opportunities, entrepreneurs contribute to the diffusion of the new information their alertness enables them to discover. The very action of taking the profit opportunity makes the information about the existence and causes of a temporary price discrepancy available to the other agents who can then revise their plans on the basis of a new set of information. The degree of coordination depends precisely on the amount of information available to agents. In that light, entrepreneurship is considered as the driving force of the adjustment process toward equilibrium. The role of entrepreneurship is to reduce the initial ignorance of the economy through the discovery and diffusion of new information revealed by exploiting profit opportunities.

For me the changes the entrepreneur initiates are always toward the hypothetical state of equilibrium; they are changes brought about in response to existing pattern of mistaken decisions, a pattern characterised by missed opportunities. The entrepreneur, in my view, brings into mutual adjustment those discordant elements which resulted from prior market ignorance.

(Kirzner, 1973, p. 73)⁹⁰

Three series of criticism can be levelled at the theory of entrepreneurship. The first concerns the rigour of the central concept of alertness upon which Kirzner's whole theory relies. The second series of criticism reflects two problems encountered by the neoclassical theory of general equilibrium and which, in our opinion, also concerns Kirzner's view of the market process. The fact that criticisms of general equilibrium model are also relevant to Kirzner's theory of entrepreneurship should

not be surprising as the author himself considers his approach to be compatible and complementary to the theory of general equilibrium. In fact, the first argument stems from a problem originally pointed out by Richardson regarding the theory of perfect competition, and especially the theory of general equilibrium. The second argument shows that Kirzner's attempt to integrate a theory of convergence toward equilibrium into the model of general equilibrium is not compatible, in our view, with the neoclassical results regarding the stability of general equilibrium. Finally, a third series of criticism of entrepreneurship theory stems from the under-evaluation of the speculative and creative dimension of entrepreneurship. This question is raised at the very heart of the Austrian tradition by Lachmann in particular.

8.2. The analytical weakness of the concept of alertness

Kirzner's aim is to concentrate on the analysis of the market process. This is defined as a process of discovery and elimination of existing opportunities for profit (defined as agents' errors of judgement). The market cannot thus be grasped through the analysis of the conditions for equilibrium, equilibrium being defined as a configuration in which all profit opportunities have been exploited (i.e., a situation in which all errors have been eliminated); market must instead be analysed as a process. Hence Kirzner's analysis of the market process has the concept of error at its very heart but the idea of individual erroneous behaviour in this context does present some problems. Indeed, Kirzner's (and Mises') agent by definition acts in a necessarily rational manner: the individual, using his set of information, chooses the means he deems best suited to achieve his goals and this eliminates the idea of individual error from the analysis. Indeed, if we define error as action which leads one to be in a less satisfactory situation, then there is no room for error in a world of economic actors. An agent who is mistaken in his choice of decisional means -- ends framework, i.e. an individual who uses means which are inappropriate to his ends, acts in fact in a rational way with regard to the information available to him at that time and in this sense, he commits no error. There is however a way to introduce the possibility of error-making into the analysis: an individual makes an error, in Kirzner's sense, when, through a lack of alertness, he acts on the basis of a less efficient decisional plan than that which he could indeed have developed, if only he had taken into account all the information set actually available to him. Kirzner gives the following example:

A man walks along a street, sees a store with signs offering to sell apples for \$1 but, perhaps thinking of other things, enters a second store where he pays \$2 for identical apples. [...] Because the necessary information was available to him, it was surely an error on his part to have failed to act upon it.

(Kirzner, 1978, pp. 67--8)

Evidently, the axiom of human action makes the introduction of individual error necessarily forceful. The concept of alertness allows the author to play at will with

various levels of perception -- conscious or unconscious knowledge, available or unavailable information, information actually used or latent... In fact, error stems from a lack of alertness on the part of an agent who makes a decision on the basis of less information than he could have used if only he had concentrated a little more...

8.3. The theory of entrepreneurship faced with the same criticisms as neoclassical theory

It is possible to apply Richardson's criticism of neoclassical theories of competition to the Austrian market theory developed by Kirzner and Hayek and also to demonstrate that the Austrian view of the market comes up against the same difficulties as neoclassical theories as far as the problem of stability is concerned.⁹¹

8.3.1. Richardson's criticism

According to Richardson, the neoclassical theory of competition does not provide agents with sufficient elements to enable them to construct decisional patterns guaranteeing a tendency toward equilibrium (neither maintaining a situation of equilibrium supposing that the latter is attained in one way or another).

Decision patterns, observes Richardson (1960, chap I) are based on the temporal sequence, opinions → plans → decisions. The deciders' opinions are influenced by the available information. The problem of obtaining (or of maintaining over time) a situation of equilibrium comes down to analysing the information used to create opinions, these subsequently giving rise to decisions. For equilibrium to be attained -- or maintained -- the information available to agents, and to entrepreneurs in particular, must generate specific opinions enabling plans to be compatible with one another. This means, on the one hand, that the information acquired by an agent during the process (or that he has in a context of equilibrium) should validate the agent's belief as to the relevance of his own plans and, on the other hand, that individual plans should not be incompatible between themselves over time.

It is not necessary to assume that agents have perfect information. However, it is necessary that agents do believe that a certain pattern of actions is correct (i.e. optimal in terms of general equilibrium) and that when plans are formulated and executed, no information encouraging agents to change their opinions or alter their plans should emerge. Such conditions are not satisfied in the general equilibrium model. Richardson shows that in this model, even in a hypothetical situation of equilibrium, there is no condition which can guarantee that entrepreneurs have the necessary information to invest:

A profit opportunity which is known by and available to everybody is available to nobody in particular. A situation of general profit potential can be trapped by one entrepreneur only if similar action is not intended too by many others; otherwise excess supply and general losses would result.

(Richardson, 1959, p. 233)

The fact that a profit opportunity is clearly identified by alert entrepreneurs as a whole is the very reason for it not being exploited. The assumption of perfect information itself is the element preventing entrepreneurs from carrying out their investment plans, thereby bringing the mechanism of competition into question. For the principle of competition to operate, Richardson believes that there needs to be ex ante coordination mechanisms, capable of guaranteeing investment activities.⁹²

The problem highlighted by Richardson is submitted to Kirzner's attention by Boehm (1992a). Kirzner's reaction is the following:

Now, I think this is an interesting special case. [...] The special case of perfect symmetry certainly creates problems. But [...] it is like a friction between one's shoes and the road which makes walking possible. A perfectly smooth road, perfectly smooth shoes would frustrate ambulation entirely. I think something similar is going on here.

(Kirzner interviewed by Boehm, 1992a, p. 102)

Kirzner's answer is not satisfactory in our opinion. As shown by Palermo (1997b), if one walks along a road, minor imperfections are sufficient to enable walking to take place (thereby justifying the theory of 'ambulation'). To justify Kirzner's entrepreneurial theory, it is not enough to introduce minor imperfections into Richardson's case of perfect symmetry of information to achieve the exploitation of a profit opportunity. Introducing imperfections merely makes the 'Richardson effect' less destructive. Instead of a total lack of coordination between entrepreneurs' decisions, the decentralised market process will arrive at partial coordination problems, in the sense that entrepreneurs will still fail in achieving their initial objectives but probably (and an analytical proof of it should be provided) to a lesser degree. Richardson's case is not a borderline case which would only be valid in a context of perfect information and which would no longer concern the Austrian theory of imperfect information. Such a case is simply one in which the absence of an ex-ante coordination mechanism will give rise to major effects.

However, the problem is that, given the lack of any ex-ante coordination mechanism, the competitive process (ex-post coordination device) cannot operate. This is why Richardson claims it is essential to include the two phenomena (ex-ante and ex-post coordination mechanisms). Quite the contrary is true of Austrian theories which exclusively consider the competitive principle and it is in this way that one should view Kirzner's conception of the market (not that of Richardson), as a 'theory of ambulation without friction'.

In Richardson's theory, ex-ante coordination is a necessary condition for the principle of competition to function. From the point of view of the model of perfect competition, ex ante coordination mechanisms appears however as market failures (monopolies, collusions, etc.). The analysis of Richardson thus highlights how the model of pure competition may be considered in fact as a borderline case of the model of competition and of coordination (ex ante). It is also clear that such a borderline model is intrinsically incoherent precisely because of a total lack of ex ante coordination principles.⁹³

The fact that the competition mechanism will only function when some form of ex-ante coordination is playing leads to the arguments in favour of the market system defined through the properties of the price mechanism being invalidated. This explains why Richardson's criticism not only concerns the neoclassical theory of competition but also Kirzner's theory of entrepreneurship, even going as far as Hayek's theory of knowledge diffusion. Indeed, as Richardson remarks (1960, p. 37), if prices arise from interaction between principles of competition and ex-ante coordination, they then lose their property of being an efficient signalling instrument. From this point on, Richardson's criticism, although not directly aimed at Austrian competition theory, questions the results of Hayek and Kirzner regarding the market system as a desirable order. These very results are indeed based upon the role of the price system as an efficient set of signals piloting the reformulation of individual plans toward greater compatibility.

8.3.2. The stability of general equilibrium

The second criticism of the problem of convergence toward plans coordination lies in a technical argument concerning the question of general equilibrium stability. In Kirzner's view, the theory of the entrepreneur as arbitragist is sufficient to guarantee the tendency toward general equilibrium.

Consider the simple theorem that predicts a market tendency towards achieving a single price for a given good in a given market. [...] This tendency obviously rests upon the economist's confidence in the speed and success with which entrepreneurs will pounce upon the pure profit opportunity created by any price discrepancies [...]. A little reflection must surely convince us that economist's confidence in this powerful tendency supports not only their understanding of this tendency itself, but also [...] their confidence in equilibrating tendencies in general, both in the context of the Marshallian single market and in that of the Walrasian system of inter-linked markets.

(Kirzner, 1992a, p. 56)

Passing from a Marshallian to a Walrasian framework is far from being an unquestionable task. The problem of equilibrium stability exists for both of them but it is in the Walrasian context that neoclassical theory has had the least encouraging results. As Hahn explains (1982, p. 746), 'in a single market context Diamond (1971) has studied adjustments as a search process with firms setting prices. But it does not seem possible to extend this approach to the multi-market case'. The conclusion of the neoclassical leader on the question of stability is that '[...] we still lack a satisfactory descriptive theory of the invisible hand' (Hahn, 1982, p. 746).

Above and beyond the simple verbal explanation, it appears impossible to support the idea that, under sufficiently general conditions, the price system acts as an efficient signalling system. The problem of stability indeed concerns the role of the price system in the information exchange process enabling the market mechanism to operate. Apart from problems of stability arising from the elasticities

of supply and demand curves, one may observe perverse situations stemming from the very inter-dependence of markets. Of course, the problem cannot be solved by ad hoc hypotheses which would eliminate perverse cases; introducing such assumptions would amount quite simply to the elimination of the problem of coordination. Demonstrating the existence of a signalling system which would only become efficient when no problems of coordination arose, would thus not in any case be satisfactory.

Given the negative results obtained by neoclassical authors, one may wonder how the Austrian analysis may deal with the problem. In Kirzner's opinion, (1976a, p. 117) the contribution of Austrian theory (especially entrepreneurship theory) has been to provide an explanation of mechanisms through which changes in information and in agent's expectations give rise to behaviours which move the system toward equilibrium. Two cases then need to be distinguished.

(1) Agents become aware of the complexity of the system through the market process. They understand that it is in their greatest interest to move toward the solution of equilibrium (which is assumed to be Pareto-efficient). In other words, by functioning on the market, they learn to solve the model of general equilibrium. What at first appeared to be an impossible task for a planner is, in fact, seen in this light, a very easy operation to accomplish for all the actors on the market. This implies that the supposed advantages of the price system as an efficient system of signals should be cancelled out.

(2) The diffusion of knowledge does not enable agents to acquire a systemic awareness of how market functions. This obviously appears to be more compatible with Hayek's analysis on the specificity of knowledge than the situation quoted above. In this case, the likelihood of perverse reactions of the price system due to market inter-dependence cannot be eradicated and the stability of general economic equilibrium remains an open question.

Our conclusion then is that Austrian theory of the market process does not provide a solution to the neoclassical problems of converging toward equilibrium.

The implicit assumption of equilibrium stability is also essential to Hayek's argumentation. In 'The use of Knowledge in Society', (Hayek, [1945] 1949, pp. 85-6) Hayek develops the famous example of the tin market. Let us suppose, the author says, that somewhere in the world, a new opportunity arises for the use of tin. The only thing that all tin users should know is that this metal must be used more sparingly as it is used (more profitably) in other sectors of the economy. These agents have no need to know how the metal will be used in the new sectors nor what demand will be satisfied by it, i.e. they do not need to be generally aware of overall economic activity regarding the use of tin. Knowledge of the specific circumstances of place and time relative to each agent is sufficient. Thanks to this knowledge, the system automatically adjusts itself due to the very fact that each person only takes account of the information available to him and that the price system allows relevant information to be distributed to all.

Hayek's example matches the second case we have identified here (agents have specific rather than systemic knowledge). But then, as pointed out by Palermo

(1997a), this means that Hayek implicitly supposes that the economic system related to the discovery of a new use for tin has an equilibrium solution and that, moreover, this solution is stable.

The manner in which both Hayek and Kirzner approach the problem of market inter-dependence turns out to be quite superficial in the sense that they allocate properties to the price system which cannot be corroborated by a more thorough analysis.

The Austrian market theory seems, at this level, to hardly go beyond the difficulties of the neoclassical analysis regarding both Richardson's criticism and the question of equilibrium stability. Therefore, Kirzner is quite right when introducing his theory as a complement to the neoclassical approach based on the concept of equilibrium. However, his theory goes no way to overcoming the deficiencies inherent within it.

8.4. The denial of time and uncertainty

The theory of entrepreneurship is criticised by Lachmann and his followers. More precisely, Lachmann and other radical subjectivists criticise the determinist nature of Kirzner's analysis. The theory of entrepreneurship concerns a world of ignorance, not a world of uncertainty, and considers the entrepreneur as a pure arbitrageur, thereby downplaying the speculative dimension of human action.

8.4.1. Ignorance versus uncertainty

Kirzner admits neglecting the speculative dimension contained in the definition Mises gives of human action.⁹⁴

My discussion of entrepreneurial alertness has deliberately avoided emphasizing its speculative character. I have of course recognised that in a world of uncertainty, every entrepreneurial decision, no matter how much alertness it reflects, must to some extent constitute a gamble. But it has been my purpose to point out that the entrepreneur's decision - despite its unavoidable speculative character- represents his judgement that an opportunity for profit does exist.

(Kirzner, 1973, pp. 86--7)

In a Kirznerian world, action is restricted to the discovery of existing profit opportunities. The very problem is that profit opportunities are not known a priori. However, they exist independently from the activities of entrepreneurs. The analytical framework of Kirzner is thus a world of mere ignorance in which efficient patterns of action are basically predetermined. The economic configuration is defined by a set of objective data waiting to be revealed through entrepreneurship. The determinism of this theory stems from the fact that a precise situation of equilibrium corresponds to the existing (although unknown) data and the progressive elimination of entrepreneurial errors cannot but make the market process tend toward this equilibrium.

My theory of entrepreneurship has sometimes been criticised as viewing the future as a kind of tapestry waiting to be unfolded: it is already there. It is simply behind the screen; it only has to be unrolled and when the future will come into the field of vision, whereas the truth surely is, the critics point out, that the future does not “exist” in any philosophically valid sense. It must be created so that the notion of alertness in the sense of seeing what is out there in the future is a mistaken notion. I recognise the philosophical validity of this kind of criticism.

(Kirzner interviewed by Boehm, 1992a)

As we shall see in greater detail in the following chapter, the contribution of radical subjectivists to the Austrian analysis of competition has indeed been to drop Kirzner’s context of ignorance in favour of that of radical uncertainty. Such a change is made possible by extending the subjective dimension to agents’ expectations, the result being that the idea of convergence of the market process is abandoned. The non-determinist view of the market process resulting from Lachmann’s analysis then brings the relevance of Kirzner’s conclusions into question. Indeed, from the moment the speculative dimension of all economic action is accepted and introduced into the analysis, the idea of the necessary convergence of the market process loses all its value. Creativity and no longer discovery becomes the central category of the problem of knowledge. However, as stressed in the first part of this work, speculation, creativity and uncertainty are the elements characterising the originality of Austrian thinking since Menger.

As soon as agents’ subjective expectations come into play, it is clear that the attempt of Kirzner to demonstrate the convergence of market process turns out to be a pure act of faith. The theory of entrepreneurship rests ultimately on a sort of optimistic bias in the sense that the entrepreneur’s action is always assumed as equilibrating, without this being formally demonstrated. A confrontation with Schumpeter’s theory of the entrepreneur will allow to highlight the nature of this optimistic bias.

8.4.2. Entrepreneur -- creator versus entrepreneur -- discoverer

Kirzner and Schumpeter both develop relatively similar concepts of the entrepreneur but arrive at radically different conclusions. Kirzner (1973, pp. 72--3) indeed admits that Schumpeter’s view of the entrepreneur conveys the same conception of the homo economicus as an actor, quite opposed to Robbins’ view of the individual. Moreover, the entrepreneur represents in both instances the dynamic force of the market process.

However, Schumpeter’s (1934) entrepreneur is an actor of disequilibrium. In his approach, the well-known notion of creative destruction takes the place of the equilibrating quality attached to alertness. The entrepreneur is a disruptive element, his role being one of destabilising the existing compatibility between individual actions. Schumpeter begins with a situation of market equilibrium where all individual plans are coordinated. In such a context, there is no room for

entrepreneurship in Kirzner's sense, since all existing profit opportunities have, by assumption, already been seized. Schumpeter's entrepreneur is not enticed by the discovery of new opportunities but by their creation, via the implementation of innovations both in the product and in the production process.

In contrast, Kirzner's theory restricts the role of entrepreneur to one of discovering consumer preferences in a world of ignorance.⁹⁵ The logic is determinist and ultimately compatible with the neoclassical approach: the situation of equilibrium is entirely determined by the economic data and it is only the assumption of ignorance -- imperfect information -- which prevents agents from instantaneously reaching it. The role of entrepreneurs is to contribute to the spreading of information so as to enable the underlying configuration of equilibrium to be attained. Kirzner clearly considers the confrontation with Schumpeter's theory to be a cleavage between activity of creation and activity of discovery:

For Schumpeter the essence of entrepreneurship is the ability to break away from routine, to destroy existing structures, to move the system away from the even, circular flow of equilibrium. For us on the other hand, the crucial element in entrepreneurship is the ability to see unexploited opportunities whose prior existence meant that the initial evenness of the circular flow was illusory -- that, far from being a state of equilibrium, it represented a situation of disequilibrium inevitably destined to be disrupted. For Schumpeter the entrepreneur is the disruptive, disequilibrating force that dislodges the market from the somnolence of equilibrium; for us the entrepreneur is the equilibrating force whose activity responds to the existing tensions and provides those corrections for which the unexploited opportunities have been crying out.

(Kirzner, 1973, p. 127)

The alertness of Kirznerian entrepreneurs enables all market participants to discover the data which really form the overall economy. Entrepreneurship leads to equilibrium since it enable to discover and to spread the information which is necessary to construe coordinated plans and in this way, it provides a remedy for the state of ignorance in which individuals make their decisions. Kirzner's theory therefore presumes the existence of an underlying objective reality, to which market participants are oblivious at the outset but which is progressively exposed in the course of the market process.

In a situation of disequilibrium, prices do not reflect agents' true preferences. Entrepreneurial activity, encouraged by the incentive of profit, consists in unearthing true tastes and preferences and spreading this information throughout the market.⁹⁶ Kirzner thus picks up on the concept of catallactic competition (Mises, 1949; Hayek, 1940) which reflects the notion of a process of social cooperation directed at total consumer satisfaction. Entrepreneurial activity is indeed thought of being profitable when an alert agent manages to supply the consumer with a product which complies with his expectations. The competitive environment, influenced by the sovereign consumer, is seen as the necessary context for entrepreneurial activity to take place: 'Gradually, competition between the entrepreneurs will succeed in

communicating to market participants a correct estimate of the other market participants' eagerness to buy and to sell' (Kirzner, 1973, p. 15).

The equilibrating role attributed to the entrepreneur by Kirzner contrasts with the Schumpeterian theory of creative destruction and the comparison enables to emphasise the optimist bias underlying the Austrian theory of entrepreneurship.

8.4.3. Toward an increasingly removed position

In our opinion, the answers offered by Kirzner to the objections of radical subjectivists highlight certain limits in his approach more than they reinforce the analytical precision of his work. Indeed, Kirzner never abandons the ambiguity attached to the idea of convergence of the market process: the theory of entrepreneurship is presented both as a demonstration and as an implication of the tendency of market process to converge toward the compatibility of individual plans. An closer examination of Kirzner's answer to the various criticisms shows however that ultimately, the tendency of the entrepreneurial function to bring equilibrium receives very little analytical justification.

The pure entrepreneur is defined as an alert arbitragist with regard to past errors crystallised in current profit opportunities. As from 1982, Kirzner begins to admit his neglect of the implications of some aspects of Mises' work regarding uncertainty and the speculative dimension of human action. The author attempts to render his approach more dynamic by widening the concept of alertness through the introduction of the role of individual expectations. Such an admission leads him to slightly alter the definition of the concept of alertness underlying his theory. Alertness, previously defined as man's ability to detect past errors, becomes the motivated propensity of the individual to formulate an accurate view of the future (Kirzner, 1982, p. 149). Kirzner's world of ignorance attempts to take uncertainty into account, the alertness of the entrepreneur becoming a subject of speculation according to how accurately expectations match future reality. However, the equilibrating effect of the entrepreneur's behaviour is never brought into question. Earnings depend directly on the accuracy of the entrepreneur's expectations and hence the incentive is strong for this agent to give as correct a picture as possible of future reality. Such an incentive is sufficient for Kirzner to legitimately justifying successful entrepreneurship based on the enlarged concept of alertness.

In line with continuing criticism, Kirzner admits that incorrect entrepreneurial decisions may actually be made. But such errors, far from threatening the equilibrating nature of competition is seen as being at the origin of new profit opportunities for better skilled agents. In Kirzner's view (Boehm, 1992a, p. 104) one person's errors create profit opportunities for others. There is always an entrepreneur willing to turn other peoples' mistakes into success. This is, unfortunately, the only argument supporting the idea that the equilibrating tendency of individual actions takes precedence over the destabilising nature of mistaken entrepreneurial action.

Under the influence of the criticism levelled at him, Kirzner adds a little subtlety to his position by introducing the role of imagination into the elaboration of expectations (Kirzner, 1992a). The equilibrating tendency of entrepreneurship

clearly becomes increasingly more difficult to justify and one may be astonished at the way in which Kirzner returns to the question. This tendency is in fact confirmed without being truly demonstrated or supported: 'Markets do work. They work so obviously well that our scientific curiosity is aroused to seek understanding of the counter-intuitive phenomenon of this success' (Kirzner, 1992b, p. 60).

Kirzner thus considers as obvious the very problem that has been addressed by Walrasian economists since the end of the nineteenth century. Indeed, it appears that the stabilising tendency of the competitive process is not the result of any investigations but simply an assumption derived from observation. Notwithstanding the successive attempts to improve the concept of alertness, the theory of entrepreneurship remains based on the assumption of the convergence of the market process. Consequently, it flows that the analytical ambition of this theory cannot be to prove the efficiency of competition but rather to try to give a theoretical description of this observed tendency of the market process toward plan coordination. The problem is that this tendency is in turn explained on the basis of another empirical assumption, the supposed equilibrating action of entrepreneurs. Ultimately, little has been added since the first versions proposed by Kirzner: 'As an empirical matter, [...], opportunities do tend to be perceived and exploited. And it is on this observed tendency that our belief in a determinate market process is founded' (Kirzner, 1976b, p. 121).

It is obvious that such an empirical justification of the equilibrating tendency of the competitive process is not satisfactory. Kirzner's theory of the market process conveys too many inaccuracies: what is it that demonstrates the idea that the quality of alertness enables information to be diffused among agents? Could one not argue to the contrary that the interest of the entrepreneur who unearths a non-exploited profit opportunity would be to keep this information private and confidential as long as possible and to exploit information asymmetries? What are the theoretical arguments, other than simple belief, put forward by Austrian authors to demonstrate that entrepreneurship has positive effects on the degree of plan coordination? Admitting that competition enables information to be diffused, is it a sufficient condition in itself to ensure that plans converge? Too many questions left unanswered.

THE EXTENSION OF SUBJECTIVISM TO EXPECTATIONS:
LACHMANN'S LINE OF THOUGHT

The suggestion made by Lachmann to combine Mises' principle of human action and Hayek's principle of the role of knowledge leads to completely different results than those of Rothbard and Kirzner. The main reason for this is that before attempting such a link-up, the author substantially alters each of these principles in the way he believes Menger's paradigm (in which Lachmann explicitly positions himself) should naturally evolve: Lachmann ventures deeper into the analytical implications of Mises' proposition according to which human action takes place over time and develops the Hayekian question of knowledge by taking account of the role of subjective expectations in the process of formulation of individual plans, and by considering knowledge no longer as a simple problem of discovery, but rather as a problem of creation.

If we were to summarise the work of Lachmann in a few words, we would talk of his attempt to extend subjectivist logic to agents' expectations. As we shall see below, the implications of this enlargement have far-reaching consequences. Lachmann offers an ideal-type view of the market process, at the same time questioning not only the normative Austrian conclusions supporting non-intervention, but also limiting the theorist's field of intervention regarding economic prediction and more generally regarding his capacity to generate general laws and theories.

Lachmann (1982a) clearly defines the basic ideas characterising the essence of the old Austrian tradition and which, in his opinion, should represent the starting point for any in-depth analysis of the modern revival. There are three ideas here: the causal-genetic approach defined by Mayer (1932), the analysis of the role of dispersed and tacit knowledge, and a theory of capital based on the concept of a heterogeneous production structure. The explicit reference to Mayer clearly shows Lachmann's loyalty to the Mengerian essence; the second idea reflects a strict continuity with Hayek's thought; the theory of capital is the object to which Lachmann (1940; 1956; 1986) applies the approach stemming from the combination of the two ideas above. These fundamental ideas are combined by Lachmann in the context of Mises' analysis of human action and developed in the framework of the subjectivist paradigm. The aim of this research programme is to explain economic phenomena as the interaction of individual plans, these plans acting as guides to human action in the sense of Mises.

Lachmann frequently quotes Mayer in his writings. The author particularly refers to an article of 1932, 'Der Erkenntniswert der Funktionellen Priestheorien', in which Mayer ([1932] 1995, p. 57) distinguishes between two types of theoretical approach to the question of how economic prices are formed: causal-genetic theories which, 'by explaining the formation of prices, aim to provide an understanding of price correlations via knowledge of the laws of their genesis', and functional theories which, 'by precisely determining the conditions of equilibrium, aim to describe the relation of correspondence between already existing prices in the equilibrium situation'.

Through this interpretative framework, Mayer examines the cognitive value of the major functional theories on price formation.⁹⁷ The capacity of these theories to explain reality and to widen the theorist's knowledge is restricted, according to Mayer, to describing quantitative relations between prices which, in turn, describe the situation of equilibrium, the central reference. According to Mayer, these theories do not increase the understanding of the economic system since formal relationships depict a particular situation -- a state of equilibrium -- in which the price formation process has already taken place implicitly. Mayer criticises what is fast becoming the major approach in economics, namely, the formalist approach:

Equilibrium equations [...] are obtained from previously established definitions and identity statements drawn explicitly or implicitly from one another. These are then used to derive, through purely logical inference, a nexus of substitution relations which can evidently give no more knowledge of reality than was already contained in the premises. This is real "derivation" in the sense of "proofs" in pure logic and mathematics, and not the acquisition of new knowledge about correlations in the real world.

(Mayer, [1932] 1995, p. 148)

The criticism of Mayer is developed by Lachmann (1977, p. 34) who confronts subjectivism and late classical formalism. Late classical formalism concerns the overall spectrum of general equilibrium models and, according to Lachmann, matches perfectly Mayer's definition of functional approach. Indeed, general equilibrium models are based on a closed number of inter-dependent and simultaneous equations, the solution of which is determined in a univocal manner by the initial conditions of the system.

Menger's scientific approach well illustrates the causal-genetic approach as defined by Mayer.⁹⁸ Let us remind that Menger's objective is to understand complex economic phenomena by breaking down their causal nature into their essential elements. Thus, the price theory developed in the Grundsätze is not a theory of equilibrium prices but a theory of the process of price formation. It will be remembered that, within the Mengerian logic, the real level of exchange prices could a priori not be calculated in a univocal manner by the theory. The real level depends on the way in which a particular trading process takes place and the theory can merely fix the limits of a price interval.

At this point, let us note the formal similarity of the approaches of both Lachmann and Kirzner. The point of departure for Kirzner's developments is the criticism regarding the over-preoccupation of the standard theory with the concept of equilibrium. Kirzner's aim is thus to complete this approach with a theory of the market process leading to the equilibrium analysed by neoclassical authors. If the reference to Mayer is obvious, the similarity is however only formal, Lachmann and Kirzner developing two different interpretations of the causal-genetic approach. Indeed, Lachmann (1982a) states that the question is that of explaining the process of formation of market prices which are not necessarily equilibrium prices, whereas the theory of entrepreneurship explains how the economic system converges toward the full compatibility of individual plans, i.e. ultimately toward equilibrium prices.

Lachmann's developments of the causal-genetic approach has its place within the perfect continuity of Menger's analysis. In accordance with the Mengerian approach, individual wishes represent in the view of Lachmann, the primary cause of any explanation of socio-economic phenomena. Enriched by the Misesian dimension of human action, the causal-genetic approach can be summarised as follows: to provide an explanation for economic phenomena seen as the result of the interaction between individual plans of action.

9.2. The subjectivist paradigm

Lachmann (1990) defines the subjectivist paradigm as a research programme whose aim is to explain social phenomena in terms of their inherent meaning, i.e. in terms of what they represent for the participating actors.⁹⁹ The approaches of both Mises and Hayek fit perfectly into such a context in the sense that, following the pure Mengerian logic, the authors attempt to explain how these phenomena emerge in terms of individual plans interaction. The analyses of Mises and Hayek may thus be interpreted as the second stage of the evolution of the subjectivist paradigm in economics, the first being that begun by Menger using what it appears legitimate to call the Viennese subjectivist revolution. The subjective dimension was at that moment restricted to the nature of agents' needs. By means of the notion of individual plan, the subjective dimension extends from the concept of needs toward the means -- ends framework guiding the economic actions of agents. An individual plan is drawn up by the agent on the basis of his own subjective knowledge. The agent's knowledge stems from his personal interpretation of the information at his disposal. Therefore, the dynamics of the market process arises from the way in which knowledge is spread, modified and subjectively acquired over time. Knowledge is the foundation upon which agents formulate and alter their plans. In line with the Hayekian viewpoint, Lachmann (1976a, p. 127) states that '[the] market process is the outward manifestation of an unending stream of knowledge'.

The subjective nature of knowledge is at the origin of the difficulties of functional approaches dealing with the analysis of market process. A priori, orthodox theories can only take the concept of objectively quantifiable information into account but not

that of knowledge, which, in a Mengerian perspective, may be defined as the subjective interpretation of available information at any given moment. In the same way, by definition, human action takes place within time, time being the dimension in which all changes in agents' knowledge take place: 'as soon as we permit time to elapse, we must permit knowledge to change and knowledge cannot be regarded as a function of anything else' (Lachmann, 1976a, pp. 127--8).

Until now nothing decisive has been introduced into the analysis which enable us to characterise the contribution of Lachmann to the subjectivist paradigm. Indeed, we have examined the aspects of the Austrian approach having the unanimous approval of Austrian authors: economics is a social science and as such requires an approach which is distinct from that used in natural science and in particular distinct from formalism; as a social science, its aim is to understand the emergence of phenomena such as the result of the interaction between individual plans; the Austrian approach thus develops theories of a causal-genetic nature in contrast to functional theories; this approach falls into the framework of the subjectivist paradigm to the extent that the essence of socio-economic phenomena is restricted to achieving individual plans (principle of economizing), these plans being built upon agents' subjective knowledge.

It is nevertheless an easy task to locate the origin of Lachmann's peculiarity. The rift concerns the extension of the subjective dimension to agent expectations. Lachmann appears to follow the famous declaration of Hayek to the letter (Hayek 1952a, p. 31). Accordingly, 'it is probably no exaggeration to say that every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism'.

The extension of subjectivism to individual expectations is, in Lachmann's view, the third stage in the process of development of the subjectivist paradigm and is thus to be seen as the logical and natural continuation of the Mengerian approach. Lachmann finds sufficient premises for this third stage in the works of Mises and Hayek witnessing to the reappearance of the Mengerian originality.

The first chapters of Mises' Human Action provide a first important insight for Lachmann to take the subjective nature of expectations into account. In chapter five particularly, where the necessarily temporal dimension of all human action is examined, Mises develops a Bergsonian conception of time whose direct consequence is to associate a certain degree of uncertainty to the result of action. 'Every action refers to an unknown future. It is in this sense always a risky speculation' (Mises, 1949, p. 106).

Lachmann interprets the speculative dimension inherent in all human action as the result of the subjectivism of individual expectations directed at an unknown but imaginable future. However, Mises never mentions expectations and never goes into the consequences of the speculative dimension inherent in all human action. Lachmann develops the idea of Mises by drawing his inspiration from Shackle's conception of a kaleidic society, characterised by the occurrence of unexpected changes which disrupt pre-existing decision-making patterns.

Hayek's analysis of knowledge deals with expectations but only in a static perspective, removing any appeal to imagination and individual speculation during

the formation of plans. Knowledge, defined as the interpretation of past experience, is the only element in which subjectivism of economic actors manifests itself. The concept of individual plan nevertheless enables an extension to expectations in the sense that a plan is the result of two distinct types of knowledge: knowledge originating from subjective interpretation of past experience and knowledge directed toward the future, this, according to Mises, being the speculative part inherent in all human action. Concerning this second element, however, Lachmann notices that in Mises and Hayek '[...] expectations were, on the whole, treated as a mode of foresight, a rather unfortunate but inevitable consequence of imperfect knowledge' (Lachmann, 1976b, p. 58).

It thus appears that the analysis of Lachmann, beginning from a set of propositions widely acceptable to the majority of traditional Austrians, fits well into the pure subjectivist tradition. The extension of subjectivism to agents' expectations does not contradict any of the basic principles of Austrian thought. Quite the contrary, as it seems, in Hayek's opinion, to show progress toward the formation of a heterodox paradigm. The fact that authors such as Mises and Hayek have not taken this dimension into consideration in their research is more of an enigma than a possible analytical incompatibility.¹⁰⁰ The fact is that taking the subjective nature of expectations into account leads to analytical consequences within Austrian logic -- the non-convergence of the market process -- to which traditional Austrians can hardly adhere. A real butterfly effect!

9.3. Divergence in subjective expectations

The subjective dimension attached to expectations illustrates the fact that a particular economic situation gives rise to different expectations according to the individual. In the same way that Hayek defines knowledge as the subjective interpretation of past experience, expectations represent the result of a necessarily subjective interpretation of the situation. The subjective dimension is, to a certain extent, accentuated by the fact that the expectation is, in a forward looking perspective, directed towards an 'unknown but not unimaginable future'.

The subjective nature of expectations prevents them from being treated as mere variables within stable functional relationships. Lachmann, faithful to the causal-genetic way of thinking, seeks to understand the principle of formation of expectations and rejects all reasoning based on the hypothesis of a systematic correspondence which would link each given economic situation to a particular type of expectation:

The absence of a uniform relationship between a set of observable events which might be described as a situation on the one hand, and expectations on the other hand, is thus seen to be the crux of the whole matter.

(Lachmann, 1943, p. 14)

In as much as they are a creation of the individual mind, expectations are unpredictable and cannot be formalised. Lachmann thus rejects all kind of adaptive,

extrapolatory, static or rational expectations, to the extent that the individual would then be reduced to the condition of an automata, leaving no space for the freedom of choice.

Lachmann's criticisms are not simply destructive attacks. One way for him to understand the manner in which expectations are formed is to reason beginning with an interval of potential expected values and no longer from one given point. Lachmann suggests returning to the concept of 'practical range' as defined by Lange in 1952.¹⁰¹

A practical range represents the possible set of values a variable may take according to the appreciation of agents. The way in which an agent reacts to a modification of the variable depends on the position of the variable within the interval. The fundamental principle Lachmann seeks to demonstrate is that if the variable, a price for instance, shifts toward the frontiers of the interval, then the agents' expectations remain inelastic. Indeed, by assumption, the agent considers it is unlikely that the price will fall below the interval he built up. Therefore, as long as price movements remain restricted to the interval defined by the individual, his subjective interpretation is confirmed and there is no reason for him to alter his expectations.

Conversely, if the current price actually goes beyond the interval in question, the agent will have to reconsider the interval, his previous interpretation of the economic configuration having proved to be erroneous, and at this moment expectations become elastic. The interval is formed on the basis of a diagnosis of the situation which stems from the agent's analysis of the dynamic forces for change. This diagnosis is obviously subjective as it reflects the agent's interpretation of the situation:

The subjective nature of expectations, due, in the first place, to divergences in individual interpretations of identical observable events, is thus seen to derive ultimately from divergent judgements on the strength of the economic forces believed to have caused them.
(Lachmann, 1945, pp. 128--9)

The subjective nature of the diagnosis means agents will have in general divergent interpretations of the current situation and this in turn leads to the formation of distinct intervals of expectation. This means that the observation of a current price generally produces different responses from agents, the elasticity of expectation for each one being a function of the relative position of the current price within the different individual practical range. As a result, expectations are also generally divergent.

In this way, the Misesian category of human action is enriched by an explicit development of the speculative dimension which Mises mentions but does not deepen. The process of forming expectations is then raised to the rank of 'mental act' (Lachmann, [1966], 1977 (ed.), p. 56); the divergence of expectations is the illustration of an individual's free will when faced with a choice. It represents 'a manifestation of spontaneous action' (Lachmann, 1986).

Divergence in expectations, a direct consequence of the extension of subjectivism, has overwhelming analytical effects for modern Austrian theories based upon the idea of convergence toward a state of market equilibrium. According to Lachmann, rejecting the equilibrating tendency of competition fits perfectly well into the Austrian analytical framework, and subsequently enable to define the market process on this new basis of enlarged subjectivism.

9.4. A different conception of the market process

Lachmann's view of the market process differs considerably from the traditional Austrian description as portrayed by authors such as Hayek and Kirzner.¹⁰² To enable the originality of Lachmann's contribution to be appreciated, we intend to give here a synthetic overview of the Austrian market process.

Within Austrian logic, the market is viewed as a process whose thrust results

from the interaction between individual plans. Agents are conceived as dynamic actors in direct opposition with the orthodox definition of Homo Economicus, who simply reacts to external stimuli. The market process is the outcome of the succession of three sequences: (1) confrontation of individual plans (the market configuration results from the confrontation of individual actions that have taken place in the past); (2) revision of plans (if inconsistencies between plans occur, i.e. if plans are not compatible, it means that some individuals failed to reach their objectives and will probably be led to modify their original plans); (3) consequences of the adjustments (the interaction of the new plans leads to a new market configuration).

From this very general framework, it is possible to distinguish between three distinct views of the market process within the Austrian tradition which, with some simplifications may be associated with the names of Kirzner, Hayek and Lachmann. In order to define the specificities of each one, we propose the following general representation (cf. fig. 1)

This diagram is useful for two reasons. Firstly, we suggest that it may provide a summarised overview of the different theories of market process developed by the three authors; secondly, using this framework as a starting point, we intend to position and contrast the three authors, contributing in this way to determine precisely where their theories diverge.

9.4.1. Kirzner's view of the market process: the theory of entrepreneurship

Kirzner's analysis of the market process stemming from entrepreneurship theory is given the following conceptualisation (cf. fig. 2):

Suppose that the initial market configuration is one of ignorance, i.e. a situation in which, because of the existence of profit opportunities waiting to be discovered, individual plans are not coordinated (1.2.). Alert entrepreneurs notice these possibilities and by means of their arbitrage activity, eliminate price discrepancies between different markets. This kind of action leads to a reduction in ignorance in the decision-making environment (2.1). The process converges toward equilibrium as profit opportunities are detected and exploited, no new profit opportunities being endogenously created in the market process (3.1. → 1. → ... → 3.1...). The equilibrium configuration is reached when the whole information set defining the economic configuration is made available to individuals through entrepreneurship (1. → 1.1. → 1.1.1.). Such an adjustment mechanism is based on the implicit assumption of the existence of an underlying reality to be discovered, a reality defined prior to and independently from the unfolding of the market process and which is not affected in the course of social interactions. Equilibrium is reached only when the information set is fully made explicit for agents, entrepreneurship being the ultimate element of change from ignorance to perfect information (1.1.1.).

Hayek, unlike Kirzner, does not rest on the assumption of an immutable reality out there waiting to be discovered. His world is one of continuous change. Consequently, Hayek sees no use in focusing '[...] on a long-term equilibrium which in an ever changing world can never be reached' (Hayek, [1946] 1949, p. 101).

Hayek's view of the market process is based on the conception of competition as a discovery procedure. The price system resulting from individual confrontations in an unhampered market provides, according to Hayek, relevant signals for agents to adjust their plans. These prices are not equilibrium prices since, in Hayek's view, the data which define equilibrium change before equilibrium is reached. In this connection, the coordinating role of the market stems from the feed-back that agents derive from the signals provided by disequilibrium prices.¹⁰³ Coordination failures in Hayek's theory, stem from the dispersed nature of knowledge upon which agents rely to form their plans. Competition, brought about by the role of the price system, is a procedure (the most efficient one in Hayek's opinion) of discovery and diffusion of knowledge and thus plays a necessarily coordinating function.

The Hayekian procedure can thus be laid down as follows (cf. fig. 3). In an uncoordinated configuration (1.2.), market prices act as signposts for agents, providing new information about the direction in which plans have to be modified (2.1.). Competition is, by assumption, an efficient device for the discovery of knowledge

and entails the convergence of plans (3.1.). The process of convergence (1. → 1.2. → 2.1. → 3.1. → 1. → ...) can however hardly give rise to an equilibrium configuration. Indeed the continuous occurrence of unexpected change in data (1.1.2.) prevents the economy from reaching its long term equilibrium (1.1.1.). Once data have changed, competition enables the adaptation to the new configuration via its capacity to give rise to new relevant knowledge (1.1.2. → 2.1. → 3.1.).

We can now see how, in a sense, Kirzner's view of the market process represents a specific instance of a Hayek-type market process. Both Hayek and Kirzner believe (without really demonstrating) that disequilibrium signals are sufficient to move the system toward equilibrium and they both derive from this assumption the conclusion that the market process constitutes an efficient coordinating device. However, in contemplating the possibility of unexpected change, Hayek is led, unlike Kirzner, to point out the specificity and poor relevance of the case of general equilibrium.

9.4.3. Lachmann's view of the market process: the role of imagination

The logical foundation of Lachmann's view of the market process is similar in all points except one to the Kirzner -- Hayek conception. The point of divergence rests precisely on the definition of individual plans. According to Hayek, plans are conceived on the basis of the subjective knowledge of the individual. According to

Lachmann plans are the outcome of the interaction of two elements, knowledge and expectations.

- Knowledge results from the subjective interpretation of past experience.

- Expectations result from the subjective interpretations of the possible future situations, involving an act of imagination.

As Lachmann explains, '[...] plans are products of mental activity which is oriented no less to an imagined future than to an experienced past' (Lachmann, 1969, p. 95).

Given this enlargement of the concept of plan, the resulting view of the market process sharply contrasts with the traditional one. The market is described as a continuous process, characterised by unexpected change and inconsistency of plans. This latter feature is not simply the result of exogenous changes in data but is the endogenous consequence of the introduction of subjective expectations. Plans are divergent because subjective expectations are based on the image agents form about an 'unknown though not unimaginable' future. Competition may lead to the diffusion of relevant knowledge, but not of correct expectations. Subjective expectations cannot be diffused in any way, for each individual in each moment of time may imagine different future economic situations and revise his plans as a consequence of his imaginative ability. The possibility of inconsistency of plans challenges the traditional view of a tendency toward equilibrium. Market is now an undetermined process governed by the interaction of the forces of equilibrium and disequilibrium.

Referring to our diagram, Lachmann's representation of the market process concerns only the branch on the right (cf. fig. 4). Inconsistency of plans is the rule and reflects the fact that plans are built up not only from subjective knowledge but also from subjective expectations (1.2. → 2.2.). As a consequence, the process of plan revision is generally divergent (2.2. → 3.2.) and the economic configuration emerging from the interaction of individual plans is definitely one of uncoordination (3.2. → 1. → 1.2.). In that perspective, there is no more reason to emphasise the equilibrating function of the market, divergence of plans becoming the norm.

The divergence of plans represents, within the Lachmannian view, the very propeller of change.

The market process consists of a sequence of individual interactions, each denoting the encounter (and sometimes collision) of a number of plans, which, while coherent individually and reflecting the individual equilibrium, are incoherent as a group. The process would not go otherwise.

(Lachmann, 1976b, p. 131)

We have here a complete redefinition of the problem of understanding the market process with respect to the attempts of Hayek and Kirzner. In Hayek and Kirzner, the mechanisms guaranteeing the convergence of the market process are based on the empirical assumption of the relative stability of market interactions. In Lachmann, the simultaneous investigation of both the mechanisms of convergence and divergence corresponds to a more ambitious objective: the understanding of the ultimate causes of the dynamics of the market system.

9.5. The missed opportunity of Mises and Hayek

The enlargement of subjectivism to expectations has overwhelming consequences on the analysis of the market process. There is no theoretical reason for conserving the assumption of an existing tendency of the market toward equilibrium: the market process is the outcome of a constellation of divergent forces and this is, strictly speaking, all that can be theoretically deduced from the analysis.

Hayekian and Kirznerian authors underline the non-determinist result of this view of market and address to Lachmann's analysis a criticism of theoretical nihilism. Their attitude is however rather ambiguous. On the one hand, the attempt of Lachmann to extend radical subjectivism to expectations is unanimously celebrated as a further step in the development of the paradigm initiated by Menger. But on the other hand, the logical implication of this attempt -- the divergence of the market process -- is far from arousing enthusiasm in. In fact, although Lachmann's conclusions result quite embarrassing for anti-interventionist supporters, it remains that they are built upon a deductive framework whose foundations are the expression of the purest Austrian essence: firstly, the enlargement of subjectivism represents an improvement in Hayek's sense, leading toward a deeper understanding of complex socio-economic phenomena and secondly, the introduction of expectations into the definition of plan do

nothing but make Mises' assertion of the speculative dimension inherent in every human action explicit.

There is then one question intriguing Lachmann (1976b): why, in the 1930s, did the Austrians and particularly Mises and Hayek, not seize the opportunity to widen subjectivism to agents' expectations? The Austrian theory of capital was a perfect framework for such endeavour and the very theme of expectations was beginning to attract the attention of economists in general. Lachmann's question stems from the fact that he believes the extension of subjectivism to expectations to be a logical and natural step in the development of the Mengerian tradition. This new step in the progress of the subjectivist paradigm was to be taken up by Shackle.¹⁰⁴ The question addressed by Lachmann becomes a real conundrum as soon as the similarities between the orientation of Shackle's work and the logic of Mises are highlighted.

Indeed, Shackle shares with Mises a radically anti-formalist conception of economics as well as a non-mechanical view of the world. Mises wishes to develop economics as a social science, as the science of human action, not a science of goods and of their prices, these simply being a manifestation of human action. In the same light, Shackle (1972, p. 246) defines economics as the science '[...] concerned with thought, and only secondarily with things, the objects of those thoughts [...]'].

Furthermore, Shackle's vision of society as a kaleidic world is a priori in harmony with the notions of speculation and change to be found in the work of Mises. Finally, both the authors refuse to resort to any probabilistic-type calculations and share the same Bergsonian conception of time (even though Shackle position remains implicit).

The question is to understand why then '[...] the Austrians failed to grasp with both hands this golden opportunity to enlarge the basis of their approach and, by and large, treated the subject [of subjective expectations] rather gingerly' (Lachmann, 1976b, p. 58).

In his attempted answer, Lachmann (1982b) stresses the neo-Kantian influence guiding the work of Mises who seeks exact and universal laws and leaves it to the historian to highlight empirical regularities. However according to Lachmann, the way in which Mises analyses the dimensions of uncertainty and speculation would fall into this second category of scientific work and not into the field of economics. Mises is, in Lachmann's view, too rationalistic to admit the consequences of a kaleidic world, illustrating in this Shackle's (1972, p. 27) statement according to which 'time is a denial of omnipotence of reason'.

But the mystery remains intact as far as Hayek is concerned, for Hayek is involved in the same manner at the heart of the subjectivist paradigm but is not affected by the restrictions of a rationalistic scientific approach but involved in the same manner at the heart of the subjectivist paradigm.

As far as nihilism is concerned, the crux of the problem does not stem in our opinion from Lachmann's particular treatment of expectations but from the implications involved regarding the theoretical understanding of the market process. It is obvious that the extension of subjectivism to expectations is the logical and natural step in the development of the subjectivist perspective and this point will never be questioned by the critics. Thus, even when the treatment of expectations is directly

at the root of a peculiar view of the market process, Hayekian and Kirznerian authors only question the final link in Lachmann's chain via the criticism of theoretical nihilism: if the market process is the result of the interaction of stabilising and destabilising forces whose combination is a priori unpredictable, then the theory loses all its interpretative power.¹⁰⁵

What is criticised by Hayekian and Kirznerian authors is not the issue of subjective expectations, i.e. the full recognition of freedom of choice, but its logical implications, namely the view of market as a non convergent process.

The effective relevance of the criticism of theoretical nihilism is not easy to establish. This criticism may appear a priori totally justified by the kind of sentences punctuating Lachmann's argumentation: 'Any force from anywhere may at any time affect our process, and forces that impinged on it yesterday may suddenly vanish from the scene' (Lachmann, 1976a, p. 131).

Indeed, if such a position constituted the final outcome of the author's reflection it alone would justify the criticism of nihilism directed at him. However, Lachmann's analysis of the market process represents only the first stage of a wider project whose objective is to provide an accurate understanding of the dynamics of different institutional systems. In that perspective, Lachmann propose to go back to the ideal-type approach of Weber and to develop not a single theory of the market process but different ideal-types of market in order to reach more precise results. Before blaming Lachmann for theoretical nihilism, it appears necessary to examine the suggested alternative.

PART FOUR

WHICH WAY FORWARD?

It is now possible to make an assessment of the condition and the scope for the development of the Austrian tradition as it appears through its modern revival. In actual fact, the results are relatively negative. Rothbard's loyal path to praxeology ends up being little more than the theoretical basis for libertarian politics; the theory of entrepreneurship, in its attempt at reconciliation with the neoclassical movement, loses the Mengerian originality related to the concepts of uncertainty and speculation; there remains the path taken by Lachmann.

Lachmann sets out using a Mengerian stance and develops a radically subjectivist view. It will be remembered that the Lachmannian logic is based upon the following sequence: economic phenomena should be explained in terms of individual plans interaction; plans, the guides to human action, express the actor's freedom of choice; they are necessarily subjective in that their elaboration requires the interpretation of the information available to the agent and the formulation of the expectations of the future conditions within which action is to be situated. Taking account of all the logical implications of these propositions leads to a particular view of the market process which is no longer based on the assumption of the existence of a tendency toward equilibrium. Such a non-determinist view of competitive interaction opens the door to a series of criticisms directed at the nihilist conclusions of the approach. As we have tried to show, in the other hand, Lachmann's approach appears to be the only avenue displaying a coherent development of a modern, Menger-inspired Austrian tradition. The crux of the matter is to establish how far Lachmann's approach is able to go beyond the criticism of nihilism. At first glance, the indeterminacy of the market process appears as the logical outcome of the assumption of radical uncertainty. However, as we will endeavour to show, Lachmann's line of thought can be developed in such a way to go beyond the problem of nihilism while remaining within a decisional context of radical uncertainty. By proceeding along this direction, we believe it is possible to develop a more precise analysis of individual interactions coherently with the Mengerian tenets.

BEYOND THEORETICAL NIHILISM

Lachmann's refusal of the criticism of theoretical nihilism is straightforward. In his view,

[As] regards "nihilism", this appears to be a term more appropriate to describing the mentality of those who, blind to the variegated activity of human minds when engaged in the formation of expectations, are frantically searching for links of mechanical causation where there are none, than to that of those who do their best to draw attention of their colleagues to the problems we all face.

(Lachmann, 1986, p. 140)

Here Lachmann takes the distance from the position of Shackle. The latter explicitly assumes the non-determinist consequences of radical subjectivism. Indeed, when Ebeling (1983, pp. 6--7) questions him on what he believes the theorist's task to be, Shackle's answer is final. The author reaffirms the complete indeterminism characterising, to his mind, all socio-economic phenomena. In this light, expectations are far too evasive and subtle to enable any principle or rule to be established which may explain their origin. More generally, according to Shackle, economists should be more cautious when giving advices, or at least should limit themselves to very general and faltering normative propositions.

Lachmann's attitude is different and less radical. The exhortation to prudence stemming from the non-determinist nature of the market process does not represent the finality of Lachmann's work. The indeterminism of the market process is rather the acknowledgement of the limits of abstraction and the point of departure for a theoretical perspective aiming at developing the approach of Menger.

In order to side-step the problem of complete indeterminism, Lachmann suggests to adopt an approach based upon the elaboration of ideal-types and upon the analysis of the role of institutions in the coordination of individual plans.

10.1. An ideal-type approach

In Lachmann's opinion, developing one single theory of the market process does not bring out the diversity displayed by reality. The efficiency of the market, in the sense of its ability to coordinate individual plans, is dependent on the institutional

context on which the market itself is built. It thus becomes necessary to develop different theories of the market process according to the different institutional environments in which market interactions take place.

Our main conclusions are, in the first place, that different markets, characterized by the encounter of different classes of agents with different interests and functions, will give rise to market processes of different kinds. In the light of this insight all statements suggesting that the market will produce this or that result must be regarded with some suspicion. It is better to speak of markets than of the market. Our assessment of the relative strength of equilibrating and disequilibrating market forces must, in each instance, take into account of the facts enumerated.

(Lachmann, 1986, p. 124)

Henceforth, the author rejects the plan of developing a general theory of the market process and suggests reducing the level of abstraction within his analysis so as to define the effect of the institutional context on the elaboration of individual plans with greater precision. For Lachmann, reducing the level of abstraction is synonymous with the adoption of an ideal-type approach. The aim here is to allow the theorist to specify the array and the assessment of the market forces coming into play. For instance, the equilibrating forces of supply and demand do not command the same power in a market where the dominant figure is that of the tradesman as in a market where prices are determined by industrialists. Still further, expectations play very different roles according to the kind of market; for instance, the essential characteristic of highly speculative markets where suppliers and buyers are easily able to change status, is the extreme volatility of expectations, a condition which may indeed generate chaos in non-speculative market.

In this context, the task of the theorist is to elaborate ideal-types of market rather than attempting to formalise the market. Resorting to ideal-types emphasises the influence of Weber and represents an obvious and permanent split with the praxeology of Mises.¹⁰⁶

An ideal-type is an abstraction of a specific aspect of reality which the theorist chooses to emphasise one or other characteristic so as to answer a particular question. The ideal-type approach is by definition eclectic. The theorist decides on the level of abstraction which is the most suitable for the problem at hand. More particularly, as far as Lachmann's preoccupation with the array of forces acting upon the market process is concerned, the ideal-type must take account of the idiosyncrasies of the market which have a direct influence on the way in which individual plans are formed. Therefore, even if the author insists on the fact that there is no systematic recipe for the constitution of ideal-types, the orientation is clear.

Markets differ in many ways that do not matter to the purpose of understanding the constellation, the entirety, of market forces. These differences become relevant only when they affect the character of human action in markets. But

when they do, they must not be abstracted from, for in such cases talk of “the market” is likely to mislead as to enlighten.
(Lachmann, [1988] 1994, p. 271)

Lachmann suggests beginning any structural analysis of the market taken in its diversity by specifying the identity, functions, objectives and modes of behaviour of the types of agents involved. This approach consists in defining the market in relation to its institutional context. More precisely, in order to offer relevant criteria to characterise markets, Lachmann takes a historical analysis of the evolution of the market economy as a support and, following Hicks (1969), analyses the implications of the passage from a market dominated by the figure of the merchant to a market dominated by the figure of the industrialist.

The typical market of the end of the nineteenth century, was dominated by merchants whose aim was to maximise profit by renewing stocks as quickly as possible. In such a system, the merchant is the individual fixing prices and the best means he has of maximising the turnover of goods is to alter prices as quickly as possible in relation to the evolution of the supply and demand with which he must cope. The nineteenth century is the stage for an important institutional change: the passage from a flexprice economy to a fixprice economy. The basic reason explaining this change lies in the fact that the figure of the merchant has been replaced in the hierarchy of power by that of the industrialist. The aim of the latter is to maximise profit and, although being to some extent sensitive to demand elasticity, he fixes prices in conjunction with other criteria.

As is by now widely known, the significant difference between [fix-price and flexprice markets] does not lie in the fact that in the latter prices moves while in the former they do not, but in the fact that in the latter prices move under the impact of supply and demand, while in the former they move in accordance with criteria regarded as relevant by the pricefixers.

(Lachmann, 1986, pp. 122--3)

Taking inspiration from the Hicksian analysis, Lachmann discusses the features of modern markets dominated by the figure of the entrepreneur. Several different cases may arise depending on whether his function of price-maker materialises by means of innovative, speculative or arbitragist behaviour. In the case of innovative entrepreneurs, expectations play a large part in the elaboration of production plans since, in order to succeed, the innovator must be able to imagine and bring about new profitable changes in the economy, thereby making the market more volatile than if it was dominated by the figure of the arbitragist. The volatility of the market will even be higher in those markets dominated by speculators, since in this case expectations play the most prominent role in decision-making.

More generally, the outcome of market forces depends on the types of agents present on the market, the economic function they perform and the rules of behaviour they follow. In this sense, it would be misleading to give a common general

theory to interpret the market of vegetables in a small industrialised town and the highly speculative stock exchange markets as if they were governed by the same constellation of forces (Lachmann, [1988] 1994).

10.2. Radical uncertainty and the role of institutions

In Lachmann's opinion, traditional Austrians are following the correct research programme when they analyse the market process from a causal-genetic point of view. However, adopting the hypothesis of the equilibrating tendency of competition channels their research into an over-general level of abstraction. On the contrary, the simple fact of admitting the existence of disequilibrium forces urges the theorist to analyse the process of interaction between plans with much greater accuracy: 'To recognize the power of the competitive market process is important. Failure to recognize its limits may yet lead us astray. Austrian lack of curiosity about price setters and takers probably has one of its roots here' (Lachmann, 1986, p. 131).

In order to demonstrate that the very fact of recognising the influence of disequilibrium forces is not synonymous with nihilism, Lachmann ventures deeper into the question of interaction between individual plans. More precisely, analysing the role of institutions in the process of formulation of individual plans allows to take into account the implications of individual free will and disequilibrium forces without losing any idea of order and without incurring nihilist conclusions.

In Lachmann's analysis institutions are defined as the set of rules of conduct and behavioural norms guiding agents in a world of radical uncertainty. Institutions provide orientation schemes in which human action takes place. In a kaleidic society, human action is not determined but neither is it arbitrary, the individual's free will fully expressing itself only in the context of specific limits provided by the institutional environment.

In a complex society such as our own, in which the success of our plans indirectly depends on the actions of millions of other people, how can our orientation scheme provide us with firm guidance? The answer has to be sought in the existence, nature, and functions of institutions.
(Lachmann, 1970, p. 49)

From an analytical viewpoint, the theory of institutions developed by Lachmann aims at reducing the indeterminism emanating from the extension of subjectivism to expectations in a context of radical uncertainty. Taking institutions into account enables the process of formation of individual plans to be specified more accurately. Institutions are recurrent patterns of conduct which limit the volatility of actions, henceforth providing a kind of fixed reference point within the kaleidic society in which individuals interact.

An institution provides means of orientation to a large number of actors. It enables them to coordinate their actions by means of orientation to a common signpost. [...] [Institutions] enable us to rely on the actions of thousands

of anonymous others about whose individual purposes and plans we can know nothing. They are nodal points of society, coordinating the actions of millions whom they relieve of the need to acquire and digest detailed knowledge about others and form detailed expectations about their future action.

(Lachmann, 1970, pp. 49--50)

Lachmann (1970) focuses not only on the traditional questions of emergence and evolution of institutions, but also and mainly on that of their flexibility and coherence.

Lachmann is here strongly influenced by the works of Menger and Weber. The author highlights the co-existence in Menger of two competing theories of institutions: in the first one, any institution represents the answer to a human need. Such a conception which, to be true, is not particularly developed and limited to appendix VI of the *Untersuchungen*, is based on a determinist view of human action which states that it would be possible to predict all action if the set of needs underlying it were perfectly known. In the same way in which the system of market prices is the expression of the wishes of individuals, institutions, according to this conception, reflect individual needs at a different level. Following the work of Weber, Lachmann rejects this determinist view of institution. The second and dominant theory of institutions of Menger concerns on the contrary the well-known non-determinist theory of emergence of organic institutions defined as the unexpected result of interaction between individuals governed by the principle of economizing. Lachmann on this point speaks of a *praxeological* theory of social phenomena and stresses the compatibility between Menger's theory of social phenomena and Weber's elitist theory of the origin of institutions.¹⁰⁷ their search to achieve their individual goals. The process of emergence of institutions is in both cases similar to that of innovation, the efficient plans of an 'elite' being gradually crystallised into social institutions by means of a selection and imitation by the 'masses'.¹⁰⁸

However, whereas the analysis of Menger and Weber concentrate on the question of the emergence of institutions, Lachmann (1970, p. 13) focuses also on 'the contrast between the necessarily durable nature the institutional order as a whole and the requisite flexibility of the individual institution'. Let us indeed remember that the question guiding the author is that of the understanding of the role of institutions in the process of interaction of individual plans and especially of their function with regard to the radical uncertainty characterising the decision-making context of individuals. The question of emergence of institutions slides thus into the background whilst that of the efficiency of the institutional order as a consistent orientation scheme comes to the fore.

The question of the efficiency of an institutional order is in direct relation to the dual nature of the social environment within which agents interact: on the one hand, institutions should make up a *stable* framework of reference allowing individuals to make their decisions without knowing the detailed plans of all other actors beforehand; on the other hand, however, they should also constitute a relatively *flexible* order enabling painless adaptation to unexpected changes in a kaleidic society. Stability and flexibility are thus two necessary features of a

coherent institutional order in its cultural dimension, giving rise to the efficiency of the market process. Therefore, Lachmann replaces the fundamental distinction Menger makes between organic and pragmatic institutions, useful mainly for the analysis of the problem of the origin of social phenomena, by that of internal and external institutions, more useful for the analysis of the question of coherence and efficiency of institutional orders.¹⁰⁹ Indeed, according to Lachmann (1970, p. 90), the institutional order is built on two principles: the first is based on the existence ‘[...] of frequently mutable [internal] institutions in a definite sphere of actions [...] so that to ensure to each individual [...] a wide sphere of contractual freedom’; the second is based on the existence of fundamental (external) institutions, ‘[...] not mutable at all [...] [which] must provide a firm outer structure in the interstices of which the sediments of individual efforts in the "free and mutable" sphere can accumulate’.

10.3. Modern extensions and deepening of Lachmann’s analysis of institutions

Lachmann’s analysis of social rules and conventions is, in our opinion, one of the aspects to be taken into account and explored in greater depth on the grounds mentioned above in order to arrive at a more complete analysis of the way in which individual plans are formed within a Mengerian framework of widened subjectivism. In this way, a complete representation of the market process considered in its whole institutional dimension may be arrived at.

Unfortunately, Lachmann never provides an explicit and complete articulation between his theory of market processes and his analysis of institutions. This seems to be a task for another generation of authors whose work has already begun.

10.3.1. The concept of pattern coordination

O’Driscoll and Rizzo (1985) develop an approach which, despite having a stronger link with the concept of equilibrium, follows the perspective of Lachmann.¹¹⁰ Their work is interesting for two reasons: it seeks to provide an answer to the criticism of nihilism whilst at the same time indicating a possible way out for the development of Menger’s subjectivist tradition toward a theory of institutions.

The Economics of Time and Ignorance fits into the extension of the subjectivist paradigm, dynamic subjectivism, being according to O’Driscoll and Rizzo, the essence of the Austrian tradition. Although the authors do not use the term ‘radical subjectivism’, they nevertheless adhere to a similar idea: the fact that human action takes place within time and that individuals act in a world of ignorance (in the sense of Shackle, not in that of Kirzner) implies the explicit introduction of the dimensions of uncertainty and speculation into the analysis. Within this context, the aim of the authors is to demonstrate that the fact of taking account of real time does not necessarily lead to chaos and pure indeterminism. O’Driscoll and Rizzo propose in that perspective the concept of pattern coordination as an alternative concept of equilibrium. Such concept is based upon the distinction Hayek

draws between the typical and unique characteristics of events. 'The plans of individuals are in a pattern equilibrium if they are coordinated with respect to their typical features, even if the unique aspects fail to mesh' (O'Driscoll and Rizzo, 1985, p. 85).

This alternative concept of economic order is based upon the coordinating role assumed by the set of rules and institutions of the system at hand. Social rules and institutions are able to reduce the level of uncertainty faced by agents, without necessarily being able to eradicate it entirely. Institutions offer general and stable rules of conduct which are the typical characteristics of the system and influence agents when forming their expectations. Institutions thus constitute a limit regarding differences in interpretations; they are guiding points in a world of ignorance which agents may use to find their way.

Lachmann's (1970, p. 37) statement that 'human action is not determinate but neither is it arbitrary' finds a concrete development in the concept of pattern coordination. The work of O'Driscoll and Rizzo indeed contributes to deepen the orientation principle anticipated by Lachmann making, in this way, a further step in the attempt to reconcile the kaleidic view of Shackle with the idea of the existence of a market order.

Thanks to the contribution of O'Driscoll and Rizzo, the analysis of the role of institutions takes on all of its importance within the Austrian tradition giving consistency to the view of the market process as a non-determined but non-chaotic phenomenon.

10.3.2. The formalisation proposed by Langlois

An interesting development of Lachmann's work is proposed by Langlois (1986a) who formalises, in a framework of game theory, the concepts of coherence and flexibility of institutions. At first glance, the task appears to be delicate to the extent that it seems difficult to formalise an environment exhibiting radical uncertainty in which each agent has to discover and to create the open set of strategies and is confronted with an open set of possible events which itself depends on the choices of the other agents. How should one proceed if the sets of strategies and events can neither be considered as given nor even been endowed with a probability? A world where events and strategies are waiting to be discovered may be analysed by formalising a kind of alertness function; how should a game be defined, however, where imagination and actors creativity come into play to a point beyond mere discovery? Langlois' (1986a, p. 172) answer consists in proposing 'a theory of plan coordination in which social institutions serve to align expectations and in which institutions themselves may weather successfully the forces of change'. The analysis is developed by starting from a simple repeated coordination game and by progressively introducing complexity in the framework.

The kaleidic nature of the decisional context of agents is understood by the introduction of a distinction between two types of strategy: strategies concerning a future which may be endowed with a probability and strategies concerning

an unpredictable future. The dimension of the game rapidly becomes important especially as Langlois suggests refining the distinction between unpredictable and predictable events: each event can be broken down into typical characteristics, i.e. stable, relatively predictable and into unique characteristics, i.e. peculiar to the particular and non-predictable circumstances in the environment. In the same manner as O'Driscoll and Rizzo, Langlois provides in this way a more precise conceptual content to the ideas of Lachmann on internal and external institutions.

The distinction between typical and unique characteristics concerns the level of events as they are perceived by agents. Now, to explain the behavioural answers of agents, Langlois borrows the notions of concrete and abstract action from Schultz: an action is said to be abstract when it is directed at a typical situation, thereby consisting of a general pattern of behaviour. The institutions enabling the coordination of individual action at this somewhat high level of generality within the perceptive hierarchy of agents, corresponds to the external social structures of Lachmann. On the contrary, a concrete action represents a specific answer to a unique event and internal institutions enable agents' plans to be coordinated at this low hierarchical level by providing common signals on which all agents can base their plans.

The twofold combination of Langlois between typical and unique characteristic and between concrete and abstract action is, in our opinion, only the first stage toward a complete Lachmann-inspired theory of institutions. Once the basic concepts have been defined, and especially distinguished from the usual cleavage between organic and pragmatic institutions, the aim would then be to continue Lachmann's programme of work laid out in his book of 1970 and to closely examine the degrees of coherence and flexibility of the various types of social structure enabling agents to cope with radical uncertainty, whilst at the same time providing flexible means of adapting to unexpected changes in a kaleidic world.

10.4. Toward an enlarged analysis of the market process

Given the above-mentioned clarifications on the nature and role of institutions, it is now possible to address the crux of the problem facing the Austrian tradition nowadays. The question can be formulated as follows: is it possible to imagine a more precise theory of the market process allowing us to go beyond the simple non-determinist conclusion reached by Lachmann, whilst at the same time conserving the assumptions of radical uncertainty and subjectivism? And to what extent is it possible, on these bases, to improve our understanding of the market process?

The challenge consists in proving that between the pure determinism of a market analysis in a context of perfect information and the pure indeterminism of an analysis governed by radical uncertainty, there is room for a positive investigation of market interaction which allows to specify with greater accuracy the evolution of the degree of coordination between individual plans. Our purpose here is to provide a general framework of the interaction between the institutional

environment and the process of formation of individual plans in which the Mengerian perspective might be further developed.

As pointed out in the works of O'Driscoll and Rizzo and of Langlois, individual choices directing the market process are the outcome of neither purely reactive behaviours as regards a given environment, nor purely arbitrary actions stemming from the uncertainty attached to the future and to other agents' actions. The theoretical element put forward by these authors, which may enable to develop a middle-ground approach between these two extreme views concerns the influence of institutional phenomena upon individual behaviours.¹¹¹ Indeed, if radical subjectivists want to overcome the criticism of nihilism levelled at them, we think that one solution consists precisely in introducing a relevant theory of institutions into the analysis of the market process.

As already mentioned, the orientation is given by Lachmann himself, aware of the risks of the theory he develops. Strict indeterminism is simply the result of a too high level of abstraction in the analysis of the market process. In order to go beyond the relatively general assertion of indeterminism and in accordance with the ideal-type approach advocated by Lachmann, it is necessary to specify the decision-making environment. The problem is that Lachmann's analysis of institutions is not organically connected with the theory of the market process. With the following framework, we suggest to enrich the Lachmannian general theory of the market by specifying the institutional set-up characterising the typical process under analysis.

Four categories of phenomena, partly overlapping one another, have to be taken into account to grasp the full influence of the institutional environment upon the process of plan formation:

- genuine market forces such as the law of supply and demand (competitive dimension);
- power relations (social, political and legal dimensions);
- institutions in its narrow meaning (rules, habits, culture and norms);
- organisations (state, corporations, firms, associations).

The following framework gives an overview of the reciprocal influences between the institutional environment and individual decisions. We enter here into the detail of the second stage of the market process as described in figure 1 (see chapter 9): the sequence of plan revision.

A convergent market process is such that it generates revision processes tending to make individual plans compatible. For convenience and in agreement with Austrian terminology, we will also use the term convergent to characterise plans, knowledge and expectations, meaning here that during the market process plans, knowledge and expectations, are modified toward a better compatibility between plans.

If the objective is to study the market process in the realm of radical uncertainty, plans should be defined in line with the Lachmannian view: individual plans are formed on the basis of knowledge learnt from previous experience and

from subjective interpretation of the present state of affairs, but also on the basis of expectations made about the future. The question is to evaluate to what extent institutional phenomena could contribute to the convergence or divergence of personal knowledge and expectations, i.e. ultimately to the coordination of individual plans.

Knowledge flows from subjective interpretations of the information agents have at their disposal; the problem is about dealing with the influence of the institutional set-up on information and on the way agents interpret data (interpretative frameworks); besides, expectations are the result of agents' subjective interpretation of information and of the imagination they develop about the future; it would be worthwhile in that connection to examine to what extent institutions, in its broad sense, enable the convergence of these subjective constructions upon which agents rely to take their decision.

If the objective is to give a synthetic overview of the market process, institutions must not be taken as given but on the contrary, should receive an endogenous treatment in order to go beyond the simple role of external constraints to which they are reduced in neoclassical analysis: institutions influence the process of plan formation and modification, but in turn, they emerge and evolve as the result of individual interactions.

The Lachmann-inspired representation of the market process would greatly benefit, in our opinion, from the introduction of such an analysis of the process of formation and revision of individual plans. The outcome would be an enlarged conception of the market process taking into account both the influence of the institutional environment on the process of plans formation and the evolution of the institutional context as the result of individual interactions. The analytical problem has been redefined, the aim no longer being to concentrate on an analysis

of the market process strictly speaking, but on an analysis of the different processes of individual plans coordination.

The next stage of our investigation is an attempt to identify, within the whole Austrian tradition, the analyses of institutions which we may appeal to in order to fill in the contents of the proposed framework.

SCOPE AND LIMITS OF THE AUSTRIAN ANALYSES OF INSTITUTIONS

It is possible to find, in the existing Austrian literature on institutions, elements compatible with our now enlarged representation of the economic coordination process (fig. 1 and 5). These elements concern two distinct although inter-related issues: the influence of institutions on the process of plan formation and the emergence and evolution of institutions as the result of individual interactions.

The aim of this chapter is to review the Austrian analyses of institutions and to weight to what extent they are appropriate to enrich the Mengerian -- Lachmanian perspective of the outlined market process. However, the task is far more complex and does not come down to mere assembling of the various parts of a puzzle. Some analyses will indeed reveal incompatible with the particular Austrian view of the market as a undetermined but non-chaotic process, to the point of questioning the possibility of developing a legitimate and coherent Austrian theory of institutions which fits in with the proposed analysis of economic coordination.

11.1. Influence of institutions on subjective plans

The objective here is to make a brief assessment of the Austrian contributions to the question of the influence of the institutional environment -- competition, power, institutions, organisations -- on the process of individual plan formation and modification.

The competitive dimension of the institutional context is no doubt the most strongly developed aspect within Austrian logic. In particular, competition is analysed by Hayek as being the most efficient spontaneous institutional environment enabling discovery and diffusion of the knowledge necessary for individuals to form convergent plans of action. In the same context, we have analysed the manner in which Kirzner introduces the role of the entrepreneur as a driving force for the process of diffusion of information. The limits of these contributions come fully into play when Kirzner's and Hayek's theories are considered as coherent and complete analyses of the market process. However, the criticism expressed falls into perspective when, as we suggest, the view of Kirzner and the more general one of Hayek, are seen as being explanatory parts of a much wider analytical scheme. Hayek's theory of competition and Kirzner's theory of entrepreneurship

shed light on the impact of the institutional environment, to be taken in its competitive dimension only, upon the process of knowledge and information circulation. Such an analysis is not likely to define the process of plan formation in its entirety as the dimension of expectations is not taken into account and as plans are indeed influenced by a whole host of other institutional elements. Such an analysis nevertheless enables one specific aspect of the phenomenon under analysis to be examined in: the influence of the institutional dimension of competition on the diffusion and convergence of individual knowledge.

The institutional dimension of power is a priori an unfamiliar element to Austrian logic.¹¹² Wieser alone lays the basic principles of a theory of social evolution based upon the interaction between masses and leaders. The author thus introduces the institutional dimension of power as being a driving force within social dynamics. As already pointed out however, the rather radical normative conclusions arrived at by Wieser are certainly at the roots of the general neglect of his work. It remains that the role of power in the process of coordination of individual plans still need to be dealt with by Austrian authors.¹¹³

The Legacy of Max Weber (1970) may be considered as the moment when Lachmann begins to plunge deeper into the dimension relative to institutions in their strictest sense, i.e. to the rules, the habits and to the norms of conduct. As previously underlined, Lachmann puts forward interesting insights about the way in which institutions enable agents to cope with the radical uncertainty of decision-making environment and the works of O'Driscoll and Rizzo, and of Langlois appear to follow this perspective.

A major source of uncertainty arises from the fact that agents must speculate about the actions of other individuals. The divergence of plans stems from this point of view, from the gap between individual expectations and the effective decisions of their partners. One of the functions of institutions is to reduce the size of this divide. Boland (1979) highlights two means by which institutions contribute to the convergence of individual plans. Institutions such as social prohibitions or even cultural taboos enable the scope of possible actions by other agents to be reduced. Institutions, norms, standards and conventions do not erase individual freedom of choice but contribute to the convergence of plans by increasing the probability of one type of action within the choice set available.

The institutional dimension of organisations is without doubt an aspect which is traditionally neglected by Austrian authors who have a preference for the analysis of organic phenomena. This theoretical vacuum is nevertheless partly filled by the work of contemporary Austrian authors such as Langlois (1986, ed.; 1992) who attempt to assemble Austrian and new-institutionalist logics within one coherent paradigm.¹¹⁴

Langlois's main contribution concerns the extension of the Austrian logic to the analysis of the firm and the state. The author suggests that the firm be considered, in a strictly Hayekian perspective, as a place where particular tacit and specific competencies are to be found. The firm, according to Langlois, is thus not set against the market since the firm is oriented toward unique situation whereas the market provides general patterns of response oriented toward typical situations.¹¹⁵ In this view,

the firm is analysed as a system of routines and implicit rules whose evolution can be described, in Hayekian terms, as cultural evolution. The question here is not to understand under what conditions the firm takes the place of the market but to analyse the two institutions as different responses to different coordination problems. The firm and the market are thus presented as complementary institutions enabling the coordination of diffuse and tacit competencies of economic agents according to the specificities of the coordination problems at hand.

11.2. Emergence and evolution of institutions

In the realm of the Austrian school, the question of explaining the emergence and evolution of an institution receive much more interest than the question of identifying its influence on the process of plan formation. This stems directly from the Austrian causal-genetic way of thinking inherited from Menger: an institution is a complex phenomena which, in order to be analysed in a scientific manner, should be reduced down to its simplest essential elements. Obviously, only organic institutions are concerned, since pragmatic phenomena are merely and explicitly the product of human will. The issue faced by Austrian economists is then to provide a rigorous analysis of the process of emergence of organic institutions.

In that perspective, organic institutions -- kosmos in the terms of Hayek (1973b, p. 42) -- are analysed as the unexpected results of human action and are given invisible hand explanations. In particular, two complementary types of invisible hand explanations are developed: genetic explanations (Menger) and functional explanations (Hayek).

Ullman-Margalit (1978) provide the philosophical foundations for invisible hand explanations. It consists of a specific and well-defined method of analysis of organic social phenomena which, in line with Austrian thinking, is applied as much to the level of orders as to that of the institutional environment having given rise to them.

The central question to which a genetic explanation attempts to provide an answer is that of the emergence of spontaneous and complex social structures. The field of application for this type of explanation is narrowly defined and concerns social phenomena which, despite displaying a clear level of organisation and structure, are not the result of conscious action by a planner. An explanation to these phenomena must be found in terms of individual interactions which are not directed at their elaboration. Invisible hand explanations do not analyse a given condition of the economic system but the process which has given rise to it and, in this sense, they are in perfect agreement with the causal-genetic approach underlying the Mengerian framework.

From a practical point of view, an invisible hand explanation follows the steps described below:¹¹⁶

The first step consists in analysing the order or the institutional context of the economic system taken as a starting point and in identifying the imperfections of this initial condition. These imperfections may reflect unexploited profit opportunities (e.g. Kirzner's theory of entrepreneurship) or more generally, dysfunctions attributed to problems of coordination between individual plans.

The second step consists in explaining the process itself which will lead to the emergence of social consistency. Individual actions directed toward the satisfaction of personal plans represents here the very dynamic forces giving rise to the phenomena under analysis. To be precise, this means examining how economic actors adapt to previously detected imperfections and how a momentary and efficient adaptation by a few agents spreads by a phenomenon of imitation to the group (e.g. Wieser's analysis of leaders -- masses interaction).

Finally, the analysis ends with an examination of the efficiency of the new order or institutional regime thereby put in place, with particular emphasis on the proof of its independence from any human design. The institution, seen here as a behavioural consistency shared by the group of agents within a social system, is therefore the final step in the explanation.

According to Ullman-Margalit, a genetic invisible hand explanation is 'true' providing history reveals that the phenomenon under analysis does not arise from a concerted action. It is moreover 'cogent' when the process of interaction giving rise to the institution is described as a normal process, i.e. if the explanation itself appears to be natural. It will be noticed that this is precisely the nature of the explanation Menger provides regarding the emergence of money which indeed has become the genetic invisible hand explanation par excellence.

If genetic explanations concentrates on the question of the emergence of institutional phenomena, functional explanations answer the question as to why they exist. The question here is that of their raison d'être, the justification of the existence of an institution being sought by analysing of the role the institution plays within the system at hand.¹¹⁷

Hayek's evolutionary theory is the typical example, according to Ullmann-Margalit, of functional explanation of institutions. Indeed, The question of the origin of institutions is not tackled and Hayek instead concentrates on the reasons explaining their preservation and stability. For Hayek, the existence of an institution is justified by the role it plays in the community from which it has emerged. The argument is rather simple: whatever its origin, the successful diffusion of a social phenomenon depends on the efficiency with which it fulfils its role in terms of group survival. According to Hayek (1979, p. 9), the present order of society has emerged not by intention, but via the predominance of the most efficient institutions within a selection process. More precisely, '[social institutions] did develop in a particular way because the coordination of the actions of the parts which they secured proved more effective than the alternative institutions with which they had competed and which they had displaced' (Hayek, 1967, p. 101).

The definitions given by Ullmann-Margalit of genetic and functional explanations enable the works of Menger and Hayek on institutions to be synthesised. Indeed, Menger gives precedence to the origin of organic phenomena by emphasising self-enforcing processes (positive feed-back), whereas Hayek gives pride of place to an argument on selection and insists on the role of negative feed-back in the process of evolution and adjustment.¹¹⁸ Genetic and functional explanations are thus not contradictory and, according to Ullmann-Margalit, can be combined

advantageously to provide a complete explanation of organic phenomena which sheds light on both their origin and their stability.

In modern developments, both the problems of the origin and stability of institutions are analysed by means of the tools of game theory. Two canonical repeated game models have been developed to analyse the emergence and diffusion of social norms and conventions.¹¹⁹ Coordination games set up situations where there is no conflict between agents, the problem being to find a strategy allowing a common objective to be reached. Economic agents have the same incentives to act and identical preoccupations. The emergence of a behavioural norm is analysed as a means to facilitate coordination by reducing uncertainty and the cost of information research.¹²⁰ Prisoner's dilemma games confront agents with differing motivation whose interaction does not lead directly to a social optimum. However, as shown by Axelrod (1984), repeating the game can under certain conditions bring about the emergence of efficient rules of behaviour which produce socially optimal results.¹²¹

Game theory allows Austrians to demonstrate the spontaneous emergence of an efficient social phenomenon without the intervention of any planning whatsoever, simply using individual interaction motivated by the search of personal interest. However, as Vanberg (1986) explains, in order to establish the spontaneity of institutions, thereby providing a clear-cut invisible hand explanation, the system must meet certain extra-conditions.

Regarding coordination games, (1) agents should be indifferent to the distinct alternatives with which they are confronted; (2) the fact that one of these alternatives comes into play more often than the others must be a matter of pure chance; (3) a cumulative process must come into operation to explain why a norm has been intensified; (4) once the norm has been established nothing should arise which may encourage agents to change it.

As far as the framework of the prisoner's dilemma is concerned, Vanberg (1986, pp. 95--6) explains that it is necessary to introduce a mechanism of reciprocity, which is defined as '[a] reciprocal reinforcement by mutually exchanging rewards and punishments in social interaction', which prompts individuals '[...] to take into account the future consequences of their present choices. Immediate gains from non-cooperation may well be overcompensated by the future losses from unfavourable responses one elicits'. As the aim of Austrian authors is to explain institutions as purely spontaneous phenomena, it is also necessary, in order to provide a satisfactory invisible hand explanation in the theoretical framework of the prisoner's dilemma, that the mechanism of reciprocity be itself an organic device, i.e. directly inferred from the situation in which agents confront each other, without any explicit coordination between them. This may be the case in situations where it is hard for agents to cheat whilst remaining anonymous and

where their temporal horizon is also sufficiently wide. Indeed in these conditions, a spontaneous mechanism of reciprocity may operate, actors being aware that a strategy of non-cooperation in the present may have far-reaching consequences for the future in terms of possible retaliations by the other agents concerned.

Invisible hand explanations, formalised in the framework of game theory, enables institutional phenomena to be rigorously taken into account in a perspective compatible with the strict methodological individualism of the Austrian tradition. Within such a perspective, the development of genetic and functional explanations allows to discuss both the emergence and diffusion of institutions. A priori, the combination of these analyses seems appropriate for providing an endogenous treatment of institutional phenomena. The very challenge however is to blend them into a coherent whole with the dual analyses of the effects of the institutional environment on individual plans. The problem is complex enough if one reflects on the fact that, as previously underlined, the analysis of the influence of the institutional environment on individual plans is not organically developed within the Austrian tradition. On the other hand, it will be remembered that the construction of a theory of the reciprocal influence between individual interactions and the institutional level is essential for overstepping the indeterminacy to which the Lachmannian development of Menger's perspective leads.

11.3. Limits and shortcomings of the Austrian analyses of the interaction between institutions and individual plans

The attempt to elaborate an Austrian theory of the influence of the institutional environment on the process of formation of individual plans and to develop it coherently with the view of the institutional environment being a product of pure spontaneous interactions brings to light inconsistencies and tensions which have remained latent up until now.

The most serious difficulty concerns in our view the compatibility of such an analysis with the basic tenet of methodological individualism to which the whole Austrian tradition adheres. The discussion of this problem will in turn casts doubts on the legitimacy of modern Austrian normative position. Indeed, the Austrian tradition is increasingly aligned with the defence of free market but it is analytically doubtful that this may be derived from the original scientific programme of Menger.

11.3.1. Methodological individualism and institutions

One of the main obstacles to the elaboration of a coherent and complete Austrian theory of institutions stems from the adhesion to a strictly individualistic view of society.¹²² This statement can be illustrated by discussing the Hayekian theory of cultural evolution and the theoretical difficulties to which it gives rise.

Hayek was late in offering a functional theory of the invisible hand type; indeed, the theory of cultural evolution is essentially developed in his final book,

The Fatal Conceit (1988). The publications of 1967 -- Studies in Philosophy, Politics and Economics -- and of 1973 -- Law, Legislation and Liberty -- nevertheless contain hints of the evolution that was to come. In Hodgson's (1994b, p. 158) opinion, the fact that Hayek did not develop the question earlier is due to his radically anti-constructivist position of the 1950s. The outright borrowing of biological metaphors indeed appears to be in direct conflict with the attack of scientism as a servile imitation of the methods and of the language of the natural sciences.

In a way or another, it is evident that Hayek's evolutionary theory reproduces the same sequence as the biological principle of evolution ensuing from the combination of the three basic principles of variation, heredity and selection.

The principle of variation

Variety and diversity are the indispensable conditions for any process of biological evolution. They are a sort of fuel for the process, as without diversity no selection can come into operation. The biological origin of diversity stems from genetic mutations upon which the principle of selection acts. Science does not allow us to explain nor to forecast the occurrence of genetic accidents enabling the field of application of the selection process to be widened. Mutations occur by pure chance.

In the field of cultural evolution, variety does not stem from chance but from the creative minds of individuals. It is this aspect of Schumpeter's analysis that has received so much praise from evolutionists. Without novelty there would be no evolution, but only adaptation. The problem is that, paradoxically, modern Austrian authors and Kirzner in particular focus mainly on the problem of discovery, limiting in this way the analysis to the adaptation of institutions rather than to their appearance.¹²³ A conception of entrepreneurship based solely on the idea of alertness and arbitrage rules out the possibility to develop an endogenous approach to economic evolution: nothing is created, everything is gradually discovered. Variation is left to pure chance and relegated out of the sphere of investigation of the economist.¹²⁴

In Hayek's theory of cultural evolution, innovation is not analysed and the appearance of new institutions is put down to chance, in line with the biological analogy. Therefore, the process analysed is not that of the emergence of new institutions through the study of individuals' creative behaviour, but that of the diffusion of the efficient institution by means of its selection.

The principle of heredity

For there to be evolution in the biological sense of the word, there needs to be a spreading and a generalisation of mutations throughout the whole of the population. The principle of heredity points to the existence of a mechanism for transmitting genetic characteristics from one unit to the next. Heredity thus reflects the notion of stability and continuity of the characteristics of the selective units.

The discovery by Mendel of genetic transmission mechanisms put an end to the controversy opposing Darwin and Lamarck regarding the transmission of acquired characteristics.¹²⁵ In the field of socio-economics, however, there is nothing

to justify the rejection of Lamarck's principle. On the contrary, the diffusion of social rules and other institutions involving individual learning can be better assimilated to a Lamarckian process of transmission of acquired characteristic than to the biological mechanism of genes transmission. The Hayekian functional theory of cultural evolution is inspired by a Lamarckian biological metaphor. Lamarck's biological stance consists in defending the idea that the function creates the organ and that the alterations of the latter are passed on to descendants through heredity of acquired characteristics. In the same way, according to Hayek (1988), social institutions only impose themselves after selection by a process of diffusion between agents with imitation and learning being the motors of cultural diffusion.

Witt (1989) attempts to deepen Hayek's analysis of the process of transmission and diffusion of institutions beyond the simple mechanism of imitation, introducing the hypothesis of frequency -- dependency. The problem is presented in probabilistic terms. Each individual has the choice between adopting a new rule or not, according to the advantage he believes he will derive from it. The extent to which an individual is able to improve his position by adopting a new social rule is a function of the relative frequency by which the other members of the population have themselves adopted the same rule. In this way, Witt explicitly introduces a dimension of inter-dependence between decision-makers

However, the field to which the frequency -- dependency effect may be applied is limited to situations of coordination game where the institution represents an efficient answer to a problem shared without conflicts of interest by all agents. On the contrary, in the case of prisoner's dilemma type situations where free-rider behaviour may logically appear, the diffusion process cannot be explained on the strictly individualistic basis proposed by Witt and alternative diffusion devices such as group phenomena need to come into play to ensure cooperation.

The principle of selection

The biological principle of natural selection or struggle for life is based on a selection mechanism by which the most apt categories increase in number in an absolute or a relative way. The definition of a selection mechanism presupposes the definition of the unit of selection, be it the gene, the individual or the group.

In the context of social phenomena, the unit of selection can take on different forms: firms, techniques, individual behaviours, routines, etc. According to Hayek (1988, p. 16), selection takes place at the 'institutions and practises' level, i.e. on 'socio-cultural rules' governing the individual behaviour of a given group of agents.

It is at this level of the analysis, when defining the selection mechanism, that Hayek's theory of cultural evolution is the most surprising. Indeed, the author introduces an indirect mechanism of rule selection which concerns not the individual but the group. In this way, selection concerns the social rule of behaviour (unit of selection), but selection happens via the group (mechanism of group selection), whereas diffusion of the rule within the group comes about through its members' individual decisions.

The use of a group selection mechanism tends to be somewhat disconcerting for Hayek was unanimously considered up to that time as one of the most fervent partisans of methodological individualism. Vanberg (1986) and Hodgson (1991) clash at this point on the question of the compatibility between group selection mechanism and the strictly individualist Austrian position.

Adopting the group selection mechanism is in perfect harmony with the functional approach guiding Hayek. It will be remembered that, according to the functional view, the existence of an institution is justified through highlighting the function the latter performs within a group of individuals relative to the capacity of the group to expand or to survive.

[...] new rules would spread not because men understood that they were more effective, or could calculate that they would lead to expansion, but simply because they enabled those groups practising them to procreate more successfully and to include outsiders.

(Hayek, 1988, p. 16)

The existence of a rule is thus justified by its contribution to the continued existence of the group. More exactly, the group selection mechanism can only come into play if there is a particular feature of the group (fashion, culture, behavioural habits) acting on all its members and if this feature reveals itself to be a powerful driving force for the expansion or the extinction of the group.

According to Vanberg, the tension between group selection mechanism and methodological individualism characterising Hayek's cultural evolution theory has to be solved by dropping the former concept in favour of an explanation of rule diffusion in terms of direct selection by the individuals concerned. In reality, the frequency -- dependency effect developed by Witt is precisely an attempt to answer the problem defined by Vanberg and consists in offering an alternative diffusion mechanism on a strictly individualist basis. However, as stressed above, this type of mechanism cannot explain diffusion in situations where there is a prevalent rule, beneficial for the group as a whole but not for the individuals taken separately.

The tension between the theory of evolution and methodological individualism is hardly superable according to Hodgson, since any evolutionary analysis must take account of the feed-back of institutions on preferences and behaviour of agents.¹²⁶ The very problem concerns the way in which individual preferences are analysed. Hayek admits that preferences are the result of an individual undergoing a socialisation process, but no analytical consequences are further derived from this. According to Hayek, it remains the task of sociology and of psychology to analyse how preferences are formed in the socialisation process; economics on the contrary must take them as given. Hodgson (1994a) criticises this strict compartmentalisation between social sciences which is a characteristic element of Hayek's thought: the individual is represented as an atomistic entity who, in return, is not influenced (given preferences) by the changes in the institutional context. If no supra-individual structure is granted with its own existence nor influence, in the same way, no infra-individual level can be taken into account. This strict

compartmentalisation is precisely what impedes a real evolutionary development of Hayek's theory since individual internal changes are disconnected from changes taking place in the environment in which the individual is acting.

Resorting to a group selection mechanism, in Hodgson's opinion, shows in fact how far Hayek is involved in the evolutionary logic. However, it must be clear that adopting an evolutionary logic requires a strictly atomistic view of individuals to be abandoned. If on the contrary, a pure methodological individualist logic is to be maintained the principle of group selection should be substituted by explanations in terms of individual choice.

More generally, a strict methodological individualist stance limits the field of investigation to questions of emergence and evolution of social phenomena in terms of individual interaction and does not allow to go deeper into the role institutions may have on individual behaviour in return. In its strictly individualist version, the Austrian theory is thus obliged, for reasons of methodological coherence, to take no heed of the feed-back of institutions concerning individuals. Institutions are effects and not causes. Introducing the role of institutions in a coherent evolutionary framework obviously implies a loosening of the individualist position.

If such a conclusion is accepted, it seems legitimate to wonder just how far the view we offer of the enlarged market process should be limited to existing developments within the Austrian literature.

11.3.2. The efficiency of spontaneous phenomena

Liberalism and non-interventionism are the spearheads of the traditional Austrian movement.

Austrian research basically concerns organic institutional phenomena to the detriment of pragmatic institutions. This seems to be the consequence of the normative positions characterising Austrian authors as a whole. Here we touch upon the realm of values and ideological beliefs: roughly speaking, only spontaneous institutional phenomena are considered efficient. Intervention is seen as a source of inefficiency and reflects man's excessive trust in his ability to control the complex phenomena of individual interactions.¹²⁷ Such a position is only acceptable to the extent that spontaneous phenomena are analytically proved to be more efficient than planned ones. Such a demonstration seems, however, to be sadly lacking. In the same manner as the convergence of the market process, the efficiency of organic institutions turns up to be affirmed more than it is demonstrated.

Our criticism concerns the rather flimsy analytical foundations upon which the principle of efficiency of spontaneous phenomena is based. Hayek's justification rests on a functional evolutionary argument: if institutions emerge to a large extent by chance, then their development indeed is proof that they are adequate for the existing problems of coordination between individuals. In other words, only efficient phenomena -- institutions or orders -- survive and evolve.

It would be going too far, however, to assert that the results of the process of cultural evolution are automatically optimal in Hayek's opinion. The author's basic argument consists rather in emphasising the negative effects of intervention.

The complexity of spontaneous order, in the view of Hayek, is such that any attempt to intentionally reproduce its results is bound to fail. In the same way as it is impossible to reproduce crystal by placing its composite atoms one by one at the place that falls to them, it is equally impossible to reproduce market order by controlling and organising the fragmented knowledge and actions of economic actors (Hayek, [1973] 1980, p. 46). According to Hayek, it is overestimating the capacity of the human mind to believe that it is possible to reproduce an organisation whose complexity may go beyond understanding. The failure of constructivist attempts stems thus from the complex nature of institutional reality.

Hayek however does not go to the point of associating selection with optimality. In Hayek's reasoning, market order is not the optimal method of organisation, but allows a more efficient coordination of plans and of knowledge scattered between agents, when compared to other non-spontaneous forms of organisational structures.

If we do not know the facts we hope to discover by means of competition, we can never ascertain how effective it has been in discovering those facts that might be discovered. All we can hope to find out is that, on the whole, societies which rely for this purpose on competition have achieved their aims more successfully than others. This is a conclusion which the history of civilisation seems eminently to have confirmed.
(Hayek, 1978, p. 180)

By resorting to an evolutionary logic of selection, Hayek thus associates spontaneity with improved efficiency. However, even in this moderate version, the argumentation is not given sufficient justification. The biological metaphor is indeed not sufficient to exclude the possibility of occurrence of inefficient outcomes as Veblen's (1899) analysis of 'imbecile institutions' clearly underlines.

We are here a long way from the caution of Menger who firmly refuses the absolute principle that organic phenomena are more efficient than consciously created orders. Menger indeed goes as far as warning against an excessive trust in natural phenomena.

[a] statesman who would hesitate to change the law with regard to the common good just because it is really or supposedly of "organic origin" would be comparable to a farmer, a technologist, or a physician who would avoid any interference in the course of natural organic processes out of veneration for the high wisdom which is manifest in nature. And are there not even noxious organisms?
(Menger, [1883] 1963, p. 233)

Hence, it is not the belief in the greatest efficiency of spontaneous phenomena that encourages Menger to concentrate on organic institutions at the expense of pragmatic institutions.¹²⁸ As already underlined, the aim of the author is to supply an explanation of complex economic phenomena by a causal breaking down into essential elements. It is only in this sense that the understanding of the emergence of pragmatic institutions is not a relevant problem in Menger's approach: their existence stems directly from human designs and needs thus no further investigation. The equation spontaneity -- efficiency represents an ideological jump which belongs to the third generation of authors and which has little to do with the Mengerian scientific perspective.

CONCLUSION

A PLEA FOR AN OPENING UP TO
INSTITUTIONALIST LOGIC

In this work, we have attempted to grasp the elements making up the Mengerian originality and to identify, among the variety of developments upon which the Austrian tradition progressively takes shape, those which fit in with the theoretical orientation of the Grundsätze and the Untersuchungen.

Our result is that among Austrian authors, Lachmann provides in our view the most promising achievement of the subjectivist paradigm remaining faithful to the Mengerian causal-genetic way of thinking. In the face of the criticisms raised to Lachmann's theory, we have tried to articulate the author's view of the market as an economic process with his analysis of the role of institutions as coordinating devices in a context of radical uncertainty. The resulting framework has in no way the ambition of being an accomplished theory of the process of economic coordination. This would be the task of positive theorists and not of historians of thought. Nevertheless, we hope that our analysis may give a few hints as for the possible theoretical directions a modern Mengerian approach could follow. Concretely, the way in which we think it is possible to overcome the pure indeterminist results of the Menger -- Lachmann inspired analysis of the market process is to enrich the framework with an adequate theory of institutions. However, at the light of the our analysis, we find no valid reason for restricting ourselves to the contributions of Austrian authors to the theory of institutions. Quite the contrary when we consider the different limits highlighted in this area as it is not likely to lead us very far. In our opinion, interesting elements which may enrich the view we have outlined of the market process can be found in the writings of institutionalist authors. This does need some justification.

The question of the relationships between Austrian and institutionalist schools is already the subject of quite a considerable wealth of literature. There is no agreement on that topic and views deeply differ from author to author, some considering that the two traditions present a certain degree of complementarity and others considering them to be radically incompatible.¹²⁹ The general impression emanating from the debate clearly does not favour a possible coalescing of the two traditions. As far as the specific objective of our proposal is concerned, we would not be however that pessimistic.

The positions emerging from the debate may be summarised in the following manner. A first group of authors points out the common interests of the two schools

of thought: Austrians and institutionalists adopt the same critical attitude toward the neoclassical analysis of equilibrium, concentrating rather on the analysis of economic processes of change and evolution; they both develop their analysis within a framework of uncertainty; they both attempt to identify the mechanisms enabling coordination of individual subjective actions; and they both consider the theme of institutions as being of particular relevance.¹³⁰ The problem is that the points emphasised concern concepts which often remain vague and of such a general nature that it appears legitimate to question ourselves on the validity and effect of such a confrontation, especially as considerable differences begin to appear as soon as we go into detailed comparison.¹³¹

A second group of authors on the contrary highlights the points of divergence between the two traditions.¹³² Here, the differences are clear-cut and substantial. The major source of divergence is apparently of an ideological nature: the Austrian faith in the free market mechanism as an efficient device for coordinating economic activity is in striking opposition with the interventionist position of institutionalist authors who bring their mistrust of spontaneous institutions to the fore. A second relevant difference lies in the methodological sphere: the strict individualist position of Austrians stands in sharp contrast with the holist approach of institutionalists.

In fact, it is difficult to go beyond a certain superficiality in these confrontations if the terms of the debate are not more accurately specified. In this connection, let us remember that our problem is not to establish the general limits and possibilities of the compatibility between the two schools, but rather to wonder about the possibility of introducing explanatory institutionalist elements into a Mengerian -- Lachmannian view of the market process.

Let us thus analyse within this narrower context, the main obstacles to an institutionalist enriching of the theory of the market we have developed. Let's consider first the ideological argument. Nobody will be shocked if Austrians are associated with laissez-faire and institutionalists with interventionism and the defence of some form of planning. Austrians aim to provide the best analytical case for the market whereas institutionalists emphasise the role of the state. This difference in the normative positions of the two traditions stems, in fact, at the analytical level, from their respective view of the market process: the main preoccupation of Austrian authors is to offer an analysis of the market process as an efficient mechanism for coordinating economic activity. Institutionalist authors instead do not believe in the capacity for adjustment of competitive forces only and do not restrict themselves to an analysis of the market; for them, it is more a question of supplying a representation of the economic process as it results from the interaction of market and other institutions. In any case, even though the ideological diversity is apparent, we believe that the ideological argument does not constitute an insurmountable problem. If it is true that the ideological vision is unavoidable in the definition of the theoretical field of investigation and if it is true that it also conditions, in one way or another, the analytical framework to develop, it is also true that in an open scientific discussion, ideological (pre-scientific) convictions should not be allowed to direct analytical conclusions. In this sense, the

problem of ideological incompatibility must not impede any attempt of synthesis between different approaches, provided that ideology is confined to the pre-scientific stage (within which it should also be made explicit) and is not allowed to interfere with the scientific results of the analysis.¹³³ In the case we are concerned with, the problem is even simpler given the specific limits of the proposed investigation. Indeed, Lachmann's work surely cannot be considered biased toward an ideological defence of market. The picture the author gives of the market process does not, in fact, lead to the traditional normative implications favourable to the free market and perhaps that if Lachmann's analysis is so strongly criticised within the Austrian tradition it is in part due precisely to its non-aligned normative implications.

But then, if ideology is not an obstacle, in what sense does the institutionalist analysis of the relations between individuals and institutions alter the Mengerian - Lachmannian view of the market?

As soon as we take into account both the influence of institutional phenomena on individual plans and the fact that institutions themselves are influenced by individual interaction, then the analysis takes on a new dimension. It becomes in fact a much more general representation, no longer reduced to a simple analysis of the market process. In the light of institutionalist contributions, the analytical framework we have proposed should thus be interpreted as a general picture of the process of economic coordination, not limited to the market mechanism. Economic coordination by the market is only one method of coordinating individual activities whose limits, within the Austrian tradition, have been highlighted by Lachmann. There exist however other economic mechanisms and the suggested framework may well take them into account by coherently developing an analysis of the influence of the institutional environment on the individual according to institutionalist contributions. Integrating the contribution of the institutionalist tradition leads to a wider representation of the process of economic coordination centred on the interaction of different complementary coordination mechanisms of which the market is just one example. In this context, this ideal-type representation breaks with traditional Austrian approaches, both normatively, as the market process as such is no more analysed as an efficient coordination mechanism, and analytically, as the question of convergence of the market process is replaced by that of combining the different coordination mechanisms which determine the evolution path of the economic system. The ideal-type approach advocated here emphasises the fact that the economy looks different according to which type of coordinating device is emphasised. Thus, the understanding of the economic reality depends on our capacity to take all relevant coordination processes into account.

A second type of obstacle is connected to the methodological opposition between the strictly individualist position of the Austrians and the holist position of the institutionalists. The rift is, to use the famous analogy of Nozick (1977), reminiscent of the problem of the chicken and the egg. Do individual interactions cause the emergence and evolution of institutions or do institutions mould individual plans? Do we have to give a clear-cut answer by deciding which win the primacy? As we have seen, Austrian strict individualism may be associated with

the reductive position according to which the only acceptable economic analyses are those reducible to theories of individual action, the only exogenous variables (preferences in particular) being provided by other social sciences such as sociology and psychology. We have also seen, however, that this reductionist position is precisely what hampers a coherent development of the Mengerian -- Lachmannian analysis of the market process. In this sense, the institutionalist approach, giving pride of place to the analysis of social forces that bear on individual action, seems to us appropriate to overcome the theoretical problems stemming from the strict individualism position of the Austrian approach. This means that in a coherent Mengerian -- Lachmannian perspective, the strict individualist view should be abandoned and the analysis of the influence of institutions on the formation of individual plans should be deepened. In conclusion, we think that, Within the limits of the specific problem of the analysis of the processes of economic coordination, Austrians and Institutionalists are more complementary than antagonistic. And it is indeed by exploiting such complementarities that, in our opinion, the Austrian school may gain a new insight into the analysis of the processes of coordination along the way defined by Menger and developed by Lachmann.

Following these remarks, it now seems appropriate to question whether giving an Austrian denomination to the view of the process of economic coordination we have outlined is still legitimate. In our use of the Austrian label we have basically referred to the development and deepening of the Mengerian originality. It is true however that the direction we have proposed in order to develop the Mengerian essence leads to contradict two positions, a methodological and a political one, traditionally associated to the Austrian tradition: strict methodological individualism and the defence of free-market. But the problem, we think, is neither to be faithful to universal methodological principles, nor, less than ever, to support specific a priori political position. Methodological principles cannot be defined independently from the theoretical problem and it is the correct identification of the problem that necessarily guides the choice of methodological principles. In the same way it is obvious and unavoidable that ideology guides the definition of the theoretical problem but it is biasing and damaging to allow it to guide also its analysis.

In that perspective, no a priori methodological or ideological position should, in our view, form insurmountable obstacles. More important is to deepen consistently the economic problem once it has been correctly specified. And it is precisely to the identification of the economic problem that, in our view, history of economic thought may give the greatest contributions. But if the analysis of a school of thought helps us to better specify the economic problem under analysis and its evolution through time, it does not necessarily provide us with the exhaustive means to analyse it. Once the economic problem is well-defined and explicitly set, only half the task has thus been completed. The problem then is to develop effectively the analysis of the problem identified. But this is more the task of the theoretical analyst than not that of the historian of thought. It is clear anyway that by making precise and explicit the problem, its analysis can be freed, at least in principle, from ideological and methodological prejudices.

In the specific context of the Austrian theory, our analysis has led to specify the theoretical problem as one concerning the understanding of the process of economic coordination. In this connection, the analytical framework we have outlined has no more pretence than that of organising coherently the analytical contributions that a theory of institutions can provide to the analysis of the problem of economic coordination. The problem is thus to identify the features that a theory of institutions should have in order to fit correctly into this analytical framework. Such a theory should respect several prerequisites: it should provide an analysis of both organic and pragmatic phenomena, going beyond the superficial Darwinian argument according to which only efficient institutions survive in the long term; it should allow sources of efficiency and inefficiency of existing institutions (both spontaneous and planned) to be identified; it should consider institutions as moulding individual and individuals as shaping institutions, abandoning the strict dichotomy between holism and individualism. The ability to develop such a theory of institutions, coherently with the analysis of the economic coordination process, represents, in our view, the very challenge for a Menger-inspired approach to economic theory.

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