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The Methodology of the Neo-Austrian Research Programme

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1. INTRODUCTION

Since the 1970s the Austrian school of economics has experienced a modest revival. Its main ideas, notably on the dispersion of knowledge and the social-evolutionary theory of institutions, have given it (at least on these topics) a possible way back into the spotlights of economics. However, there are some aspects of 'Austrianism' which seem to clash with mainstream views. In particular, these ideas concern methodological and philosophical (more specifically, epistemological) issues.

As White (1984) has shown, differences of opinion with regard to methodology and particularly epistemology belong very much to the tradition of the Austrian School. Austrians have based their methodological views on very divergent epistemological foundations. Even the older Austrians did not agree on this point.² Nevertheless, despite these differences, one may maintain that Austrians adhere to more or less the same methodology. It has been depicted as idiosyncratic and mistaken. Some (even famous) historians of economic thought think that the apriorism on which it is based, is "... a throwback to the Neanderthal 'essentialism' of yesterday" (Blaug (1980b, p. 273)). More recently, other philosophers and methodologists have relaxed this harsh judgment.³ The main purpose of this survey will be to give an account of Neo-Austrian methodology. However, as this methodology is rather different from 'mainstream' empiricism (in a broad sense), it is necessary to elaborate on its epistemological underpinnings.

The analysis is restricted in several ways. Firstly, we shall not consider the views of the 'older Austrians'. The analysis is limited to what may be called the Neo-Austrian school. The analysis starts with the views of Ludwig von Mises, who is considered to be the 'bridge' between the older generation, including Menger, Wieser and Böhm-Bawerk, and the younger one, including economists such as Hayek, Lachmann, Kirzner⁴ and Rothbard. He has influenced many

¹ The author wishes to thank Dr. Bert Huussen, Prof. Hans Visser, Dr. Willem Keizer, Drs. Auke Leen and Drs. Emiel Wubben for their comments on earlier versions of this paper and for their stimulating discussions. Of course, the author is responsible for any mistakes.

² Cf. White (1984).

³ Cf. Caldwell (1984); Huussen (1990).

⁴ Unfortunately, Kirzner has not made clear his views on the logical foundations of the action axiom. As Caldwell (1984, p. 363) observes, "... Israel Kirzner approaches methodological questions rather pragmatically." This assessment is based on conversations between Kirzner and

economists, including Neo-Austrians as well as Neoclassicals.⁵ Mises's emigration to the U.S.A., forced by the threat posed by Hitler Germany, has proven to play an important part in the dissemination of Austrian ideas. In the 1970s Anglo-American Neo-Austrians have revived interest in 'Austrianism' in general and Mises in particular. They regard his magnum opus *Human Action* as the fundamental work in which he outlined the Neo-Austrian research programme (although they do not adopt this Lakatosian concept).

The second restriction which is adopted concerns the Austrian philosophy of science. The different epistemologies will lead to different demarcation and classification criteria. The analysis presented in this paper will be restricted to what may be called *pure theory*. Menger (1883 (1969), pp. 8 - 9) already distinguished three types of economics as a social science, namely (1) theory, (2) history, and (3) 'the art of economic policy'. This tripartition was fairly common during the nineteenth century. For instance, Senior also followed this tripartition. And Mises also adopted this practice by distinguishing between praxeology, history and policy.⁶ Other Neo-Austrians have followed Mises in this regard, although they sometimes used different terms. Hayek (1933a) also distinguished between theory and application (including statistics and policy).⁷ In this paper we shall restrict our attention to (pure) economic theory.

This paper aims at a formulation of the Austrian views on methodology in terms of Lakatos's framework, the *Methodology of Scientific Research Programmes* (MSRP). However, such representation offers some difficulties. Lakatos's methodology stands in the critical-rationalist tradition, claiming that universal knowledge is *a priori*, but need not be *a priori* valid. This position is inconsistent with one type of Austrian apriorism which holds that universal knowled-

Caldwell at New York University in 1981 - 82 (Caldwell (1984, p. 363 note 1).

⁵ Among the Austrian economists who can be considered Neoclassical are Gottfried Haberler and Fritz Machlup. Furthermore, the Austrian influence on Neoclassicism may also become clear by Robbins's reference to Mises in his influential *Essay on the Nature and Significance of Economic Science* (1932).

⁶ Mises (1949 (1966), p. 30) argues that "[t]here are two main branches of the sciences of human action: praxeology and history." He continues by defining these types as follows: "History is the collection and systematic arrangement of all the data of experience concerning human action. It deals with the concrete content of human action. It studies all human endeavors in their infinite multiplicity and variety and all human actions with all their accidental, special, and particular implications." By contrast, "[p]raxeology is a theoretical and systematic, not a historical science. Its scope is human action as such, irrespective of all environmental, accidental, and individual circumstances of the concrete acts. ... It aims at knowledge valid for all instances in which the conditions exactly correspond to those implied in its assumptions and inferences. Its statements and propositions are not derived from experience. They are, like those of logic and mathematics, *a priori*." The third branch of the tripartition is 'policy'. It is also an application of praxeology. According to Mises (1933 (1960), p. 40), liberalism is a social technology.

⁷ At this stage it is important to notice that Hayek does not adopt the Misesian term 'praxeology'. As will be argued below, following Huussen (1990), Hayek does not adhere to the Misesian philosophy of science. In particular, he maintains that the action axiom is not a synthetic *a priori* proposition.

ge is also a priori valid. The respective positions may best be explicated in terms of an epistemological taxonomy, formulated by Kant (cf. section 2.2.). As the epistemological views of the MSRP and Austrian apriorism are mutually inconsistent, it seems that the use of the MSRP for describing Austrian apriorism is in need of some justification. This justification is given in section 4. Lakatos's MSRP will turn out to be applicable if its aims and uses are restricted.

The paper is organized as follows. Firstly, it will give an exposition of Neo-Austrian apriorism by studying the epistemological underpinnings of the action axiom. It will also contain a brief description of Kant's epistemological taxonomy. Next, in section 3, we shall discuss Neo-Austrian methodology, discerning two currents. Section 4 gives the justification for using Lakatos's MSRP in order to describe Neo-Austrian methodology, and section 5 contains this description. Finally, section 6 contains some conclusions and final remarks.

2. (NEO-)AUSTRIAN APRIORISM

The existence and/or possibility of universal, a priori valid propositions need not have implications for economics as a science. For this to be the case some of the fundamental propositions in economics must be of this type. Neo-Austrians claim that such a connection exists. They consider individuals as rational beings, who try to achieve an end by the use of as little as possible means. This fundamental postulate is called the *rationality postulate* or the *action axiom*.⁸ It provides the foundation for Neo-Austrian analysis. It is this postulate which some Neo-Austrians consider universal and a priori valid.

Before analyzing Neo-Austrian methodology, the question of the truth status of the postulate must now be addressed. As will be shown, this truth status will have some important consequences, for instance as regards the role of empirical testing. Therefore, we shall discuss it rather extensively. But first we must make clear what we mean by claiming that all human beings act rationally.

2.1. THE CONCEPT OF HUMAN ACTION

Like most schools of economic thought the Austrian school starts from the assumption that individuals are rational. Austrians make a distinction between action and mere behaviour. Not all human behaviour may be called action. Action, according to Mises, implies those situations in which man is able to change his circumstances. Whenever man influences his future situation he

⁸ The rationality postulate can be interpreted as either a technical or an economic principle. The latter holds that economic agents select their goals from opportunities and try to reach these goals at the lowest costs. The former already assumes that the goals are chosen. They are then given. Agents merely must select the means which will fulfill the goals at the lowest costs. I owe this distinction to Dr. Bert Huussen, Free University Amsterdam.

acts. Action takes place wherever the conditions for human interference are present, that is, wherever man can choose. As Mises (1949 (1966), p. 13) puts it: "He who endures what he could change acts no less than he who interferes in order to attain another result. ... Action is not only doing but no less omitting to do what possibly could be done."

Man acts as soon as he is in a situation in which he can choose. Therefore, action implies *choice*. This means that man is the cause of his own actions: he is free to decide on his own actions. Moreover, the action axiom has some other important implications. Firstly, action can be termed 'purposeful' because the actor wants to achieve a goal. That is, he wants to change his expected future set of circumstances into a more favourable one. Action is thus based on 'uneasiness' (Mises (1949 (1966), p. 13)).⁹ In addition, it also implies time, as the action is directed towards a *future* set of circumstances. Secondly, uneasiness is not a sufficient reason for the existence of action. Man must also have an image of a more satisfactory state of affairs. His action is directed towards a *goal*; therefore, human action is a teleological concept. Thirdly, the actor must expect to attain the future set of circumstances which is regarded as more favourable, by acting. The action is seen as *sufficient* to reach the goal. It serves as a means in the sense that once employed the actor expects it to lead to the goal. This means that the concept of action also implies *causality*. The individual actor must presuppose a clear ends - means relationship in order to determine the appropriate action. In other words, he must have a *theory*. However, it should be noted that this theory need not be correct, as the actor may be disappointed. Mises (1949 (1966), p. 14) calls 'uneasiness', 'goal-directed', and 'the expectations to reach the goal by acting' "the general conditions of human action." In his view, the existence of action implies all three conditions.

The question concerning the truth status of the rationality postulate now arises. On this issue Neo-Austrians differ. Three positions may be distinguished, which may most clearly be expressed in terms of Kant's taxonomy of types of propositions (although one position in fact is incompatible with Kantian epistemology).

2.2. TYPES OF PROPOSITIONS

Before describing the various logical underpinnings of the action axiom it will prove useful to introduce a (not very new) taxonomy. It refers to the nature of knowledge (propositions), and was formulated by Immanuel Kant. Of course, this is not to say that it can deal with all logical underpinnings. More in particular, (Aristotelian) essentialistic propositions fall outside its realm. Nevertheless, it is useful in the sense that it makes clear in what ways Neo-Austrian epistemology differs from those of logical positivism (and its successors). However, some Neo-Austrians interpret the action axiom as an essentialistic propositions, as we shall see. Therefore, the

⁹ 'Uneasiness' is a necessary precondition for action. It does not cause action, because the actor is free to decide how and when to act.

Kantian taxonomy must be supplemented by this latter type of propositions.

2.2.1. KANT'S TAXONOMY

Kant distinguished four basic types of propositions. According to this taxonomy, propositions are either *a priori* or *a posteriori*, and either *analytic* or *synthetic*. *A priori* knowledge is not derived from experience; it arises *with* experience. By contrast, a *posteriori* arises *out of* experience (Copleston (1964, p. 217)).¹⁰ *A priori* knowledge may be either analytic or synthetic. Analytic propositions can be shown to be true in all logically possible cases. Their logical structure is tautological: their negation would result in a contradiction. As Copleston (1964, p. 219, italics in original) states, "[a]nalytic judgments are those in which the predicate is contained, at least implicitly, in the concept of the judgment. They are said to be 'explicative judgments' (*Erläuterungsurteile*) because the predicate does not add to the concept of the subject anything which is not already contained in it, explicitly or implicitly. And their truth depends upon the law of contradiction." The explicative nature of analytic judgments implies that it is not certain whether they say something about 'reality'; in this sense analytic propositions are cognitively important though empirically meaningless. Experience cannot provide insights into analytical propositions.¹¹ The law of contradiction suffices to establish their truth. In this sense they are always *a priori valid*.

By contrast, synthetic propositions have a logically contingent structure. Their negation does not result into a contradiction. Their truth can (in principle) only be established by empirical testing. Or, again according to Copleston (1964, p. 219, italics in original), "[s]ynthetic judgments, however, affirm or deny of a subject a predicate which is not contained in the concept of the subject. They are called, therefore, 'ampliative' or 'augmentative judgments' (*Erweiterungsurteile*), because they add something to the concept of the subject." As we have seen, analytic judgments are always *a priori* statements. According to Kant, synthetic judgments are either *a priori* or *a posteriori* propositions. As Copleston (1964, p. 219 - 20, italics in original) explains, "[i]n all synthetic judgments ... something is added to the concept of the subject. A connection is affirmed (to restrict our attention to the affirmative judgment) between predicate and subject, but the predicate cannot be got out of the subject, so to speak, by mere analysis. Now, this connection may be purely factual and contingent: it is then given only in and through experience. And when this is the case, the judgment is *synthetic a posteriori*." However, if the connection cannot be derived by mere analysis, while at the same time being necessary

¹⁰ Kant (1787, pp. 3 - 4, italics in original) stated that "[w]ir werden ... im Verfolg unter Erkenntnissen *a priori* nicht solche verstehen, die von dieser oder jener, sondern die *schlechterdings* von aller Erfahrung unabhängig stattfinden." *A posteriori* knowledge is formed by "... empirische Erkenntnisse, oder solche, die nur *a posteriori*, d.i. durch Erfahrung, möglich sind ..."

¹¹ "Denn, ehe ich zur Erfahrung gehe, habe ich alle Bedingungen zu meinem Urteile schon in dem Begriffe, aus welchem ich das Prädikat nach dem Satze des Widerspruchs nur herausziehen, und dadurch gleich der Notwendigkeit des Urteils bewußt werden kann, welche mir Erfahrung nicht einmal lehren würde" (Kant (1787, p. 12)).

and universal, the proposition under consideration is called a synthetic *a priori* proposition.¹² Empiricists acknowledge the existence of synthetic a posteriori propositions and analytic a priori propositions (cf. Caldwell (1982, pp. 121 - 22)). However, they do not acknowledge the existence of synthetic a priori propositions. It is in this respect that the Austrian aprioristic views differ from 'mainstream' empiricism. Therefore, the question concerning the existence of this type of proposition must now be addressed.

2.2.2. HOW ARE SYNTHETIC A PRIORI PROPOSITIONS POSSIBLE?

Kant argued that the human mind is not passive in knowledge. The activity of the mind, however, does not mean that it creates knowledge out of nothing. It merely means that the mind imposes its own forms of cognition on the sense-impressions. These impressions can only be known if moulded in terms of particular concepts, such as time and space.¹³ These concepts are a priori in the sense that they do not arise out of experience but rather *with* it; they are called *categories*. The categories synthesize the manifold of the phenomena (Copleston (1964, p. 249)), and can be found in the faculty of judgment.¹⁴ They must be viewed as the necessary conditions for objects to be thought. And Kant's transcendental philosophy aims at identifying these

¹² Kant (1787, p. 13) gives an example. Consider the proposition 'Everything which happens has its cause'. The predicate ('having a cause') is obviously not contained in the concept of the subject ('everything which happens'). Therefore, the proposition is synthetic. Moreover, the connection between subject and predicate is given a priori. The proposition tells us something about the way we look at reality. Either you uphold it or you reject it, but there is no use in testing it (confronting it with experience). Neither is it a mere generalization of past experience, reached by induction. It is a precondition to look scientifically (i.e., to explain causally). In this view, we know a priori that everything which happens must have a cause. Therefore, the statement, says Kant, is a synthetic a priori proposition.

¹³ All perceptions of objects external to us (external sense-experience) must be represented in space, while all objects internal to us (internal sense-perceptions, e.g., thoughts) are represented in time. Copleston (1964, p. 239 note 5) points out that Hume had already remarked that we cannot properly speak of one internal state as being to the left or to the right of another. But we can, and must, perceive internal states as either following one another or as being simultaneous.

¹⁴ Kant (1787, pp. 93 - 94) claims that judgments necessarily must presuppose a concept which applies to all impressions to be judged. There must be some common denominator, otherwise the impressions would not be comparable. Therefore, judgments presuppose the unity of our impressions; they synthesize them by classifying them under a unifying concept. He continues by claiming that all activities of reason can be converted into judgments. In this sense thinking coincides with judging. To put it in Kant's own words: "[i]n jedem Urteil ist ein Begriff, der für viele gilt, und unter diesem Vielen auch eine gegebene Vorstellung begreift, welche letztere denn auf den Gegenstand unmittelbar bezogen wird. ... Alle Urteile sind demnach Funktionen der Einheit unter unsern Vorstellungen, da nämlich statt einer unmittelbaren Vorstellung eine höhere, die diese und mehrere unter sich begreift, zur Erkenntnis des Gegenstandes gebraucht, und viele mögliche Erkenntnisse dadurch in einer zusammengezogen werden. Wir können aber alle Handlungen des Verstandes auf Urteile zurückführen, so daß der Verstand überhaupt als ein Vermögen zu urteilen vorgestellt werden kann. Denn er ist nach dem obigen ein Vermögen zu denken." Kant (1787, p. 95) gives the scheme showing which category corresponds to which logical function.

conditions. It holds that we cannot know the things-in-themselves ('das Ding an sich', the *noumena*) but merely their representations in terms of our categories (the *phenomena*). As the categories are supposed to be present in all human minds, they are 'objective' in the sense that they do not depend on the subject possessing them.¹⁵ Man cannot think and know otherwise than in terms of the categories. Thus, all (analytic and synthetic) knowledge must be structured in terms of the categories. Knowledge concerning the categories is then both a priori and synthetic. After all, as we cannot observe otherwise than in terms of the categories, they tell us something about the world as we are able to observe it. In this sense knowledge a priori indeed tells us something about reality (although 'reality' must here be interpreted as *phenomenal reality*, that is, 'reality as we may know it'). However, there is no guarantee that the categories may unveil 'reality as it is' (*noumenal reality*). As Huussen (1989, p. 126) stated, "[t]hus Kant pronounced a veto over essentialism."

In sum, the categories and their logical implications provide knowledge a priori which at the same time tells us something about the *phenomenal world*. This means that the categories provide us with synthetic knowledge a priori. This knowledge is universally valid as well as potentially empirically meaningful.¹⁶

Given the supposed existence of synthetic a priori propositions, we must now look at its implications for economics as a science.

2.3. HUMAN ACTION AS A SYNTHETIC A PRIORI PROPOSITION

Mises seems to adhere to the position that 'human action' is a Kantian category, and therefore a synthetic a priori proposition. He build his *praxeology*, i.e., the science of human action, on this proposition, thereby rendering all its logically valid derivations universally true and (potentially) empirically meaningful. This means that he rejected the logical positivists' position that knowledge a priori is always analytical (i.e. tautological though cognitively significant). As Bruce

¹⁵ Kant (1783 (1979), section 18) argues that "[e]mpirische Urteile, sofern sie objektive Gültigkeit haben, sind Erfahrungsurteile; die aber, so nur subjektiv gültig sind, nenne ich bloß Wahrnehmungsurteile. Die letzteren bedürfen keines reinen Verstandesbegriffs, sondern nur der logischen Verknüpfung der Wahrnehmung in einem denkenden Subjekt. Die ersteren aber erfordern jederzeit über die Vorstellungen der sinnlichen Anschauung noch besondere, im Verstande ursprünglich erzeugte Begriffe, welche es eben machen, daß das Erfahrungsurteil objektiv gültig ist." Kant (1783 (1979), section 19) continues by stating that "[d]as Objekt bleibt an sich selbst immer unbekannt; wenn aber durch den Verstandesbegriff die Verknüpfung der Vorstellungen, die unsrer Sinnlichkeit [i.e., sensibility, the receptivity of the mind for sense-impressions] von ihm gegeben sind, als allgemeingültig bestimmt wird, so wird der Gegenstand durch dieses Verhältnis bestimmt, und das Urteil ist objektiv. ... Was die Erfahrung unter gewissen Umständen mich lehrt, muß sie mich jederzeit und auch jedermann lehren, und die Gültigkeit derselben schränkt sich nicht auf das Subjekt oder seinen damaligen Zustand ein. Daher spreche ich alle dergleichen Urteile als objektiv gültige aus ..."

¹⁶ Synthetic knowledge is *potentially* empirically meaningful because it refers to potential experience.

Caldwell (1982, pp. 121 - 22) states, "[a]ccording to the analytic-synthetic distinction a priori statements are considered cognitively significant but empirically empty. Mises rejects this approach, which he correctly attributes to the logical positivists, and takes a Kantian perspective in arguing that the axioms of praxeology, because they involve necessary categories of the mind, are both a priori true yet [potentially] empirically meaningful."¹⁷ Mises (1962 (1978), p. 2) makes clear that he does not agree with the epistemological views of the logical positivists¹⁸. He states that traditional epistemology has disregarded the most fundamental category, namely, that of action: "[t]he main deficiency of traditional epistemological attempts is to be seen in their neglect of the praxeological aspect. ... They ignored the praxeological a priori."¹⁹ In his opinion, "[a]ll the elements of the theoretical sciences of human action are already implied in the category of action and have to be made explicit by expanding its contents. As among these elements of teleology is also the category of causality, the category of action is the fundamental category of epistemology, the starting point of any epistemological analysis" (Mises (1962 (1978), p. 8)).²⁰

There has been some criticism of the use Mises made of the concept of the 'synthetic a priori'. According to Martin (1964, p. 129), Kant's synthetic a priori proposition is a proposition about the nature of concepts as space, time, etc. About these we have *a priori* knowledge in the sense that no empirical knowledge, or even orderly experience, is possible without them. This knowledge is also 'synthetic' because it can be revealed only through experience, i.e., through specific instances of the categories. Martin criticizes Mises because she thinks that although the proposition of human action is an a priori proposition, it is not a synthetic one. She thinks that the proposition concerning the purposiveness of human action is analytic, because in her view the proposition is merely true by definition.

A second objection, which also seems to underlie Martin's criticism, has been raised by

¹⁷ For a clear exposition on the differences and relations between the analytic-synthetic and the a priori - a posteriori distinctions, cf. Bernardelli (1936).

¹⁸ The terms 'logical positivists' and 'logical empiricists' will be used as synonyms throughout this paper.

¹⁹ Mises's ideas on philosophy and methodology are often referred to as 'praxeological'.

²⁰ It may be argued that Misesian apriorism resembles Aristotelian essentialism. For instance, consider his remarks on the reality of the world in Mises (1962 (1978), p. 6). He argues that the noumenal world can be known by stating that "[f]or thousands of years the minds of physicians did not perceive germs and did not divine their existence. But the success or failure of their endeavors to preserve their patients' health and lives depended on the way germs influenced or did not influence the functioning of the patients' bodily organs. The germs were real because they conditioned the outcome of events either by interfering or by not interfering, either by being present in or by being absent from the field." This explanation already presupposes the truth of the theory that particular diseases are caused by the presence of germs. However, it seems rather questionable whether this truth can be established. The causal relationship between the presence of the germ and the occurrence of the disease seems to be best described as conjectural, and therefore contingent, in nature.

Popper (1963 (1989), p. 48). He argues that propositions in general are conjectures directed towards solving a problem. In his view Kant had been right when claiming that nature does not impose its laws upon us, but we impose them upon nature. However, Kant concluded that these laws are necessarily true. Popper holds that the laws may be false. Therefore, the laws are conjectures which means that they are not necessarily a priori valid. In Popper's view, Kant returns to a kind of essentialism when he speaks about the categorical structure of the human mind (Popper and Eccles (1977, p. 172)). As Huussen (1989, p. 126) explains, "... knowledge which arises in the explication of categorical structures is knowledge of the essence of the mental world, if it be assumed that we can grasp these structures intuitively." Mises (1962 (1978), pp. 42, 70, 120) concurs with Popper in the case of the natural sciences. However, with regard to praxeology, he does not even consider Popper's criticism when stating that "[l]ike logic and mathematics, praxeological knowledge is within us; it does not come from without" (Mises (1949 (1966), p. 64)).²¹ Knowledge concerning the physical external world does come from without. Therefore, the source of knowledge regarding the external world differs from the source of knowledge concerning the world within us. Mises thus discerns two worlds, one of which may be known from without, while the other may be known from within. As there is a difference in sources from which knowledge is derived, Mises concludes, there may be a difference in the logical status of propositions derived from both sources.²²

2.4. HUMAN ACTION AS A SELF-EVIDENT, A POSTERIORI PROPOSITION

The idea of praxeology yielding objective²³, universally valid, and yet empirically meaningful knowledge is very much questioned by non-Austrians. This leads some Neo-Austrians to provide the action axiom with different epistemological foundations. Selgin (1988, p. 21), for instance,

²¹ Huussen (1989, p. 127) thinks that Mises did not use the rationality principle as a principle of explanation, as Popper did, but rather as a principle of classification. He explains this by arguing that "... Popper ties in with Kant's theoretical philosophy, which is dedicated to the problems of our knowledge regarding the physical universe - mathematics, physics and metaphysics. Mises links up with Kant's practical or moral philosophy, which is concerned with our knowledge of human action" (p. 125).

²² Huussen (1989, pp. 126 - 8) explains this difference between Popper and Mises as arising because of the fact that the former interprets human action theoretically, while the latter uses it practically. This means that Popper tries to explain human action, whereas Mises uses the proposition as a means of classification. It enables him to distinguish between human action and human behaviour. The former may be explained in terms of cause and effect, but the latter cannot. In Mises's view, human action is 'caused' by a free agent, who did something which might have left undone. The freedom of man leads to action, not to behaviour. In this sense, behaviour can be explained deterministically, whereas action cannot.

²³ By objective knowledge I mean Kant's notion of objective knowledge, namely knowledge which is independent of the subject possessing that knowledge.

argues that praxeology deduces inviolable laws from the "... allegedly incontestable truth that people act purposefully, the 'axiom of action'. Although supposedly irrefutable, this axiom is not merely 'analytic', i.e., nonempirical or vacuous. It is based on the reality of the pursuit of ends and the choice of means for their attainment that distinguishes all mental (and, hence, human) activity. Thus *a priori* to Mises means 'independence of any particular time and place'. It does not imply independence from all 'experience', although it does denote independence from the sort of sensory experience that empiricism and historicism emphasize: 'It rests on universal *inner* experience, and not simply on external experience, i.e., its evidence is reflective rather than physical.'" Unfortunately, it is not made clear why our reflections should be true for other individuals, that is, why other individuals should act and think like we do.

Rothbard (1976, p. 24) also defends the truth status of the action axiom. He refers to two types of experience, namely inner experience and external experience (or sense impressions). He argues that the axiom is not an a priori proposition in the Kantian sense. In his view, "Ludwig von Mises, as an adherent of Kantian epistemology, asserted that the axiom of action is a priori to all experience, because it is, like the law of cause and effect, part of 'the essential and necessary character of the logical structure of the human mind'. ... I would deny, as an Aristotelian and neo-Thomist, any such alleged 'laws of logical structure' that the human mind necessarily imposes on the chaotic structure of reality. Instead, I would call all such laws 'laws of reality'... My view is that the fundamental axiom and subsidiary axioms are derived from the experience of reality and are therefore in the broadest sense empirical..." The question arises what Rothbard means by the 'laws of reality' ? If he cannot be called an apriorist in the Kantian sense, what is his opinion of the epistemological status of the action axiom ? How can we know that this axiom is universally valid and empirically meaningful ? The answers to these questions become clear when Rothbard (1976, p. 25) states that, "... (1) they [i.e., the fundamental axiom and subsidiary axioms] are so broadly based in common human experience that once enunciated they become self-evident and hence do not meet the fashionable criterion of 'falsifiability'; (2) they rest, particularly the action axiom, on universal inner experience, as well as on external experience, that is, the evidence is *reflective* rather than purely physical; and (3) they are therefore a priori to the complex historical events to which modern empiricism confines the concept of 'experience'." According to Rothbard, the fundamental category (or in his terms 'axiom') of human action is neither a synthetic nor an analytic a priori proposition. The action axiom is derived by the method of 'introspection' or 'Verstehen', as well as by our external experience that other people also act purposefully. But then the question arises how we can know for certain that other people also act in this way? Given the absence of an inductive logic, how can we infer general, universally valid statements with 'apodictic certainty' from our experience? In order to answer this 'Humean' question Rothbard quotes Harmon Chapman (1953, p. 29), who argued that "... conception is a kind of awareness, a way of apprehending things - or comprehending them - and not an alleged subjective manipulation of so-called generalities or universals solely 'mental' or 'logical' in their provenience and non-cognitive in

nature. ... perception and experience are not the results or end products of a synthetic process a priori, but are themselves synthetic or comprehensive apprehensions whose structured unity is prescribed solely by the nature of the real, ... and not by consciousness itself whose (cognitive) nature is to apprehend the real - as it is." By concurring with Chapman, Rothbard seems to adhere to a kind of 'essentialistic (or Aristotelian) epistemology'. He claims that the human mind is capable of understanding the real, and even more stringently, the real *as it is* (the noumenal world). *The nature of the real prescribes the structural unity of perception and experience.* In this sense reality determines the content of human knowledge, or in other words, there is a one-to-one-correspondence between the 'real' world and our images of that world: the noumenal and the phenomenal world coincide. Man knows reality as it is.

In conclusion, Rothbard rejects the analytic-synthetic distinction. This rejection is based on a rather different epistemology from Mises's. Rothbard provides an Aristotelian foundation for the action axiom. However, this foundation still leads to the conclusion that praxeology can, and will, lead to universally valid and empirically meaningful knowledge. Rothbard (1957, p. 318) calls this knowledge 'a priori' because it is "*a priori* to the complex historical events" to which modern empiricism confines the concept of 'experience'. However, we must conclude that Rothbard uses a different concept of 'a priori knowledge' than Kant and Mises, following from his Aristotelian and neo-Thomistic view on knowledge. In Kantian terms, Rothbard's concept of an 'a priori proposition' may better be labelled a 'self-evident, a posteriori proposition'. Nevertheless, Mises and Rothbard both argue that the action axiom is 'true', that is, universally valid and empirically meaningful. Therefore, they can be considered as proponents of what may be called *dogmatic 'Austrianism'*.

2.5. HUMAN ACTION AS AN ANALYTIC PROPOSITION

2.5.1. HAYEK

Hutchison (1981, p. 215), in discussing Hayek's views on the logical foundation of the action axiom, claims that Hayek's thought must be divided into two phases, namely Hayek I (until 1936) and Hayek II (from 1937 onwards). The ideas of Hayek I are said to show affinities with those of Mises, while Hayek II is said to be highly influenced by Popper. This change in Hayek's thought, the so-called 'U-turn', is supposed to have taken place in the late 1930s, more precisely in 1937, when Hayek published his paper 'Economics and Knowledge'. In his post-1937-writings, Hutchison argues, Hayek even accepts Popper's demarcation criterion. This criterion, however, is incompatible with the a priori certainties of Ludwig von Mises. Hayek II seems to regard economics as an empirical instead of an *a priori* science. Hutchison (1981, p. 215) interprets this supposed incompatibility by arguing that there was a fundamental shift in Hayek's methodological ideas. Butler and Barry agree with Hutchison's observations, even if the latter (1979, p. 40) explains Hayek's *volte-face* somewhat differently: "[t]he difficulty, I think, lies in Hayek's attempt to combine two rather different philosophies of social science; the Neo-

Austrian praxeological school with its subjectivism and rejection of testability in favour of axiomatic reasoning, and the hypothetico-deductive approach of contemporary science with its emphasis on falsifiability and empirical content. This was not really a problem for Mises since he did not endorse the Popperian approach but it is something of a problem for Hayek."

Recently this interpretation of Hayekian methodology has been criticized by Caldwell (1988) and Huussen (1990). Huussen (1990) takes the more philosophical route. He argues that Hayek did not adhere to Misesian apriorism but, instead, was highly influenced by Ernst Mach. He shows that Hayek (1929, p. 7, note 1) already stressed that economics is a science aiming at predictions. Furthermore, Hayek (1929, p. 4) argues that corroboration of a theory does not mean that it is true. These two methodological statements show a close resemblance to the ideas of Popper, while the second is in flagrant contradiction with Mises's apriorism. The resemblance between Hayek and Popper, Huussen argues, can best be explained by the influence Ernst Mach exerted on both scientists. Mach had argued that (to put it in Popperian terms) refutations do not constitute regrettable events, but rather lead to the growth of knowledge.²⁴ This is very much at odds with Misesian apriorism. But how then to explain a statement Hayek made in his 1935 article 'Socialist Calculation'? In this article Hayek stated that "... 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. ... The existence of these elements is so much more certain than any regularities in the complex phenomena to which they give rise that it is they which constitute the truly empirical factor in the social sciences. ... They [the social sciences] are, so to speak, empirically deductive sciences, proceeding from the known elements to the regularities in the complex phenomena which cannot be directly established" (p. 217). This may seem to show considerable similarities with Mises's apriorism, although Hayek's reference to 'the essential basic facts' as 'truly empirical' may seem to be somewhat puzzling in this regard. But, as Huussen (1990, p. 122) argues, Hayek's (so-called) apriorism is not Kantian but rather resembles Mach's 'empirio-criticism'. In his opinion, 'empirio-criticism', that is Mach's critique of 'pure experience', eliminates essentialistic notions such as 'das Ding an sich'. It reduces all physical or psychological 'things' to perceptions or 'elements'. These elements are mental nor physical; they are neutral. Therefore, Mach's 'empirio-criticism' is also called 'neutral monism' (Huussen (1990, p. 123)). The neutral elements may be grouped by using two different orders, namely one mental and one physical. That is, the neutral elements may be viewed in a physical or a psychological context or order. This means that the outside and the inside world,

²⁴ Mach (1905 (1920), p. 116, italics in original) stresses that "*Erkenntnis und Irrtum fliessen aus denselben psychischen Quellen; nur der Erfolg vermag beide zu scheiden. Der klar erkannte Irrtum ist als Korrektiv ebenso erkenntnisfördernd wie die positive Erkenntnis.*" And "[d]ie wesentliche Funktion einer Hypothese besteht darin, daß sie zu neuen Beobachtungen führt, wodurch andere Vermutung bestätigt, widerlegt oder modifiziert, kurz die Erfahrung erweitert wird. ... Die Hypothese führt also in ihrer *selbstzerstörenden Funktion* endlich zum begrifflichen Ausdruck der Tatsachen" (Mach (1905 (1920), p. 240, 248), italics in original).

both being theoretical constructs, consist of the same neutral elements. Mach implicitly assumed that there is a 'one-to-one correspondence' between both orders. However, the same stimuli may lead to different perceptions. This indicates that there need not be such correspondence.²⁵ The question then remains why both constructs are not always completely identical. According to Huussen (1990, p. 123), this question provides us with the key to Hayek's methodology. In his opinion Hayek tries to solve the problem by viewing both constructs as means of perception, that is, as ways of looking at 'reality' (or, in Kantian terms, 'das Ding an sich'). Furthermore, these means of perception are also means of classification. When looking at reality, we classify the observations as either physical or psychological. As Seligman (1971, p. 17) stated "[f]or Hayek, perception, located in the individual nervous system, is the basis of mental constructs, so that meaning and experience represent nothing more than ordered perception. Mind is but a sequence of events unrelated to external environment; thus, one can never really know objective reality." Combined with Hayek's pre-1937-work, this interpretation of Hayek not only enables Huussen to explain the quotation given above, it also facilitates our understanding of Hayek's struggle against 'scientism', that is, the view that the social sciences must adopt the methods of the natural sciences. Scientism interprets all 'elements' as being physical, thereby eliminating the psychological classification system which explains observations teleologically. As Huussen (1990, p. 124) concludes, Hayek's struggle against scientism was not so much a struggle against the methods of natural science; it was a struggle against 'physical reductionism'.

The question whether Hayek views a priori propositions as analytic or synthetic and whether he thinks human action to be the fundamental category may now be answered as follows. Whereas in Hutchison's view Hayek I would regard human action as a synthetic a priori proposition while Hayek II would view it as an analytic (hence a priori) proposition, Huussen rejects the 'U-turn' in Hayek's thoughts on methodology and philosophy of science. In his view there is no need to distinguish between Hayek I and Hayek II; both view human action as a means of classifying sense impressions. In other words, the physical and the mental order are both classification schemes, which need not correspond with each other. Thus, physical events need not be identical to their mental equivalents, or stated differently, people may think that they are doing something different than they in fact do. This confronts the scientist with a problem: as the facts of the social sciences are what people think they are, how can the social scientist know these facts? He cannot infer them from the ways people act, because of the absence of the one-to-one correspondence. Things may not be what they seem to be. In Huussen's (1990, p. 125) opinion, Hayek's solution to this problem is that he distinguishes between 'understanding' (*Verstehen*) and 'explaining'. Understanding is directed towards knowledge concerning 'other minds', that is, it is the explanation of social interaction. 'Explaining' means constructing hypothetical models out of taxonomic, a priori elements, leading to empirically

²⁵ Hayek's *The Sensory Order* (1952, p. 3) is a critique of Mach's implicit assumption that there is a 'simple one-to-one correspondence' between the physical and psychological contexts. Cf. also Hayek (1943, section 1).

meaningless, though cognitively significant classification schemes. The schemes must be supplemented by empirical 'data', which are constituted by the results of human evaluation.²⁶ These results must be interpreted by the social scientist in order to 'understand' them. This involves introspection, which cannot lead to universally valid claims because of the non-existence of inductive logic.

The action axiom then is the aprioristic, tautological, empirically meaningless but cognitively significant classification scheme which orders the neutral elements in a mental order. It constitutes a way of looking at 'reality'. In order to be empirically meaningful, it must be supplemented by empirical 'data'. These data may be derived introspectively and are regarded by Hayek as contingent.

In conclusion, Huussen's explanation seems more plausible than Hutchison's, because it is consistent with Hayek's earlier as well as his later work.²⁷

2.5.2. LACHMANN

Ludwig Lachmann (1978, p. 11), a student of Hayek at the London School of Economics, stresses the similarities between the Neo-Austrian methodology and that of Max Weber. The latter tried to combat 'historicism' by arguing that in the social sciences existed as much scope for generalization as in the natural sciences (Lachmann (1951, p. 413)). Moreover, in his view history logically presupposes "... a generalised scheme of cause and effect." Weber's second purpose was to uphold the methodological independence of the social sciences from the natural sciences. He tried to achieve this by using the concept of 'Idealtypus' (ideal type). This concept is the starting point of his methodology. However, Lachmann (1970, pp. 26 - 27) thinks it insufficient. In his view "[t]he ideal type is essentially a measuring rod. When we use an ideal type we stand at a distance from reality, but for precisely this reason are able to gain knowledge of it: ... In other words, the ideal type serves the purpose of ordering concrete phenomena in terms of their distance to it." However, the ideal type does not refer to human action. This phenomenon, Lachmann (1970, pp. 11 - 12, 29 - 30) argues, is characterized by its 'goal-directedness'. Therefore, he replaces Weber's ideal type by the notion of the *plan*, because in order to act man has to make plans. The analysis of these plans make the social sciences differ from the natural sciences. Whereas the latter studies phenomena as phenomena of nature, the

²⁶ While explaining the need for propositions concerning the expectations formation process and the underlying information acquiring process, Hayek says that "... my main contention will be that the tautologies, of which formal equilibrium analysis essentially consists, can be turned into propositions which tell us anything about causation in the real world only in so far as we are able to fill those formal propositions with definite statements about how knowledge is acquired and communicated. In short, I shall contend that the empirical element in economic theory ... consists of propositions about the acquisition of knowledge." (Hayek (1937, p. 33))

²⁷ E.g. Hayek's method of constructing his business cycle theory, which differed fundamentally from Mises's in that he explained business fluctuations in terms of endogenous processes, while the latter had to refer to exogenous disturbances. Cf. Huussen (1990, pp. 120 - 121).

former interprets phenomena as products of plans.²⁸ The axiom of human action then is a means of interpreting human action, a classification scheme. The question here is whether this classification scheme has the same status as the categories of time and space. Lachmann (1951, pp. 415 -16) denies this by stating that "... it is possible to side with Professor Mises without taking sides [between positivists and Neo-Kantians] on the wider issue [concerning the question whether we can have synthetic a priori knowledge]. For we can, and in our opinion must, distinguish between different layers of experience. ... We may therefore say that, whatever the source of knowledge from which the distinction is ultimately derived, means and ends are indeed 'logically and temporally antecedent' to the household and business plans which economists study. They may have their root in a layer of (juvenile?) experience, but it is a layer which precedes and underlies the layer with which we are concerned." Lachmann here seems to argue that sense impressions (experience) are the source of all knowledge. Some knowledge is obtained earlier than other and may create an underlying layer, a foundation, for later experience. The fact that human beings act constitutes such an underlying layer of experience. In this sense the action axiom is an a posteriori proposition, although it is a priori to the layer of experience with which economics is concerned. Surprisingly, Selgin (1988, p.32) argues, referring to classroom communication, that "Lachmann accepts Hayek's description of praxeology as essentially formal and tautological, requiring for its fruitful application to catallactics supplementary hypotheses regarding the use and dissemination of knowledge. Thus, he views Hayek's 1937 essay [i.e., 'Economics and Knowledge'] as 'an attempt to set Mises straight'." If we relate Selgin's remarks to those of Lachmann himself, it seems that Lachmann holds that propositions formed by underlying layers of experience are formal and tautological when considered on the level with which economics is concerned. For want of a better term, we shall call them on this level analytic propositions.

2.6. CONCLUSIONS

In conclusion, the Neo-Austrian position on the logical foundation of the action axiom may be summarized by discerning three currents. The first, represented by Mises, regards the axiom to be a synthetic a priori proposition in the Kantian sense. The second current holds an essentialist interpretation by arguing that the axiom is a self-evident truth. The interpretations of the axiom by these two currents imply that it is universally valid and empirically meaningful. Both currents hold that the action axiom is true yet (potentially) empirically meaningful. Therefore, we shall

²⁸ Or, in Lachmann's (1951, p. 415, italics in original) words, "... the 'real things' about which we learn from Praxeology are human actions. They can be studied in two ways: we can study them, as it were, 'from outside', by observation and experience, like other phenomena of nature; or we can study them 'from inside', that is to say, we interpret them as the products of *plans*, as manifestations of a directing and controlling mind."

combine them and refer to this combination as the *dogmatic* Austrian view.²⁹ The third, represented by Hayek and Lachmann, disagrees because it considers the axiom to be tautological and formal, hence empirically meaningless (although cognitively significant), at least when considered on the level of experience with which economics is concerned. In Kantian terms, the axiom must then be an analytic a priori proposition, which must be supplemented by empirical data in order to become empirically meaningful. This second current thus denies the dogmatic claim on truth. Therefore, we shall refer to it as the *relativistic*, or *revisionistic*, current. Obviously, the differences between dogmatic and revisionistic Neo-Austrians will have some consequences for the respective positions on the role of empirical testing.

3. AUSTRIAN METHODOLOGICAL TENETS

3.1. INTRODUCTION

Praxeology, the analysis of human action, is concerned with the universal aspects of action. It strives to disregard the particular aspects of each action. Starting point of the analysis is the rationality postulate, which holds that all action is directed towards a goal, i.e., that it is rational. This postulate has some implications which are very important for Neo-Austrian methodology, as they form the fundamental characteristics of Neo-Austrian thought. They prescribe the principles according to which Neo-Austrian theories must be constructed. These methodological tenets are (1) methodological individualism, (2) methodological singularism, (3) radical subjectivism, and (4) methodological dualism. These tenets will be discussed in this order. Additionally, attention is given to the Austrian position concerning the role of empirical testing and the goals of science. This section ends by reviewing some modern developments in Neo-Austrian methodology.

3.2. METHODOLOGICAL INDIVIDUALISM

3.2.1. THE CONCEPT OF METHODOLOGICAL INDIVIDUALISM

Lukes (1968 (1973), p. 124) argued that there are several forms of methodological individualism. Their central tenet is the assertion that "... all attempts to explain social and individual phenomena are to be rejected ... unless they refer exclusively to facts about individuals." In his elaborate critique 'On Austrian Methodology', Nozick (1977, p. 353) also uses this definition when he states that "[t]he methodological individualist claims that all true theories of social science are *reducible* to theories of individual human action, plus boundary conditions specifying

²⁹ The term dogmatic as used here does not imply a (negative) normative value judgment. It is merely chosen to express its adherents' claims as regards the truth status of the axiom. This claim is anti-relativistic and anti-sceptical, hence in a sense dogmatic.

the conditions under which persons act." Boland (1986, p. 10) and Huussen (1988, p. 152) also use this definition. Methodological individualism thus is a form of reductionism as opposed to holism or, more in particular, collectivism. Collectivists argue that man is a social being. In their view the notion of an individual is meaningless in the sense that man is a member of a social whole and a product of social evolution. His actions are constrained by his social environment. The constraints take the form of norms, values, laws, etc. This culminates in the view that these constraints and therefore the social wholes must be logically and temporally prior to the individual and his actions. This leads to the conclusion that economics must study man in terms of collective entities (apart from natural givens).

One of the basic tenets of Neo-Austrianism is its methodological individualism. Hayek (1943 (1949)) pointed out that these sciences aim at building patterns of relationship between many individuals (p. 59). And these patterns should be built from elements, which are constituted by the individuals' behaviour towards their environment. This seems to imply methodological individualism. This view is also expressed by Mises (1949 (1966) pp. 41 - 43) and Lachmann (1977, p. 93). Yet, Neo-Austrians reject all other reductionist claims, such as the claim that man's behaviour must be reduced to chemical processes. The reason for this rejection is, as Block (1980, p. 398) stated, that in their view "... there is simply no *equivalence* between the thoughts, feelings, pains, purposes, and plans which make up the reality of acting individuals, on the one hand, and the constructs of physics and neurophysiology, on the other." Neo-Austrians order the world around them in a teleologicalist rather than physicalist way. They explain social phenomena in terms of individual goals and consider the question whether the whole or its parts are logically and temporally prior to be vain. According to Mises (1949 (1966), p. 42), "[I]logically the notions of a whole and its parts are correlative. As logical concepts they are both apart from time." The question then is why we should employ methodological individualism.

3.2.2. REASONS FOR ADHERENCE TO METHODOLOGICAL INDIVIDUALISM

Neo-Austrians adopt methodological individualism for three reasons. The first and most stringent reason is an ontological one. They claim that collective or social wholes are mind-constructs, which enable us to order the chaotic world around us. They do not exist in reality, whereas the individual does. Therefore, they do not possess rankings of preferences: only individuals do. It is individuals who choose and act, not groups. Of course, individual behaviour may be influenced by the circumstances in which it is carried out, including expected reactions from other individuals. But such an influence only means that the individual is confronted with other external conditions (and, perhaps, even changes his ranking of preferences); it still is only the individual who exists, decides to act, and therefore chooses.³⁰ This underpinning of methodological

³⁰ As Keizer (1986, p. 24) argues, "... no collective entity has a real, concrete existence of its own. They are not living organisms and cannot experience wants. They have no preferences of their own, apart from those of their individual members. All collective entities are the sums of their parts, if we include the interrelationships between the parts."

individualism may be called *ontological individualism*: in reality only the individual exists, not the social whole, and therefore only the individual acts. As ontological individualism implies knowledge of 'reality as it is', only (Aristotelian) essentialistic Neo-Austrians may adhere to it.

Secondly, if collective wholes exists, this becomes discernible only in the actions of individuals. Or if we acknowledge that we cannot know 'das Ding an sich', then the only thing we can observe is individual acting. According to Mises (1949 (1966), pp. 42 - 43), we cannot visualize collective wholes; we can only see a crowd, that is, a multitude of individuals. We cannot see a soccer team playing; we can only see several individuals playing a game. Therefore, Mises (1949 (1966), p. 42) concludes, "... the way to a cognition of collective wholes is through an analysis of the individuals' actions." This reason for methodological individualism may be called *observational individualism*. It is this argument that is most frequently used by Neo-Austrians in their defense of methodological individualism.

According to Keizer (1986, p. 24), methodological individualism may also be defended on normative grounds. That is, by arguing that the individual is the measure of everything. This *normative individualism* argues that one *ought* to adhere to methodological individualism, because otherwise the individual will become of minor importance relative to the social whole (as was the case under Nazism and Stalinism). Neo-Austrians, as libertarians, also seem to adhere to this defense (albeit often only implicitly).

3.2.3. THE STARTING LEVEL OF ANALYSIS

Neo-Austrians argue that all theory must start at the micro-level.³¹ However, one may question the logical validity of this prescription, as Nozick (1977) does. He states that methodological individualism as described above indeed tells us that macrotheories must have microfoundations but that it does not tell us whether we must start our analysis at either the micro- or the macro-level. In his view, a social scientific macrotheory cannot be condemned only because it does not have microfoundations (yet). As he concludes, "... it appears that no consequences *need* follow from the thesis of methodological individualism about what our attitude should be to any given as yet unreduced macrotheory of social science" (p. 361, italics in original).

However, Block (1980, p. 407 - 08) points out that we cannot and must not equate methodological individualism with the reducibility of macroeconomics to microeconomics: "[f]or the claim of the Austrians is that although *microeconomics* is correct in its own terms, able to

³¹ This procedure was already prescribed by Menger (1883 (1969) p. 87). He stated that "[d]ie Phänomene der 'Volkswirtschaft' sind ... die *Resultate* all der unzähligen einzelwirtschaftlichen Bestrebungen im Volke ... Die Phänomene der 'Volkswirtschaft' müssen vielmehr, gleichwie sie sich uns in der Wirklichkeit als Resultate einzelwirtschaftlicher Bestrebungen darstellen, auch unter diesem Gesichtspunkte theoretisch interpretiert werden. ... Wer die Erscheinungen der 'Volkswirtschaft', jene complicirten Menschheitsphänomene, welche wir mit dem obigen Ausdrücke zu bezeichnen gewöhnt sind, theoretisch verstehen will, muss deshalb auf ihre *wahre* Elemente, auf die *Singularwirtschaften im Volke* zurückgehen und die Gesetze zu erforschen suchen, nach welchen die erstern aus den letztern sich aufbauen. Wer aber den entgegengesetzten Weg einschlägt, ... bewegt sich auf der Grundlage einer Fiktion ..."

trace phenomena back to the causal agents (individual decisions), macroeconomics includes only artificial constructs which, apart from the individual choices upon which they are very indirectly based, have no causal explanatory power on their own" (*italics in original*). This leads him to conclude that "[i]t is not true that statements in the two spheres are translatable in terms of each other. One is built up out of artificial aggregations, divorced from human purpose and action, and limited to statistical correlations between such constructs. The other suffers from no such drawbacks. The equivalence hypothesis, then, must be rejected." The 'fact' that macrotheory does and microtheory does not include only artificial mental constructs, means that Block's defense of the methodological prescription is at least a variant of observational, and perhaps even ontological, individualism.

3.3. METHODOLOGICAL SINGULARISM

The Austrian school holds that individuals continuously act. Praxeology is only interested in the individual because he acts. These actions are its research object, and praxeology tries to unravel the universal in these concrete actions. This means that it need not take into account all accidental and environmental features. It distracts from the influences of time and place. This is not to say that everything action is isolated. By contrast, Mises (1949 (1966), p. 45) holds that actions form a chain in the endeavours to reach a 'higher' or more far-reaching end. The partial actions, which together form the further-reaching action, must be executed step by step. Mises (1949 (1966), pp. 45 - 46) uses the example of the action which aims to build a cathedral. This further-reaching action can be divided into a chain of several partial actions, such as the actions of the mason or the bricklayer.

Action takes place in an environment, which imposes limits on the specific courses of action, which can be undertaken. A universal feature of action is that it can never be carried out under identical circumstances. In other words, every action is a unique event. It cannot be repeated under identical circumstances. This position is called *methodological singularism*.

The uniqueness of every action has an important consequence for the method of analysis. It means that Neo-Austrians cannot make use of probability distributions. The use of these distributions presupposes that the instances of the phenomenon under consideration are to a large degree identical and repeatable. Although Neo-Austrians would readily agree with the view that in the abstract all human actions are similar (namely in the sense that all actors try to attain a future set of circumstances which they expect to be better than the one that would arise without the action), their methodological singularism prohibits the treatment of actions as repeatable.

3.4. RADICAL SUBJECTIVISM

3.4.1. THE SUBJECTIVE DATA OF THE SOCIAL SCIENCES

From its very beginnings the Austrian School adhered to a subjective value theory. White (1984, p. 4) even claims that 'subjectivism' unifies the Austrian school. Subjectivism in its broadest sense can be defined as the position which holds that at least some of the data of the social sciences are constituted by the views of the economic agents. As Mises (1949 (1966), p. 395) points out, "[i]n human action nothing counts but the various individuals' desires for the attainment of ends. With regard to the choice of these ends there is no question of truth; all that matters is value. Value judgments are necessarily always subjective ..."

Praxeology takes human action as its starting point. Action, as Mises defines it, implies choice. Man chooses between various opportunities and the outcome of this choice will depend on his subjective valuation of the alternatives. These valuations form the facts of the social sciences. They cannot be 'objectified', because there is no common denominator. Rothbard (1962, pp. 15 - 16) makes clear that "[i]t is important to realize that there is never any possibility of *measuring* increases or decreases in happiness or satisfaction. Not only is it impossible to measure or compare changes in the satisfaction of different people; it is not possible to measure changes in the happiness of any given person. In order for any measurement to be possible, there must be an eternally fixed and objectively given unit with which other units may be compared. There is no such objective unit in the field of human valuation. The individual must determine subjectively for himself whether he is better or worse off as a result of any change." In other words, utility cannot be compared interpersonally or intertemporally. Of course, this does not mean that an individual cannot compare utility of present and future goals at a given point in time. Such utilities can only be 'measured' on an ordinal scale, not on a cardinal one. This view is called *ordinalism*.

The fact that the data of the social sciences can be called subjective has also another corollary, namely the *dispersion of knowledge*. As Hayek (1952b (1979) pp. 49 - 50, italics in original) states, "... the term *subjective* stresses another important fact ...: ... the knowledge and beliefs of different people, while possessing that common structure which makes communication possible, will yet be different and often conflicting in many respects. ... It only exists in the dispersed, incomplete, and inconsistent form in which it appears in many individual minds, and the dispersion and imperfection of all knowledge are two of the basic facts from which the social sciences have to start." Obviously, this imperfection derives from the unknowability of the future. As the action axiom already implies this unknowability, it also encompasses the imperfection of knowledge. Obviously, this does not have implications for the homogeneity of the individuals' knowledge. Imperfect knowledge may still be homogeneous. However, Neo-Austrians claim that the individuals' knowledge is not only imperfect but also heterogeneous. In Neo-Austrian parlance, this feature is called the *dispersion of knowledge*. It is made plausible by the tenet of radical subjectivism. After all, the homogeneity of knowledge would imply that all

individuals would know each other's valuations. This is highly improbable. Hence, at least the individuals' knowledge as regards their valuations will differ. This means that knowledge will be heterogeneous across markets and individuals.

3.4.2. STATIC VERSUS DYNAMIC SUBJECTIVISM

Subjectivism was not introduced into Austrian economics as a completely mature concept. Kirzner (1988) argued that Austrian thought on the market process developed during the economic calculation debate.³² This debate shed more light on the meaning of the Austrian notion of the market process as a discovery process. This notion had also some implications for that of subjectivism; it gradually became clear what the Neo-Austrians meant by it. Or rather, post-Misesian Austrians recognized that Mises's notion of subjectivism was unable to grasp the importance of expectations. Lachmann (1982, p. 37) argued that Mises failed to grasp the opportunity of incorporating expectations into his analysis because subjectivism "... meant to him no more than that different men pursue different ends. ... The ends themselves ... we have to regard as 'given'." Mises's analysis can be interpreted as a *pure logic of choice*. It did not permit him to consider the incorporation of expectations into his analysis an important step forward (cf. Mises (1949 (1966), p. 21)). Boehm (1982, p. 46) explains this when arguing that "... a type of explanation that purports to explain human actions by reconstructing the situation in which the actor found himself and by then stating that the overt purposeful behavior was as prescribed by the logic of choice cannot adequately handle expectations." He concludes that "[t]he framework of the logic of choice does not allow for considerations of *time*" (p. 47, italics in original). In this respect the Hayekian, Kirznerian and Lachmannian theories concerning the acquisition and dissemination of knowledge can be interpreted as attempts to elaborate on Mises and to fill the gap in his analysis.

O'Driscoll and Rizzo (1985, p. 22) distinguish between static and dynamic subjectivism. In their view, static subjectivism considers the mind "as a passive filter through which the data of decision-making are perceived. To the extent that this filter can be known, the whole process of decision-making is perfectly determinate." In other words, the pure logic of choice is *situationally deterministic*. The Robbinsian economizer is the prototype in economics of the static-subjectivistic decision-maker. Dynamic subjectivism, on the other hand, "views the mind as an active, creative entity in which decision-making bears *no determinate* relationship to what went before" (italics in original).³³ This form of subjectivism states that the actor sees his own decision-making as indeterminate and, therefore, cannot be in a position to predict his actions. The reason for this is twofold. Firstly, the individual cannot know his future knowledge, and therefore his future ac-

³² For an account of this debate, see e.g. Lavoie (1985).

³³ Latsis (1976) distinguishes between single-exit and multiple-exit decision situations. In the former the outcome of the decision-making process is completely determinate. In the latter type of decision situations it is indeterminate.

tions must be unknown (hence indeterminate). Secondly, the ability to foresee one's own decision at a certain point in the future logically precludes the ability to decide at that point in time because this would mean that the decision can be known and therefore already must have been made (p. 25). In the dynamic-subjectivistic view, decisions cannot be treated as flowing inescapably out of the objective circumstances. It emphasizes, as Shackle (1972) argued, the creativity and indeterminacy of human decisions. The static-subjectivistic position, on the other hand, hardly implies any choice at all. Whereas in a static-subjectivistic framework individuals are faced with a given means-ends framework without any learning process, in a dynamic-subjectivistic environment they continuously adapt their knowledge and expectations to changing circumstances. According to O'Driscoll and Rizzo (1985, pp. 9 - 10), "Austrians have stressed the view of the market process as an engine of discovery ... Learning, for Austrians, is not merely plugging in new values of variables in an otherwise unchanging learning function. It involves a structural shift in knowledge, i.e., a change in the learning functions themselves. The market process is both the source and the manifestation of these structural changes ..."

Although Neo-Austrian economists always adhered to a more or less dynamic form of subjectivism, the respective analyses of Lachmann (1982) and Boehm (1982) show that Neo-Austrians differ among each other as to the meaning attached to this concept. Both authors interpret the Neo-Austrian revival in the 1970s as a revival of a more dynamic-subjectivistic Neo-Austrianism: "[t]he radical subjectivism that inspired the Neo-Austrian revival of the 1970s is a subjectivism of active minds. The mental activity of ordering and formulating ends, allocating means to them, making and revising plans, determining when action has been successful, all these are its forms of expression." 'Post-Misesian' Neo-Austrians have shifted emphasis from preferences to expectations and the knowledge-acquisition process, thereby following Hayek's (1937) line of research. O'Driscoll and Rizzo (1985, p. 28 - 29), in particular, have made this clear by emphasizing that the constituent parts of choice are (1) the ordinal ranking of goals or wants, (2) knowledge of the relationship between courses of action and want satisfaction, (3) knowledge of prices (or, more generally, terms on which the alternatives are offered, i.e. trade-offs), and (4) knowledge of the (income) constraint. At the same time, these factors determine choice. This leads them to ask the question, "[i]f the determinants of choice do not exist except as constituent parts of the choice, how do individuals choose? Goals in a disembodied sense can exist prior to choice; it is only the finalized ranking that does not. The individual, in his imagination, projects the likely consequences of different courses of action, including what must be sacrificed to achieve them ... In this process, the individual clarifies his ranking of imagined consequences, his knowledge of the relationship between particular courses of action and those ranked consequences, and his perception of prices and income. The point at which the ranking and perceptions are finalized *is*, or constitutes, the point of decision." The four constituent parts exist simultaneously and therefore do not determine the decision in any causal sense, because this would require them to be temporally prior to the choice. Moreover, as O'Driscoll and Rizzo (1985, p. 29), among others, noted, "[w]hat an individual decides to do depends, in large part, on

what he expects other individuals to decide. Therefore, it is impossible to examine adequately the nature of decision-making without paying attention to the content of expectations." Neo-Austrian subjectivism has thus become more dynamic in the sense that it extends the analysis from the means and given ends to the knowledge acquisition and expectations upon which they are based.

3.5. METHODOLOGICAL DUALISM

A fourth major Neo-Austrian tenet is its methodological dualism, which is the view that the social sciences should *not* adopt the research methods of the natural sciences. Neo-Austrians have very much protested against such an adoption, which they think to be based on a *scientific prejudice*.³⁴ The Neo-Austrian rejection of *scientism* can be interpreted as a corollary of three aspects of Neo-Austrian analysis, namely (1) individualism, (2) subjectivism, and (3) the method of *Verstehen*. Furthermore, it also depends on the Neo-Austrian view on the method of research as used in the natural sciences. This view is best characterized as *analytic*.

Firstly, we discuss the former three reasons for methodological dualism. Subsequently, the analytic method of research is elaborated and confronted with the Neo-Austrian alternative, that is, the *synthetic or compositive method*.

3.5.1. AGAINST SCIENTISM

Methodological individualism is a form of reductionism, as opposed to collectivism (cf. section 3.2.). Hayek (1952b (1979)) argues that collective entities do not exist in social reality, or cannot be observed, to say the least. He thus adheres to observational individualism, which implies that we cannot derive general laws describing the entities by merely observing them. Instead, entities such as capitalism (as a given historical 'phase'), society or government are merely hypostatizations. They are groups of structurally related elements. And individualism tells us that in the social world these elements are individuals. Hence, it is obvious that Neo-Austrians prescribe that all explanations of social phenomena should reduce them to their constituent parts (i.e. to the individuals under consideration).

Secondly, Neo-Austrian radical subjectivism rejects the objectivism of the natural sciences. The latter holds that the data of the natural sciences are 'objective', in the sense that they are independent of any subject (or individual). Identical external stimuli then produce physically similar effects. However, such stimuli may affect individuals differently. In other words, the individuals' (re)actions may differ, even though the causes are physically identical. These

³⁴ Hayek (1952b (1979) p. 24) defines *scientism* as the position that leads to the "slavish imitation of the method and language of [natural] Science." In his opinion, it is "... an attitude which is decidedly unscientific in the true sense of the word, since it involves a mechanical and uncritical application of habits of thought to fields different from those in which they have been formed."

differences can then be explained by the fact that the data of the social sciences are not objective, hence subjective, in the sense that they consist of the views which individuals hold. Social scientists must constantly keep in mind "... that the 'facts' are different from 'appearances' (Hayek (1952b (1979) p. 31)). They cannot restrict themselves to the analysis of how physically identical stimuli affect human behaviour. Instead, they study patterns of behaviour. This means that they do not concentrate on the effects of identical causes, but rather on the similar effects of possibly different causes. They are interested in behaviour which is caused by stimuli *which people think are similar*. The question then arises, how social scientists can know whether individuals regard some stimuli as different or as identical. In other words, what procedure must social scientists follow in order to determine the individuals' classification of their sense impressions. The procedure employed by Neo-Austrians is the method of *Verstehen*.

Hayek (1952a, p. 26) argued that "... in his conscious decisions man classifies external stimuli in a way which we can know solely from our own subjective experience of this kind of classification. We take it for granted that other men treat various things as alike or unlike just as we do, although no objective test, no knowledge of the relations of these things to other parts of the external world justifies this. Our procedure is based on the experience that other people as a rule (though not always - ...) classify their sense impressions as we do. ... But we not only know this. It would be impossible to explain or understand human action without making use of this knowledge." In Hayek's view, the social scientist cannot but try to *understand* the agents, otherwise a teleological explanation would be impossible. Such understanding is regarded as possible because as a rule human beings classify their sense impressions more or less similarly.³⁵ This provides the social scientist, as a human being, with a 'key' which enables him to translate observed behaviour into statements about plans on which such behaviour is supposed to be based. In other words, the method of *Verstehen* can be used in order to interpret the agents' actions as resulting from a plan. As Lachmann (1970, p. 30) concluded, "... we may say that we are able to give an 'intelligent account' of human action by revealing the plans which guide it, a task beyond the grasp of the natural scientist. The mere fact that this possibility exists is the foundation of the method of interpretation and thus offers a vindication of the plea for the methodological autonomy of the social sciences."

3.5.2. THE ANALYTIC VERSUS THE COMPOSITIVE METHOD

Methodological dualism claims that the methods of research used in the social sciences should differ from those of the natural sciences. This means that methodological dualists must have some view on the latter methods. In particular, Hayek (1952b (1979)) has discussed them extensively. He argues that "... natural scientists ... are used to seek first for empirical regularities in the relatively complex phenomena that are immediately given to observation, and only after they have found such regularities to try and explain them as the product of a combination of

³⁵ Such similar classification is, of course, also the basis for meaningful communication.

other, often purely hypothetical, elements (constructs) which are assumed to behave according to simpler and more general rules" (p. 71). The laws and specific circumstances concerning the system as a whole are derived inductively, that is, by generalizing observations. The behaviour of the elements is derived from the behaviour of the system as a whole, because the latter can be observed while the former cannot. The main task of the natural sciences is to recognize the particular as an instance of an inductively derived general rule (p. 29).³⁶ As the particular is explained in terms of the universal, this method can be called the *analytic method* (p. 67). Transposed to the social sciences, this scientific method implies that the individuals' behaviour can be explained in terms of laws and circumstances, which apply to society as a whole. These laws are also presumed to be derived inductively.

However, Hayek (1967b, p. 41) claims that there are no 'laws' in the social sciences, as there are in the natural sciences. In his view "... the conception of law in the usual sense has little application to the theory of complex phenomena, and that therefore also the description of scientific theories as 'nomologic' or 'nomothetic' ... is appropriate only to those two-variable or perhaps three-variable problems to which the theory of simple phenomena can be reduced but not to the theory of phenomena which appear only above a certain level of complexity".³⁷ Thus, the absence of genuine (universally valid) laws in the social sciences can be attributed to the complexity of the data of the social sciences. This greater complexity can be expressed in terms of the "number of elements of which an instance of the pattern must consist in order to exhibit all the characteristic attributes of the class of patterns in question" (Hayek (1967b) p. 25).³⁸ In other words, the number of variables which must be used in order to describe a system is taken as the measure for complexity. Hayek continues by arguing that the animate and social phenomena are 'more highly organized' and hence more complex than the inanimate phenomena. In general, the social sciences study more complex phenomena than the natural sciences. The particular manifestation of the social pattern will depend on many more variables than those in

³⁶ Popper (1957 (1976)) criticizes Hayek by pointing out that in fact the natural sciences do not use this method. He argues that natural laws are conjectures, which are derived deductively. Therefore, he redefines scientism as "... the imitation of *what certain people mistake* for the method and language of science" (p. 105n, italics in original). Scientism thus incorporates a *misconception* of the methods of the natural sciences. According to Popper, both the natural and the social sciences use the hypothetical-deductive model of explanation. For a discussion of this model, see Hempel and Oppenheim (1948) and Hempel (1965 (1970)).

³⁷ Hayek (1967b, p. 41) uses the term 'law' in the sense of a "rule by which two phenomena are connected with each other according to the principle of causality, that is to say, as cause and effect."

³⁸ Hayek (1967b, p. 23) describes a pattern as a regularity or order. It is a similar feature under otherwise different circumstances. And it leads to the problem "Why is this feature similar when the circumstances differ?" Patterns can be described in algebraic equations. In fact, "[e]very algebraic equation or set of such equations defines in this sense a class of patterns, with the individual manifestation of this kind of pattern being particularized as we substitute definite values for the variables" (p. 24).

the realm of the natural sciences. Neo-Austrians conclude that this should have some consequences for the method of research to be used in the social sciences. They reject the analytic method and, instead, adopt the *synthetic* or *compositive method*.³⁹

The compositive method does not explain the behaviour of the elements in reference to laws governing the system as a whole. The elements of the social sciences can be known, in contrast to those in the natural sciences. This means that the social scientist does not need to hypothesize on the nature of the elements. He can 'observe' (introspectively) groups of elements, which are structurally connected.⁴⁰ These groups (systems, wholes) are then reconstructed from the known properties of the elements (Hayek (1952b (1979) p. 67). The social phenomena can then be explained (reconstructed) in terms of their elements (i.e. individuals) and their properties. However, any explanation of these phenomena can focus on two aspects, namely their formation (origin) and their functioning (operation). The question then seems to be on what aspect should the social sciences concentrate. In Hayek's view this is not really a problem. He argues that the problem of their origin concurs with the problem of the manner of their functioning.⁴¹ The explanation of social phenomena in terms of their origin and their functioning is called a *generic* explanation (Hayek (1952b (1979) p. 72)). Hempel (1965 (1970) p. 447) defines it as an explanation which "... presents the phenomenon under study as the final stage of a developmental sequence, and accordingly accounts for the phenomenon by describing the successive stages of that sequence."⁴² A generic explanation thus accounts for a social phenome-

³⁹ Hayek (1952b (1979) p. 67n) explains that he borrowed the term *compositive* from Carl Menger.

⁴⁰ Obviously, the compositive method is very much influenced by the Neo-Austrian goal of economics as a social science, namely, to explain social phenomena as the unintended consequences of rational human action. This view on these phenomena has been expressed most aptly by Ferguson (1767 (1978) p. 122) who describes them as "the result of human action, but not the execution of any human design." And Hayek (1952b (1979) p. 69) argues that "[i]f social phenomena showed no order except insofar as they were consciously designed, there would indeed be no room for theoretical sciences of society and there would be, as is often argued, only problems of psychology." For a more elaborate treatment of the Neo-Austrians' views on the goal of economics as a science, cf. section 3.7.

⁴¹ According to Hayek (1967c, p. 101), "... the institutions did develop in a particular way because the co-ordination 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." The formation of the institutions is only considered possible, because it enabled actions to be more successful than in the case of rival institutions. In other words, the formation is dependent on the way in which the institutions function. Cf. also Menger (1883 (1969) p. 88) who already stated that a theory which aims at explaining social phenomena should emphasize their origin: "Ein jede Theorie strebt demnach vor allem darnach, uns die complicirten Erscheinungen des ihr eigentümlichen Forschungsgebietes als Ergebniss des Zusammenwirkens der Faktoren ihrer Entstehung verständlich zu machen. Dies genetische Element ist untrennbar von der Idee theoretischer Wissenschaften."

⁴² Hempel uses the term *genetic* explanation, instead of *generic* explanation. We shall adopt the latter, as it is the Neo-Austrian term.

non by describing how it functions and how it came into existence.⁴³ It should be added that the length of the evolutionary process during which the phenomenon came into existence, is of no importance. This also applies to whether or not the process is often repeated.⁴⁴

The view that social scientists should use generic explanations leads to the question how they should proceed when giving such an explanation. One may distinguish three stages (cf. Hayek (1955 (1964), pp. 72 - 73) and Huussen (1985) p. 126)). Firstly, the social scientist tries to observe the motivations, knowledge, beliefs, expectations, relations etc. of the individuals. As these cannot be observed directly, he uses introspection, that is, he applies the method of *Verstehen*. Secondly, he deduces a macro-system from this introspective (micro-)knowledge concerning the individuals. This leads to a conjecture of the state of the system as a whole, which can be called a model of the system. Thirdly, the social scientist confronts predictions of the model with actual behaviour of the system as a whole and its constituting elements. Differences between the model behaviour and the actual behaviour must be explained by pointing out in what relevant respects reality differs from the model. For instance, model predictions may not be corroborated by the facts, because individuals base their actions on information which differs from the model information. This means that the informational assumptions underlying the predictions have proven to be incorrect. Empirical testing has then shown that the particular model under consideration cannot explain the given social facts.

In section 2 it was stated that many Neo-Austrians consider the rationality postulate as a universally valid and (potentially) empirically meaningful proposition. This means that this postulate and its logical corollaries need not be tested. However, the third phase of the compositive method involves empirical testing. Combined with the dogmatic view of the truth

⁴³ In Hayek's view, a generic explanation does not use general laws (i.e. is not a nomological explanation). However, Hempel formulates them in terms of the covering-law model. He holds that "... schematically speaking, a genetic explanation will begin with a pure description of an initial stage; thence, it will proceed to an account of a second stage, part of which is nomologically linked to, and explained by, the characteristic features of the initial stage, while the balance is simply added descriptively because of its relevance for the explanation of some parts of the third stage, and so forth." The genetic explanation can then be expressed as follows:

$$S_1 \rightarrow S'_2 + D_2 = S_2 \rightarrow S'_3 + D_3 = S_3 \rightarrow \dots \rightarrow S'_{n-1} + D_{n-1} = S_{n-1} \rightarrow S_n,$$

in which each arrow indicates a presumptive law-like (nomic) connection between two successive stages. The arrows presuppose universal or statistical uniformities. S_1, S_2, \dots, S_n express "... all the information that the genetic account gives about the first, second, ..., n th stage." And D_1, D_2, \dots, D_{n-1} constitute "... information about further facts which are adduced without explanation, because of their explanatory significance for the next stage" (Hempel (1965 (1970) p. 449 - 50)). However, he acknowledges that in practice the stages in a genetic explanations cannot be as stringently separated as in his scheme.

⁴⁴ Hayek (1952b (1979) p. 71) explicitly states that "[i]t makes no difference for our present purpose whether the process extends over a long period of time, as it does in such cases as the evolution of money or the formation of language, or whether it is a process which is constantly repeated anew, as in the case of the formation of prices or the direction of production under competition."

status of the action axiom, this means that only revisionists will allow for a role of empirical testing. They considered the action axiom a (cognitively significant) tautology, which must be supplemented with empirical propositions in order to derive empirically meaningful hypotheses. This raises the question what propositions must be tested in the third phase of the compositive method. Furthermore, one may wonder whether the dogmatic view is correct in asserting that the economic theorems can be derived a priori. The next section will take a closer look at these questions as regards the role of empirical testing in Neo-Austrian economics.

3.6. NEO-AUSTRIAN ECONOMICS AND PREDICTION

Praxeology deals with the implications of the action axiom. These are regarded as incontestable and universally valid, hence it is senseless to test them empirically. The question then arises whether this is also the case for the propositions of economics. According to Mises (1949 (1966), pp. 232 - 34), economics is the part of the social sciences which is concerned with market phenomena. Additionally, it builds on the praxeological theorems. Therefore, the answer to the question posed above will depend on the relation between the economic theorems and those of praxeology. More precisely, it will depend on the answer to the question whether the economic theorems can be derived from the action axiom without the use of auxiliary assumptions.

3.6.1. AUXILIARY ASSUMPTIONS

According to Mises (1962 (1978), pp. 5 - 6), "[t]he theorems attained by correct praxeological reasoning are not only perfectly certain and incontestable, like the correct mathematical theorems. They refer, moreover, with the full rigidity of their apodictic certainty and incontestability to the reality of action as it appears in life and history. Praxeology conveys exact and precise knowledge of real things" (Mises (1949 (1966), p. 39). In his view, praxeology cannot reach false conclusions, unless some logical error is made. The only reasonable test of praxeology thus is a test of its logical consistency. If the economic theorems could be derived from the praxeological postulates without using auxiliary assumptions, they would also be incontestable. However, man's economic actions take place in a social environment, the market, which influences his actions. The features of this environment therefore play a significant role.

Economics is concerned with the operation of the market. Neo-Austrians acknowledge that their conclusions as regards market phenomena cannot be derived from the action axiom alone. The praxeological theories built on the action axiom must be combined with auxiliary assumptions in order to be able to derive hypotheses concerning market phenomena. Mises (1949 (1966), p. 237) discerns two auxiliary assumptions, which also seem to state the necessary preconditions for the existence of a market. He argues that this existence implies that "... there is division of labor and private ownership (control) of the means of production and that consequently there is market exchange of goods and services." Furthermore, all coercive and compulsive influences are assumed away. In addition, for economic calculation on the market to

be rational, he argues, there must exist a universally employed medium of exchange. "If this were not the case, it would not be possible to reduce all exchange-relationships to a common denominator" (Mises (1933, p. 102)). Such a reduction is necessary in order to assess whether some productive activities can be expected to be profitable (p. 106).⁴⁵

Rothbard (1957, p. 316) identifies four auxiliary assumptions: (1) there is a variety of resources, both natural and human, (2) leisure is a consumer good, (3) exchanges are indirect, and (4) firms always aim at maximization of their money profits. According to him, the fundamental action axiom and the first two supplementary hypotheses suffice to elaborate an analysis of 'Crusoe economics'. The incorporation of the third leads to the study of market phenomena. The fourth is the least important, because the fundamental action axiom already implies that firm owners maximize their *psychic* profit. Maximization of money profits is in Rothbard's view just a minor simplification.⁴⁶ Combined with the action axiom these assumptions are presumed to suffice in order to derive all economic theorems. Given the supposed apodictic certainty of the action axiom, the truth status of the auxiliary assumptions will determine the truth status of the theorems.

In the Neo-Austrian view, the praxeological conclusions are true because they are based on the (supposedly true) action axiom. However, this need not be the case for the auxiliary axioms. The question concerning their logical status then arises. Rothbard (1957, p. 316) claims that "... they are so generally true as to be *self-evident*, as to be seen by all to be obviously true once they are stated, and hence they are not in practice empirically falsifiable and therefore not 'operationally meaningful'." Empirical testing of the hypothesis then becomes senseless. Rothbard (1976, pp. 27 - 28) states that the nature of empirical 'evidence' is "... the bringing, by various means, of propositions hitherto cloudy and obscure into clear and evident view, that is, evident to the scientific observers." In case propositions are self-evident, that is, *immediately* evident, to the scientific observers, empirically testing would be senseless. Why should we try to make evident what is already evident? Then of course the problem of how to assess whether a proposition is self-evident or not, emerges. Rothbard calls the solution to this problem the 'boomerang principle' (as R.P. Phillips (1934 - 35, pp. 36 - 37) did). This principle elucidates one of the attributes of a self-evident axiom. It states that any attempt to refute such an axiom is in fact self-contradictory. A self-evident axiom returns to us again even though we cast it away from us. The axiom of purposeful human action is such a self-evident axiom, because the critic who tries to refute it must himself act purposefully and thereby proves the axiom. However, this defense of the concept of a self-evident truth is far from convincing, because claiming that all critics act rationally does not mean that *all men always* act rationally, or (more specifically) that the market participants under consideration act rationally. The critic is

⁴⁵ Cf. also Mises (1949 (1966) p. 209).

⁴⁶ Rothbard (1957, p. 316). However, this minor simplification is inconsistent with Neo-Austrian radical subjectivism.

just one person, so it seems that Rothbard commits a logical fallacy.⁴⁷ Moreover, it seems hardly conceivable that the boomerang principle applies to the supplementary axioms. After all, to deny that leisure is a consumer good does not mean that one is involved in a self-contradiction, because such a denial does *not* imply that the critic considers his work dissatisfying.⁴⁸

Another assumption Rothbard makes in order to conclude that empirical testing of economic theories is senseless, is that there must be no other supplementary hypotheses than those stated above, or if there are that they must be self-evidently true. This presupposition may be questioned, as other Neo-Austrians do. This is shown by the Neo-Austrian debate on the matter whether a tendency towards coordination exists.

3.6.2. EQUILIBRATION OR COORDINATION

Mises (1949 (1962), p. 244) pointed out that "... action ultimately aims at bringing about a state of affairs in which there is no longer action, whether because all uneasiness has been removed or because any further removal of felt uneasiness is out of the question. Action thus tends toward a state of rest, absence of action." Hence action is equilibrating, in the sense that it aims at making itself superfluous. Any *successful* action (that is, an action which successfully eliminates profit opportunities) implies an equilibrating movement, as seen from the viewpoint of the successful actor. On the level of the individual all successful action is equilibrating, because it eliminates profit opportunities. It is in this sense that praxeologists regard the proposition that action is equilibrating as a priori true.

However, this does not imply that the individual actions are equilibrating on an economy-wide level. In order to prevent confusion between the individual and the general level, general equilibrium is called *coordination*.⁴⁹ It is the tendency towards coordination, which is much disputed between Neo-Austrians. Mises (1949 (1962), pp. 244 - 50) assumed that individual equilibrating action would also tend to bring about coordination. The resulting general equilibrium ('evenly rotating economy') is characterized by the complete absence of perceived profit opportunities. It must be interpreted as a moving target, which will never be reached because it moves each time individuals acquire knowledge and/or revise their preferences and plans. In other words, the state of coordination will never be reached, although a tendency in its direction is claimed to exist.

The assumption concerning the tendency towards coordination, however, does not

⁴⁷ For a more detailed criticism of Mises's *Human Action* and Rothbard's interpretation of Mises, see Schuller (1951).

⁴⁸ Additionally, by claiming that the auxiliary assumption are true Rothbard implies that he knows the other individuals' valuation (of leisure), which is clearly inconsistent with the Neo-Austrian tenet of radical subjectivism.

⁴⁹ The distinction between equilibration and coordination was already used by O'Driscoll (1977) and Selgin (1988), among others.

follow strictly logically from the action axiom. This means that it need not be a priori true. Hayek (1933a) defined coordination as the situation in which all individuals fulfil their plan: it is characterized by perfect knowledge. Individuals then must know (1) the structure of the economy, (2) the values of its parameters, and (3) the values of the relevant (endogenous and exogenous) variables. It will prevail as long as the individuals' plans (and expectations) continue to come true. Hence, *intertemporal* general equilibrium (coordination) is defined as the situation in which individuals possess perfect foresight. The proposition that a tendency towards coordination exists then presupposes that a tendency towards the acquisition of such knowledge exists. In his (1937b) Hayek changed the definition of coordination, in the sense that merely all relevant knowledge is required for plans to be coordinated. However, the problem as regards the tendency towards coordination remains the same: How can individuals learn this knowledge? Can its answer be merely deduced from the action axiom?

3.6.3. THE PROBLEM OF A TENDENCY TOWARDS COORDINATION

Kirzner (1973) has analyzed the process of competition. Entrepreneurs are seen as being *alert*, in the sense that they look for profit opportunities. These must be discovered by 'peering through the fog'.⁵⁰ The entrepreneurs will be rewarded or penalized, depending on the correctness of their anticipations. Entrepreneurs who are penalized suffer losses. Their creditors will not trust them anymore. Their investable funds will become depleted, forcing them to stop their entrepreneurial and productive activities. Only successful entrepreneurs will stay in business. As Garrison (1986, p. 98) puts it, "[i]nvestors who overextend themselves get caught in a credit crunch, suffer losses, and their investments possibly are subject to liquidation." Although plausible, the argument is not entirely convincing from a theoretical point of view. One mistake by an entrepreneur need not drive him out of the market. Only entrepreneurs who continue to be less successful than their opponents will be driven from the market. But why should one entrepreneur be better than another? This can be explained in two ways. Firstly, it may be assumed that entrepreneurs who have been successful in the past will also be successful in the future (and vice versa). Obviously, this involves an inductive fallacy, because past success is no guarantee for future success. Secondly, it may be presupposed that entrepreneurs differ in their ability to predict the future correctly, that is, to undertake the best activities. Although it is a plausible presupposition, it does not follow logically from the action axiom. It is a contingent proposition, leaving the differences unexplained.

Nevertheless, many Neo-Austrians seem to believe that a coordinating tendency exists. This belief is dismissed by Lachmann (following Shackle). He emphasizes that the existence of such a tendency will depend on the individuals' knowledge acquisition and expectations formation behaviour. Economists are then faced with a problem: must they assume knowledge to be

⁵⁰ Kirzner's notion of profit opportunities is rather 'objectivist' in the sense that they already exist and merely need discovering, as Selgin (1988) remarked.

exogenous or endogenous, that is, must they explain (changes in) knowledge held by individuals or does it suffice to treat it as a 'datum'? Given its importance in the analysis of a presumed tendency towards coordination, Lachmann (1986, p. 28) argues that "[a]s the state of knowledge is ever changing it is hard to see how we could treat it as a datum: it is never 'given' to us for long. But to treat it as a dependent variable would mean to treat processes of thought as though they were predictable. We know that this cannot be done. It thus appears that the problem of the significance of knowledge for action constitutes an insurmountable obstacle to the conception of broad empirical generalizations about human action." Praxeology circumvents the problem by assuming the consumers' ends-means framework and their knowledge to be given. However, "... in a dynamic world there are economic problems that the logic of choice by itself cannot master. While it explains the designing of economic plans under given conditions, the revision of economic plans in the course of time, as well as the entire range of the problems of expectations, are outside the realm of logic" (Lachmann (1977, p. 59)). Future knowledge cannot be predicted because this would imply that the knowledge is already available. The difficulty with forming predictions is that they can only be based on past and current knowledge. Given the changeability of knowledge, there is no reason why the expectations will turn out to be correct. In Lachmann's opinion "[i]t is the ease with which knowledge can be acquired, or may become obsolete, which is mainly responsible for the *kaleidic* nature of the world of human action" (p. 29). This means that the future is too uncertain to assume that there will be a tendency towards correct predictions and correct knowledge. Hence one cannot conclude on *a priori grounds* that a coordinating tendency exists. Boehm (1982, p. 52, note 29) agrees with Lachmann, in the sense that he claims that Mises could only give a vivid picture of the market process because he left his apriorism behind. Mises's 'pure logic of choice' framework cannot deal with time and expectations because it treated preferences as subjective and at the same time as exogenous (i.e., given in economic analysis). Expectations were only incorporated implicitly.⁵¹ Substituting Mises's relatively static subjectivism by a more dynamic subjectivism, as Lachmann does, makes Mises's conclusion contingent, to say the least.

The foregoing may be stated differently. As coordination "... refers to the systematic exploitation of profit opportunities *as they exist in the understanding of market participants*" (Selgin (1988), p. 38, italics in original), it depends on the correctness of action. And if action is correct, that is, successful, expectations must also be correct. Transposed to the market process this means that there will be a movement towards coordination if entrepreneurs tend to predict the

⁵¹ Boehm (1982, p. 51 - 52, note 29, italics in original) tells us that "[i]n discussion Rothbard vigorously pointed out that Mises's theories of the market process, the business cycle, and inflation virtually bristle with expectations." But as was already pointed out, Boehm does not deny this. In fact, he continues by agreeing with Rothbard, although "... this is emphatically not the question I wish to address. My contention is rather that Mises's vivid picture of the market process could only emerge to the extent that he left his apriorism behind and formulated (empirical) hypotheses about the expectations of the actors involved. ... My claim is ... that praxeology cannot accommodate expectations in any *meaningful way*."

future circumstances correctly. It then succeeds in fulfilling (1) the entrepreneurs' objectives, and (2) the consumers' objectives. This tendency towards the two-sided fulfilment of subjectively experienced profit opportunities is not a matter of logic but rather a contingent issue. It depends on the entrepreneurial ability to learn and predict expectations about future circumstances correctly. No logic guarantees their successfulness, and neither does the process of competition, hence the assumption concerning a coordinating tendency is a contingent one. This contingency means that there is a task for empirical testing, although it must be added that Neo-Austrian economists consider it a rather limited one as compared to the role testing plays in Neoclassical economics. The subsequent section will examine this role.

3.6.4. EMPIRICAL TESTING

Praxeology must be supplemented by auxiliary hypotheses in order to be useful in the explanation of market phenomena. As these auxiliary assumptions are empirical as well as contingent, the resulting theories are also contingent. This means that empirical testing must play a role. However, Neo-Austrians argue that this role is rather limited. Its limits, Hayek (1967b) argues, are caused by the nature of the complex social phenomena (cf. section 3.5.). This complexity has several consequences for economic model building. It is more difficult to find all relevant variables in the social sciences than in the physical sciences, in the sense that "... the demarcation line between the physical and the social sciences is defined by the likelihood of specification [of the model] error, which is low in the physical and high in the social sciences" (Paqué (1990, p. 286)).⁵² This means that in the social sciences accurate prediction (either forwards or backwards) of events will be very difficult. The same applies to the empirical testing of economic hypotheses. However, one may make a distinction between *instance prediction* and *pattern prediction*.⁵³ The complexity of social events means that we cannot possess all knowledge required to predict the occurrence of particular instances of these events. But in Hayek's view this does not mean that prediction is impossible. He argues that "[w]e are ... interested not only in individual events, and it is also not only predictions of individual events which can be empirically tested. We are equally interested in the recurrence in the abstract patterns as such; and the prediction that a pattern of a certain kind will appear in defined circumstances is a falsifiable (and therefore empirical) statement. ... The circumstances or conditions in which the pattern described by the theory will appear are defined by the range of values which may be inserted for the variables of the formula. All we need to know in order to make such a theory

⁵² As Paqué (1990, p. 287) correctly observes, the inherent lack of consensus concerning the 'correct' model will lead economic models to depend heavily on prior methodological commitments.

⁵³ 'Patterns' can be defined by (sets of) algebraic equations, or in other words, mathematical models. Individual manifestations (instances) of such patterns (models) are obtained if the (exogenous and endogenous) variables are given definite values. Cf. Hayek (1967b, p. 24). A pattern prediction then is not a prediction in the usual sense of the word; it merely predicts that a certain pattern (model) will emerge in particular circumstances.

applicable to a situation is, therefore, that the data possess certain general properties (or belong to the class defined by the scope of the variables). Beyond this we need to know nothing about their individual attributes so long as we are content to derive merely the sort of pattern that will appear and not its particular manifestation" (1967b, p. 28). Hayek subsequently mentions Walrasian general equilibrium theory as an example (p. 36). He argues that "[s]ince the theory tells us under which conditions a pattern of this sort will form itself, it will enable us to create such conditions and to observe whether a pattern of the kind predicted will appear." He thinks that "[s]uch a theory will, ... in Popper's terms, be one of small empirical content, because it enables us to predict or explain only certain general features of a situation which may be compatible with a great many particular circumstances. ... [I]n any case the range of phenomena compatible with it will be wide and the possibility of falsifying it correspondingly small. But as in many fields this will be for the present, or perhaps forever, all the theoretical knowledge we can achieve, it will nevertheless extend the range of the possible advance of scientific knowledge" (Hayek (1967b, pp. 28 - 29)). As Paqué (1990, pp. 290 - 91) shows, it seems that Hayek believed that the pattern prediction of general equilibrium theory could (at least in principle) be refuted, although we are ignorant of the particular circumstances of all agents in any model economy. However, he argues that it is more correct to interpret any model as a framework of thinking, which by itself does not yield any falsifiable pattern prediction. As Paqué (1990, p. 291) stated, the model "... serves as a ground for developing singular hypotheses which are themselves perfectly falsifiable, since their parametric structure allows for genuine predictions of - in Hayek's terms - particular events, not patterns. In this sense a nonfalsifiable framework of thinking, such as general equilibrium theory, has clearly much empirical content as long as it is a rich pool for deriving [new] testable hypotheses." Paqué (1990, p. 292 - 93) concludes that Hayek must be interpreted as saying that (1) economic model building is much more complicated than in the physical sciences because of the complexity of the phenomena involved; (2) econometric testing is subject to more constraints and cannot achieve as much as testing in the physical sciences; and (3) economists should not expect economic theories to deliver precise forecasts which could serve as a solid basis for guiding policy decisions.

Lachmann (1977, pp. 57 - 58) also expresses his doubt as to the usefulness and meaningfulness of empirical testing in the social sciences when stating that "[s]cientific tests are not available to us since they require a complete description of that concrete 'starting point' in which the test is to take place. Every human action, however, depends on the state of knowledge of the actors. A verification [or rather falsification] test therefore would require an exhaustive description of the state of knowledge of all actors, also according to the mode of distribution - an obvious impossibility. Otherwise, however, the starting point is not exactly defined, and no real test is possible." If the starting point of any test is not exactly defined in case our hypothesis is not corroborated, we cannot know then whether this must be attributed to the incorrectness of the hypothesis or to some omitted (or incorrectly specified) initial condition. The 'discorrobo-

ration' of the hypothesis then does not provide us with any insight concerning its 'truth'.⁵⁴

Another difficulty as regards empirical testing concerns the problem that the method of *Verstehen* may not be applicable in the same degree to the future as it is to the past, as Lachmann (1977, pp. 93 - 94) observed. Therefore, he discerns a forward- and a backward-looking aspect of the study of human actions. The former looks at the plans of the individuals and asks whether these plans are consistent with one another. If not, the outcome of actions will prove different than the intended and expected outcomes. This will lead to a change in actions and/or plans. However, the social scientist cannot know in which direction this change will take place, because it will depend on the knowledge and the subjective valuations of the agents, which are only known to the agents themselves. Furthermore, as future actions are based on future constellations of plans, and hence future knowledge, they cannot be known at all. The backward-looking aspect, on the other hand, reverses this procedure and asks what historical constellation of plans has given rise to an existing situation. It rationally reconstructs (or interprets) the decision situations which faced the agents. Lachmann defines the method of *Verstehen* as the backward-looking method of interpretation, thereby acknowledging the limited applicability of the method with regard to future actions.

In conclusion, Hayek and Lachmann (as main representatives of the revisionists) argue that although there is a role for testing in economics, in practice it is rather limited because of the dispersion of knowledge and the complexity of social phenomena. Additionally, such testing can only be carried out retrospectively, because of the logical impossibility of knowing our future knowledge. In contrast, dogmatists such as Mises and Rothbard adhere to the view that their economic theories are universally valid and empirically meaningful, because they can be derived from the action axiom. Testing is then superfluous. Both Neo-Austrian currents thus take rather extreme positions as regards the meaningfulness and feasibility of the empirical testing of their hypotheses. If testing and, more in particular, prediction are to a large degree senseless activities, the question emerges what goals Neo-Austrian economics tries to attain.

3.7. THE GOALS OF NEO-AUSTRIAN ECONOMICS

The Neo-Austrian position on this topic has been most explicitly stated by Hayek and Lachmann. The former stated in 1964 (pp. 91 - 92) that the main conclusion of his 1937 article 'Economics and Knowledge' was that "... the task of economic theory was to explain how an overall order of economic activity was achieved which utilizes a large amount of knowledge

⁵⁴ Cf. also Snippe (1986, pp. 14 - 15): "[i]f there is no possibility to test our predictions, there will be no rational procedure for deciding between rival predictions, which would leave us with no safeguards to sheer quackery. ... [I]f the dispersion of knowledge does not allow us to know the particular data, we cannot rationally decide whether an inconsistency between the negative implications of some pattern prediction with experience is due to a change in these data, or caused by the inadequacy of the pattern prediction involved."

which was not concentrated in any one mind but existed only as the separate knowledge of thousands or millions of different individuals". Lachmann (1973, p. 204) stresses the constituent elements of such an order when claiming that "[e]conomics has two tasks. The first is to make the world around us intelligible in terms of human action and the pursuit of plans. The second is to trace the unintended consequences of such action." Fulfilment of the underlying plan is the *intended* consequence of action. However, in trying to achieve their goals individuals create an 'overall order of economic activity'. This order is not intended by them; it is the *unintended* consequence of their actions.

Praxeology (and more in particular economics) investigates rational human action. It isolates the element of volition, which cannot be explained by physics, physiology, or psychology. It tries to explain the world around us in terms of human motives. Kirzner (1976, pp. 44 - 45) interprets Lachmann (1973) in the following way: "... I take it that he was telling us the following: It is the task of science to describe and explain reality. If reality consists of more than the external world, then a science that is confined to the facts of the external world is simply incomplete. It does not account for everything that is there. ... What is that something else? It is the ... realm of purposes. ... It is there, and if we fail to point it out, then we fail in the task of making the world intelligible in terms of human action." He combines Lachmann's two tasks of economics with two basic insights: "First, there is the insight that *human action* is purposeful, and, second, there is the insight that *there is an indeterminacy and unpredictability inherent in human preferences, human expectations, and human knowledge*" (Kirzner (1976), p. 42). As he subsequently points out, the first insight is sufficient to sustain the first task of economics, that is, making the world around us intelligible in terms of human action. But the second insight seems to be inconsistent with the requirement (or task of economics) that economic explanations should trace the unintended consequences of human actions. Although it may be possible to trace these consequences *ex post*, it will be quite impossible to find out *ex ante* what the intentions of individual agents are if human preferences, human expectations, and human knowledge are indeterminate and unpredictable (cf. Hayek's notion of the dispersion of knowledge). If we cannot know the content of human preferences, human knowledge and human expectations, we cannot know the plan (i.e., the intended consequences) upon which human actions are based. This means that we cannot know the outcome of the actions. Predictions of the unintended outcomes of human action are then merely wild guesses. Hayek's methodological prescription that economics must formulate falsifiable predictions or make pattern predictions becomes untenable. As Kirzner (1976, p. 50) concluded, "... while one of these basic tenets, that of human purposefulness, is sufficient to sustain one of these two requirements (that of making the world intelligible in terms of human action), the second, which asserts the unpredictability of human knowledge, is inconsistent with the requirement that economic explanations trace the unintended consequences of human action." This conclusion was already reached in the previous section. In Neo-Austrian economics it is senseless to predict. Its objectives must be confined to explaining past human behaviour in terms of rational human action. This means that *retrodiction*

remains possible. Kirzner's conclusion is then too stringent: Neo-Austrians can formulate falsifiable hypotheses, in the sense that their retrodictions are contingent.

3.8. MODERN DEVELOPMENTS IN NEO-AUSTRIAN METHODOLOGY

The upsurge in the number of Neo-Austrian (or Neo-Austrian-affiliated) economists is bound to lead to more controversies within this school of thought. After all, the more researchers, the more opinions. These differences will also concern methodological issues.⁵⁵ Many Neo-Austrians today no longer adhere to extreme aprioristic claims of the dogmatic current and therefore render Neo-Austrian theory less vulnerable to criticism of its logical foundations. But at the same time, this will give rise to disagreement on this fundamental issue within Austrianism.

One of the most important revisions of Neo-Austrian methodology has been its rational reconstruction along the lines of Imre Lakatos's Methodology of Scientific Research Programmes (MSRP), as carried out by Rizzo (1982) and Langlois (1982). Rizzo and Langlois both stress that rational reconstruction does not aim at describing a body of theories as expounded by its originators. It tries to construct an *ex post* consistent representation of that body of theories. It even involves departing from the original meaning of the ideas where they are (or seem to be) inconsistent with the central insights of the theoretical system. More importantly, rational reconstructions of the Neo-Austrian theoretical system in terms of Lakatos's MSRP deviate in a more or less serious way from the fundamental epistemological views of the praxeologists.⁵⁶

The epistemological inconsistency between apriorism and the MSRP leads to the question whether it is admissible to represent Neo-Austrianism in terms of the MSRP. After all, Lakatos tried to provide a framework in which sequences of theories could be appraised with respect to their 'progressiveness'. It seems hardly justifiable to appraise apriorism by using the criteria of the MSRP, as they stand in different epistemological traditions. In section 4 it will be argued that the MSRP can be useful without adopting its epistemology. We shall argue that it can be used as a framework in which we can *describe* the methodology of the Neo-Austrian

⁵⁵ Cf. Walter Block's (1980) defense of extreme rationalism, Rizzo's (1982) and Langlois's (1982) attempts for a rational reconstruction of the Austrian 'style of thought' along Lakatosian lines, and White's (1984) study of Austrian methodology.

⁵⁶ According to Rizzo (1982, p. 55), "[t]he theoretical hard core of a research program consists of one or more statements that are rendered irrefutable by the methodological decision of the scientists working within the program." Langlois (1982, p. 76) points out that Mises would not agree that the core of economics is a matter of methodological choice: "... Mises was what Lakatos would likely have described as a classical Kantian justificationist rationalist. His position is Kantian in that he seeks to derive theory from the very logic of the brain's categorical structure; it is classical rationalist in that he sees truth as easily accessible to the rational mind once the delusive epiphenomena of empirical sense-data are swept away; and it is justificationist in that he holds up his a priori methodology not merely as a good starting point for theory but actually as justifying theory - as proving its correctness."

school of thought, provided that such a description is supplemented by some epistemological considerations.

3.9. CONCLUSIONS

Neo-Austrians differ in their positions concerning the logical foundation of the axiom of human action. Whereas Neo-Austrians such as Mises and Rothbard adhere to the view that this axiom is universally valid as well as empirically meaningful, Hayek and Lachmann disagree with this by claiming that the axiom is tautological and thus empirically meaningless. This does not mean that the axiom is cognitively insignificant. It merely claims that it is universally valid by definition. Obviously, this difference in logical foundation leads to differing positions concerning the need to empirically test the theories which have been derived deductively from the action axiom. Whereas Mises and Rothbard argue that praxeological theories are true and need not be tested (although their own theoretical conclusions as regards the tendency towards coordination are not derived using only a priori propositions), Hayek and Lachmann claim that praxeology cannot but lead to tautological statements. They argue that praxeology must be supplemented with empirical hypotheses concerning the individuals' knowledge acquisition and expectations formation processes in order to render it empirically meaningful. However, at the same time they hold that in practice testing will be extremely difficult because of the complex phenomena involved. Selgin agrees with the limited (or even nonexistent) possibilities of empirical testing of praxeology by referring to the subjective nature of people's valuations of profit and loss. As these are immeasurable, empirical testing of whether psychic profits more than offset psychic losses becomes meaningless. However, the same then applies to the notion of coordination. If we cannot determine whether more profit opportunities have been seized than have been created (or, more correctly, if we do not know whether psychic profits have been larger than psychic losses), then we cannot know whether a tendency towards coordination has taken place: all we know is that individuals do what they do because they think it is the best way to fulfil their plans. We cannot know whether there is a tendency for them to be successful. This means that "... characterizing the market as a strictly equilibrating process is an incomplete and misleading way of describing and analyzing the market process. It leaves unexplained those changes in tastes, technology, and resources that upset previously compatible plans. These changes are the result of entrepreneurship and are as endogenous to the market as any other entrepreneurial change" (High (1986), p. 118). The market must be seen as a social order which may or may not lead to coordination, depending on the individuals' learning and expectations formation functions. Then the claim that such a tendency exists is an empirical one, which means that it is in principle amenable to testing.

Prediction then cannot be the goal of Neo-Austrian economics. But retrodiction is feasible, in the sense that Neo-Austrians can make past social phenomena intelligible in terms of rational human action. They try to accomplish this while adhering to four major methodological

tenets: (1) methodological individualism, (2) radical subjectivism, (3) methodological singularism, and (4) methodological dualism.

4. LAKATOS'S METHODOLOGY OF SCIENTIFIC RESEARCH PROGRAMMES AS A DESCRIPTIVE FRAMEWORK

4.1. INTRODUCTION

The description of Neo-Austrian methodology given in the previous section is not an end in itself. It is a part of a comparison between Neo-Austrian and New Classical views. This means that it should be presented in a way which facilitates this comparison. The question then is which presentation is most suited. Comparing the methodological views of schools of thought presupposes some common denominators in which these views can be expressed. This means that one must find a framework in which one can describe the respective views on methodology. It will have the common denominators as its elements, which should be as explicit as possible. Furthermore, the type of framework will depend on the type of comparison to be conducted.

Neo-Austrians and New Classicals differ in their views concerning economic theory, methodology and epistemology. As we saw in section 2, the Neo-Austrian school can be subdivided into two currents, namely a dogmatic and a revisionist one. The main criterion for this subdivision is the difference in their respective views on the logical foundation of the action axiom. Nevertheless, this epistemological disagreement does not prevent both currents from adhering to more or less the same methodology, even as regards the role of empirical testing of economic hypotheses. Both argue that such testing is either redundant or almost impossible for all practical purposes. By contrast, New Classicals strongly emphasize the need for prediction⁵⁷ and empirical testing. This may be traced to their epistemological views.⁵⁸ As the question which epistemology should be accepted, has not been resolved unequivocally, we cannot determine which view is true. This means that we cannot judge the Neo-Austrian view by New Classical standards, and vice versa. Therefore, the framework in which both methodologies will be compared should take the epistemological differences into account.

⁵⁷ 'Prediction' is used in the same sense as Lakatos (1970, p. 116, note 4), that is, including 'postdiction' (or 'retrodiction').

⁵⁸ These views will be described in another chapter. For the moment we shall take it for granted that New Classicals adopt the logical-positivist view that propositions are either analytic and a priori, or synthetic and a posteriori. Furthermore, it may be argued on good grounds that New Classicals are instrumentalists, in the sense that they think that economics as a social science must design models which can be used as instruments for policy evaluation (cf. Lucas (1981, p. 271) and (1988, p. 35)). Not surprisingly, this will lead to an emphasis on the role of empirical testing. It will also have an impact on their other methodological characteristics.

The framework which is chosen in this paper is made up of two parts. The first is an epistemological account of Neo-Austrian apriorism and New Classical empiricism (in a broad sense), and the second is a description of the respective methodologies in terms of Lakatos's *Methodology of Scientific Research Programmes (MSRP)*. Lakatos's aim to appraise research programmes may seem to be inconsistent with (1) our intention to give a static (or perhaps structuralist) comparison of two methodologies, and (2) the requirement to take account of epistemological differences. This section is intended to explain how these inconsistencies can be resolved (or circumvented) by restricting the aims of the MSRP. Its role will be limited, in the sense that it will be used merely to *describe* the respective methodologies, and not to appraise them. After all, one of the major advantages of the MSRP is its explicitness as regards the elements of scientific research programmes. And this explicitness obviously facilitates the comparison to be made.

This section is organized as follows. Firstly, it will give a short account of the aims of the MSRP, as intended by Lakatos himself. It will depict the MSRP as an attempt to solve Popper's elimination problem (section 4.2.). Given the concept of the scientific research programme (SRP), we subsequently turn towards Lakatos's solution of this problem (section 4.3.). This solution has received several criticisms, some of which will be discussed in section 4.4. After this discussion of Lakatos's theory, we shall direct our attention to the ways in which the MSRP may be used in comparing the schools of thought under consideration. We shall start with an analysis of the incorporation of epistemological differences (section 4.5.). This will result in the replacement of the aim of appraising theories by the aim of 'merely' describing them. Furthermore, research programmes can be described statically or dynamically. This will depend on the aim which is to be achieved. We shall also point out why we use the former method. Finally, section 4.6. contains the main conclusions and some final remarks.

4.2. FROM POPPER TO LAKATOS

Twentieth-century philosophy of science is very much dominated by the logical positivists and critical rationalists. In particular, Popper's falsificationism (which he himself called critical rationalism) seems to have swept away its rivals. These days many economists are heavily influenced by his ideas, although it may be argued that in many instances this influence is confined to their rhetoric.⁵⁹

One of the most prominent features of Popper's thought has been his criterion of demarcation.⁶⁰ In his view, verification cannot lead to universally valid and empirically meaningful knowledge because of Hume's *Problem of Induction*. However, falsification can tell us

⁵⁹ Cf. McCloskey (1985).

⁶⁰ Cf. Popper (1959 (1990), section 6, pp. 40 - 42).

whether a proposition is *not* universally valid.⁶¹ Empirical testing of propositions is then very important for the derivation of universally valid knowledge. If applied dogmatically, methodological falsificationism advises to reject theories which are falsified, thus leading to a body of falsified and refuted theories of which we know for certain that they are not universally valid. However, as Kuhn (1962) and Lakatos (1970) observed, nearly all scientific theories can be confronted with anomalies. Dogmatic falsificationism would lead to the elimination of all these theories. This is not an acceptable option, because it would be a rather naive methodological advice (hence the term *naive falsificationism*). In scientific reality theories are not eliminated only because of a few anomalies. Falsified theories may be adjusted with the help of auxiliary hypotheses. Popper (1963 (1989), p. 37) himself already acknowledged that such adjustment can be carried out by what he called *conventionalist stratagems*. These "... rescue the theory from refutation only at the price of destroying, or at least lowering, its scientific status." However, if such adjustment need not stop theories from being scientific, then the question arises when falsified theories must be eliminated. This problem will be called *Popper's elimination problem*.

Kuhn (1962) provided a sociological or socio-psychological solution to this problem, in the sense that he ascribed a prominent role to tradition. Tradition is seen as one of the most important factors preventing the elimination of a falsified theory. Under normal circumstances, that is, in a time of great consensus, almost all scientists engage in research using more or less the same methods. In Kuhn's terminology they work in the same paradigm, namely that of *normal science*, which is defined as "... research firmly based upon one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice" (1962 (1970), p. 10). However, in case the number of anomalies continues to grow even tradition cannot avoid the crisis of confidence. This crisis may lead to an overthrow of the existing and predominant method of research, constituting a *scientific revolution*. Such a revolution can be seen as a *Gestaltswitch*. Suddenly the same phenomena are interpreted differently: the interpretational framework has changed.⁶²

Lakatos agreed with Kuhn that naive falsificationism is indeed falsified when applied in the history of science. But this does not mean that we must dispense with the criterion of falsifiability, as Kuhn's analysis seemed to imply. Lakatos offered two criticisms. Firstly, he argued that Kuhn's distinction between normal science and revolutionary science fails to do justice to the history of science being a history of competition (1970, p. 155). In Lakatos's view normal science should not be and is not without competition from rival paradigms. These rivals exist side by side. One could merely uphold that at some point in time a specific paradigm, or, in Lakatos's terminology, research programme, predicted more novel facts than another, and

⁶¹ This does not mean that our theories are always false. Those which have not been falsified may be true. Popper merely holds that even if some theories are true, we cannot know this for certain.

⁶² Cf. Kuhn (1962 (1970), pp. 122 - 23).

hence dominated others. Interpreted this way one could argue that Lakatos falsified Kuhn's theory.⁶³ It provides Kuhn's theory with an anomaly. However, this does not suffice to refute Kuhn's theory because such refutation would imply the acceptance of naive falsificationism. Secondly, the Kuhnian sociological or socio-psychological⁶⁴ explanation does not give any objective criteria for eliminating the paradigm of normal science (Lakatos, (1970), p. 155). It depends on the scientists' intellectual honesty whether they turn their back to normal science and produce a scientific revolution. Science is not a rational activity anymore, in the sense that it allows scientists to have other goals than attaining 'truth'.

Rejecting naive falsificationism, Lakatos could not claim that Kuhn's theory should be refuted because it was confronted with an anomaly. He was in need of specifying a criterion which tells us when to eliminate a theory. Thus, Lakatos had to provide a solution to Popper's elimination problem other than the naive falsificationist one in order to reject Kuhn's solution.

4.3. LAKATOS'S SOLUTION OF POPPER'S ELIMINATION PROBLEM

Lakatos (1970) distinguished between *dogmatic or naive methodological falsificationism* (as expounded in section 4.2.) and *sophisticated methodological falsificationism*. He argued that "[s]ophisticated falsificationism differs from naive falsificationism both in its rules of *acceptance* (or 'demarcation criterion') and its rules of *falsification* or elimination" (p. 116, italics in original). The naive falsificationist is defined as holding the position that "... any theory which can be interpreted as experimentally falsifiable, is 'acceptable' or 'scientific'. For the sophisticated falsificationist a theory is 'acceptable' or 'scientific' only if it has corroborated excess empirical content over its predecessor (or, rival), that is, only if it leads to the discovery of novel facts" (p. 116). A theory which leads to the prediction of novel facts is called *empirically progressive*, otherwise it is *degenerating*. Lakatos now solves the elimination problem in the following way. He argues that there are only relative and no absolute standards against which to appraise theories. They must be compared with one another in order to decide which one is the best. "Contrary to naive falsificationism, ... [sophisticated falsificationism holds that] *no experiment, experimental report, observation statement or well-corroborated low-level falsifying hypothesis alone can lead to falsification. There is no falsification before the emergence of a better theory*" (Lakatos (1970), p. 119, italics in original). This means that "[w]hile naive falsificationism stresses 'the urgency of replacing a *falsified* hypothesis by a better one', sophisticated falsificationism stresses the urgency of replacing *any* hypothesis by a better one" (Lakatos (1970, p. 122, italics in original). This view

⁶³ Kuhn (1962, p. 4) notes that "... the early developmental stages of most sciences have been characterized by continual competition between a number of distinct views of nature, each partially derived from , and all roughly compatible with, the dictates of scientific observation and method." He seems to imply that this competition does not exist anymore.

⁶⁴ Kuhn (1970, p. 240) himself preferred 'sociology' instead of 'socio-psychology'.

is consistent with scientific practice that theories are not eliminated once an anomaly is discovered, but only if a better alternative is available.⁶⁵ According to Lakatos (1970, p. 116) there are three preconditions which must be fulfilled before a theory T_1 must be eliminated, namely:

- (1) there is a better theory T_2 , which predicts or explains all facts which are predicted or explained by T_1 , that is, T_2 encompasses T_1 ;
- (2) T_2 has excess empirical content over T_1 : it leads to the prediction of novel (not new) facts;
- (3) some of the novel facts predicted by T_2 are corroborated by empirical tests.

In fact, Lakatos argues that scientists must meet the *requirement of continuous growth*, i.e., of continuous empirical progressiveness. Furthermore, they are well-advised to eliminate a theory if there is a better alternative, in the sense as described above. Lakatos's elimination procedure thus involves a comparison and appraisal of rival theories. Moreover, given the requirement that there must be scientific growth, these theories form a sequence. Such a sequence is called a *scientific research programme*, which constitutes Lakatos's unit of appraisal.

Research programmes (SRPs) consist of methodological rules, which tell scientists how to carry out their research, what paths of research to avoid, and what paths to pursue (Lakatos (1970, p. 132)). SRPs can be divided into four elements, namely the hard core, the protective belt, the positive heuristic and the negative heuristic.

The *hard core* forms the characterization of the SRP. It consists of a set of postulates which cannot be refuted without changing the programme dramatically, or better, without changing from one programme to another.⁶⁶ These postulates are protected from anomalies by means of the articulation of a set of 'auxiliary hypotheses', which form the *protective belt* around the hard core. Any anomaly must be dealt with by changing one or more of these auxiliary hypotheses. The question then arises how the revision of the protective belt should take place. The *positive heuristic* contains a set of rules according to which the belt must be changed in order to 'explain' anomalies. It "... consists of a partially articulated set of suggestions or hints on how to change, develop the 'refutable variants' of the research-programme, how to modify, sophisticate, the 'refutable' protective belt. ... The positive heuristic sets out a programme which lists a chain of ever more complicated *models* simulating reality: the scientist's attention is riveted on building his models following instructions which are laid down in the positive part of his programme" (Lakatos (1970), p. 135, italics in original). Analogously, the *negative heuristic* tells the scientist how he must *not* proceed when dealing with anomalies. It "... forbids us to

⁶⁵ For instance, see De Marchi (1976) on the economists' reactions to the Leontief paradox.

⁶⁶ It should be noted that Lakatos allows for a change of hard core without this being a change in research programme. After some time parts of the protective belt may be incorporated into the hard core. However, this obscures the differences between changes within and changes between research programmes. Moreover, for our purposes it suffices to consider the hard core as the part of a research programme, which does not change at all.

direct the *modus tollens* at [the] 'hard core'. Instead, we must use our ingenuity to articulate or even invent 'auxiliary hypotheses', which form a *protective belt* around this core, and we must redirect the *modus tollens* to these" (Lakatos (1970), p. 133, italics in original).⁶⁷ Hard core and negative heuristic are thus closely linked, as are protective belt and positive heuristic.

The question may now be addressed when to eliminate a given research programme. Lakatos's solution to this elimination problem is analogous to the solution as regards the elimination of theories. In other words, a given research programmes can be substituted by a rival programme, if three criteria are met. Firstly, a programme R_1 can only be eliminated if there is a rival R_2 , which encompasses R_1 . Secondly, R_2 must predict or explain novel facts. And thirdly, some of these facts must be corroborated, that is, R_2 must have excess empirical content over R_1 . As the elimination procedure thus involves the appraisal of rival programmes, and hence the progressiveness of successive theories, "[s]ophisticated falsificationism ... shifts the problem of how to appraise *theories* to the problem of how to appraise *series of theories*. Not an isolated *theory*, but only a series of theories [that is, a research programme] can be said to be scientific or unscientific: to apply the term 'scientific' to one *single* theory is a category mistake" (Lakatos (1970), p. 119).

In sum, Lakatos holds that a science must meet the requirement of continuous growth, which means that theories and research programmes must only be eliminated if there is a better rival theory or research programme. In order to be able to determine whether continuous growth has taken place, research programmes must be compared and appraised on their progressiveness.

4.4. SOME CRITICISMS OF THE MSRP

The MSRP is thus intended to appraise SRPs on their progressiveness. However, rival programmes need not predict a novel fact at once. Some time may pass before they become empirically progressive. As Lakatos (1970, p. 155, italics in original) puts it, "... *the novelty of a factual proposition can frequently be seen only after a long period has elapsed.*" This means that it is very difficult to assess whether a rival programme is progressive.

A related criticism has been put forward by Kuhn (1970b) and Feyerabend (1970, 1976). Both argue that Lakatos's solution of the elimination problem is too weak to enable us to

⁶⁷ Two important types of logical argument are the *modus ponens* and the *modus tollens*. The former has the following form: (1) If p , then q ; (2) p ; (3) hence q . The *modus tollens* takes this form: (1) If p , then q ; (2) $\neg q$ (i.e., not q); (3) hence $\neg p$. For instance, suppose p = 'It rains', and q = 'The roofs get wet'. Then the *modus ponens* is: (1) 'If it rains, then the roofs get wet' (given the sufficient boundary conditions); (2) 'It rains'; (3) hence 'The roofs get wet'. Conversely, the *modus tollens* in this case is: (1) 'If it rains, then the roofs get wet'; (2) 'The roofs do not get wet'; (3) hence 'It does not rain'. Directing the *modus tollens* to the protective belt then means that it must be reformulated if the theoretical conclusions (q) are not corroborated by the facts.

condemn actions as 'irrational'. Lakatos (1970, p. 164) noted that "... research programmes may get out of degenerating troughs." But this raises a problem concerning the rationality of adhering to a degenerating programme. If degenerating programmes may become progressive again, then adherence to such programmes cannot be condemned as 'irrational' or 'intellectually dishonest'. According to both Kuhn and Feyerabend, this means that Lakatos's solution to the elimination problem is not really a solution. It allows scientists either to eliminate degenerating programmes or to adhere to them. In other words, it allows that 'anything goes'. This leads Kuhn (1970b, p. 239, italics in original) to conclude that "... Lakatos has yet to tell us how scientists are to select the particular statements that are to be unfalsifiable by their *fiat*; he must also still specify criteria which can be used at the time to distinguish a degenerative from a progressive research programme." And as Lakatos does not specify a time limit, Feyerabend (1970, p. 215) holds that progress and degeneration are merely 'verbal ornaments', which do not form criteria for acceptance or rejection of theories and research programmes. Instead, they are assigned to theories or programmes which have already been accepted or rejected. This means that theory-choice is not a rational activity, in the sense that it does not aim at reaching 'truth'. However, Lakatos (1971, p. 116 - 17, Note, italics in original) defends his position by arguing that these criticisms "... are beside the point. One may rationally stick to a degenerating programme until it is overtaken by a rival *and even after*. What one must *not* do is to deny its poor public record. Both Feyerabend and Kuhn conflate *methodological* appraisal of a programme with firm *heuristic* advice about what to do."⁶⁸ The methodological conclusion that a particular programme is degenerating and that it is overtaken by a rival, does not imply that one must eliminate the programme.⁶⁹ However, intellectual honesty (rationality) demands that the poor performance is not denied.

A third objection against Lakatos's methodology concerns the communication between scientists. Koningsveld (1987, p. 197) argues that Kuhn emphasized the communicative breakdown, while Lakatos neglected this aspect. Of course, this is not to say that such communicative breakdowns cannot be incorporated, or at least explained, in Lakatos's framework. Scientists belonging to different research programmes will suffer some communicative difficulties because their theoretical hard cores differ. It may take some time before this difference is acknowledged. It seems, therefore, that the communicative breakdown can be incorporated in Lakatos's analysis without much difficulty.

⁶⁸ And he adds that "[i]t is perfectly rational to play a risky game: what is irrational is to deceive oneself about the risk."

⁶⁹ Using an analogy of Watkins, Lakatos (1971, p. 103, note 1) observes that "[t]he term 'normative' [in normative methodology] no longer means rules for arriving at solutions, but merely directions for the appraisal of solutions already there. Thus methodology is separated from *heuristics*, rather as value judgments are from 'ought' statements."

4.5. THE MSRP AS FRAMEWORK OF DESCRIPTION

The criticisms listed in the previous section lead to the conclusion that Lakatos was not completely successful in solving Popper's elimination problem. It might be added that there is another criticism, which renders the MSRP as intended by Lakatos somewhat troublesome, at least for our purposes. This point concerns its underlying epistemology. Without going into too much detail, it will be clear that accepting Lakatos's methodology as a means of appraising research programmes implies that one accepts his epistemology. This epistemology holds that propositions are either analytic and a priori, or synthetic and a posteriori. In this sense it can be said to be a sophisticated version of Popperian critical rationalism. The acceptance of this epistemology poses an important problem if the MSRP is to be used for appraising research programmes which are based on different epistemologies. For instance, if we must appraise Neo-Austrian apriorism in terms of critical rationalism, we would observe that the dogmatic current adheres to a different epistemology than Popper and Lakatos. Their interpretation of the action axiom as either a synthetic a priori proposition or a self-evident a posteriori proposition would have to be rejected because critical rationalism does not allow for these types of propositions. The appraisal of the views of the dogmatic-aprioristic current will then lead to the conclusion that it is based on an incorrect epistemology. However, this presupposes that critical-rationalistic epistemology is true. This truth is difficult to establish, even on the account of critical rationalism itself.⁷⁰ And if its truth cannot be established, this epistemology will not do as a standard of appraisal. Therefore, it seems that the MSRP cannot be used to appraise the Neo-Austrian research programme. Of course, this is not to say that it is completely useless for our purposes. Although it cannot be employed for purposes of appraisal in case of research programmes which are based on different epistemologies, it may serve as a framework for description, that is, as a scheme which explicates the respective (changes in the) structure of Neo-Austrian and New Classical research programmes. The question then is on which aspects this description should concentrate.

There are two ways in which we can describe and compare research programmes. Firstly, we can describe their constituting elements by explicating their hard core, protective belt, positive heuristic and negative heuristic, and then comparing the contents of these elements. This type will be called a *static description*. Secondly, we can give a historiographical account of how these programmes emerged and how they changed. This will be called a *dynamic description*. In our case we are not concerned with changes in the respective research programmes. Rather, the aim is to describe the *structure* of the theories under consideration. It will be confined to the hard core, the protective belt, the positive heuristic and the negative heuristic of the respective programmes. The comparison of the structures may lead to some useful insights as regards (1)

⁷⁰ The sentence 'There are no synthetic a priori propositions' must also be considered a conjecture, whose truth we cannot establish.

the goals which the programmes try to attain, (2) the possible ways in which theoretical insights of the one may help to solve theoretical problems of the other, and (3) the limitations posed on the problems which can be analyzed by either programme.

4.6. CONCLUSIONS

This section has explained Lakatos's methodology of scientific research programmes, which can be seen as an attempt to solve Popper's elimination problem. Lakatos substituted naive falsificationism by sophisticated falsificationism. This means that mere falsification does not suffice as a demarcation criterion. There must also be a rival theory or research programme which is better than the one which is to be rejected. Lakatos's methodology resulted in the position that scientists must aim at the continuous growth of knowledge. This means that they must work in empirically progressive theories and research programmes. However, scientists were also allowed to adhere to degenerating programmes because these may become progressive again. Thus, the MSRP does not provide an unambiguous solution to the elimination problem.

Moreover, the MSRP does not allow for an appraisal of research programmes which are based on different epistemologies than its own critical rationalism. Thus, it does not provide an objective standard for appraisal. Nevertheless, it gives an explicit framework in which research programmes can be described, although such a description must be supplemented by a description of the respective epistemological views.

The type of description depends on the problem with which it is concerned. In this study we are interested in the respective structures of the Neo-Austrian and New Classical research programmes, and not in the changes in these structures. Our description will therefore be a static one. The Neo-Austrian research programme will be described in the next section.

5. THE NEO-AUSTRIAN RESEARCH PROGRAMME

5.1. INTRODUCTION

Given the limitations discussed in the previous section, we can now try to translate Austrian methodology in terms of Lakatos's MSRP. This will be done with reference to two earlier attempts, namely those of Rizzo (1982) and Langlois (1982) (cf. also section 3.8). It must be noted that these studies do not intend merely to describe the Austrian methodology in these terms. Instead, they are rational reconstructions, which means that they also aim at making it internally consistent. Furthermore, both authors are willing to abandon apriorism, which makes them clearly 'revisionists'. This position leads to an epistemological schism between the aprioristic-dogmatic current and the revisionist-empiricist one. In particular, this schism concerns

the logical foundation of the action axiom and hence the role of empirical testing.

This section is organized as follows. Section 5.2. articulates Langlois's 'hard core'. As he did not explicate some propositions which may prove rather important when comparing Neo-Austrian and New Classical methodology, we shall attempt to make these propositions explicit. Section 5.3. describes the Austrian 'protective belt', that is, the set of propositions which protect the hard core from anomalies (or even refutation). The 'positive heuristic', i.e., the set of rules which Neo-Austrians think social scientists should follow when doing research, is depicted in section 5.4., followed by an account of the 'negative heuristic' in section 5.5. Neo-Austrians are very much concerned with the question how research should *not* be carried out. This means that the negative heuristic is rather extensive. We shall restrict our discussion to the Neo-Austrian position as regards (1) mathematics, (2) econometrics, and (3) statistics and index numbers.

5.2. THE HARD CORE

Rizzo (1982) and Langlois (1982) described Austrian methodology in terms of the MSRP. Rizzo argued that its hard core consists of the following four hypotheses:

- (1) individuals perceive a decision-making environment;
- (2) perceptions take place in a world of uncertainty;
- (3) individuals' perceptions are not always correct;
- (4) action is coordinating.

This exposition, despite its merits, has been criticized by Langlois (1982). His criticism centered on the aspect of *situational determinism*, which refers to an outcome of the individual's choice.⁷¹ If that individual is in a given situation (including his knowledge), optimizing behaviour may lead to only one possible outcome: the individual is in a *single-exit decision situation*. Analogously, if several optimal points are possible, he is in a *multiple-exit decision situation* ('exit' thus meaning 'optimal solution'). The decision then cannot be explained completely in terms of the logic of the individual's situation. Rizzo had left out this important aspect, which means that it is not clear whether in his formulation of the MSRP individuals can make one or more optimal decisions. By contrast, Langlois (1982, p. 79 - 80) maintains that the aspect of situational determinism is presumably the most Misesian of all. Latsis (1976, pp. 16 - 22)) gives a rather elaborate discussion of situational determinism in neoclassical economics, in which he argued that the pure logic of choice is situationally deterministic, in the sense that individuals are in single-exit decision situations. This means that economic situations (including given preferences) uniquely determine the individuals' decisions and that economists need not seek refuge in (social-)psychological or emotional explanations of choices. Langlois (1982) adopts two situatio-

⁷¹ For an analysis of situational determinism, single-exit and multiple-exit decision situation, see Latsis (1976, pp. 16 - 22). Hempel (1942), Popper (1957) and Simon (1959) also use this type of determinism in their respective analyses.

nal-deterministic propositions of Latsis (1976) and combines them with Rizzo's, leading to four main postulates. However, he does not make clear all implications of these postulates. This section tries to specify most of them, which leads to the following articulation of the Neo-Austrian hard core:

- (1) agents perceive a decision-making situation (Rizzo's first proposition);
- (2) agents act in a way appropriate to the logic of their situation. Specifically, they prefer the best alternative, given their knowledge and means (Latsis's propositions, which concern situational determinism and single-exit decision situations respectively);
- (3) since agents operate in a world of complexity and uncertainty, their decisions, although correct in a subjective sense, are not necessarily correct in some objective sense (Rizzo's second and third propositions);
- (4) nonetheless, there is a tendency toward coordination of activities (the *spontaneous-order* postulate).

This formulation of the hard core of the Neo-Austrian research programme will be adopted as our basis for explicating some important propositions.

Neo-Austrian economics studies human action in the social environment of the market. This means that the action axiom (and its logical derivations) is indispensable for Neo-Austrian economics. That is, it belongs to its hard core. Agents must then have a reason for action. They must perceive opportunities to do so. They must decide to act, and this decision implies choice. In turn, choice implies that several ends exist, out of which the agent must choose the one(s) he prefers. In order to do so he must order his preferences. Moreover, the agent must also choose the means to be employed in order to attain his ends: he must choose between different means and different ends. With the help of Langlois's articulation of the Neo-Austrian hard core, we can now draw up a more extended and explicit version, containing the following postulates:

- (1) Individual agents perceive a decision-making situation.⁷²
 - (a) All social phenomena must be explained in terms of the individuals' actions (*methodological individualism*).
 - (b) The individuals perceive several alternative goals or future set of circumstances.
 - (c) The agent can rank these goals according to their value, that is, he can determine subjectively which one he prefers.
 - (d) The agents must act in order to remove *felt uneasiness*.
 - (e) They have means at their disposal, which can be used to attain the goals.
 - (f) These means are scarce and alternatively employable: individuals must choose between them.
 - (g) This choice is based upon some knowledge concerning the effectiveness of the means.

⁷² The term 'situation' is somewhat ambiguous. Given the Neo-Austrians' emphasis on subjectivism, the relevant decision situation is that as perceived by the economic agent. Thus, it is his perception of the environment in which he acts.

- (h) This knowledge consists of expectations and interpretations concerning the structure of the environment, the actions of other agents, and the future values of exogenous variables.
 - (i) The preferences, knowledge, interpretations and expectations are the data of the social sciences. They are subjective, in the sense that they can only be known by the agent holding them (*radical subjectivism*).
- (2) Agents act in a way appropriately to the logic of their situation.
- (a) The agents try to attain the goal which they prefer most.
 - (b) They employ those means that they think are the most effective and efficient in reaching the goals. This choice of means is *ex ante correct* (i.e., before the action has taken place, given their information).
- (3) The agents' decisions need not be *ex post correct*.
- (a) Because knowledge is dispersed, agents have imperfect information. They do not know the structure of the 'correct' model, the actions (and underlying knowledge and expectations) of other agents, and the future value of exogenous variables.
 - (b) Due to this imperfect information, individuals may make mistakes.
 - (c) These mistakes may concern their ideas and expectations as regards (i) the other agents' preferences, (ii) the other agents' actions (and hence their knowledge and expectations), (iii) the causal relationship between preferred goals and employed means, and/or (iv) the future value of some exogenous variable(s).
 - (d) Their decisions need not be *correct ex post* although they remain *correct ex ante* (cf. proposition 2b). The expected market outcome then may differ from the actual market outcome.

These three central postulates are regarded as logical derivations from the axiom that human action is directed towards a goal and that it takes place in a complex and uncertain world. However, the social sciences are not concerned with individual human behaviour and action, but with the overall outcome of all individual actions. This means that the description of individual behaviour, that is, the pure logic of choice, must be combined with the specification of some interaction mechanism. This mechanism is the market process, the process of competition. Most Neo-Austrians postulate that this process will bring about a tendency towards some form of social order (coordination). This postulate is the fourth central one in their hard core:

- (4) The economy will tend towards a spontaneous order, because of the process of competition.
- (a) Even though individuals may make mistakes in their decisions, the market process will tend to eliminate those agents that are not successful. The agents' inclination to make use of profit opportunities will tend to eliminate them. In this sense the economy moves towards a coordination (general equilibrium).
 - (b) This means that the agents' presupposed knowledge-acquiring and -processing abilities and their expectations-formation processes are such as to bring about

this tendency (although Neo-Austrians hardly ever explicate them).

- (c) The resulting social phenomena are not the result of human design, nor are they striven after by any individual agent. They are the unintended result of the actions of the agents, aimed at attaining their respective goals (*spontaneous order* or *invisible-hand explanation*).

These four postulates (and their constituting propositions) form the hard core of the Neo-Austrian economics. Neo-Austrians will not accept their falsification and/or refutation. Nevertheless, the postulates need not be corroborated by the facts, which means that they must be insulated from anomalies. The insulating, or protecting, propositions are contained in the protective belt.

5.3. THE PROTECTIVE BELT

The protective belt deals with inconsistencies between the implications of a theory and the observations.⁷³ Rizzo (1982) argues that these inconsistencies can be traced back to either of two circumstances. He distinguishes between *initial conditions* and *boundary circumstances*.⁷⁴ Misspecification of these two types of conditions insulates the theory from empirical falsification and subsequent refutation.

The first Neo-Austrian strategy to insulate the hard core from refutation concerns the *initial conditions* of the theory. These conditions contain the agents' goals, their knowledge, their expectations and the state of the exogenous variables. Most of these data of the social sciences are subjective. This means that they are very difficult to specify correctly. Given the dispersion of knowledge, a researcher cannot know all the goals, knowledge and beliefs of the agents. Some misspecification will therefore be inevitable. This inevitable misspecification in turn offers an explanation of why the theory is not corroborated by the facts. For example, a theory presupposing specific expectations may not become corroborated due to the fact that in reality individuals have different expectations than those presupposed by the theory. Changing the initial expectational assumption will then eliminate the inconsistency.

The problem of the initial conditions may also be analyzed in a different way. Consider the rationality postulate and let us distinguish between the axiom that agents' actions are goal-directed and the axiom that agents act because they want to attain a *specific* goal (e.g., profit maximization). The former can be interpreted as a way of looking at reality, as an interpretation scheme. It is a priori true (whether analytic or synthetic), as are its logical derivations.

⁷³ It should be noted that Rothbard's so-called auxiliary assumptions have nothing to do with the protective belt. These assumptions are merely necessary in order to derive hypotheses from the action axiom. They do not protect the action axiom from any inconsistencies between theory and observations, unless they are included in either the initial or the boundary conditions.

⁷⁴ Cf. Hempel (1965 (1970)).

Logical consistency is then the only test of the theory. Inconsistencies can only be explained by arguing that the theory then was not intended to explain the phenomena under consideration. For instance, one need not be surprised if one cannot explain a volcanic eruption in terms of human action. In contrast, the axiom concerning the specific content of the agents' goals is an empirical proposition. It is not a priori true and hence subject to falsification. Inconsistencies between theoretical implications and observations may be due to the misspecification of the contents of the goals. Varying this content may then lead to a complete and correct explanation, as it did in the case of misspecified expectations. For instance, suppose we assume initially that individuals maximize monetary profit. This implies that they will seize every (known) opportunity to make such profits. An anomaly will emerge if this is not the case in reality. Changing the initial assumption into the maximization of *psychic* profits may then lead to an explanation of the existence of monetary profit opportunities by arguing that they were not worthwhile. In this sense inconsistencies will lead to an elimination of misspecified initial conditions.

The second strategy used by Neo-Austrians to protect their hard core is their use of the *ceteris paribus* clause. In order to predict one must know not only the initial conditions, but also the conditions which prevail between the time when the prediction is made and the time when the predicted event should occur. These *boundary conditions* concern all variables which are exogenous to the prediction under consideration. When they remain unchanged, some appropriately specified *ceteris paribus* clause applies, which holds that all other things (i.e., the boundary conditions) have remained equal, and hence do not exert any disturbing influence on the predicted variable. As Rizzo (1982, p. 61) states, "[i]f conditions do not remain unchanged, then, of course, the predictions of the hypothesis may be inconsistent with observed outcomes. Any such inconsistency can potentially be attributed to the inapplicability of some aspect of the *ceteris paribus* clause." In this way any inconsistency between the conclusions of the theory and the results of empirical tests can be explained away. However, resorting to this strategy makes it senseless to confront the theory and its conclusions with 'reality', because it immunizes the conclusions from falsification. It seems that only dogmatic Neo-Austrians such as Mises, Rothbard and Hoppe would go this far. Revisionist Neo-Austrians such as Hayek, Lachmann, O'Driscoll, Rizzo and Langlois seem to be willing to face such a confrontation. This can be done by specifying as explicitly as possible the *ceteris paribus* clause.

To conclude, the Neo-Austrians vary both the initial conditions (including the agents' goals and knowledge) and the boundary conditions (as specified implicitly or explicitly in the *ceteris paribus* clause) in order to immunize their hard core from falsification.

Having defined the hard core and the protective belt we may now identify the research strategy prescribed by the Neo-Austrians. This strategy is called the *heuristic*. It consists of two parts, namely that which tells them how to formulate their theories (the *positive heuristic*) and the part which tells them how *not* to formulate them (*negative heuristic*).

5.4. THE POSITIVE HEURISTIC

The positive heuristic is governed by the postulates in the hard core. They determine the principles according to which Neo-Austrians should form their theories. As was shown in section 3, these principles are (1) methodological individualism, (2) methodological singularism, (3) radical subjectivism, and (4) methodological dualism. We may add the obvious fact that the positive heuristic must incorporate the fundamental problems to be addressed; that is, the goals of Neo-Austrian economics as a social science. After all, if it describes the research strategy to be followed, it must also contain the direction in which the research must go. And this direction is of course determined by the Neo-Austrian goals of science.

The positive heuristic may be articulated as follows:

- (1) Explain the creation and existence of social phenomena as unintended in nature (i.e., as the result of human action but not of human design). This means that these phenomena must be interpreted and explained as the (unintended) result of the coordination of activities.
- (2) If actions seem to be discoordinating, search for reasons why this is the case, i.e., search for reasons why the spontaneous order has not emerged. More in particular, when dealing with market phenomena, why do prices fail to bring about intertemporal general equilibrium by conveying correct information?
- (3) Explain the phenomena in terms of purposeful, *individual* action which is directed towards the attainment of the individuals' goals (methodological individualism).
- (4) Treat the factors on which individuals base their decisions and actions (that is, their ends, means, knowledge and expectations) as subjective, in the sense that they can only be known completely by the individuals holding them. This means that they are unknowable for the social scientist (radical subjectivism, dispersion of information).
- (5) Treat actions as singular events. They take place in time and they cannot be repeated under identical circumstances. This means that attention must be directed towards the explanation of processes, instead of situations (methodological singularism). The process of competition is considered to be the most important process in market economies.
- (6) Use the method of *Verstehen*. The social scientist must try to establish by introspection the goals which the market participants try to attain.

These six directives constitute the positive heuristic. They clarify how Neo-Austrian economists should proceed. They define the problems to be analyzed (rules 1 and 2), and the ways in which this should be done (rules 3, 4, 5 and 6). However, they do not prescribe what research strategies Neo-Austrian economists must not follow. Such rules are given in the negative heuristic.

5.5. THE NEGATIVE HEURISTIC

Analogously to the positive heuristic, the negative heuristic consists of a set of specific directives as regards the ways in which science should *not* proceed. Obviously, these directives are the negations of those constituting the positive heuristic. After all, if Neo-Austrians prescribe methodological individualism, they do not allow for explanations in terms of a common will (*Gemeinwillen*). In other words, if the specific directives of the positive heuristic hold that Neo-Austrians should do p , then the negative heuristic must incorporate a directive that they should *not* do $-p$ (not p).

The Neo-Austrian negative heuristic is quite extensive. In particular, it has been elaborated by Mises (1949 (1966)) and Hayek (1952b (1979)). Most of their arguments have already been discussed in section 3. Therefore, the present section will merely concentrate on those directives which have not yet been discussed sufficiently. In particular, this concerns the use of mathematics, statistics, and index numbers.

Analogously to the positive heuristic, the negative heuristic can be formulated as follows:

- (1) Do not explain social phenomena as the results of human design, that is, as the intended consequences of any human or superhuman mind.
- (2) Do not use collective entities which cannot be traced back to purposeful individual actions. Such entities include hypostatizations such as the representative individual, in the sense of a mathematical average.
- (3) Do not 'objectify' the data of economics as a social science. To put it in terms of mathematical models: the scientist cannot presume that the agents' have perfect information and perfect foresight as regards (i) the structure of the correct model, (ii) the values of the relevant parameters, (iii) the past, current and future values of the endogenous variables, and (iv) the past, current and future values of the exogenous variables.
- (4) Do not use probability functions, because these imply that actions are repeatable. This means that the economy cannot be described in terms of stochastic processes.
- (5) Do not adhere to methodological monism. Economics as a social science deals with human actions while the natural sciences do not. This means that the social scientists should not use the methods of the natural sciences. There is therefore no reason why the method of *Verstehen* should not be adopted.

This presentation of the directives of the negative heuristic uses mathematical, econometrical or statistical terminology. Neo-Austrians do not use such terminology, because they reject the use of statistics. Some Neo-Austrians, like Mises, also reject the use of mathematical models, while others (e.g. Hayek) seem to allow such a use. The following contains a discussion of the Neo-Austrian position as regards (i) index numbers, (ii) statistics, and (iii) mathematical models.

Firstly, Neo-Austrians hold that index numbers fail to do justice to the complexity of economic life. This has some important consequences for the problems to be analyzed. This can be clarified by considering the general price index. Like all index numbers, this index is a

weighted average of the prices of a 'basket' of commodities. However, lumping these commodities together into an index number disregards the differences in quality and the changes in the agents' valuations, or at least cannot make these differences and changes explicit. According to Mises (1949 (1966), p. 221), in economic reality "[v]aluations change too, and they cause changes in demand and production. The assumptions of the measurement doctrine [on which the construction of index numbers is based] would require men whose wants and valuations are rigid. Only if people were to value the same things always in the same way, could we consider price changes as expressive changes in the power of money to buy things." The general price index thus does not explicate relative prices. Such prices express the individuals' valuations, thereby providing signals to entrepreneurs. The entrepreneurs can then base their decisions upon these signals. According to Neo-Austrians, this leads to a tendency towards coordination, that is, a tendency towards a situation in which all relevant information is efficiently used. Neo-Austrians argue that there can be no economic calculation without such a system of relative prices, because entrepreneurs would then not be able to discover profit opportunities. A coordinating tendency then cannot exist. This means that the use of index numbers, especially the general price index, eliminates those variables which are the most important for the economic process and the dissemination of knowledge during that process. It disregards the importance of the coordination problem, which lies at the heart of Neo-Austrian analysis.

Secondly, Neo-Austrians argue that index numbers should not be used in economics because of its implications for the role of the social scientist. Index numbers are calculated by statisticians, who attach coefficients to the various commodities. These coefficients must express the different roles played by the commodities in the individuals' households. However, these roles are difficult to assess and are liable to change, because information is dispersed and hence incomplete. Those social scientists who calculate and use index numbers thus implicitly neglect the dispersion of knowledge. This means, as Hayek (1952b (1979) pp. 90 - 91) claims, that they implicitly adopt the view that "... the student of society ... [is] endowed with a kind of supermind, with some sort of absolute knowledge, which makes it unnecessary for him to start from what is known by the people whose actions he studies." In other words, the use of index numbers is merely another form of scientism.⁷⁵

It follows from what has been said on index numbers that statistics can only provide rough and inaccurate accounts of changes in a market economy. Its use can only be justified if agents would take its results into account while making their decisions. According to Mises (1949

⁷⁵ Hayek (1952b (1979)) argues that the use of index numbers is inherent in the objectivism of scientism. Scientism is the "... slavish imitation of the method and language of Science ..." (Hayek (1952b (1979) p. 24). Its objectivism searches "... for the 'real' attributes of the objects of human activity which lie behind men's views about them" (p. 88). In Hayek's view, it leads to a tendency to concentrate research efforts on phenomena which can be 'measured', although many of such 'measurements' are absolutely meaningless. Such a tendency is in conflict with the Neo-Austrian radical subjectivism, which implies that the data of the social sciences consist of the views which individuals hold as regards their economic situation.

(1966), p. 223), this is not the case. He claims that "[i]n practical life nobody lets himself be fooled by index numbers [and statistics] ... [because] nobody acquiesces in an index number if he does not expect a personal advantage from its acknowledgment by public opinion." In his view, individuals do not base their decisions on considerations which involve the general price index or other statistically derived entities. Statistics cannot contribute valuable theoretical insights.

In addition to their rejection of statistics, Neo-Austrians do not use mathematics. In their view, market economies cannot be represented completely in a mathematical model. There are simply too many equations and endogenous variables which must be solved. This means that there are in principle two options: (1) restraining from the use of mathematical models, or (2) adopting simplifying assumptions. The latter implies that the social scientist must abstract from those feature of the economic process which are regarded as less essential. He may thus limit (i) the number of goods in the economy under considerations, (ii) the number of agents operating in that economy, (iii) the (number of) interrelations between those agents, and (iv) the number of exogenous variables (by specifying a (more or less appropriate) *ceteris paribus* clause). Such simplifications must be rather rigorous because of the complexity of social phenomena. This means that mathematical models will not contribute to the analysis of the coordination problem. They will merely simplify the analysis, or even assume the problem away. Given the importance Neo-Austrians attach to the analysis of the coordination problem, they do not allow such a circumvention. Therefore, they object to the use of mathematical models. Mises (1949 (1966), p. 354) concludes that "[t]he equations formulated by mathematical economics remain a useless piece of mental gymnastics and would remain so even if they were to express much more than they really do." However, some Neo-Austrians implicitly allow for the use of mathematics. As may already have become clear from what has been said on pattern prediction, Hayek (1937) considers the use of mathematical models quite useful, albeit only as a preliminary study. It cannot be used for explaining real-world economic phenomena. In addition, Hayek (1939 and 1969), Rothbard (1962) and Garrison (1978) use diagrams. And as diagrams are merely graphical representations of mathematical formulas, they presuppose mathematics. Obviously, these Neo-Austrians then cannot reject the use of mathematics in economics.

6. CONCLUSIONS AND FINAL REMARKS

Neo-Austrians emphasize the purposefulness of human action. Human action is considered rational, in the sense that it aims at attaining subjective goals. Praxeology deduces propositions from this action axiom. However, Neo-Austrians differ on the truth status of these propositions and, therefore, the axiom. Whereas some claim that it constitutes a Kantian synthetic a priori proposition, others argue that the axiom is 'merely' an analytical a priori proposition. A third group claims that the axiom is a self-evident, a posteriori proposition. Obviously, these differences have their effects on the positions with regard to empirical testing. Two groups may

be discerned, one maintaining that testing is meaningless, the other asserting that testing is necessary although in practice rather difficult. These respective currents may be labelled 'dogmatic' and 'revisionistic'.

Neo-Austrian economics is clearly methodological-individualistic. It seeks to explain 'reality' in terms of the individual striving to fulfil plans. These plans are interpreted as subjective in the sense that they are only known to the subjects under study. More in particular, Neo-Austrians must be called dynamic-subjectivists, because they view the human mind as essentially creative. Human beings not only behave according to the logic of their situations, they also create part of that situation. The process of competition, being a process of discovery of ends and means, is crucial in this regard. A third major characteristic of 'Austrianism' is that it views each action as a unique event. This means that they do not allow for the incorporation of stochastic elements. Neo-Austrians are methodological singularists. The fourth methodological tenet of Neo-Austrian analysis is its methodological dualism. Neo-Austrians distinguish two grounds on which they conclude that the social sciences must not use the same methods of research as the natural sciences. Firstly, the social sciences study human behaviour. The social scientist, as a human being, can understand his fellow-man. He can use the method of 'Verstehen'. The natural scientist, on the other hand, cannot use this method. The second ground on which Neo-Austrians decide to adhere to methodological dualism refers to the complexity of the phenomena studied. While the natural scientist can experiment in laboratory circumstances, the social scientist cannot perform such experiments because social phenomena are much more complex than the natural phenomena. This makes empirical testing almost impossible, because the researcher cannot specify all initial conditions. Additionally, the boundary conditions are liable to change. This necessitates the adoption of other methods than those of the natural sciences.

Neo-Austrians, as Lachmann has pointed out, try to achieve two goals: (1) to make the world intelligible in terms of human actions (individual plans); and (2) to explain the unintended consequences of the actions based on individual plans. They try to reach these goals by adopting two basic tenets, namely (1) human beings act rationally; and (2) human knowledge is unpredictable. Whereas the first goal and first tenet are consistent with each other, the second goal and tenet seem to be inconsistent. If human knowledge cannot be known, then their goals (or intentions) cannot be known. And this means that we cannot determine whether the results of the individual actions are intended or unintended. However, Neo-Austrians may 'retrodict' constellations of plans, which suffice to explain the social phenomena under consideration. These retrodictions are contingent, hence empirically testable. Testability may thus be saved in Neo-Austrian methodology by limiting it to retrodiction. Hence the Neo-Austrian attempts of making social phenomena intelligible in terms of rational human action can be tested by means of 'postdiction' ('retrodiction'). By contrast, prediction then constitutes a senseless activity.

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