

A CRITICAL ASSESSMENT OF THE SOCIAL WELFARE FUNCTION

Term Paper in Public Economics I

**By Niclas Berggren
The Stockholm School of Economics
December 1992**

Contents

1	Introduction	1
2	The Social Welfare Philosophy and the SWF	1
3	Limitations and Criticisms of the SWF	5
	3.1 Introduction	5
	3.2 Arrow's General Possibility Theorem	5
	3.3 The Criticism by Buchanan	8
	3.3.1 Buchanan on economics in general	9
	3.3.2 Buchanan on social choice, the social welfare philosophy, and the SWF	10
	3.3.2.1 General statement	10
	3.3.2.2 Buchanan on Arrow, voting, and the market	13
	3.3.2.3 Summary	17
	3.4 The Aspect of Information and the Public Choice Criticism	19
	3.4.1 The aspect of information	19
	3.4.2 The public choice criticism	22
4	Constitutional Economics: An Alternative View	24
5	Summary and Assessment	26
	References	27

A CRITICAL ASSESSMENT OF THE SOCIAL WELFARE FUNCTION

1 Introduction

Many economists have given the problem of *social choice* quite a lot of thought over the last decades, especially after the publication of Kenneth J. Arrow's essay *Social Choice and Individual Values* (1951). Social choice deals with "the aggregation of individual interests, or judgements, or well-beings, into some aggregate notion of social welfare, social judgement or social choice", as defined by Sen (1987, p. 382). The discussion has more often than not focused upon different aspects of Arrow's so called General Possibility Theorem, and quite seldom has the broader issue, of which social philosophy to utilize in welfare economics, been addressed. In order to facilitate analysis in the area of social choice, a specific concept, namely, *the social welfare function* (SWF), was introduced by Bergson (1938) and Samuelson (1947). It is very generally defined as a real-valued function $W(\cdot)$, determining social welfare, "the value of which is understood to depend on all the variables that might be considered as affecting welfare" (Bergson, 1938, p. 417).

In this paper, I propose to describe what a SWF is and how it is introduced in welfare economics. I further plan to present Arrow's theorem, its implications, and some of the replies that Arrow has received. This will be done rather briefly, as this theorem has been thoroughly discussed over the years. The thrust of the paper will deal with the broad criticism that has been put forth against the social welfare philosophy, of which the SWF is a product, by James M. Buchanan, in particular, and the public choice school, in general. I will also describe an alternative approach to economics, with implications for social choice, which can be referred to as 'constitutional economics'.

2 The Social Welfare Philosophy and the SWF

In this section, I will introduce the basic thoughts of the social welfare philosophy, and describe the development of the SWF in welfare economics. The *social welfare philosophy* (or 'utilitarian')

philosophy) is really a concept of justice, which underlies modern welfare economics¹. The principle idea of this view is that different states of the world² are to be evaluated in terms of their end-state distributional results. The basis for these evaluations is usually solely household utilities (i.e., the assumption of *welfarism* is met). Actions are considered to be just if they raise social welfare in some sense. An important idea, introduced by Arrow (1973), is the concept of *asset egalitarianism*, which views society's all assets as the common wealth of humanity, and which justifies redistributive policies, if they raise the social welfare, appropriately defined. All in all, the social welfare philosophy assesses actions and institutions in terms of their contribution to social welfare, not in terms of their compatibility with some pre-defined set of axiomatic rights. The view that there are some absolute rights that need to be taken into account when making social decisions is based on the philosopher Kant, and it will be discussed below in connection with Buchanan's views on this subject (see subsection 3.3.2).

It is obvious that the general purpose of welfare economics, namely to obtain a social ordering over alternative possible states of the world³, is perfectly consistent with the social welfare philosophy: If state A gives a higher social welfare than state B, according to some appropriate method of evaluation, then the former state is preferred to the latter. This ranking of social states is a normative procedure, which necessarily includes value judgements. Two main value judgements in welfare economics are *individualism*, which states that the social ordering ought to be based on individual orderings of alternative social states, and the *Pareto principle*, which, in its strongest form, states that if state A is ranked higher than state B for one person, and all other persons rank A at least as high as B, then A should be ranked higher than B in the social ordering.

¹ See, e.g., Boadway and Bruce (1984) pp. 176-177.

² The term 'state of the world' can be interpreted as a complete description of a possible state of the economy, including economic characteristics, political conditions, and physical characteristics, as defined by Boadway and Bruce (1984) p. 1.

³ That this is so is reinforced by this statement from Boadway and Bruce (1984, p. 138): "Given that the household preferences should be taken into account, how should the policy-maker aggregate such conflicting preferences into a single social welfare ordering? This is the central question of normative social choice theory."

In order to be able to use these two ethical principles, it is necessary to have a theory of how individual utility or welfare is determined by the state of the world. The theoretical basis is provided by the utility maximizing theory of consumer choice, which posits that consumers will rank alternative states according to a set of preference orderings. It is then possible to 'aggregate' the preferences of different households using the characteristics of the Pareto principle. However, this procedure involves a major drawback, namely that only a *partial* ordering of social states is obtainable. The question is: How is it possible to identify a desired state from the set of Pareto optimal states?

One attempt to deal with this problem is to augment the Pareto principle with a *hypothetical compensation test*. The basic idea, introduced by Kaldor (1939), is the following. State A is preferred to state B if it is possible for those who are better off in state A to compensate those who are worse off such that, if the compensation actually were paid, all persons would be better off than in state B. But this extension of the Pareto principle is not without its difficulties. Firstly, it involves a strong value judgement, in that the compensation is only hypothetical. Secondly, it does not provide a complete social ordering; e.g., the Pareto optimal states cannot be ranked.

For a complete analysis, it is rather obvious that a 'broader' and more inclusive method is needed. This involves devising some means of weighting the utilities of different households, which, in turn, requires stronger value judgements to be made. The value judgements can be codified into a *SWF*. This tool constitutes the means by which a complete social ordering is obtained.

The choice of a *SWF* is constrained by the ethical assumptions to be incorporated and the information about individual utilities assumed to be available. The latter depends on the extent to which the individual utilities are measurable and the extent to which the utility measures can be compared among households. A fairly weak set of ethical judgements will lead to a *welfaristic SWF*. The ethical principles underlying such a *SWF* include the Pareto principle, independence of irrelevant alternatives, and unrestricted domain⁴.

⁴ For a detailed presentation of these principles, see Boadway and Bruce (1984) ch. 4, and the discussion below about Arrow's theorem. For a comprehensive yet concise presentation of the *SWF* possibilities under different ethical and informational assumptions, see Boadway and Bruce (1984) pp. 162-163.

Given sufficiently strong assumptions about measurability and comparability, the welfare economist can choose among many welfaristic SWFs, representing different tractability and flexibility characteristics and different ethical norms, e.g., different degrees of egalitarianism. In general, the more measurable and comparable are household utilities, the more information will the planner have as a basis for aggregating utilities into a social ordering, and the wider will be the scope of possible SWFs.

To be a bit more formal and precise, following Suzumura (1987), let us consider a society consisting of $n(\geq 2)$ individuals. Let R_i denote the preference ordering of individual $i \in N := \{1, 2, \dots, n\}$, viz., a complete and transitive binary relation on the set X of all social states such that $xR_i y$ for $x, y \in X$ implies that individual i regards x to be at least as good as y . Let R denote a rational ethical belief, where rational refers to its enabling complete and transitive welfare judgements over alternative social states, the logical implication of which an economist would like to analyze, such that xRy if and only if x is judged to be at least as good for society as y is. A *SWF* is nothing other than a numerical representation u of R , viz., $u(x) \geq u(y)$ if and only if xRy , where $x, y \in X$.

At this point, Suzumura (1987) asks three questions, the last of which leads us into the next section: (a) Given an ethical ordering, R , does there exist a SWF representing it? The answer is affirmative, as shown by Debreu (1959).

(b) Given a profile of individual preference orderings (R_1, R_2, \dots, R_n) , does there exist an ethical ordering R which satisfies certain Paretian conditions? Again, the answer is affirmative, along the line suggested by Suzumura (1976) and Arrow (1983).

(c) Does there exist a reasonable process or rule through which an ethical ordering R is formed from a profile of individual preference orderings (R_1, R_2, \dots, R_n) ? The answer to this question is negative, given by Arrow (1951).

To summarize, in this section I have presented the standard reason for introducing the SWF into economic analysis, familiar to the reader of any textbook in welfare economics: A SWF enables the economist to obtain a complete ordering of social states, and it handles trade-offs in well-being between households - none of which is true for the Pareto principle, for example.

3 Limitations and Criticisms of the SWF

3.1 Introduction

This section constitutes the major part of this paper, and it deals with limitations and criticisms of the SWF, or, at least partly, of the social welfare philosophy. There are three different lines of argumentation that I intend to present, which seem to put severe restrictions on the implementation and desirability of the SWF: (i) Arrow's General Possibility Theorem, (ii) the criticism by Buchanan, and (iii) the aspect of information and the public choice criticism. These all have different foundations and implications, and I will deal with each of them in turn in the three following subsections.

3.2 Arrow's General Possibility Theorem⁵

The problem of social choice is about finding a method for choosing, among a set of social decisions, the one decision that is socially desirable, in some sense, according to the criteria associated with the individuals in society. It is about aggregating individual preferences in some manner. The question for the economist is: How do I find, if at all possible, a method for doing this which satisfies some reasonable, individualistic conditions? As noted above, the answer, given by Arrow (1951), says that this is not possible, as long as ordinal measurability and non-comparability is assumed. With this as a background, the General Possibility Theorem can be stated like this, following Vickrey's (1960) reformulation⁶:

1. *Unanimity* (the Pareto postulate): If an individual preference is unopposed by any contrary preference of any other individual, this preference is preserved in the social ordering.
2. *Nondictatorship*: No individual enjoys a position such that whenever he expresses a preference between any two alternatives and all other individuals express the opposite preference, his

⁵ This is the original name of the theorem, given by Arrow (1951), but it is more often referred to as the *impossibility theorem*, even by Arrow (1987) himself.

⁶ For the original statement of the theorem, see Arrow (1951), and for a restatement, see Arrow (1987).

preference is always preserved in the social ordering.

3. *Transitivity*: The social welfare function gives a consistent ordering of all feasible alternatives. That is, $(aPbPc) \rightarrow (aPc)$, and $(aIbIc) \rightarrow aIc$ ⁷.

4. *Range* (unrestricted domain): There is some "universal" alternative u such that for every pair of other alternatives x and y and for every individual, each of the six possible strict orderings of u , x , and y is contained in some admissible ranking of all alternatives for the individual.

5. *Independence of irrelevant alternatives*: The social choice between any two alternatives must depend only on the orderings of individuals over these two alternatives, and not on their orderings over other alternatives.

Theorem: No SWF satisfies conditions 1, 2, 3, 4, and 5⁸.

As described by Sen (1987), the specific context of Arrow's exercise was that of "supplementing the work of Bergson and Samuelson in deriving SWFs for welfare-economic studies. If the individual orderings are interpreted as utility rankings of individuals, and social preferences interpreted as a judgement of social welfare, the Arrow theorem asserts that there is no way of combining individual utility orderings into an overall social welfare judgement satisfying the specified conditions." (p. 383) A slightly different interpretation of the theorem states that it would appear that there is no way of arriving at a social choice procedure specifying what is to be chosen (over pairs, or over larger subsets), satisfying the appropriately interpreted (i.e., in terms of choice) conditions.

It is interesting to note the change in vocabulary between Arrow (1951) and Arrow (1987). In the original formulation of the conditions and the theorem, Arrow used the term *SWF*, which was subsequently replaced by *constitution*. Arrow (1951) gave this definition (p. 23): "By a *social welfare function* will be meant a process or rule which, for each set of individual orderings R_1, \dots, R_n for alternative social states (one ordering for each individual), states a corresponding social ordering of alternative social states, R ." Arrow (1963) endorsed an interpretation of the axioms, first

⁷ In this formulation, P means "preferred strictly" and I means "preferred weakly".

⁸ For a proof, see Vickrey (1960).

introduced by Kemp and Asimakopulos (1952), which says that they reflect the basic value judgements that are to be incorporated in the constitution, or social contract, of society. The publication of the theorem led to a lot of controversy, where Little (1952), Bergson (1954), Samuelson (1967; 1981) and others claimed that Arrow's result had nothing to do with welfare economics or the type of SWF that had been developed by Bergson (1938) and Samuelson (1947). Instead, they regarded Arrow's theorem as a contribution to mathematical politics. The alleged watershed between the two areas was identified in between the *fixed profile approach* of Bergson and Samuelson and the *multiple profile approach* of Arrow: In welfare economics, individuals are identified as the possessors of given preferences, whereas mathematical politics is concerned with the workability of alternative constitutions in the face of diversified opinions, which individuals may possibly hold.

However, the difference between Arrow's SWF (or constitution) and the Bergson SWF was commented upon by Arrow himself already in the original statement (1951, pp. 23-24): "There is some difference between the concept of social welfare function used here and that employed by Bergson. The individual orderings which enter as arguments into the social welfare function as defined here refer to the values of individuals rather than to their tastes. Bergson supposes individual values to be such as to yield a social value judgement leading to a particular rule for determining the allocation of productive resources and the distribution of leisure and final products in accordance with individual tastes. In effect, the social welfare function described here is a method of choosing which social welfare function of the Bergson type will be applicable, though, of course, I do not exclude the possibility that the social choice actually arrived at will not be consistent with the particular value judgements formulated by Bergson. But in the formal aspect the difference between the two definitions of social welfare function is not too important. In Bergson's treatment, the tastes of individuals (each for his own consumption) are represented by utility functions, i.e., essentially by ordering relations; hence the Bergson social welfare function is also a rule for assigning to each set of individual orderings a social ordering of social states. Furthermore, as already indicated, no sharp line can be drawn between tastes and values."

Arrow's theorem made clear that the welfare-economic structure that had emerged after the rejection of 'interpersonal comparisons' of well-being (on this, see Robbins, 1932, 1938) was unviable. It

was increasingly accepted that social choices or social judgements would have to be based on individual utility orderings without interpersonal comparisons, an idea contained in Arrow's axioms. Arrow's result caused the basis of social welfare judgement to be re-examined. This may seem like a negative result, but it has led to new ways of formulating the problem of social choice. According to Sen (1987), many of these ways have been found to be both feasible and useful. Buchanan (1984a), on the other hand, claims that "since the 1950s, since Arrow and Black, social choice theorists have explored in exhaustive logical and mathematical detail possible ways and means of escaping from the implications of the Arrow impossibility theorem, but they have had little or no success. 'Social choice theory' has itself become a major growth industry, with an equilibrium not yet in sight" (p. 17).

It is worth emphasizing that Arrow's theorem is obtained using what may be called the axiomatic method. This method commences with a set of reasonable axioms, and thereafter, the joint implications of these are derived. If the implications are found to be unacceptable, the axioms can be re-examined and, possibly, exchanged for others. This has been done in numerous, often technical, replies to Arrow⁹.

So, where does the Arrow theorem leave us? Firstly, it makes clear that if we want to construct a method of social choice which satisfies his five axioms, this cannot be done. Secondly, if we want to relax one or more of the axioms, this can be done, but it seems that this method rather seldom leads to any conclusive results. Thirdly, it is possible to question the entire social welfare philosophy upon which Arrow, and most other economists, base their reasoning about social choice. This leads us into the next subsection, which will contain several of Buchanan's viewpoints on economics, in general, and social choice, in particular.

3.3 The Criticism by Buchanan

In this subsection, I will attempt to capture the main thoughts of Buchanan on the subject of this

⁹ For references, see, e.g., Arrow (1963) p. 103, Mueller (1989) p. 387 ff., and Sen (1987).

paper¹⁰. His way of thinking about economics is fundamentally different from that of most other economists, including Arrow¹¹. In order to fully appreciate Buchanan's views on social choice, I consider it a necessary and pleasant detour to take a brief and selective look at his general points of view on economics first.

3.3.1 Buchanan on economics in general

One of the most basic and distinct features of Buchanan's thinking is his emphasis on economics as being the study of exchange, markets, and institutions rather than a science of choice and optimization. 'The theory of markets' should be at the center of economics, not 'the theory of resource allocation', where the problem is defined as one of allocation, made necessary by the fact of scarcity and the necessity to choose. One reason for Buchanan's view, as Sandmo (1990) states it, is that "choice is based on preferences and costs, both of which, according to Buchanan, are in principle unobservable. Exchange, on the other hand, is directly observable and can be studied by objective methods." Another reason is his belief that only part of man's behavior can be analyzed within the framework of predictive economic theory. This is the part where individuals "are essentially passive responders to economic stimuli; they react; they do not choose" (Buchanan, 1987a, p. 76). In other words, according to this view, genuine choice cannot be predicted. If we assume that the individuals' utility functions are fully defined in advance, then no 'decisions', as such, are required, since the optimal behavior can be computed¹². The rôle of the economist essentially becomes that of a computer, and choice becomes purely mechanical¹³. On the other

¹⁰ It may seem a little out of the ordinary to focus on a person, as I do in this subsection, but the reason is clear. In my opinion, James M. Buchanan constitutes a 'school of thought' on his own, and the part of it which deals with social choice has not attracted as much attention as I think it deserves. This text is an attempt to rectify this.

¹¹ For a rich statement, see Buchanan (1979), a book that I think ought to be read by every economist.

¹² Buchanan (1979) claims that modern economics has become preoccupied with the *technological*, rather than the *economic*, problem, where the former is represented by the theory of choice ('finding an optimum') and the latter is about exchange, markets, and institutions.

¹³ Bergson (1954, pp. 241-242) reasons in a similar manner about the implications for the rôle of the welfare economist, should some rule of decision-making be discovered that satisfies Arrow's conditions. As he puts it: "Indeed, if the ideal rule of collective decision-making is operative it is difficult to see why the welfare economist should do anything at all."

hand, if the utility functions are not wholly defined, choice becomes real, and decisions become unpredictable events. In sum, Buchanan is highly critical of the 'maximization principle', which has dominated the field of microeconomics for rather a long time, and this naturally has a substantial bearing upon the way he looks at the SWF (see below). However, Buchanan emphasizes that he does not really want to change what is being studied altogether; rather, it is the way in which it is being approached by economists that he criticizes¹⁴.

As for Buchanan's view of politics and the economist's relation to it, he sees politics not as a process aiming at finding some truth, but rather as a means for resolving conflicts between individuals or as a way of cooperating to achieve mutual advantages. He therefore dislikes it when the economist assumes the rôle of a 'social optimizer', suggesting which solutions to social problems are optimal according to some criteria, defined external of the individuals constituting the polity. Instead, the economist should concentrate on finding good decision rules, which will be accepted by all individuals, as they are conceived as beneficial in the long run, when it comes to resolving (at the time of the constitutional design) unknown conflicts over resources.

3.3.2 Buchanan on social choice, the social welfare philosophy, and the SWF

3.3.2.1 General statement

Among economists, the dominating approach to social choice is based on the social welfare philosophy, introduced in section 2. In distinct contrast, Buchanan more or less concurs with the Kantian philosophy of absolute, axiomatic rights¹⁵, which defines economic justice in various ways, depending on what rights are considered absolute. Examples of such rights are subsistence, liberty, and economic equality. One concept of economic justice which is quite prevailing among the 'Kantians' is the *entitlement* theory of justice, which uses the so-called *productivity principle* as its basic postulate. Put simply, this principle says that each household has a right to consume that

¹⁴ For example, whereas Buchanan (1979) is highly negative towards regular optimization as a viable method for economic analysis, he seems quite positive towards the potential of game theory.

¹⁵ See, e.g., Boadway and Bruce (1984) pp. 176-177.

which it produces. Unlike the social welfare philosophy, which defines justice in terms of the final result of distribution, the absolute rights philosophy focuses on the *social process* as being just, and it states that there should be a correspondence between actions and rewards. Instead of 'justice in terms of equal outcomes' it stresses 'justice in terms of equal opportunities' and 'justice in terms of just rules'¹⁶. As Sugden (1981, pp. 13-14) puts it: "With the end state model, then, the only acceptable way of justifying a public decision is to claim that its result is a good end state. No references to the process by which the decision was made are admitted as relevant. In certain respects this model does not fit easily with liberal values, as a number of people (myself included) have pointed out (Buchanan 1954b; Nozick 1974; Sugden 1978). A liberal who attaches importance to individuals' rights will not be happy with the idea that only end states matter and that the processes by which these end states are reached are of no significance." An implication of this theory is the so-called *benefit principle* of taxation.

Buchanan is critical of the social welfare philosophy, the type of analyses that follows as a consequence thereof, and the 'maximization principle' of regular microeconomics. He disapproves of much of welfare economics, both for basing policy recommendations on theoretical concepts that have no observable empirical counterparts and for the uncritical use of the SWF as an analytical tool, as he considers it wholly inappropriate to attribute goals to society as such. As stated by Brennan and Buchanan (1985, pp. 16-17): "Consider the standard discussion of distributive justice, or 'equity', in public-policy circles. The standard procedure is to examine all distributions of total output that are consistent with the initial endowment of productive capacities and with the necessary loss in output involved in the redistributive process (although sometimes even the latter is ignored). On this basis the set of conceptually feasible 'distributions' is isolated, and some social welfare function or other piece of ethical apparatus is wheeled in to select the 'best' from among them. But the natural constitutionalist question is, How are we to ensure that this 'best' outcome emerges from the political process? Surely it makes more sense to specify alternative sets of political rules and examine the distributions that emerge. If none happens to correspond to the 'best' as earlier derived,

¹⁶ For a thorough treatment of this, see Brennan and Buchanan (1985).

then we must simply conclude that 'best' is not feasible."¹⁷ The argumentation of Buchanan is incorporated into many papers and books by him, from which I will try to summarize some of the essential features.

Buchanan (1986) identifies three 'demons' which plague the traditional economic approach to politics: utilitarian calculus, the social engineering urge, and the elitist mentality of many economists, who believe that they know what is socially optimal. I will expand a little on each of these 'demons'. As for the first, utilitarian calculus, this refers to any attempt to aggregate utilities via a SWF, which in Buchanan's view illegitimately presupposes an organic conception of the state, a conception that is inconsistent with the basic value premises of a democratic society. The second, the social engineering urge, refers to attempts by economists to improve the efficiency of resource allocation by interfering with the price mechanism or by designing optimal planning schemes for the public sector. As an example of this, Boadway and Bruce (1984, p. 3) claim: "The study of welfare economics is useful in identifying such inefficiencies and in recommending and evaluating 'corrective' policies." Objecting to this way of thinking, Buchanan (1979, p. 127) states: "Economists have often conceived themselves primarily as social engineers, and their interests have been more oriented to improvements in social structure than to predictions of a scientific character. This has led, and continues to lead, to much confusion. There is, of course, no reason why social engineering need not be a legitimate activity, in certain limits. But the activity of the social engineer is not that of the economic scientist." His recommendation is instead that the economist see himself as someone who, neutrally, proposes policy changes in the form of hypotheses to be subjected to the empirical test of political (preferably unanimous) approval. This thought is elaborated upon by Buchanan (1959). The third, and last, 'demon', is that of an elitist mentality among some economists. This has to do with their believing that they are capable of defining some optimal situation external of the processes, institutions, and individuals.

¹⁷ For an extension of this argumentation, see Brennan and Buchanan (1985) ch. 8 and, in part, this paper's section 4.

3.3.2.2 Buchanan on Arrow, voting, and the market

With this as a background, it does not come as a major surprise that Buchanan (1954a)¹⁸, after the publication of Arrow's (1951) theorem, wrote a paper in which he judges some elements of Arrow's analysis with noticeable disapproval. Buchanan (1979, p. 150) puts it like this: "I was unhappy with the Arrow book, and more importantly, with all of its reviewers, for a failure to sense what was, to me, a very significant aspect of constitutional democracy. Arrow, and all of his reviewers, seemed unhappy with his general conclusion; they seemed to feel that things would have been so much nicer had his proof turned out the other way." In his (1954a) paper, Buchanan focuses on one of Arrow's conditions and on the broader implications of Arrow's result. He commences by stating his dissatisfaction with Arrow's terminology in defining a SWF (see subsection 3.2), where Arrow uses the word *process*. In Buchanan's view, the actual processes of choice are voting and the market, and certainly not a SWF. One of the main themes of the paper is that the decision-making *process* may produce consistent choice, even though the *rule* which states the social ordering from the individual values may not exist.

Arrow's theorem is proved to be applicable to the method of majority decision *as a SWF* and to the market *as a SWF*. According to Buchanan's interpretation, the thrust of Arrow's argument is that the individual values which are implicit in the normal decision-making mechanisms of society do not provide methods of deriving SWFs that are neither imposed nor dictatorial. This is fine with Buchanan. However, he does object when Arrow (1951, p. 59) extends the argument to say that these ordinary decision-making mechanisms of society do not allow rational social choice. Buchanan claims that Arrow fails to see that "his conditions, properly interpreted, apply only to the derivation of the function and do not apply directly to the choice processes." (p. 115) This distinction is shown to be fundamental in relation to the market. So it is erroneous to interpret Arrow's result such that it proves that the decision-making processes are irrational or inconsistent.

Arrow talks about the concept of *collective* or *social rationality* in his essay. Buchanan interprets this to mean that the choice-making processes produce results which are indicated to be 'rational'

¹⁸ This will be the main reference for most of the remaining part of this subsection.

by the ordering relation, i.e., by the SWF. Buchanan wonders why this sort of social rationality should be expected. It is certainly not required for the derivation of the function itself. He states: "Rationality or irrationality as an attribute of the social group implies the imputation to that group of an organic existence apart from that of its individual components. If the social group is so considered, questions may be raised relative to the wisdom or unwisdom of this organic being. But does not the very attempt to examine such rationality in terms of individual values introduce logical inconsistency at the outset? Can the rationality of the social organism be evaluated in accordance with any value ordering other than its own?" (p. 116)

Buchanan sees his view as being consistent with a philosophy of individualism, where the individual is the only entity possessing ends or values. In this setting, it is not possible to conceive of a concept such as collective rationality or to accept the existence of a social value scale. The two genuine decision-making mechanisms, voting and the market, have evolved from, and are based upon an acceptance of, the philosophy of individualism, which presumes no social entity. The alternative philosophy is that which sees the collectivity as an organic being with its own value ordering, and any social value scale may only be discussed within an organic framework. It is possible to test this collective entity for rationality, but only against its own value ordering. Once the organic approach is taken, then a proper question of issue is whether or not it is possible to construct a social value ordering which is based on individual values.

Before Robbins (1932), welfare theorists constructed *conceptual* 'SWFs' based on full measurability and comparability of individual utilities. In this way, the utilities could be amalgamated into a social magnitude, the components of which were imputable to individuals. What Arrow (1951) proved was that individual orderings of alternatives, which are sufficient to allow the decision-making processes to function, provide no such measuring stick as was provided by the measurability of utility. The abandonment of measurability of utilities rendered the conceptual 'SWF' impossible because of the fact that there was no longer a viable unit of account. What Buchanan focuses on is Arrow's hinted implication, that the decision-making processes themselves define no SWF, which implies that they do not function in accordance with the concept of social rationality. This is true only when an ordinal measurement scale is substituted for a cardinal one. Buchanan's claim is that "actually, the decision-making processes do not produce rational social choice,..., until and unless certain

restrictive assumptions are made." (p. 117)

If one defines social rationality as maximizing a (utilitarian) SWF, a market decision is socially rational only if individuals are rational and if their utilities are independent. A voting decision is socially rational only if individual voting power is somehow made proportional to individual utility. What cardinal measurement enabled the welfare economist to do was to aggregate the individual utilities into a SWF, but it did nothing to ensure that market or voting choices were socially rational. In this setting, it is quite clear that a rational choice process is not identical to an acceptable SWF.

Buchanan is of the opinion that the utilization of such a concept as the SWF necessarily involves admitting that such a function is social, not individual, and therefore, that it is quite distinct from individual values and individualistic decision-making processes. Further, he feels that it is without meaning to test such processes for social rationality, and poses the question: "But if the idea of acceptable social welfare functions and of social or collective rationality is completely divorced from the decision-making processes of the group, what is there left of the Arrow analysis?" (p. 118) These processes can be tested for consistency, defined in terms of rationality, implying only that choices can be made (are connected) and that they are transitive. Arrow appears to say that such consistency of choice would be a highly desired feature of decision-making, if it was possible to achieve it. Buchanan, on the other hand, argues that "possible inconsistency of collective choice as applied to voting is a necessary and highly useful characteristic of political democracy." (p. 118)

In explaining why he takes this standpoint, Buchanan describes majority-voting as the simplest example of voting and as an institutional arrangement, the purpose of which is to make possible collective choice when there is no consensus¹⁹. But it is also a provisional decision-making rule, in that it makes it possible to overrule a dissenting minority in a systematic fashion, a property not at all desirable in Buchanan's eyes. So majority-rule can be said to be preferred to inaction, but the

¹⁹ It is well-known to readers of Buchanan that he sees the principle of consensus, or unanimity, as highly desirable in any decision-making process. See, e.g., Buchanan and Tullock (1963) or Brennan and Buchanan (1985). However, when the attainment of consensus is impossible, if majority-voting is to be applied instead, then inconsistency is preferable to consistency (see below in this paragraph).

policy, which is determined through it, is not to be seen as irrevocable. Buchanan states: "The fact that such decisions may be formally inconsistent provides one of the most important safeguards against abuse through this form of the voting process. If consistency were a required property of decision, majority rule would not prove acceptable, not even as a means of reaching provisional choice at the margins of the social decision surface." (p. 118) So majority decisions that are temporary or accidental in nature and a situation where changing majorities constitute a natural component of the decision-making system, are viewed as positive features. Politically, the citizens of a free society can easily be imagined to unite behind an arrangement such as this, as it implies a 'testing' of different ideas and proposals over time, the result of which may be a social consensus. In this setting, A may preferred over B, which may be preferred over C, but C may still be preferred over A at a later point. We have a 'paradox of voting', provided by a majority of some body of decision-making. Here, consistency of choice is not a property of the voting process, and it is clear that individual orderings cannot be translated into a SWF.

If, however, we assume that a majority of the individuals order all social alternatives in the same way, then the 'paradox of voting' evaporates and majority rule produces consistent choice²⁰. In this situation, it *is* possible to construct a SWF satisfying Arrow's conditions. But it is noteworthy that, as Buchanan puts it, "collective rationality or consistency is secured here only at a cost of imposing a literal 'tyranny of the majority'." (p. 120) Such a situation may call for the imposition of certain constraints on majority rule. This was considered by Wicksell (1896) and it led him to suggest that unanimity should be demanded for tax decisions, as the majority would be able to impose its will upon the minority more or less permanently without such a constraint. Buchanan draws a parallell between this type of argument and Arrow's condition, that no one individual should be able to decide what the preferences of society are regardless of all other individuals (non-dictatorship): "From the individual minority member's point of view, however, the acceptance of irrevocable majority decision is no different from the acceptance of irrevocable authoritarian decision. In either case the choice is dictated to the individual in question, since his values are overruled in the decision-making." (p. 120) But the reason for majority rule, and not dictatorship, to be acceptable is that majority rule comprises reversability and change (at least for the case where

²⁰ Considered by Arrow (1951, pp. 74-75).

the members of the majority do not all rank all social states identically). Perhaps we could as easily accept a form of dictatorship where the dictator is exchanged at certain points in time, if the dictator then is *randomly* picked from the whole polity.

So far, only one of the processes of choice has been commented upon, namely voting. The other is the market. Arrow (1951, p. 5) claims that both are "special cases of the more general category of collective social choice." This statement is based on the fact that Arrow found it impossible to define a satisfactory SWF from individual orderings for both of these processes. In the paragraphs above, it was established that voting under majority rule does not constitute a basis for deriving an Arrowian SWF and that voting under majority rule does not give rise to consistent choices. As for the market, it does provide a means for making consistent choices, provided that individual values do not change, since the individual (assumed to order alternatives in a connected and transitive manner) is the only entity needed to make a choice. The market is really a process through which society can move from one social state to another *without any collective decisions being made*. Polanyi (1951) states that the spontaneous order of the market "originates in the independent actions of individuals." (p. 160) And Buchanan concludes: "Since the order or consistency does originate in the choice process itself, it is meaningless to attempt to construct the ordering. We should not expect to be told in advance what the market will choose. It will choose what it will choose." ... "The essential point here is that the market does not call upon individuals to make a collective decision at all. This being the case, market choice is just as consistent as, and no more consistent than, the individual choice of which it is composed."²¹ (p. 122)

3.3.2.3 Summary

All in all, the points that Buchanan make are the following. Firstly, there is a difference between the problem of deriving a SWF from the individual orderings that constitute the decision-making processes and the problem of testing these processes themselves for consistency. Secondly, there is a difference between social or collective rationality in terms of producing results indicated by a

²¹ For a treatment of the differences between the market and political voting as choice processes, see Buchanan (1954b).

social ordering and the consistency of choice produced by the decision-making processes. Here, inconsistency is seen as a desirable feature of majority voting, whereas the market produces consistent choice (in spite of the fact that a satisfactory SWF cannot be constructed from the individual orderings of the market mechanism) as long as the individuals constituting it produce consistent choice. And thirdly, as Buchanan (1979, p. 150) puts it: "From all this, I concluded that despite the fact that his whole structure of analysis was based on individual preference orderings, Arrow did not conceive governmental process as emerging basically from individual values." This is severely disturbing to Buchanan, as it implies that Arrow, *in practice*, is disregarding one of the most important liberal value judgements, namely individualism, as defined by Sugden (1981, p. 10).

Bergson (1954, pp. 236-237) concurs in Buchanan's opinion, that it is not suitable to require of a social decision-making process that it be collectively rational. He states: "The inconsistency apparently would mean that government actions might tend to go around in circles, and many will feel that this would be stultifying. But a minority fearful of majority exploitation would not be at all concerned on this account. More generally, except perhaps for aesthetic reasons, it is difficult to see why anyone should insist as Arrow does that consistency be realized throughout. An occasional inconsistency might give rise to circularity in the collective choices, but in view of ever-occurring changes in data there is no danger that the system would whirl about forever at any such point."

Finally in this section, I will let Buchanan (1979, p. 151) sum up his frustration with the SWF: "My own inclination was, and is, to throw out the whole social welfare function apparatus, which only confuses the issues, and to see what the full implications of the Pareto criterion might be. If we are willing to use the Pareto criterion where it is applicable and simply to admit our inability, as scientists, to say anything where the criterion cannot be applied, some worthwhile content remains in welfare economics." This appreciation of the Pareto criterion is also a salient feature of Buchanan's view on politics, where he advocates the usage of the principle of unanimity, particularly in the 'constitutional stage', but also, as much as possible, in the day-to-day decision-making stage.

3.4 The Aspect of Information and the Public Choice Criticism

In this subsection, I will present two additional lines of criticism against the concept of a SWF, namely, the aspect of information and the public choice criticism. These standpoints are, in a way, separate, but my reason for compiling them under the same headline is that they are united in two ways: firstly by an earnest endeavour to increase the connection between economic analysis and reality, and secondly by the possibility of a *conceptual* acceptance of the SWF²², combined with a *practical* skepticism against it.

3.4.1 The aspect of information

As for the aspect of information, this has been explicitly addressed in welfare economics (see section 2 above). Basically, there are three types of measurability of utilities (ordinal, cardinal, and full) and three types of comparability (none, partial, and full). And, according to Mueller (1984), the assumptions needed to choose from the set of Pareto optimal points must involve cardinality and interpersonal utility comparisons. However, these assumptions imply the introduction of value judgements, and the possibility arises of there being as many SWFs as individuals in the community. He continues: "This specter led most contributors to the 'new welfare economics' to eschew interpersonal comparisons and confine their attention to deriving necessary conditions for a welfare maximum, to delineating the set of Pareto optimal points." (p. 49) This interpretation of the development in welfare economics is shared by Sen (1987, p. 383) and by Suzumura (1987, p. 418). Of course, this is also what led Arrow (1951) to carry out his analysis on the basis of ordinal measurability and non-comparability. We are quite familiar with his result. So it seems clear that welfare-economic theory realizes the constraints imposed upon it by the practical informational problems that are at hand.

However, the way in which some of the analyses in the field of welfare economics are carried out implies that there are researchers who disregard the practical informational aspect, to some extent,

²² This clearly separates these ways of thinking from Buchanan, who disapproves of the SWF primarily on a conceptual basis.

by making various simplifying assumptions. As two examples of this, I would like to focus the attention of the reader on Boadway and Bruce (1984) and Johansson (1992). In my opinion, Boadway and Bruce have a treatment of the SWF which I regard as congenial *up until chapter 9*. In this chapter, in section 6, they write: "To obtain a measure of welfare change in many-consumer economies which serves to rank all alternatives, there appears to be no alternative but to employ a social welfare function. This, of course, was precisely what the compensation test literature was trying to avoid. As we have seen in the first part of this book, the ranking of social states according to an SWF involves making value judgements regarding measurability and comparability which are not required when using the Pareto criterion or the compensation test. *We shall sidestep that issue here as well by assuming that the appropriate form of the SWF has already been decided.* The purpose of this section is to discuss how an SWF may be applied in particular circumstances to measure welfare change. In the general case, the measurement problems are rather cumbersome even for a well-defined SWF. *However, if one is prepared to make certain simplifying assumptions, the problem becomes much more tractable.*" (p. 272; italics due to me.) What Boadway and Bruce basically say, as I interpret them, is that the informational problems touched upon earlier can be overlooked. I find this standpoint quite disturbing; my view is that the informational constraints imposed upon any economic analysis have to be taken into account in an explicit way by the researcher. Johansson, in chapter 7, adapts a method similar to that of Boadway and Bruce, and he defines a SWF in the following manner: $W = W(V^1, \dots, V^H)$, where V^h is the utility level attained by household h , $h = 1, \dots, H$. He then states: "We also assume a sufficient degree of measurability and comparability of utilities, so as to have some freedom in the choice of social welfare function over and above the dictatorship resulting from ordinal utility functions." (p. 157). I think that this quotation indicates that the informational problem is not taken quite as seriously as it should be. My question is: If the economic analyst assumes enough for a theoretical SWF to be constructed, how operational and realistic is such a construction?

Myhrman (1992) makes a strong, general point against the escapism²³ of traditional economics when it comes to the aspect of information, as it has often been omitted from the analyses for

²³ I chose this word with some deliberateness, as The Collins English Dictionary explains it as "an inclination to or habit of retreating from unpleasant reality, as through diversion or fantasy". Quite an apt description, one may think.

analytical and convenience purposes. He states: "...it is our contention that information problems are so pervasive in all decision-making that they have to be put in the centre of the analysis." And: "In neoclassical economics, it is assumed that the consumer makes his choices in a rational manner. This implies that the consumer (the firm) is assumed to have the cognitive capacity to know all relevant information and to be able to choose a combination of commodities that optimizes his utility (profits). Although this assumption may be alright to give a 'benchmark' case or for some problems in the economy, there are strong reasons to believe that it is widely off the mark for many actual and important problems." I agree. To assume that some type of welfare-maximizing planner has knowledge about individual utilities and that he is able to transform this knowledge into a practically useable tool of analysis, viz., a SWF, is, as I see it, misleading and fruitless.

Also, Buchanan (1959) attacks the often implicit assumption of omniscience on the part of the observer and the failure to examine the consequences of this approach: "This omniscience assumption seems wholly unacceptable. Utility is measurable, ordinally or cardinally, only to the individual decision-maker. It is a *subjectively* quantifiable magnitude. While the economist may be able to make certain presumptions about 'utility' on the basis of observed facts about behavior, he must remain fundamentally ignorant concerning the actual ranking of alternatives until and unless that ranking is revealed by the overt action of the individual in choosing." (p. 126) In this respect, Buchanan reasons in a way similar to the Austrian school, where, e.g., von Mises (1966) claims that preferences do not exist independently outside concrete situations of choice. This could be interpreted as saying that preferences do not exist until the actual moment of choice and, therefore, they can only be determined ex post. It is clear that Buchanan's and von Mises's points of view are altogether incompatible with a concept such as the SWF.

A type of shortcoming similar to the ones described above when it comes to economic analysis based on the concept of a SWF is the problem of agreeing on which form of the SWF to use. This problem arises even in the situation where everyone agrees that a SWF is a useful analytical tool, conceptually. I do not consider it at all satisfactory to neglect this issue, as Boadway and Bruce do, which is evident from the quotation above. I concur with Mueller (1984): "Nor does the social welfare function literature discuss how agreement is expressed on basic values, even though, under the present interpretation at least, this literature is directly concerned with the functional

embodiment of these values. Quite to the contrary." ... "Unless there is a general consensus over the policy maker's or economist's choice of value postulates, the spectre of multiple social welfare functions reappears. But can the policy maker, or economist, determine if a consensus exists, and what it is, if it is not somehow literally expressed?" (pp. 54-55)

3.4.2 The public choice criticism

The second line of criticism against the SWF that I deal with in this subsection is that which has been raised by the public choice school. How does that which I present here differ from the views of Buchanan, introduced above? The answer is that the public choice criticism is possible in conjunction with an acceptance of the concept of a SWF (which Buchanan does not do). This line of thought, if accepted, imposes a *practical* constraint on the applicability of the social welfare analysis, in that it severely questions the existence of a benevolent 'social planner', so often referred to in welfare economics²⁴. The typical way of conducting welfare-economic analysis is to introduce the analytical tools, e.g., the SWFs, in a *given political setting*, and through this approach, the actual political institutions and activities are ignored. In my view, this represents a regretful naïveté in relation to reality, and it does make a strong case for skepticism against the potential application of SWFs.

The message that the public choice school conveys is that it is imperative to take explicit account of the political institutions and activities when performing economic analyses and that the policy-makers should be modelled in the same way as when they are consumers and/or owners of firms (i.e., as *homo economicus*²⁵). The analyses are not complete if the economist solely uses his traditional tools without considering if, in reality, they are possible to use²⁶. If one accepts this argument, in relation to the SWF, the 'planner' approach must be deemed as unrealistic. Instead,

²⁴ See, e.g., Boadway and Bruce (1984), for a frequent useage of this concept.

²⁵ For a good argument on this, see Brennan and Buchanan (1984) p. 386 ff.

²⁶ In reference to an economic analysis of regulation, Peltzman (1976, p. 211) points out the inability of welfare economics "to predict the allocative effects of regulation in the dominance of political pressure for redistribution on the regulatory process."

attention should be focused on the *complex* institutional interactions that go on within the political sector. According to Buchanan (1984b, pp. 439-440): "These scholars [modern social scientists] have proceeded as if they are offering advice to some benevolent despot, who is presumed to stand ready and willing to promote 'the public interest' once it is enlightened as to what such 'interest' is by the expertise of those who are doing the advising. Such a procedure is absurd on its face. Government politics is not a single-minded decision-making entity. And even if government was such, we surely could not model it to be benevolent. Government as it exists is, of course, an extremely complex interaction process that involves literally thousands of persons, who participate in many different roles and capacities. Out of this process particular outcomes emerge. Of what use is the 'advice' of the economist to the effect that this or that policy A is more or less 'efficient' than policy B? Persons who participate in political decision making are no different from the rest of us. They respond to the rewards and penalties that the 'rules of the game' confront them with, and such persons would indeed be foolish if they took the advice of their economist advisers very seriously." Consequently, the rôle of the economist, in the public choice/constitutional economics setting, is not that of a researcher who produces advice or recommendations to some 'ruler' without acknowledging that there is an intricate and decisively important political process. Rather, it is that of studying the 'rules of the game' and the institutional constraints which restrict the behavior of the rational, self-interested political decision-makers. Only then can the economist assess to which extent his recommendations can possibly be implemented in reality.

Bringing the issues of information and public choice out into the open leads me to the following tentative conclusion in this subsection: Even if the SWF is accepted in theory, the practical problems in using it appear to be paramount.

After this section's preoccupation with criticisms and limitations of the SWF approach, it is now time to look at some of the *alternative* thoughts on the problem of social choice.

4 Constitutional Economics: An Alternative View²⁷

In this section, I will introduce the main thoughts of the part of economics which has been called *constitutional economics*. To some extent, they have been mentioned in different contexts above; this is an attempt to elaborate on them in a more collected way. To finish the section, I will briefly mention something about different (more or less) practical methods of trying to establish the 'optimal' production levels of public goods.

Constitutional economics is a relatively new area of research, and I bring it up here because it represents an entirely different approach to economics compared to the orthodox (Marshallian or Walrasian) one²⁸. If one accepts this new line of thinking, then it also affects one's way of looking at the problem of social choice. Following Buchanan (1987b), the distinctive features of traditional economics can be described as attempts to explain the actions of economic agents within the existing legal-institutional-constitutional structure of society. Normative analysis is carried out by means of the efficiency criteria of theoretical welfare economics, and policy options are evaluated in terms of these criteria. The policy analyst, explicitly, and the welfare theorist, implicitly, recommend solutions to the choice problems of the governmental decision-makers, who, on the basis of this advice, determine what shall be done.

Buchanan then goes on to explain the attributes of constitutional economics: "By both contrast and comparison, constitutional economic analysis attempts to explain the working properties of alternative sets of legal-institutional-constitutional rules that constrain the choices and activities of economic and political agents, the rules that define the framework within which the ordinary choices of economic and political agents are made. In this sense, constitutional economics involves a 'higher' level of inquiry than orthodox economics; it must incorporate the results of the latter along with many less sophisticated subdisciplines. Normative considerations enter the analysis in a much

²⁷ For a thorough presentation, see, e.g., Brennan and Buchanan (1985), Buchanan (1991), along with the journal *Constitutional Political Economy*, which was started in 1990 at the Center for Study of Public Choice.

²⁸ However, Buchanan (1987b) points out the connection between constitutional economics and, on the one hand, the thinking of the classical political economists, primarily represented by Adam Smith, and, on the other hand, the work by Wicksell (1896).

more complex manner than through the artificially straightforward efficiency criteria. Alternative sets of rules must be evaluated in some sense analogously to ranking of policy options within a specified institutional structure, but the epistemological content of the 'efficiency' criteria become more exposed. The constitutional economist, precisely because the subject matter is the analysis of alternate sets of rules, has nothing to offer by way of policy advice to political agents who act within defined rules. In this sense, constitutional economics is not appropriately included within 'policy science' at all." ... "In a real sense, constitutional economics examines *the choice of constraints* as opposed to the *choice within constraints*." (p. 585)

The implications of constitutional economics on social philosophy are quite strong. Firstly, it is important to point out that the primary methodological presupposition of constitutional economics is that the *individual* is at the center of the analysis, and collective arrangements are not supposed to be able to act or choose. Social aggregates are considered only as the results of choices made and actions taken by individuals. Also, the ultimate sources of value are located exclusively in individuals. Then, as Buchanan (1987b) puts it, "by their focus directly on the ultimate selection of a set of constraining rules within which ordinary social interaction takes place, constitutional economists remove themselves at least one stage further from the false position of 'social engineer' than their counterparts in orthodox economics." (p. 586) For the constitutional economist, there is no simple evaluative criterion, such as 'efficiency', available, and therefore, he is much less tempted to try to array different social states by some externally defined criterion assumed to be accepted universally. As a consequence of all this, the SWF is not an appealing concept for a constitutional economist. But Buchanan asks: "If, however, there is no maximand, how can ultimate normative consequences emerge?" (p. 586) The answer lies in the positive analysis of constitutional economics, with the primary finding of the 18th century: *the market works*, within the legal framework of the minimal state and given certain conditions, and it establishes, through the principle of spontaneous coordination, a social order.

However, one may ask oneself the following question: Even if one accepts the basic ideas of constitutional economics, after the constitution has been decided upon at any given point in time, how are the levels of production of public goods determined within this framework? I will only provide the reader with a short answer, basically referring him or her to other works that deal

explicitly with this rather comprehensive question. See, e.g., Bohm (1972, 1984), Tideman and Tullock (1984), Mueller (1989), and Johansson (1992). The first uses empirical tests, in the latter paper in conjunction with the interval method. The next two present different variations of the Groves-Clarke mechanism, and the last introduces, e. g., the contingent valuation method, closed-ended techniques, the travel cost method, and hedonic prices²⁹.

This section can be summarized concisely in the following way: Those who accept the basic features of constitutional economics view the task of the economist as that of trying to provide guidelines about proper legal, institutional, and constitutional arrangements for society's economic and political agents. This necessarily implies that a concept such as the SWF is not acceptable.

5 Summary and Assessment

This paper deals with the following question: How is it reasonable for an economist to approach the problem of social choice? To a considerable degree, the answer depends on which social philosophy one adopts. It seems clear that a substantial majority of today's economists find the social welfare philosophy rather appealing, the natural implication of which is the desire to develop and use a SWF in economic analysis. On the other side are those who view most of the welfare-economic body of theory with a strong skepticism. One purpose of this paper has been to introduce this latter line of thinking, which does not even accept the SWF conceptually, or theoretically. Among its proponents, Buchanan must be considered to be one of the foremost. Another purpose has been to present a different type of criticism against the SWF; that which accepts the SWF theoretically but not in practice. Reasons for this are the Arrow result, which constitutes a 'technical' demur against the SWF, the aspect of information, saying that it is not possible to know enough to construct or utilize a SWF properly, and the public choice criticism, which claims that welfare economics is naïve in that it ignores the actual political system - consisting of self-interested politicians and bureaucrats.

²⁹ It should be pointed out that these methods are general in the sense that they are not connected with constitutional economics in particular. I mention them here because it is important to realize that a constitutional economist may disagree with the welfare economist on many issues but agree with him on others (e.g., on how production levels of public goods ought to be determined).

All in all, I think that these arguments make a rather strong case against a mechanical acceptance of welfare-economic theory. However, I want to stress that the overall purpose for my compiling the contents of this paper has not been to condone the idea that all in welfare economics is useless. Instead, the real purpose has been to challenge economists to *think* about their theory and its applicability. Whether they, after having pondered upon the ideas in this paper, still conclude that their original acceptance of modern welfare economics is valid and robust, that is fine with me. And if they adapt a more skeptical way of looking at this area of economics, for me, that is even finer. It is worth emphasizing that I do not claim to know what is 'true' or 'best'. I just want to bring some strong and provocative, and partially neglected, ideas out into the open, and I want them to be actively tried and looked into.

Finally, one question remains: How do I assess the SWF? I think that there is a strong case *against* this concept. The limitations seem too severe for it to be of any practical use. And theoretically, the SWF represents a way of looking at economics which I increasingly begin to question. Instead, I find the emphases of Buchanan to be much more in line with how I view the rôle of the economist: from a institutionalist-constitutionalist perspective. Certainly, being appreciative of this school of thought does not necessarily imply a negative attitude against everything else in economics. But it does represent a critical mind - something that, in my opinion, must be at the center of a scientist's way of thinking.

References

- Arrow, K. J., (1951), *Social Choice and Individual Values* (1st edn). Yale University Press, New Haven, Conn.; (1963), ..., (2nd edn), Wiley, New York.
- Arrow, K. J., (1973), "Some Ordinalist-Utitarian Notes on Rawls's Theory of Justice". *Journal of Philosophy*, vol 70, pp. 245-63.
- Arrow, K. J., (1983), "Contributions to Welfare Economics". In Brown, E. C., and Solow, R. M. (eds), *Paul Samuelson and Modern Economic Theory*. McGraw-Hill, New York.

- Arrow, K. J., (1987), "Arrow's Theorem". In Eatwell, J., Milgate, M., and Newman, P. (eds), *The New Palgrave: A Dictionary of Economics*. Macmillan, London.
- Bergson, A., (1938), "A Reformulation of Certain Aspects of Welfare Economics". *Quarterly Journal of Economics*, vol 52(2), February, pp. 310-34.
- Bergson, A., (1954), "On the Concept of Social Welfare". *Quarterly Journal of Economics*, vol 68, May, pp. 233-53.
- Boadway, R. W., and Bruce, N., (1984), *Welfare Economics*. Blackwell, Oxford.
- Bohm, P., (1972), "Estimating Demand for Public Goods: An Experiment". *European Economic Review*, vol 13, pp. 111-30.
- Bohm, P., (1984), "Estimating Demand for an Actual Public Good". *Journal of Public Economics*, vol 24, pp. 135-59.
- Brennan, G., and Buchanan, J. M., (1984), "The Normative Purpose of Economic 'Science': Rediscovery of an Eighteenth-Century Method". In Buchanan, J. M., and Tollison, R. D. (eds), *Theory of Public Choice-II*. University of Michigan Press, Ann Arbor, Mich.
- Brennan, G., and Buchanan, J. M., (1985), *The Reason of Rules*. Cambridge University Press, Cambridge.
- Buchanan, J. M., (1954a), "Social Choice, Democracy, and Free Markets". *Journal of Political Economy*, vol 62, April, pp. 114-23.
- Buchanan, J. M., (1954b), "Individual Choice in Voting and the Market". *Journal of Political Economy*, vol 62, August, pp. 334-43.
- Buchanan, J. M., (1959), "Positive Economics, Welfare Economics, and Political Economy". *Journal of Law and Economics*, vol 2, October, pp. 124-38.
- Buchanan, J. M., (1979), *What Should Economists Do?* Liberty Press, Indianapolis.
- Buchanan, J. M., (1984a), "Politics without Romance: A Sketch of Positive Public Choice Theory and its Normative Implications". In Buchanan, J. M., and Tollison, R. D. (eds), *Theory of Public Choice-II*. University of Michigan Press, Ann Arbor, Mich.
- Buchanan, J. M., (1984b), "Constitutional Restrictions on the Power of Government". In Buchanan, J. M., and Tollison, R. D. (eds), *Theory of Public Choice-II*. University of Michigan Press, Ann Arbor, Mich.
- Buchanan, J. M., (1986), *Liberty, Market, and State: Political Economy in the 1980s*. New York University Press, New York.

- Buchanan, J. M., (1987a), *Economics: Between Predictive Science and Moral Philosophy* (compiled by Tollison, R. D., and Vanberg, V. J.). Texas A & M University Press, College Station.
- Buchanan, J. M., (1987b), "Constitutional Economics". In Eatwell, J., Milgate, M., and Newman, P. (eds), *The New Palgrave: A Dictionary of Economics*. Macmillan, London.
- Buchanan, J. M., (1991), *Constitutional Economics*. Blackwell, Oxford.
- Buchanan, J. M., and Tullock, G., (1963), *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. University of Michigan Press, Ann Arbor, Mich.
- Debreu, G., (1959), *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*. Wiley, New York.
- Johansson, P. O., (1992), *Cost-Benefit Analysis of Environmental Change*. Manuscript. Forthcoming: Cambridge University Press, Cambridge.
- Kaldor, N., (1939), "Welfare Propositions and Interpersonal Comparisons of Utility". *Economic Journal*, vol 49, September, pp. 549-52.
- Kemp, M. C., and Asimakopulos, A., (1952), "A Note on 'Social Welfare Functions' and Cardinal Utility". *Canadian Journal of Economics and Political Science*, vol 18, May, pp. 195-200.
- Little, I. M. D., (1952), "Social Choice and Individual Values". *Journal of Political Economy*, vol 60, October, pp. 422-32.
- Mises, L. von, (1966), *Human Action: A Treatise on Economics*. Henry Regnery, Chicago.
- Mueller, D. C., (1984), "Public Choice: A Survey". In Buchanan, J. M., and Tollison, R. D. (eds), *Theory of Public Choice-II*. University of Michigan Press, Ann Arbor, Mich.
- Mueller, D. C., (1989), *Public Choice II*. Cambridge University Press, Cambridge.
- Myhrman, J., (1992), *The Petrified Economy*. Manuscript.
- Nozick, R., (1974), *Anarchy, State, and Utopia*. Basic Books, New York.
- Peltzman, S., (1976), "Towards a More General Theory of Regulation". *Journal of Law and Economics*, vol 19, August, pp. 211-40.
- Polanyi, M., (1951), *The Logic of Liberty*. University of Chicago Press, Chicago.
- Robbins, L., (1932), *An Essay on the Nature and Significance of Economic Science*. Macmillan, London.
- Robbins, L., (1938), "Interpersonal Comparisons of Utility: A Comment". *Economic Journal*, vol 43, December, pp. 635-41.

- Samuelson, P. A., (1947), *Foundations of Economic Analysis*. Harvard University Press, Cambridge, Mass.
- Samuelson, P. A., (1967), "Arrow's Mathematical Politics". In Hook, S. (ed), *Human Values and Economic Policy*. New York University Press, New York.
- Samuelson, P. A., (1981), "Bergsonian Welfare Economics". In Rosefielde, S. (ed), *Economic Welfare and the Economics of Soviet Socialism*. Cambridge University Press, New York.
- Sandmo, A., (1990), "Buchanan on Political Economy: A Review Article". *Journal of Economic Literature*, vol 28, March, pp. 50-65.
- Sen, A., (1987), "Social Choice". In Eatwell, J., Milgate, M., and Newman, P. (eds), *The New Palgrave: A Dictionary of Economics*. Macmillan, London.
- Sugden, R., (1978), "Social Choice and Individual Liberty". In Artis, M. J., and Nobay, A. R. (eds), *Contemporary Economic Analysis*. Croom Helm, London.
- Sugden, R., (1981), *The Political Economy of Public Choice: An Introduction to Welfare Economics*. Martin Robertson, Oxford.
- Suzumura, K., (1976), "Remarks on the Theory of Collective Choice". *Econometrica*, vol 43, November, pp. 381-90.
- Suzumura, K., (1987), "Social Welfare Function". In Eatwell, J., Milgate, M., and Newman, P. (eds), *The New Palgrave: A Dictionary of Economics*. Macmillan, London.
- Tideman, T. N., and Tullock, G., (1984), "A New and Superior Process for Making Social Choices". In Buchanan, J. M., and Tollison, R. D. (eds), *Theory of Public Choice-II*. University of Michigan Press, Ann Arbor, Mich.
- Vickrey, W., (1960), "Utility, Strategy, and Social Decision Rules". *Quarterly Journal of Economics*, vol 74, pp. 507-35.
- Wicksell, K., (1896), *Finanztheoretische Untersuchungen*. Gustav Fischer, Jena. (Partial translation by J. M. Buchanan as "A New Principle of Just Taxation", in Musgrave, R. A., and Peacock, A. T. (eds), *Classics in the Theory of Public Finance* (1958). Macmillan, London.)