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# The Weak Rationality Principle in Economics[1]

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**Abstract**

The weak rationality principle is not an empirical statement but a heuristic rule how to proceed in social sciences. It is a necessary ingredient of any understanding' social science in the Weberian sense. In this paper, first this principle and its role in economic theorizing is discussed. It is also explained why it makes sense to use a micro-foundation and, therefore, employ the rationality assumption in economic models. Then, with reference to the bounded rationality' approach, the informational assumptions are discussed. Third, we address the assumption of self-interest which is often seen as a part of the rationality assumption. We conclude with some remarks of handling the problems of free will' as well as weakness of the will' within the economic approach.

**Zusammenfassung:**

**Das schwache Rationalitätsprinzip in den Wirtschaftswissenschaften**

Das schwache Rationalitätsprinzip ist keine empirisch gehaltvolle Behauptung sondern eher eine heuristische Regel, wie man in den Sozialwissenschaften vorgehen soll. Es ist notwendiger Bestandteil jeder ‚verstehenden' Sozialwissenschaft im Sinne von MAX WEBER. In dieser Arbeit wird zunächst dieses Prinzip und seine Rolle im Rahmen der ökonomischen Theoriebildung diskutiert. Dabei wird auch erläutert, weshalb es Sinn macht, eine Mikro-Fundierung ökonomischer Modelle anzustreben, die rationales Verhalten der Akteure unterstellt. Mit verweis auf den Ansatz ‚eingeschränkter Rationalität' werden die Informationsannahmen dieses Ansatzes erörtern. Dann behandeln wir die Annahme des Eigeninteresses, die häufig als Bestandteil der Rationalitätsannahme (miss-)verstanden wird. Die Arbeit schliesst mit einigen Bemerkungen zur Behandlung der Probleme des freien Willens sowie der Willensschwäche im Rahmen des ökonomischen Verhaltensmodells.

**Keywords**

Rationality, Self Interest, Micro-Foundation, Bounded Rationality

**JEL Classification**

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## 1 Introduction

It is hardly disputed that economics is the most important social science which explains human behaviour as ' rational choice' or 'rational behaviour'. The rational choice approach is, of course, also applied in other social sciences like political science or sociology, but it is far less dominant and much more disputed there. There is much less unanimity about what 'rationality' means: The interpretations go from the strict application of expected utility theory as developed by J. v. NEUMANN and O. MORGENSTERN (1944) via full rationality and bounded rationality in the sense of H.A. SIMON (1955), the assumption that rationality simply implies "that agents are not in fact stupid" (M. LAGUEUX (2004, p. 31)) up to the weak rationality principle discussed in this paper. Along this line the empirical content of the rationality assumption decreases: It is highest for the expected utility theory but zero for the weak rationality principle.

When the content of the rationality assumption is discussed, one point is whether it is used in a purely instrumental (formal) sense as "Zweckrationalität" or whether is has some material content, i.e. whether only the means are (or should be) rationally chosen in order to reach certain goals or whether the goals themselves should be rationally justified. J. HABERMAS (1964), e.g., accused H. ALBERT (1964) of a "positivistically halved rationalism" because he insisted on the classical dichotomy between facts and standards, i.e. that it is not possible to provide value judgements with the same scientific justification (status) as statements about facts.

Following the classical model "that deliberation is always about means, never about ends" (J.R. SEARLE (2001, p. 5)), in economics, usually a formal rationality assumption is employed; the idea behind this is the autonomy of the person or the 'consumer sovereignty', i.e. that individuals are free to choose their own values; nobody has the right to tell them how their preference function has to look like.[1)] But even then, there is a wide leeway for different concepts of rationality. They concern especially (i) the content (and structure) of the individual utility function and (ii) the information which is used by the individual and how it is used by her/him. While the latter is mainly subject of the concepts of 'bounded rationality' as developed by H.A. SIMON (1955) and R.A. HEINER (1983), the former mainly centres around the notion of self-interest.

Every strong version of the rationality principle has been empirically rejected. This becomes especially obvious if the empirical results of game theory are taken into account.[2)] Laboratory experiments show that people do neither behave according to the predictions of non-co-operative nor of co-operative game theory; they especially contradict the notion of self-interest which is applied in the formal models. Thus, not only the information problem is

1. This does, of course, not imply that nobody has the right to tell the autonomous individuals how to behave properly; it is undisputed in economics that the community has (up to a certain extent) the right to set the rules of the social living together and, by this way, to restrict the behavioural leeway of the individuals.

2. See for this, e.g., R. SELTEN (1990).

tackled today by the concepts of bounded rationality but also the motivation of acting individuals.

The empirical rejection of rationality concepts goes even further. Even in situations which largely favour (traditionally) rational behaviour people often (and consistently) behave differently; starting with the ALLAIS-paradox of 1953[3)] many anomalies of individual behaviour have been discovered, and some of them relate to the behaviour on financial markets; institutions which are usually assumed to punish non-rational behaviour quite heavily. Nevertheless, there is evidence, e.g., for Monday effects, excess volatility and the winner's curse.[4)] Moreover, tests whether the individuals have rational expectations in the sense of J.E. MUTH (1961) usually reject this assumption.

This does not necessarily imply, however, that such versions of the rationality principle should generally not be applied in economic analysis. In order to reject a theory it is not only necessary that it is falsified but also that a 'better' theory is available for the purpose at hand. Moreover, especially with respect to the rational expectations assumption it has to be taken into account that this is the most parsimonious way to construct macroeconomic models which do not imply that the individuals can be fooled consistently and/or in the long run in the same way. Even though the rational expectations hypothesis has often been rejected in empirical research[5)] and even though there is evidence for the existence of money illusion,[6)] it hardly makes sense to evaluate different possibilities of economic policies under the assumption that money illusion exists in the long-run, i.e. that (rational) individuals do not learn.

The topic of this paper is, however, the weakest possible version of the rationality principle. Contrary to the strong versions, this principle cannot be rejected by empirical evidence; it is rather a methodological advice than an empirical statement. But it is, as we will see, nevertheless one basic and necessary ingredient of any 'understanding' social science in the Weberian sense. Social sciences can get along without it, but not understanding ones in this sense.

Other basic ingredients are assumptions about the objectives of the individuals and about the information they have at hand and use. Together, they build the economic model of behaviour. All this is based, of course, on the concept of methodological individualism, i.e. on the assumption that the different individuals, the human persons, are those who act, even if they perform 'common actions'. This provides a micro-foundation for economic but also for other theories of the society. Other concepts of social sciences which do not include such a micro-foundation do not have to employ the (weak) rationality assumption.

In the following, first the weak rationality principle and its role in economic theorizing is discussed (*Section 2*). It is also discussed why it makes sense to use a micro-foundation and,

3. For the history of the Allais-Paradox see P.J.H. SCHOEMAKER (1982, pp 541ff.).

4. See, e.g., the corresponding chapters in R.H. THALER (1992).

5. See, e.g., G. KIRCHGÄSSNER (1993).

6. See, e.g., E. FEHR und J.-R. TYRAN (2001).

therefore, employ the rationality assumption in economic models. Then, with reference to the 'bounded rationality' approach, the informational assumptions are addressed (*Section 3*). Third, we discuss the assumption of self-interest which is often seen as a part of the rationality assumption (*Section 4*). We conclude with some remarks of handling the problems of 'free will' as well as 'weakness of the will' in the economic approach.

## 2 The Rationality Principle

In economic analysis, the individual's decision situation is essentially described by two elements: by preferences and restrictions. Both elements are strictly differentiated in the economic analysis.[7)] In a given situation the restrictions limit the individual's leeway of action; to these restrictions belong, besides others, the income of the individual, the market prices of goods, the legal frame of his actions but also the (expected) reactions of other individuals. Within this leeway there are the various alternatives of acting which are available and from which the individual can choose. It is not necessary that the individual knows all alternatives. Generally, he only knows part of his choices and often only a very limited one, and he is aware only of some of their consequences. Before taking a decision he must, therefore, evaluate these alternatives; he has to build up (conditional) expectations or forecasts.[8)] Nearly always one of the alternatives is to postpone the decision and to search for additional information in order to increase the knowledge about possible actions and their consequences. The preferences are derived from the intentions of the individual, they reflect the individual's ideas of value as they have been developed during the process of socialisation, and they are principally independent of the actual possibilities of action. According to these preferences, the individual assesses the various alternatives at his disposal, he weighs up the pros and cons, the costs and benefits of the alternatives against each other and finally chooses that (those) alternative(s) which come(s) closest to his preferences or which promise(s) to bring about the maximum net benefit.[9)] Thus, in this model, human behaviour is interpreted as a rational choice from available alternatives by the individual or – to speak in the language of economics – as 'utility maximisation under constraints with uncertainty'.[10)]

Two issues are important for considering an individual's decision within the framework of the economic model of behaviour: the independence of the decision and the rationality of the de-

7. The economic approach differs in this respect from other approaches in the social sciences which do not make this distinction at all or at least not so strictly, as, e.g., traditional sociology.

8. H. ESSER (1996) denotes this the "definition of the situation" which precedes every action.

9. JOHN RAWLS who calls this concept "the standard one familiar in social theory" remarks that "in the usual way, a rational person is thought to have a coherent set of preferences between the options open to him. He ranks these options according to how well they further his purposes; he follows the plan which will satisfy more of his desires rather than less, and which has the greater chance of being successfully executed." (1971, p. 143.)

10. As the individuals' behaviour is oriented toward the (potential) consequences of the various possible actions, one also speaks of a 'consequentialist' approach in this context. See for this, e.g., A.K. SEN and B. WILLIAMS (1982).

cision. Independence of a decision means that an individual acts according to his own preferences (and not according to the preferences of others). Of course, he can take into account the interests of others in his preferences; in an extreme case he can be envious or malevolent, but also altruistic and benevolent.

The second point is the rationality of the decision. In this context rationality does not mean that the individual chooses the optimum way of acting at every moment, that he goes through the world like a walking computer which always finds out the best of all available alternatives in a flash. This distorted picture of the 'homo oeconomicus' which up to now is still to be found in many (text)books of microeconomics and which has rightly been criticised again and again, is not in line with the modern interpretations of the economic model of behaviour.[11)] Rationality in this model simply means that the individual, following his intentions, is principally in a position to assess and evaluate his action range and then to act accordingly.[12)] It has to be taken into account, however, that the individual must make his decision without being fully informed and that the search for additional information is costly. He also often has to decide under time pressure. The individual will especially be willing to accept costs for additional information if he realises a relevant change of his action leeway and he, therefore, has to assess and evaluate his alternatives once again. A rational individual reacts to such a change 'systematically', i.e. neither by chance nor randomly, but also not strong traditionally in that he strictly sticks to given rules independent of the concrete situation.[13)] Therefore, his behaviour can systematically be influenced by providing incentives, which in most cases result from changes of the individual's action leeway (his restrictions). Thus, in this concept, philosophically meaningful and often discussed, distinction between human behaviour and human action disappears: Behaviour of individuals is explained by assuming that they act rationally.[14)] As a consequence, predictions of behavioural changes as a reaction to changes of his action leeway are possible.

M. WEBER adopts a similar if not even the same position when he writes about social behaviour: "It will be called human 'behaviour' only insofar as the person or persons involved engage in some subjectively meaningful action. Such behaviour may be mental or external; it may consist in action or omission to act. The term 'social behaviour' will be reserved for ac-

11. For criticism of this concept of rationality see also K.J. ARROW (1986).

12. J.W.N. WATKINS gives a similar definition of the 'principle of rationality' which he, however, calls "just rough and provisional": "An individual is placed in a certain objective problem-situation. He has certain aims (wants, preferences) or perhaps a single aim, and he makes a factual appraisal (which may be a misappraisal) of his problem-situation. The rationality principle says that he will act in a way that is 'appropriate' to his aim(s) and situational appraisal." (1970, p. 172). He explicitly refers the term 'appropriate' to K.R. POPPER (1967).

13. For the discussion of such kinds of 'irrational' behaviour see G.S. BECKER (1962) as well as, referring to him, J. ELSTER (1979, p. 137 ff.).

14. See also G. KIRCHGÄSSNER (1985) for this. This position is, of course, not uncontested. A different view is especially taken by those authors who combine with the term 'action' a moral demand as, e.g., B.M. PATZAK (1984).

tivities whose intent is related by the individuals involved to the conduct of others and is oriented accordingly." (1922, p. 1.)

In other words, within the framework of the economic model of behaviour, individuals are supposed to adapt to changed environmental conditions according to their objectives (preferences) in a systematic and therefore predictable manner. Such changes can result both from the actions of other individuals', e.g., by political measures, as well as through changes of the 'natural' conditions. This is formulated as a principle by H. KLIEMT as follows: "Every intentional human behaviour is to be explained as individual adaptive behaviour guided by preferences." (1984, p. 17.)

According to the logic of science, this 'weak principle of rationality' might, as a basis for the economic model of behaviour, be of similar importance for the social sciences as the 'principle of causality' for the natural sciences.[15)] In the same way as in natural sciences talking about (natural) laws does not become possible before accepting the principle of causality, in the social sciences the understanding of human actions is not possible if the distinction between preferences and restrictions (purposes and means) which is embedded in the economic model of behaviour is not accepted and if it is not presupposed that the individuals use the means at their disposal in a (subjectively) rational way to reach their objectives.

It is interesting that not only the 'new economic history' as represented, e.g., by D.C. NORTH (1981), but also the traditional 'understanding' branch of history applies exactly this 'economic' model of behaviour and, therefore, also the underlying rationality principle, although history and (theoretical) economics seem to be methodologically at a far distance from each other at first sight.[16)] In this context, e.g., J.W.N. WATKINS writes about the principle of rationality: "But the principle can also be cast in the form of a methodological rule that enjoins historians and other investigators of human behaviour, not necessarily to accept the principle *qua* factual postulate as true, but to proceed on the supposition that it is true. In this last form … it says, first of all, that to provide a conjectural explanation for a past action is to postulate a decision-scheme which has a practical conclusion of which that action could be the natural outcome." (1970, p. 209.)

Regarding it this way, the weak rationality principle is not an empirical statement; it can neither be verified nor falsified. Whenever an action of an individual is observed, it might be rational in the sense described above even if we (at the moment) do not understand it, but even if we would have a 'rational' explanation for every observed action we could never be

15. See for this also K.R. POPPER (1967), M. TIETZEL (1981, p. 131 ff.), B. ABEL (1983, p. 133 ff.) and, for a somewhat different position, S.J. LATSIS (1983). Of course, the principle of causality can also be understood differently. (As to the importance of the principle of causality see, e.g., W. STEGMÜLLER (1960) as well as especially M. BUNGE (1959)). Moreover, the analogy between the principle of rationality and the principle of causality is restricted. Whereas, e.g., the principle of rationality can also be and is often comprehended in a normative sense, this trivially does not apply to the principle of causality.

16. This is apparently underlined by the battle of methods ('Methodenstreit') started by C. MENGER (1883) between his (Austrian) theoretical school and G. SCHMOLLER's historical school of political economy. (See for this, e.g., J.A. SCHUMPETER (1954, p. 814f.).)

sure that it really holds for all human actions. Insofar, it is a metaphysical statement. Its purpose is, however, not to tell us something about the reality; it is a heuristic principle which gives us methodological guidance for the way we are doing research in the social sciences. It tells us that, whenever we want to explain human behaviour, we should try to explain it as rational actions of the individuals or as the result of rational decisions, respectively.[17)]

This is somewhat contrary to K.R. POPPER's view of the rationality principle. On the one hand, there is at best a minor disagreement about the content of the principle and its importance for the social sciences. He classifies the economic approach as "*a purely objective method* in the social sciences which may well be called the method of *objective* understanding, or situational logic." (1962, p. 199). At another place he calls this procedure "situational analysis" (1972, p. 178). He defines the rationality principle as "the principle of acting appropriately to the situation" (p. 359). On the other hand, there is some disagreement about the status of this principle. Though he acknowledges that it is "clearly an *almost empty* principle" (1967, p. 359), he believes that it has some empirical content and therefore, can (in principle) be tested. Mentioning prima facie evidence he claims that "the rationality principle is false" (1967, p. 361). Nevertheless, he also acknowledges its heuristic value.[18)]

If this behavioural model, as it is supposed here, is seen as prerequisite for understanding human action, the difference between 'explanation' and 'understanding' disappears: I can only understand human action if I can explain it by means of such a model of rational behaviour. M. WEBER who usually is attributed to the 'understanding' branch of the social sciences, puts this into similar words. He looks at sociology as "that science which aims at the interpretative understanding of social behaviour in order to gain an explanation of its causes, its course, and its effects." (1922, p.1.)[19)] This also corresponds to our ordinary language usage of 'understanding' of human behaviour. Here we also think in categories of motives (preferences), means (restrictions) and limited information.[20)]

An individual might rationally act in this sense even if he does – according to our everyday's perceptions – rather crazy things. Someone, e.g., who is schizophrenic and believes that he is another person and/or in a totally different situation, might be 'rational' in this sense, given his (totally wrong) perception of the reality. Moreover, we can only understand him if we – underlying his perception – ask why he behaved in this and that way. As soon as we ask "why" we usually assume that he believed to have 'reasons' for his behaviour and, correspondingly, applied the weak rationality principle.

17. See also V. VANBERG (2004, p. 3): "Interpreted as a heuristic principle, the rationality principle tells us how we should go about explaining purposeful human action. It suggests that we ought to explain such action in terms of the actor's purposes and beliefs, and that we should do so under the presumption that the actor's purposes and beliefs are consistent at the moment of choice."

18. For a discussion and a critique of K.R. POPPER's conception of the social sciences see V. VANBERG (1975, pp. 109ff.), M. SCHMID (1979, 1979a) as well as D.W. HANDS (1985).

19. As to MAX WEBER's position see, e.g., E. ANGEHRN (1983).

20. For the discussion of the term 'understanding' in social sciences see e.g. W. STEGMÜLLER (1969, p. 360 ff.), A. BÜHLER (1987) as well as the contributions in G. SCHURZ (1988).

The only ‘strong’ assumption in this concept is the one of consistency (at the moment of choice): Preferences are assumed to be insofar complete as the individual is assumed to be able to principally evaluate any alternative which he takes into account as a possibility, and also to be transitive. Without this assumption, we cannot ‘understand’ what an individual does. But even this assumption is not testable if we do not assume that the preferences are more or less constant over time. Actions at different points of time which seem to be inconsistent might be consistent if the individual learns and/or has only limited information processing capacity. Moreover, learning (and forgetting) might change the individual’s behaviour over time in a way that seems to be inconsistent. Thus, consistency over time is a (necessary) assumption when revealed preference analysis is to be applied, but it is not a necessary component of the rationality assumption.[21)]

Applying the economic model of behaviour is, of course, by far not the only way social sciences can proceed. Methodological individualism and the rationality assumption are not necessary elements of any social science. Correspondingly, a micro-foundation is not a necessary ingredient of any social theory.[22)] Macro-theories can be developed which discuss, e.g., the properties of social systems and the relations between those properties which do not need a micro-foundation and, therefore, also do not need to apply the weak rationality principle. This also holds for economics, especially because economics is hardly interested in the behaviour of single individuals but in the behaviour of so-called ‘aggregates’ such as, e.g., consumers, entrepreneurs, or voters. It is not the behaviour of a certain single individual which is interesting, but the ‘typical’ behaviour is considered: regularities in the behaviour of all or at least the majority of the individuals in the respective group.[23)] Here, the micro-theory offers (only) the basis in order to be able to explain the macro-phenomena.

This is not a contradiction, as it might seem at first glance. If by change of a certain macro-variable the conditions for the actions of all individuals of a certain group are influenced in a similar way, it is to be expected that their reaction will not in every single case, but on average, show that regularity which can be explained by the individual decision calculus. Thus, a rise in petrol prices will, e.g., not induce every car-driver – ceteris paribus – to save petrol. For the economic way of reasoning it is, however, only relevant that on average, consumers react with savings so that the rise in prices leads to a reduction of the total demanded quantity. This behaviour, which actually could be observed after the high increases of petrol prices in the years 1973/74 and 1979/80, can – by using some additional ‘weak’ assumptions – be de-

21. See, e.g., R. SUDGEN (1985).

22. For a discussion of the two sociologies, the one with and the other without such a micro-foundations, see V. VANBERG (1975).

23. Correspondingly, J.R. HICKS writes when dealing with the law of demand: “In all our discussions so far, we have been concerned with the behaviour of a single individual. But economics is not, in the end, much interested in the behaviour of single individuals. Its concern is with the behaviour of groups. A study of individual demand is only a means to the study of market demand.” (1939, p. 34.) – See for this also F.A. v. HAYEK (1952, p. 48 ff.) as well as K.R. POPPER (1967, p. 3).

rived for the 'typical' consumer from the individual optimality calculus of the theory of consumer behaviour.

Whether a micro-foundation is necessary for economic theories has, e.g., been discussed in the seventies.[24)] Macro-relations based on arguments of plausibility were accepted as long as they seemed to be empirically valid; the latter had to be 'proven' – using econometric methods – by statistical significance. Economic policy was performed by relying on the existence and stability of such relations.

The most famous example for such a relation is probably the modified Phillips-curve which contains a long-term trade-off between inflation and unemployment. It was first 'discovered' by A.W. PHILLIPS (1958) as a relation between the unemployment and real wage development. Later on, it was expanded into a relation between inflation and unemployment. In 1960 it was called the "menu of choice" of economic policy by P.A. SAMUELSON and R.M. SOLOW (1960, p 192). Such Phillips-curves, named after their 'discoverer', were econometrically estimated for quite a number of countries. On the basis of this empirical evidence it was believed that the unemployment rate could permanently be reduced through a once for all increase of the inflation rate.[25)]

Such macroeconomic relations – respectively the macroeconometric models consisting of them – can in many cases be helpful instruments for predictions. This can change, however, if one tries to simulate with such models the effects of different economic policies and to put into practice those economic measures which (according to the political decision-makers) will lead to the 'best' result. Then it might happen that a macroeconomic relation which ought to be exploited for economic policy purposes disappears. If, e.g., a politician wants to make use of the (statistically validated) long-term relation between inflation and unemployment by increasing inflation through a policy of easy money in order to reduce unemployment, this might perhaps be successful in the short run. In the medium or longer run, however, inflation will increase while unemployment will again reach its former level. (It might even be somewhat higher than before.)

Actually, the political (experimental) demonstration of the Phillips-curve has failed. In the seventies and eighties, prices went on rising along with unemployment. The reason for this failure was due to the fact that such a policy relies on the money illusion of the economic agents. But this could only be successful in the long run if the economic agents could be fooled systematically and permanently. This does not seem to be very plausible, it also contradicts the rationality assumption. Today, the necessity of a microeconomic basis is accepted quite generally in economics.

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24. See for this, e.g., H. RAMSER (1987, p. 8 ff.), as well as F. MACHLUP (1963) and E. SCHLICHT (1977).

25. For this and the respective criticism see A.M. SANTAMERO and J.J. SEATER (1978) as well as the discussion between R.G. KING and M.W. WATSON (1994) and CH.L. EVANS (1994).

As stated above, the weak rationality principle is an important one, but still only one ingredient of any model in the 'understanding' social sciences. The other ones are the assumptions about the information used by the agents about the content of the utility function. These two ingredients are to be discussed next.

## 3 Bounded Rationality

Traditional economic theory assumed that economic agents are always fully informed and able to immediately process the available information. This view which today is still kept in many (introductory) microeconomic textbooks has not only (correctly) been criticised by many outsiders but has also been challenged from two sides: (i) Starting with G. STIGLER (1961) an economics of information has been developed which took into account that many if not most interesting microeconomic problems arise in situations with asymmetric information. (ii) Already six years earlier, H.A. SIMON (1955) developed his concept of 'bounded rationality.[26)] In his approach, the individual behaves as a 'satisficer' and not as an optimiser, he searches so long among the alternatives at his disposal until he meets a 'sufficiently' acceptable one, and then decides in favour of that. If after a long search, however, no such alternative can be found, the individual reduces his aspiration level and then looks for an alternative which according to this lower level is acceptable.

This model of bounded rational behaviour is often understood as an alternative to the economic model of behaviour,[27)] but this applies only insofar as oneself – as well as many critics, but also many traditional economists – is tied up to the concept of the individual who under full information is permanently optimising. Then both models can empirically be tested against each other.[28)] When considering the more recent conception of the homo oeconomicus, both these models are special cases of a more general concept, because H.A. SIMON's model also contains those elements which are decisive for the economic model of behaviour: The distinction between preferences and restrictions, the evaluation (of a part) of the alternatives, the decision among the evaluated alternatives according to one's relative advantage, and with that the possibility to influence this behaviour by a change in the environmental conditions (incentives).

Such concepts of bounded rationality are especially important if there is only little knowledge about the possible actions and above all about the consequences to be expected. In such situations, it is relevant to develop and to apply "rational search procedures".[29)] Such procedures should not in every single case, but at least on average, lead to decisions with acceptable results. They can be, e.g., approved rules of thumb, but also – in the computer era – highly

26. See for this also H.A. SIMON (1978, 1979), J. CONLISK (1996) as well as A. RUBINSTEIN (1998).

27. This view is adopted especially by H.A. SIMON himself, but it is also to be found with, e.g., R.A. HEINER (1983, p. 564).

28. See for an example A. KAPTEYN, T. WANSBECK and J. BUYZE (1979).

29. H.A. SIMON (1978, p. 11).

complicated mathematical algorithms. In this context, H.A. SIMON speaks of "procedural rationality" (1978, p. 8), in contrast to the usually considered 'substantial rationality'.

How 'boundedly' rational the behaviour of individuals is, depends largely on the institutional conditions under which it takes place. Among other things, it is important how well the individuals are (and can be) informed about the alternatives at their disposal, the costs of additional information, and the return of such information, respectively the costs of 'wrong' or sub-optimal decisions. If the competitive pressure is high on a market, there is a strong incentive to look for the objectively best action. But in monopolistic (or oligopolistic) situations, 'sufficiently adequate' solutions might be acceptable. Something similar holds with respect to market transparency, if auction and non-auction markets are compared, if, e.g., the stock market is compared with the market for consumer goods. It can generally be assumed that markets provide greater incentives for rational behaviour in the sense of the traditional model than other social decision mechanisms like, e.g., political or bureaucratic procedures. This may be the essential reason why many social scientists see the application of the economic model of behaviour restricted to the 'economic' area in the traditional sense. From what has been said above, it should be obvious that this is a misunderstanding, because a very specific and restrictive version of it is treated as equivalent with *the* economic model of behaviour. This, however, implies that boundedly rational behaviour is excluded from the realm of the theory of rational behaviour and is regarded as being non-rational or even irrational. Actually, however, this is one important variant of rational behaviour, just as the model of expected utility maximisation derived by J. v. NEUMANN and O. MORGENSTERN (1944). Bounded rational behaviour is *rational* and not irrational behaviour.[30)]

It may be objected against all this that in reality the behaviour of individuals is characterised less by rational (or bounded rational) decisions but more by their adherence to (social) norms, as it has been presented by R. DAHRENDORF (1958) in his picture of the 'homo sociologicus'. This sociological model based on E. DURKHEIM's (1895) tradition of a non-individualistic sociology or social sciences, is often opposed to the economic model as being the 'more realistic one'.[31)] But this comparison is questionable if it intends to express explicitly or implicitly that the homo oeconomicus does not follow rules. Of course, he also does do this, because in a world of limited information and limited resources it is rational to follow rules, at least in 'standard situations'. This is not only valid, e.g., in traffic, but applies also to many 'economic' decisions in the traditional sense, e.g., to many consumer decisions.[32)] The individual can also use 'contingent rules', i.e. rules which indicate for a whole class of situations how (according to his own preferences) to behave best. In any case, however, a reasonable indi-

30. According to this, H.A SIMON himself writes "that almost all human behavior has a large rational component, but only in terms of the broader everyday sense of rationality, not the economists' more specialized sense of maximization." (1978, p. 2.)

31. See for this G. KIRCHGÄSSNER (1991), *Chapters 5* and *9*.

32. R.A. HEINER (1983, 1990) even adopts the view that (in many cases) behaviour is only then predictable if individuals do not strictly optimise because of their information problems, but orientate themselves by rules. For a critique of this proposition see G. KIRCHGÄSSNER (1993a, pp. 188ff.).

vidual, whoever it may be, will hardly use such a rule blindly, but will change his behaviour as soon as he registers a relevant change of his acting conditions and possibly adapt his rule to the new situation. Of course, this also applies to contingent rules if a situation emerges which is not yet covered by them. If these rules are not seen absolutely, but as means being at the individual's disposal to save decision and information costs, there is no contradiction between the rational choice model and the application of rules by the individuals.

## 4 Self-Interest

Basically, applying the weak rationality principle, the individual might strive for any aims. Technically (in economic terms) spoken, there is no restriction on the arguments in the individual's utility function. It is totally open. As mentioned above, the only additional assumption is the consistency of the preferences at the moment of choice. When applying this model in economic theory, however, in addition it is usually assumed that the individuals act according to their self-interest, or, in the terminology of J. RAWLS (1971, p. 144), that they are "mutually disinterested rational". This stronger assumption leads to a theory with greater empirical content which has been successfully applied to many, mostly economic, situations, but has also failed to provide a convincing explanation of other, mainly non-economic, situations. The most prominent one is the 'paradox of participation' which goes back to A. DOWNS (1957): A (purely) self-interested, rational voter should not participate in elections and referenda. Nevertheless, we usually observe high participation rates. Thus, a theory which attempts to explain voter participation as rational action comes to the conclusion that the rational voter does not vote.

It should first be taken into account that the assumption of self-interest is a separate one and not part of the (weak) rationality assumption. This holds as soon as the assumption of self-interest implies additional restrictions of the individuals' utility functions besides the consistency-requirements. The usually applied restriction is that the utility functions contains only the 'own' arguments, i.e. that the well-being of other individuals is not a (direct) argument in the individual's utility function. One should be careful to clearly differentiate between these two, the rationality and the self-interest assumption; the mixing of them, which is often found in the literature, has caused a lot of confusion.

It has been argued that the economic model has little explanatory power without this assumption but that with this assumption, because of contradictory evidence it has to be rejected when it is applied to many problems which are not economic ones (in the traditional sense). This holds, e.g., for problems of voting behaviour, because – as mentioned above – actual voting behaviour is not consistent with (purely) self-interested behaviour.[33)]

It is trivial that the economic model has less explanatory power without the assumption of self-interest than employing it. However, it should also be taken into account that there are

33. See, e.g., J. QUIGGIN (1987), but also D.P. GREEN and I. SHAPIRO (1994).

many situations in which the question of self-interest or altruism is of secondary importance for the analysis. If certain alternatives become more attractive and others less, we can assume that individuals will shift their behaviour towards the now (relatively) more attractive alternatives. There are only the changes of restrictions which matter here as long as the preferences and with them the motives of acting people remain constant. E.g., essential statements of the economic theory of politics can be maintained if altruism and not self-interest is presumed with individuals.[34)] The decisive assumption in these situations is that of rationality and not that of self-interest.[35)] On the other hand, as the empirical evidence shows, self-interest plays an important role for the behaviour of individuals in economic but also in many non-economic decision situations.

There are at least three phenomena which are empirically well established but not consistent with the assumption of narrow self-interest as defined above: altruism, reciprocity, and commitment. If, according to A.K. SEN (1977, p. 95), "one way of defining commitment is in terms of a person choosing an act that he believes will yield a lower level of personal welfare to him than an alternative that is also available to him", in all three cases the individuals impose costs upon themselves which do not directly affect their individual welfare. In the case of altruism it has a direct positive impact on other individuals. In the case of reciprocity this might be positive or negative depending on the previous action of the other individual; the really interesting case is the one of negative reciprocity when the individual incurs costs in order to punish another individual.[36)] Following the above definition in the case of commitment this is open: A person might be committed to a behaviour which benefits somebody else, a behaviour which hurts other people, but also to a behaviour which does not affect other people at all. Insofar, altruism and reciprocity might be seen as being special cases of commitment.

It has been shown how altruism, reciprocity, or moral behaviour can be incorporated into economic models of utility maximisation subject to constraints.[37)] There is also no problem to formalise commitment along these lines. The only problem is how to specify the utility function. This does not touch the (weak) rationality assumption at all. There is, e.g., no conflict between morality and rationality. Moreover, the 'rational fool' can be considered as being a fool,[38)] but he is not a fool because of his rationality, but because of the special structure of his utility function (including his high discount rate).

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34. See for this G. BRENNAN and J. PINCUS (1987) responding to J. QUIGGIN (1987).

35. A.A. ALCHIAN (1950) presents a much more pointed argument according to which individual motivations are completely irrelevant because of the selection pressure in competitive markets. This holds, however, at best if there is very strong competition. See for this G. KIRCHGÄSSNER (1991), *Section 8.3*.

36. Positive reciprocity, as, e.g., in the case of tit for tat, is in the (long-run) self interest of the individual and, therefore, not at odds with the usual assumptions which are employed in economic models.

37. For altruism see, e.g., J. ANDREONI (1988, 1989, 1990), for reciprocity E. FEHR and S. GÄCHTER (1998, 2000), for moral behaviour G. KIRCHGÄSSNER (2002, 2003).

38. See A.K. SEN (1977).

One might question whether it is appropriate to integrate these kinds of behaviour into the (standard) economic model, in order to make "more room for other regarding preferences in the formulation of rational choice" (A.K. SEN (1994, p. 389)). The fact that moral phenomena can be accommodated within utility theory does not yet imply that it is appropriate to analyse the phenomena at hand by this way.[39] But this is a question of appropriateness and not of possibility. The use of models based on this 'economic' framework allows to deduce testable hypotheses about which conditions are favourable for other regarding behaviour.[40] The theoretical and empirical literature about voter participation which, since W.H. RIKER and P.C. ORDESHOOK (1968), includes moral behaviour into a standard economic model can serve as a good example.[41] Moreover, it remains open how an alternative representation in a formal model should look like. Or should one totally dismiss formal models in this context? Finally, even if (standard) utility theory is not applied, it remains that the acting individuals have objectives, a perception of the alternatives which are available to them and that we have to apply the weak rationality principle in order to understand their behaviour.

## 5 Summary and Concluding Remarks

The weak rationality principle is a heuristic principle which is guiding any 'understanding' social science in the Weberian sense. It has no empirical content and can, therefore, not be rejected for empirical reasons. It could, however, be rejected for practical reasons if, e.g., following another heuristic principle would lead to 'better' insights into social relations, would lead to a more fruitful theory of the society. Whether this is the case or not is not the topic of this paper, even if it is difficult to imagine an alternative which would generally outperform the general rational choice model. This does not imply that other models do not have advantages in explaining some phenomena.

Tests are principally (and often rather easily) possible if assumptions are added which specify the preferences and/or the available information in more detail, i.e. if additional hypotheses are added to the weak rationality principle. This holds, e.g., for the various tests of rational expectations.[42] But then 'combined hypotheses' are tested, and it is hardly possible to decide whether (in case of a failure) the assumption of rationality and with it the behavioural model or (one of) the additional special assumption(s) has to be rejected.[43]

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39. D.M. HAUSMAN und M. S. MCPHERSON (1996, p. 53) argue "that some moral phenomena cannot be accommodated within utility theory."

40. See, e.g., G. KIRCHGÄSSNER (1992).

41. The fact that D.P. GREEN and I. SHAPIRO (1994) use voter participation as one of their examples of the empirical failure of the rational choice approach in politics does not contradict this. Assuming self-interest they only consider the instrumental value of participation and are insofar correct with their critique. However, this is just an example for the problems arising when the rationality and the self-interest assumptions are not distinguished.

42. See, e.g., G. KIRCHGÄSSNER (1993).

43. The assumption of rationality can also be understood in a normative (prescriptive) sense by labelling a certain behaviour as rational. This does not necessarily imply an ethical qualification. (Concerning the us-

One advantage of applying the (weak) rationality principle is that it makes two seemingly contradictory views compatible: the assumption of a free will and the predictability of human behaviour. For predicting the behaviour of an individual it does not matter whether he follows a deterministic law or rationally decides to behave in a certain way.[44)] Ex post we can, of course, try to understand any behaviour. This does, however, not necessarily help to predict future behaviour. In order to do the latter, we have to construct models which represent the typical situation in which the individual is, the "situational logic" in terms of K.R. POPPER (1972, p. 102). Because, however, individual decisions also depend on many factors which cannot be explicitly included into our micro-models, the rationality principle is ex ante more useful to predict aggregate compared to individual behaviour, provided that the individual 'deviations' of the solution proposed by the model cancel out each other.

Finally, the weak rationality principle is also compatible with the idea of hierarchical preference orderings. Problems like the 'weakness of the will' and the observation that individuals deliberately restrict their future action leeway in order to reach certain goals cannot be handled within the traditional economic framework.[45)] To do so, it has to be assumed that individuals have two kinds of preferences, which are ordered.[46)] On the lower level are the preferences which are given in daily life and according to which the individual has to decide in concrete situations. The preferences on the upper level describe how the individual would like to see himself acting. Both preference orderings can be consistent; but contradictions can exist between the two orderings.[47)] As long as no concrete actions are necessary, the individual might 'plan' according to his upper preferences, and he can try to influence the restrictions which later will come up in concrete situations, to make sure that despite following the lower preferences the actual behaviour will – as far as possible – be consistent with his upper preference ordering.

The idea of two different and partly contradictory preference orderings might seem strange at first; for it is unfamiliar at least for the economist who is used assuming unambiguous (and fixed) preferences of the individuals. This does not hold for the philosophical tradition. There, the idea can be traced back at least to ARISTOTLE and his "*Nicomachean Ethics*", where he speaks of two different parts of the soul where "the part of the soul that has a rational principle stands to the irrational part", and he sees the relation between these two parts as "between ruler and ruled."[48)] And H.G. FRANKFURT (1971) argues that the existence of superior prefer-

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age of the assumption of rational behaviour on a prescriptive and descriptive purpose see also A.K. SEN (1987)).

44. See for this M. LAGUEUX (2004, p. 32).

45. A whole series of examples of self-restraints are given by T.C. SCHELLING (1984). Many of those examples are from everyday life.

46. See for this also T.C. SCHELLING (1978, 1980), A.K. SEN (1977), J. ELSTER (1986), as well as R.H. THALER and H.M. SHEFRIN (1981).

47. Such contradictions are especially obvious if addicts try to fight their addiction.

48. ARISTOTLE, *Nicomachean Ethics*, 1138b.

ences and the possibility of using them for judging the subordinated ones is a precondition to see human beings as ‘persons’ with a free will because for this it is necessary that they are conscious of their will and that they can reflect about it. This exactly happens if individuals are trying to bind themselves.

Thus, as its application in economics has shown, the weak rationality principle is a very useful methodological guidance which can also be applied outside the economic area. Which additional assumptions have to be or should be made depends on the area of application. Whether it is fruitful in these applications mainly depends on the fruitfulness of the competing approaches available: those which are not within the framework of an ‘understanding’ social science.

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