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Welfarism, Individual Rights, and Procedural Fairness

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1. Introduction

As soon as a group of individuals gather together, and act for some common cause, a problem of collective decision-making, social welfare judgements, and rational policy design inevitably comes to the fore. Thus it goes without saying that the *instrumental concern* with the subject matter of social choice theory and welfare economics can be traced back all the way to the beginning of human society. However, the *theoretical investigation* into the mechanisms of collective decision-making, the evaluative methods of social welfare judgements and rational policy design seems to be an intellectual activity of relatively recent origin. Indeed, the investigation into the mechanisms of collective decision-making seems to have originated with the pioneering contributions by two eminent French precursors, viz., Jean-Charles de Borda and Marie-Jean de Condorcet. Likewise, the origin of the critical approach to the methods of social welfare judgements and rational policy design seems to be attributable to the work of Jeremy Bentham, who was a contemporary in England of Borda and Condorcet.

A remarkable fact about social choice theory is that the two distinguished precursors of this intellectual discipline, viz., Condorcet and Bentham, took diametrically contrasting stances on the issue of personal welfare and individual rights. Condorcet worked in the intellectual atmosphere of the European Enlightenment with its characteristic emphasis on human rights and rational social design. In contrast, Bentham was a harsh critic of the concept of inviolable human rights, who is known for his infamous passage: “[N]atural rights is simple nonsense: natural and imprescriptible rights, rhetorical nonsense, --- nonsense upon stilts [Bentham (1843, p.501)].” Instead of inviolable and natural human rights, Bentham took recourse to the ultimate principle to the effect that the good mechanism or rational policy should be able to bring about the “greatest happiness of the greatest number”. Thus, social choice theory got started with uncoordinated blessings from the parents, who had sharp disagreement on the priority between personal welfare and individual rights. The purpose of the present paper is to see how this mixed blessings make their reappearance in the modern social choice theory, and how we should logically cope with them.

The structure of the rest of this paper is as follows. In Section 2, we put forward a schematic summary of the informational bases of normative judgements, which is meant to facilitate understanding and cross references. Section 3 explains how the potential conflict between personal welfare and inviolable individual rights made its first appearance within the contemporary framework of social choice theory when Kenneth Arrow first presented his justly famous *general impossibility theorem*, which eventually resulted in the *impossibility of a Paretian liberal* due to Amartya Sen. Section 4 is devoted to the criticisms and/or reservations on Sen’s social choice theoretic articulation of individual rights. With the purpose of coping with these criticisms and reservations at the conceptual level, Section 5 identifies three distinct issues to be addressed in the fully-fledged theory of individual rights, viz., the *formal articula-*

tion of rights, the *realization of rights*, and the *initial conferment of rights*. It is also in this section that we introduce the game form articulation of individual rights as a viable alternative to Sen's social choice theoretic articulation. Section 6 discusses the concept of perfect and pure procedural fairness and generalized welfarism. It also explains the modus operandi of the two-stage approach to personal welfare and individual rights, which is the vehicle for our analysis of the issue of initial conferment of individual rights. Section 7 is devoted to an illustration of our two-stage procedure of social choice in terms of a concrete example with empirical relevance, viz., the competition law and competition policy in the market economy. Section 8 concludes with several remarks.

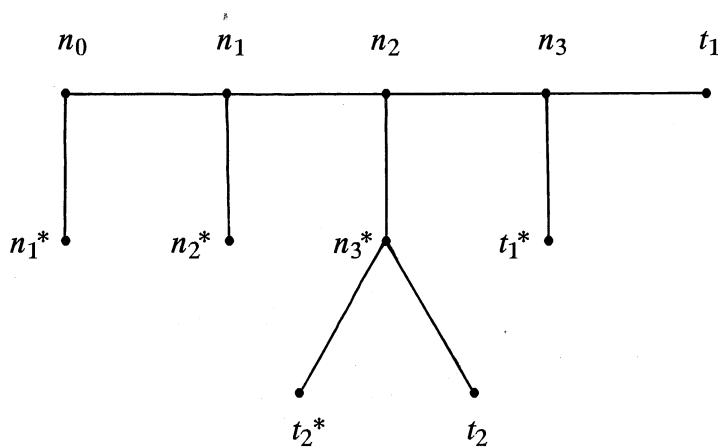
2. Informational Bases of Normative Welfare Judgements

According to Kenneth Arrow (1987, p.124), “[e]conomic or any other social policy has consequences for the many and diverse individuals who make up the society or economy. It has been taken for granted in virtually all economic policy discussions since the time of Adam Smith, if not before, that alternative policies should be judged on the basis of their consequences for individuals.” In fact, the informational basis of traditional normative economics is even more exacting than *consequentialism* as such, since the value of consequences has been captured in the standard normative economics only in terms of the utilities or welfares experienced by individuals who constitute the society or economy.

To facilitate our subsequent analysis, **Figure 1** summarizes the possible informational bases of normative economics. Our point of departure is whether we judge the goodness of alternative policies exclusively on the basis of their consequences, or we go beyond their consequences pure and simple, and take some non-consequential features of alternative policies into consideration. The examples of non-consequential features of alternative policies abound, which include their *procedural fairness* and the *richness of opportunities* thereby opened up. If the former choice of focussing on consequences and nothing else is made, we are in effect moving from the initial node n_0 towards the node n_1 of *consequentialism*, whereas if the latter choice of going beyond consequences pure and simple is made, we are moving from the node n_0 towards the node n_1^* of *non-consequentialism*. In the former case, we do not pay any attention to the intrinsic value of non-consequential features of alternative policies. In the latter case, our evaluative perspective goes beyond consequences of alternative policies. Note that the non-consequentialist method of evaluation is not necessarily insensitive to the consequences of alternative policies altogether. If it so happens that our evaluative method depends exclusively on the non-consequential features of alternative policies in complete neglect of their consequential outcomes whatsoever, we are indeed relying on the extreme sub-class of non-consequentialist methods of analysis, which is called the *deontological method of evaluation*.

Any other non-consequentialist method of evaluation simply represents the viewpoint which weighs the value of consequential outcomes against the intrinsic value of non-consequentialist features of alternative policies in forming the fully-fledged judgements on their comparative goodness.

Figure 1: Informational Bases of Normative Welfare Judgements



- n_1 = consequentialism; n_1^* = non-consequentialism
- n_2 = welfarist-consequentialism; n_2^* = non-welfarist-consequentialism
- n_3 = ordinalist-welfarism; n_3^* = cardinalist-welfarism
- t_1 = ordinalist-welfarism without interpersonal comparability
- t_1^* = ordinalist-welfarism with interpersonal comparability
- t_2 = cardinalist-welfarism without interpersonal comparability
- t_2^* = cardinalist-welfarism with interpersonal comparability

Within the class of consequentialism, we can identify the second point of bifurcation in accordance with whether we value consequential outcomes of alternative policies only through the looking glass of individual utilities or welfares, or we take their non-welfaristic features of consequences into consideration. In the former case, we are moving from the consequentialist node n_1 towards the node n_2 of *welfarist-consequentialism*, or *welfarism* for short. In the latter

case, we are moving from the node n_1 towards the node n_2^* of *non-welfarist-consequentialism*, or *non-welfarism* for short. In this context also, the evaluative method of non-welfarism need not be completely insensitive to the welfaristic features of consequential outcomes. What is at stake is whether or not due attention is given to the non-welfaristic features of consequences, and this attention need not be secured at the full sacrifice of attention to the welfaristic features of consequences.

The examples of non-welfaristic features of consequences abound. In the context of the personal distribution of income and wealth, for example, some redistributive policies may have many consequential outcomes, which may be measured either in terms of such welfaristic features of consequences as an increase or a decrease in individual happiness, or in terms of such non-welfaristic features of consequences as an increase or a decrease in the Gini coefficient.

Welfarism lies at the heart of normative analysis in general, and normative economics in particular. It was Arthur Pigou (1920) who synthesized the long Cambridge tradition of moral philosophy into what he christened the economics of welfare. The epistemological basis of Pigou's synthesis was the Benthamite utilitarianism, which is a typical example of the welfarist method of evaluation.¹ When Lionel Robbins (1932/1935) raised his famous criticism against Pigou's "old" welfare economics, so-called, the target of his critical axe was focussed on the "unscientific" nature of interpersonal comparability of utilities or welfares, which the utilitarian method of evaluation naturally presupposed. However, there are some reasons to surmise that he was ready to remain within the realm of welfarism. For Robbins, what was to be criticized and ostracized was not the welfaristic method of evaluation, but the interpersonal comparability of utilities or welfares underlying utilitarianism, which is nothing but a typical, yet special, case of welfarism.

Almost simultaneously with Robbins' devastating criticism against the "old" welfare economics, another demolition activity, or an exercise of Ockham's razor to be more precise, took place in the mainstream economics. This time, what was at stake was whether we should attach any cardinal significance to the concept of utility or welfare, or we should do with the ordinal concept of utility or welfare, and the latter stance soon became dominant in the profession. This is what Paul Samuelson (1974) named the *Hicks-Allen revolution in demand theory*. It started in the realm of positive economics under the leadership of John Hicks and Roy Allen, but it soon permeated into the realm of normative economics as the "new" welfare economics of Abba Lerner, Nicholas Kaldor, John Hicks, Abram Bergson, Paul Samuelson, and Tibor Scitovsky, which is ordinalist in nature, began to fill in the void left open by the Robbinsian criticism against the "old" welfare economics.

Noting these crucial evolution of historical importance, let us identify further points of

bifurcation within the class of welfarism. To begin with, even when two persons agree on the welfaristic approach to social evaluation, they may disagree on the nature of utilities or welfares to be used in their evaluative exercises. If a person takes the ordinalist (resp. cardinalist) view of utilities or welfares, he is moving from the welfarist node n_2 towards the node n_3 (resp. n_3^*) of *ordinalist-welfarism* (resp. *cardinalist-welfarism*). In the second place, within the approach of ordinalist-welfarism (resp. cardinalist-welfarism), we can identify further bifurcation in accordance with the possibility of interpersonal comparisons of utilities or welfares. In so doing, we may identify four terminal nodes, viz., t_1 , t_1^* , t_2 and t_2^* , which we may call the *ordinalist-welfarism without interpersonal comparability*, the *ordinalist-welfarism with interpersonal comparability*, the *cardinalist-welfarism without interpersonal comparability*, and the *cardinalist-welfarism with interpersonal comparability*, respectively.

Most, if not all, informational bases of standard normative economics can be neatly accommodated in the conceptual framework of **Figure 1**. For example, it should be clear that the “new” welfare economics of the hypothetical compensationist school of Kaldor, Hicks, Scitovsky and Samuelson, as well as the social welfare functionist school thereof based on the Bergson-Samuelson social welfare function, belong to the terminal node t_1 , viz., the *ordinalist-welfarism without interpersonal comparability*.²

The status of Arrowian social choice theory within the conceptual framework of **Figure 1** is less straightforward, which is because the *Pareto principle* to the effect that a social state should be judged socially better than another social state if all individuals judge the former state to be better than the latter state, even in combination with Arrow’s other axioms of *unrestricted domain* and the *independence of irrelevant alternatives*, falls short of implying the welfarism in full. However, it does imply what Amartya Sen (1977; 1979b) christened the *strict ranking welfarism*.³ Furthermore, the welfarism in full is implied if the Pareto principle is replaced by the *Pareto indifference principle* to the effect that two social states should be judged socially indifferent if all individuals judge them to be indifferent. For all practical purposes, therefore, we may safely assert that Arrow’s social choice theory can be comfortably accommodated within the *ordinalist-welfarism without interpersonal comparability*. Given Arrow’s purpose of examining the logical consequence of the welfaristic “new” welfare economics, this seems to have been a legitimate procedure to follow.

To illustrate the evaluative methods which correspond to the other three terminal nodes t_1^* , t_2 and t_2^* , we have only to cite just one example for each node. The *ordinalist-welfarism with interpersonal comparability* can be exemplified by the *welfarist version of the Rawlsian difference principle*, according to which a policy is judged best among feasible alternatives if the worst-off person (in the sense of receiving the lowest utility level among the persons who constitute the society) under this policy is best-off among the worst-off persons under alterna-

tive feasible policies. To exemplify the cardinalist-welfarism without interpersonal comparability, we have only to cite the *Nash social welfare function*, which is defined by the product over all persons of the differences between the utility under the policy in question and that at the status quo outcome. Finally, the cardinalist-welfarism with interpersonal comparability can be best illustrated by the Benthamite utilitarianism.

We are now ready to proceed to the social choice theoretic analysis of individual rights with special emphasis on the potential conflict between personal welfare and individual rights.

3. Arrow's Theorem, Wright's Criticism, and Sen's Paradox

It was in the session chaired by Lawrence Klein at the 1948 Cleveland Meeting of the Econometric Society that Kenneth Arrow made his first presentation of the celebrated general impossibility theorem. According to his recollection: “[I]n the audience was this contentious Canadian, David McCord Wright, who objected because among the objectives, [Arrow] hadn't mentioned freedom as one of the essential values in social choice and apparently he went out of the room saying that Klein and Arrow were communists ... [Kelly (1987, p.56)].” It goes without saying that this objection was rather misplaced, as it could have been answered easily by pointing out that we may include freedom in whatever form we wish it to take among the essential values in social choice theory, and we could have ended up with the same logical impossibility. Nevertheless, this episode is not altogether without interest, as it clearly testifies to the fact that the value of freedom as an individual right had to be confronted with Arrow's impossibility theorem on the existence of a democratic social welfare function within the welfaristic framework of social choice theory at the very moment of its birth. However, it was not until 1970 that the formal attempt was made by Amartya Sen (1970a/1979, Chapter 6*; 1970b) to introduce the value of freedom as an individual right among other essential values in social choice theory. In so doing, Sen could get rid of the two most controversial axioms from Arrow's set of values, viz., the axiom of *collective rationality* and that of the *independence of irrelevant alternatives*, and yet he could crystallize a serious logical conflict between the mild *libertarian claim of individual right* and a weak welfarist value of social efficiency in the form of the *Pareto principle* into the *impossibility of a Paretian liberal*. It is all too natural that Sen's short paper caused a large stir in the professional circle.

The basic intuition, which Sen (1970a/1979, Chapter 6*; 1970b) tried to capture within Arrow's framework of social choice theory, can be traced back to such libertarians as John Locke and John Stuart Mill in England, and Benjamin Constant and Alexis de Tocqueville in France. It was Isaiah Berlin who neatly expressed this intuition as follows: “[T]here ought to exist a certain minimum area of personal freedom which must on no account be violated; for if it is overstepped, the individual will find himself in an area too narrow for even that minimum development of his natural faculties which alone makes it possible to pursue, and even to con-

ceive, the various ends which men hold good or right or sacred [Berlin (1969, p.124)].” To illustrate how this intuitive conception may conflict with welfarism in the least controversial form of the Pareto principle, Sen contrived the following example, which has been cited and debated ever since in the social choice theoretic analysis of welfare and rights:

Example 1: Lady Chatterley’s Lover Case

There is a single copy of *Lady Chatterley’s Lover*, which is available to one of Mr. P (the prude) and Mr. L (the lude), but not to both, for reading. Everything else being the same, there are only three social alternatives: Mr. P reading it (r_P), Mr. L reading it (r_L), and no one reading it (r_0). Mr. P prefers r_0 most (“This is an awful book, and it should not be read by anybody”), next r_P (“I will take the damage upon myself rather than exposing Mr. L to the imminent danger of reading such a book”), and lastly r_L (“What a terrible mistake to let him face such a muck!”). Mr. L prefers r_P most (“That would be useful to open Mr. P’s obstinate mind to the reality of life”), next r_L (“I will enjoy it for sure”), and lastly r_0 (“What a terrible waste of a great literary work!”). How, then, should the society decide on the disposition of this book?

If the society respects Mr. P’s libertarian right of reading or not reading a book in private, r_P should not be socially chosen in the presence of r_0 , since the only difference between r_P and r_0 is whether Mr. P reads it or not, and Mr. P himself prefers not to read it. Likewise, if the society respects Mr. L’s libertarian right of reading or not reading a book in private, r_0 should not be socially chosen in the presence of r_L , since the only difference between r_0 and r_L is whether Mr. L reads it or not, and Mr. L himself prefers to read it. Finally, if the society respects the Pareto principle, r_P should not be socially chosen in the presence of r_L , since both Mr. P and Mr. L prefer r_L to r_P . We are then led to the logical impasse, as there is nothing left for the society to choose from the set of alternatives $S = \{r_P, r_L, r_0\}$. ||

To generalize the essence of **Example 1**, let $N := \{1, 2, \dots, n\}$ ($2 \leq n < +\infty$) be the set of all individuals constituting the society and let X be the set of all social states, where each social state is defined to be “a complete description of [the] society including every individual’s position in it [Sen (1970b, p.152)].”

For each $i \in N$, a binary relation $R_i \subset X \times X$ denotes the *preference ordering* held by individual i , together forming a profile $R = (R_1, R_2, \dots, R_n)$ of individual preference orderings.⁴ Let \mathbb{R} stand for the set of all logically possible profiles. For each $i \in N$ and each $x, y \in$

X , the intended interpretation of $(x, y) \in R_i$ is that i judges x to be at least as good as y . $P(R)$ and $I(R)$ stand, respectively, for the *strict preference relation* and *indifference relation* corresponding to R , which are defined by $(x, y) \in P(R)$ if and only if $(x, y) \in R$ and $(y, x) \notin R$, and $(x, y) \in I(R)$ if and only if $(x, y) \in R$ and $(y, x) \in R$, respectively. A *social choice rule* is a function f which maps each profile $\mathbf{R} \in \mathbb{R}$ into a *social choice function* $C^{\mathbf{R}} = f(\mathbf{R})$. When a set of feasible social states $S \subset X$ is specified from outside, $C^{\mathbf{R}}(S)$ denotes a set of social states which the society chooses from S , reflecting individual values represented by $\mathbf{R} \in \mathbb{R}$. Let Σ be the set of all non-empty subsets of X . Since we do not know at the time of designing a social choice rule which profile $\mathbf{R} \in \mathbb{R}$ will prevail, and which set of social states $S \in \Sigma$ will become available in the future, we must assume that f is defined over the full domain \mathbb{R} and that $C^{\mathbf{R}}$ is defined for each $\mathbf{R} \in \mathbb{R}$ over the full domain Σ . This is the general framework of Sen's path-breaking analysis of personal welfare and individual libertarian rights.

To give substance to the intuitive idea that someone has a libertarian right, suppose that the two social states, say x and y , are identical except for some features which are private to someone, say $i \in N$. Suppose also that the relevant individual i prefers x to y , yet the society chooses y from the opportunity set $S \in \Sigma$ that contains x . In Sen's perception, this is a clear infringement on i 's libertarian right, because the society does not seem to respect i 's preference for x against y even though the only difference between x and y is a feature which is private to him. To convert this intuitive observation into the formal requirement of the social respect of libertarian rights, define, for each $i \in N$, a subset $D_i \subset X \times X$ such that the only difference between x and y , where $(x, y) \in D_i$, is i 's private feature of the world. In Sen's idiosyncratic parlance, the social choice rule f respects i 's libertarian right over his *protected sphere* D_i if and only if

$$(1) \quad (x, y) \in D_i \cap P(R_i) \Rightarrow [x \in S \Rightarrow y \notin C^{\mathbf{R}}(S)] \text{ for all } S \in \Sigma$$

holds for all $\mathbf{R} \in \mathbb{R}$, where $C^{\mathbf{R}} = f(\mathbf{R})$. Observe that the social choice rule f satisfying (1) bestows on individual $i \in N$ a privilege over the set D_i in the sense that, by simply expressing his preference for x against y , where $(x, y) \in D_i$, i can reject the social choice of his dis-preferred social alternative y from any set of feasible social states $S \in \Sigma$ that contains his preferred social alternative x .

Within this conceptual framework, Sen (1970a, Chapter 6*; 1970b) introduced two essential values in social choice theory, which can be formally expressed as follows:

Condition SML: Sen's Minimal Libertarian Claim

There exist at least two individuals, say j and k , each endowed with a non-empty protected sphere D_j and D_k , respectively, such that f bestows on j and k the libertarian rights in the sense of Sen over D_j and D_k , respectively.

Condition P: Pareto Principle

For any $x, y \in X$ and any $R \in \mathbb{R}$,

$$(2) \quad (x, y) \in \bigcap_{i \in N} P(R_i) \Rightarrow [x \in S \Rightarrow y \notin C^R(S)] \text{ for all } S \in \Sigma$$

holds, where $C^R = f(R)$.

Considered in isolation, both conditions seem to be non-controversial and stand on the safe ground, yet in combination, they bring about the following impossibility result.

Sen's Theorem: Impossibility of a Paretian Liberal

There exists no social choice rule f that satisfies Sen's minimal libertarian claim (SML) and the Pareto principle (P).

Several observations are in order at this juncture. To begin with, Sen's impossibility of a Paretian liberal does not invoke Arrow's axiom of collective rationality, neither does it hinge on his axiom of independence of irrelevant alternatives.⁵ Since these Arrovian axioms have been singled out rather frequently as the culprits of Arrow's impossibility theorem, it is noteworthy that Sen's impossibility theorem is in fact independent both of these axioms. In the second place, Sen's theorem served as the corner-stone of his devastating criticism against the welfaristic foundations of traditional welfare economics and social choice theory. To recollect, welfarism is an informational constraint which requires that social welfare judgements should be based on individual welfare information and nothing else, and the Pareto principle is a particular case of welfarism which asserts the exclusive adequacy of individual welfare information in the special context where everyone's welfare ranking of alternative social states happens to coincide with each other. By showing that the Pareto principle goes squarely counter to the non-welfaristic principle of social respect for libertarian rights, Sen's impossibility theorem constitutes a basic argument which goes against the unexceptional acceptance of welfaristic

principles in the traditional welfare economics and Arrowian social choice theory. In the third place, Sen's articulation of libertarian right is in terms of the relevant individual's power of decisiveness, which he is conferred by the social choice rule, to prevent some alternatives from being socially chosen, and that this power is conditional on the relevant individual's preferences over the complete description of social states. For the sake of mnemonic convenience, let us christen this feature the *preference-contingent power of rejection*. As Sen's impossibility theorem represents a harsh criticism against the welfaristic foundations of normative economics, it was all too natural that his articulation of libertarian rights in terms of this preference-contingent power of rejection became the focus of critical scrutiny in the subsequent literature. Let us now turn to some eminent samples of these scepticisms.

4. Scepticisms on Sen's Articulation of Individual Rights

The first scepticism on Sen's articulation of libertarian rights, which Arrow expressed when he was asked of his opinion about Sen's impossibility of a Paretian liberal, is focussed squarely on the *reasons of rights*. Arrow recalls: "I thought [Sen's theorem] was stunning and penetrating to a very important issue. But ... why do we have rights? ... [T]he one thing I retain from utilitarianism is that, basically, judgements are based on consequences. ... [Thus] I view rights as arrangements which may help you in achieving a higher utility level. For example, if you are much better informed about a certain choice, because it's personal to you and not to me, I don't really know anything about it, I should delegate the choice to you. ... [But] who settles what rights are legitimate? The consequentialist view --- I won't say that fully settles it either, but at least you have something to argue about. So this is why I'm a little unsympathetic to the rights issue --- everybody just multiplies the rights all over the place and you get total paralysis. ... Unless somebody produces a logic of rights in terms of which we can *argue*, I really find the whole issue is unfocussed [Kelly (1987, pp.59-60)]." In essence, Arrow is asking for the *raison d'être* of libertarian rights. For lack of reasons for libertarian rights à la Sen, Arrow seems to remain less than convinced by Sen's criticism against the welfaristic foundations of normative economics.

The second scepticism is in fact one of the earliest criticisms raised against Sen's articulation of libertarian rights, which was put forward by Robert Nozick in his influential book, *Anarchy, State, and Utopia*. According to Nozick: "A more appropriate view of individual rights [than Sen's articulation in terms of the preference-contingent power of rejection] goes as follows. Individual rights are co-possible; each person may exercise his rights as he chooses. The exercise of these rights fixes some features of the world. Within the constraints of these fixed features, a choice may be made by a social choice mechanism based upon a social ordering; if there are any choices left to make! Rights do not determine a social ordering but instead set the constraints within which a social choice is to be made, by excluding certain alternatives,

fixing others, and so on. (If I have a right to choose to live in New York or in Massachusetts, and I choose Massachusetts, then alternatives involving my living in New York are not appropriate objects to be entered in a social ordering) [Nozick (1974, p.166)].” Thus, instead of articulating rights on a par with the welfaristic value of the Pareto principle as the preference-contingent power of rejection, Nozick proposes to assign libertarian rights a completely different role of specifying some personal features of the world before the social choice rule starts its function as a preference amalgamation mechanism at the social level. In sharp contrast with Sen’s view, which articulates libertarian rights in terms of the relevant individual’s preferences over the complete description of social states, Nozick’s articulation has nothing intrinsically to do with individual preferences over social states. Indeed, Nozick’s articulation is based on the relevant individual’s choice of personal options rather than on his preferences over social states.

The third scepticism was expressed by Michael Farrell in his last published article. In his view, “the attempt to insert ‘Liberalism’ by means of individual decisiveness [as Sen’s articulation does] is ... an unnatural and artificial device, introduced as an afterthought. Suppose two states, x and y , differ only in a matter purely private to individual j . Would a Liberal say that individual j should be decisive between x and y , so as to have a modicum of individual liberty? He is much more likely to say that there is no social choice to be made between x and y , since they differ in a matter private to individual j [Farrell (1976, p.9)].” Pursuing this point more formally, Farrell proposed what he christened the *Liberal Partition*: “To say that the choice between two elements of S [of possible social states] is not a social one may be formalized by saying that they are ‘socially equivalent’, where the relation of being socially equivalent is an equivalence relation on the set S . It defines a collection of subsets of S which are non-empty, disjoint and collectively exhaustive --- that is, a partition P of S [T]he problem of social choice is that of choosing among elements of P , not elements of S ; once a socially equivalent subset has been selected, the choice of an element from this subset ... is not a social choice, but will be determined by the private decisions.” According to this conceptual framework, once the Liberal Partition is promulgated, the problem of social choice and that of individual choices are sharply separated, and Sen’s impossibility of a Paretian liberal disappears once and for all. In Farrell’s own admission, however, “the determination of a Liberal Partition sounds purely formal, but in practice may be anything but formal. The battle between those who want a very coarse partition and those who want a very fine one --- between those who wish to leave a good deal to individual decision and those who would leave very little --- has been, is, and is likely to remain a major political issue. Thus, no Liberal Partition can be determined without value judgements and political disputation, perhaps on a large scale.”

It is worthwhile to recollect that the recognition that “a frontier must be drawn between

the area of private life and that of public authority [Berlin (1969, p.124)]” is certainly not new. Indeed, it goes all the way back to John Stuart Mill (1859/1977, p.276), who posed this problem unambiguously: “What ... is the rightful limit to the sovereignty of the individual over himself? Where does the authority of society begin? How much of human life should be assigned to individuality, and how much to society?” Mill’s answer to his own question was a famous and deceptively simple principle: “Each will receive its proper share, if each has that which more particularly concerns it. To individuality should belong the part of life in which it is chiefly the individual that is interested; to society, the part which chiefly interests society.” Unfortunately, Mill’s “simple principle” posed more problems than it settled, as “[m]en are largely interdependent, and no man’s activity is so completely private as never to obstruct the lives of others in any way. ‘Freedom for the pike is death for the minnows’; the liberty of some must depend on the restraint of others [Berlin (1969, p.124)].”

It is in view of these scepticisms on Sen’s articulation of individual rights and related problems that we must develop a general conceptual framework which enables us to identify and separate several issues within the theory of personal welfare and individual rights. To this task we now turn.

5. Formal Articulation, Realization, and Initial Conferment

As an auxiliary step, let us identify three distinct issues which should be addressed to in the fully-fledged discussion on individual rights. The first issue is the *formal articulation* of rights; the second issue is the *realization* of conferred rights; and the third issue is the *initial conferment* of rights.

It was Nozick’s scepticism on Sen’s social choice theoretic articulation of individual rights that opened the gate towards several game theoretic alternatives to Sen’s articulation. In this paper, we focus on one of these game theoretic articulations, which is due originally to Sugden (1985), Gaertner, Pattanaik and Suzumura (1992), and Pattanaik and Suzumura (1994; 1996). To motivate this game-form articulation of individual rights, so-called, and to bring the contrast between Sen’s social choice theoretic articulation and the game-form articulation into clear relief, let us examine the following modified version of Lady Chatterley’s Lover Case:

Example 2: Modified Version of Lady Chatterley’s Lover Case

Mr. P and Mr. L both own a copy of *Lady Chatterley’s Lover*. Everything else being the same, there exist four social states, viz. (r, r) , (r, n) , (n, r) and (n, n) , where r (resp. n) denotes “to read the book” (resp. “not to read the book”). Their preference orderings over $S := \{(r, r), (r, n), (n, r), (n, n)\}$ are given as follows:

$$R_P: (n, n), (r, r), (n, r), (r, n)$$

$$R_L: (n, r), (r, n), (r, r), (n, n)$$

Individuals are free to choose either to read the book or not to read it in full accordance with their respective preferences. By choosing r (resp. n), Mr. P may secure that the final outcome will be in the subset $\{(r, r), (r, n)\}$ (resp. $\{(n, r), (n, n)\}$) of S , but he is not within his right to decide which one of these two outcomes will eventually materialize. Likewise, by choosing r (resp. n), Mr. L may secure that the final outcome will be in the subset $\{(r, r), (n, r)\}$ (resp. $\{(r, n), (n, n)\}$) of S , but he is not within his right to decide which one of these two outcomes will eventually materialize. Thus, both Mr. P and Mr. L are facing the problem of choice under uncertainty. Suppose, for the sake of further pursuit of the problem, that both persons follow the rationality postulate of maximin behavior under uncertainty. It is easy to check that the maximin choice of Mr. P (resp. Mr. L) is n (resp. r), so that (n, r) is the maximin equilibrium outcome of this game-theoretic situation. Note that, intuitively speaking, there is no violation of freedom of choice in this social outcome. However, this is a clear instance of the violation of Mr. P's libertarian right in accordance with Sen's articulation of individual right. To confirm this fact, we have only to observe that (r, r) and (n, r) differ only in Mr. P's choice of either r or n , and Mr. P himself prefers (r, r) to (n, r) . ||

Capitalizing on the moral of this example and the intuitive appeal of the classical idea of the freedom of choice, the game-form approach to individual rights tries to capture the essence of someone's right in terms of his freedom (or somebody else's freedom acting on his behalf) to choose from a certain set of actions without being interfered with, or prevented by anybody else. Formally speaking, a *game form* is a specification of (a) a set N of n players, where $2 \leq n < +\infty$; (b) a set S_k of *admissible strategies* for each player $k \in N$; (c) a set X of all feasible outcomes; and (d) an *outcome function* g which specifies exactly one outcome for each n -tuple of strategies, one strategy for each player. If we accept this game-form articulation of rights and captures the essence of rights in terms of the relevant individual's freedom of choosing his admissible strategy, the formal contents of rights are independent of individual preferences over social states, which constitutes another sharp contrast with Sen's articulation of rights in terms of the preference-contingent power of rejection. Indeed, if a game form $G = \{N, S, g\}$ captures the formal contents of rights, where S is the set of admissible strategy profiles, there is no role whatsoever to be assigned to the profile of individual preference orderings as far as the formal contents of rights are concerned.

Needless to say, the concept of individual preferences over consequential outcomes plays an indispensable role in the *realization of conferred game-form rights*. Indeed, when the profile $R = (R_1, R_2, \dots, R_n)$ of individual preference orderings on X is revealed and when the game form G represents the distribution of rights in the society, we obtain a fully-fledged

description of the *game* (G, R) , and the issue of the realization of rights in the game form approach is captured by the analysis of the Nash equilibrium of this game.

Three further remarks on the game form articulation of rights may be in order. First, it should be obvious that the notion of game forms, by itself, has very little to do with rights. What we are claiming is that rights are best articulated as game forms, where the admissible strategy sets are construed to be the sets of legally or socially admissible action plans for each and every agent in the society, and the outcome function embodies the rule regulating the realization of a social outcome corresponding to a profile of strategies chosen by the players of the game. As a matter of fact, there are numerous game forms in various social contexts, where the question of rights does not arise at all. It is the specific interpretation of the strategy sets and the outcome function that determines whether the game form properly captures some rights or not.

Second, it is *not* claimed that the game form articulation of rights, by itself, can resolve Sen's paradox of a Paretian liberal. In our judgements, Sen's paradox captures a deep conflict between personal welfare and individual rights, which cannot be exorcised just by replacing Sen's social choice theoretic articulation of rights with the game form articulation of rights. To bring this important point unambiguously home, consider the following yet another variant of Lady Chatterley's Lover Case:

Example 3: Another Variant of Lady Chatterley's Lover Case

Mr. P and Mr. L both own a copy of *Lady Chatterley's Lover*. Everything else being the same, there exist four social states, viz. (r, r) , (r, n) , (n, r) and (n, n) , where r (resp. n) denotes "to read the book" (resp. "not to read the book"). Their preference orderings over $S := \{(r, r), (r, n), (n, r), (n, n)\}$ are given as follows:

$$R_P: (n, n), (r, n), (n, r), (r, r)$$

$$R_L: (r, r), (r, n), (n, r), (n, n)$$

Individuals are free to choose either to read the book or not to read it in full accordance with their respective preferences. A salient feature of this profile is that both Mr. P and Mr. L have their respective dominant strategy, viz., whatever Mr. L's (resp. Mr. P's) choice may happen to be, Mr. P (resp. Mr. L) prefers n (resp. r) to r (resp. n), so that n (resp. n) constitutes Mr. P's (resp. Mr. L's) dominant strategy. Thus, (n, r) is the dominant strategy equilibrium of this game. Note, however, this dominant strategy equilibrium is Pareto dominated by (r, n) . ||

Third, how does the society decide which strategies should or should not be admitted to a specific player, and how does the society decide on consequential outcome which should

correspond to a specified profile of admissible strategies? In other words, how should rights be conferred in the first place in the game form articulation of individual rights? As Sen (1992, p.155) rightly observed, “Gaertner *et al.* (1992) do, in fact, pose the question, ‘How does the society decide which strategies should or should not be admissible for a specific player in a given context?’ This, as they rightly note, is ‘an important question’. ... [I]t is precisely on the answer to this further question that the relationship between the game-form formulations and social-choice formulations depend We must not be too impressed by the ‘form’ of the ‘game forms’. We have to examine its contents and its rationale. The correspondence with social-choice formulations becomes transparent precisely there.” It is to this important question of the initial conferment of rights that we now turn.

6. Procedural Fairness and Generalized Welfarism

To face squarely with Arrow’s demand for the *reasons of rights* and Sen’s plea for the theory of *initial conferment of rights*, we must develop a conceptual framework for the analysis of *social choice of decision-making rules* which, in turn, calls for the careful re-examination of the classical concept of *procedural fairness*.

There are two sharply contrasting approaches to the concept of procedural fairness of social decision-making rules. The first approach starts from an exogenously specified *outcome morality*, which enables us to identify a *fair outcome* in the space of consequential outcomes. The concept of procedurally fair social decision-making rules is then derived from the concept of fair outcomes: a social decision-making rule is procedurally fair if it can bring about a fair outcome in each realized economic environment. In this approach, the outcome morality is defined separately from and prior to the social decision-making rules. It should be clear that this approach bestows on social decision-making rules only the *instrumental value* in implementing the specified outcome morality. It should also be observed that most, if not all, preceding contributions to the concept of procedurally fair social decision-making rules in normative economics are squarely rooted in this first approach. In the terminology of John Rawls (1971, p.85), this approach embodies the standpoint of *perfect procedural justice* to the following effect: “First, there is an independent criterion for what is a fair division, a criterion defined separately from and prior to the procedure which is to be followed. And, second, it is possible to derive a procedure that is sure to give the desired outcome.”

The second approach reverses the order of logical inference altogether, and regards consequential outcomes to be fair if they are brought about through the due application of procedurally fair social decision-making rules. In this approach, it is the procedural fairness of social decision-making rules which is logically prior to the fairness of consequential outcomes. In this sense, the concept of fair outcomes is made subordinate to the procedural fairness of

social decision-making rules. It should be clear that this second approach bestows on social decision-making rules the *intrinsic value* of their own, which is then imputed to consequential outcomes generated by the due application of such procedurally fair rules. Needless to say, this approach to the concept of fair social decision-making rules is empty of content until and unless we can define the procedural fairness of social decision-making rules without invoking any outcome morality whatsoever in the space of consequential outcomes. In Rawls' (1971 p.86) terminology, this second approach embodies the standpoint of *pure procedural justice*: “[P]ure procedural justice obtains when there is no independent criterion for the right result: instead there is a correct or fair procedure such that the outcome is likewise correct or fair, whatever it is, provided that the [fair] procedure has been properly followed.”⁶

Recollect that Rawls' theory of justice, which is widely regarded as a representative and most influential attempt in substantiating the viewpoint of pure procedural fairness, hinges on his a priori supposition that there should be an unanimous agreement among all individuals in the society on the two principles of justice. It is for the purpose of justifying this supposition that Rawls (1971, p.118) introduced the hypothetical stage of the *original position* behind the “thick” *veil of ignorance*: “The idea of the original position is to set up a fair procedure so that any principles agreed to will be fair. The aim is to use the notion of pure procedural fairness as a basis of the theory. Somehow we must nullify the effects of specific contingencies which put men at odds and tempt them to exploit social and natural circumstances to their own advantage. Now in order to do this I assume that the parties are situated behind a veil of ignorance. They do not know how the various alternatives will affect their own particular case and they are obliged to evaluate principles solely on the basis of general considerations.”

In this paper, we intend to propose a two-stage model of social choice, which does not presuppose that unanimity always holds among all individuals in the society even behind the veil of ignorance. The first stage of this two-stage model, to be called the *primordial stage of rule selection* behind the “thin” veil of ignorance, is concerned with the social choice of decision-making rules, which determines the game form to be chosen collectively by all individuals in the society; the second stage of this two-stage model is the arena for the play of the game, which is defined by the game form collectively chosen in the first stage and the profile of individual preference orderings over consequential outcomes which is revealed after the “thin” veil of ignorance is lifted.

It deserves emphasis that the veil of ignorance introduced by Rawls (1971, p.118) is indeed “thick” so that everyone is prevented from knowing “his place in society, his class position or social status; ... his fortune in the distribution of natural assets and abilities, his intelligence and strength, and the like,” nor does anyone know “his conception of the good, the particulars of his rational plan of life, or even the specific features of his psychology such as his aversion to risk or liability to optimism or pessimism.” In addition, it is assumed that “the

parties do not know the particular circumstances of their own society.” In contrast, the veil of ignorance which we assume is “thin” in the sense that all we assume in the primordial stage of rule selection is that individuals are not in the position of knowing which specific profile of individual preference orderings over consequential outcomes will materialize when the second stage of playing the game comes along. To be more explicit, let us formulate our two-stage model of social choice as follows.

As in Section 3, let $N := \{1, 2, \dots, n\}$ ($2 \leq n < +\infty$) be the set of all individuals in the society, and let X ($3 \leq \#X < +\infty$) be the set of all conventionally defined social states. Let \mathbf{G} be the family of game forms, a representative element thereof being denoted by $G := \{N, \mathbf{S}, g\} \in \mathbf{G}$, where $\mathbf{S} := S_1 \times S_2 \times \dots \times S_n$ denotes the set of admissible strategy profiles, S_i for each $i \in N$ being the set of admissible strategies for the player i , and g denotes an outcome function. Each game form $G \in \mathbf{G}$ is meant to represent a specific conferment of individual rights, where each $i \in N$ is conferred the complete freedom of choice over S_i , and g embodies the rule of law which sends each strategy profile $s \in \mathbf{S}$ into a social outcome $g(s) \in X$.

The social choice of decision-making rules consists of two stages and it proceeds as follows. In the first stage, the society decides on the initial conferment of rights, where the contents of rights are formally articulated in terms of alternative game forms, without knowing which specific profile of individual preference orderings over consequential outcomes will prevail in the future. Let $\mathbf{R} := (R_1, R_2, \dots, R_n)$ denote a profile of individual preference orderings over X , and let $U_{\mathbf{R}}$ stand for the universal set of logically possible profiles. If the game form $G := \{N, \mathbf{S}, g\} \in \mathbf{G}$ is socially chosen in the first stage, and the profile $\mathbf{R} \in U_{\mathbf{R}}$ is revealed after the “thin” veil of ignorance surrounding the first stage is lifted, the society enters into the second stage where the fully-fledged game (G, \mathbf{R}) is played among individuals by means of the exercise of initially conferred rights. Let $O_{NE}(G, \mathbf{R})$ be the set of Nash equilibrium outcomes of the game $(G, \mathbf{R}) \in \mathbf{G} \times U_{\mathbf{R}}$. To complete the description of this two-stage social choice procedure, what remains is to make the initial conferment of rights more explicit.

It is for this purpose that we define, for each $x \in X$ and each $G \in \mathbf{G}$, a pair (x, G) , to be called an *extended social alternative*, which means that a consequential outcome x is attained through the rights system embodied in the game form G . The motivation of this crucial concept can be traced back to Arrow (1963, pp.89-90), who made the following interesting observation: “Up to now, no attempt has been made to find guidance by considering the components of the vector which defines the social state. One especially interesting analysis of this sort considers that, among the variables which taken together define the social state, one is the very process by which the society makes its choice. This is especially important if the mechanism of choice itself has a value to the individuals in the society. For example, an individual may

have a positive preference for achieving a given distribution through the free market mechanism over achieving the same distribution through rationing by the government.”⁷ Individual judgements on the desirability of one extended social alternative in the sense of Arrow vis-à-vis another can be formulated in terms of the concept of an *ordering function*. An individual i 's ordering function, say Q_i , is a function defined on U_R such that, for each $R \in U_R$, $Q_i(R)$ is an extended preference ordering over the pairs such as (x, G) , (x^*, G^*) , The intended interpretation of the binary relation $((x, G), (x^*, G^*)) \in Q_i(R)$, or $(x, G) Q_i(R) (x^*, G^*)$ for short, is that, according to i 's judgements, obtaining a consequential outcome x through the play of the game (G, R) is at least as good as obtaining a consequential outcome x^* through the play of the game (G^*, R) . Let U_Q be the set of all logically possible profiles of individual ordering functions. Confronted with the multiplicity of individual judgements over the extended social alternatives, we formalize the social process through which the society resolves this conflict of judgements in terms of the *extended constitution function* F , which aggregates each profile $Q := (Q_1, Q_2, \dots, Q_n) \in U_Q$ into a social ordering function Q , viz., $Q = F(Q)$.

Three remarks may be in order at this juncture. In the first place, given the interpretation of the pair (x, G) to the effect that the consequential outcome x is attained through the rights system embodied in the game form G , it may be thought that the consequential outcome x should be attainable through the play of the game G . Note, however, that the attainability of x through the play of G makes sense only when (a) the profile $R \in U_R$ is known to prevail in the second stage, and that (b) $x \in O_{NE}(G, R)$ holds true. Since the “thin” veil of ignorance surrounding the primordial stage of rule selection is assumed to prevent individuals from knowing which profile $R \in U_R$ will prevail in the second stage, what an individual $i \in N$ can express in the first stage cannot but be the ordering function Q_i , and not the specific value thereof. This is the reason why we formulate the social choice in the first stage in terms of the extended constitution function rather than the Arrow constitution function. In the second place, it may deserve emphasis that the extended ordering $Q_i(R)$ for each $i \in N$, each $Q \in U_Q$ and each $R \in U_R$ can accommodate wide range of normative welfare judgements over the extended social alternatives. To illustrate this important fact, suppose that, for any pairs of extended social alternatives (x, G) and (x, G^*) having the same consequential outcome x , it so happens that $(x, G) I(Q_i(R)) (x, G^*)$ holds true. It should be clear that the extended ordering $Q_i(R)$ in such a case embodies the consequentialist value judgements in view of the fact that the two extended social alternatives are judged indifferent as long as the consequential outcome x remains the same, no matter how the game forms G and G^* differ in their initial conferment of rights. Suppose instead that, for any pairs of extended social alternatives (x, G) and (x^*, G) having the same game form G , it so happens that $(x, G) I(Q_i(R)) (x^*, G)$ holds true. It should be

clear that the extended ordering $Q_i(\mathbf{R})$ in such a case embodies the non-consequentialist value judgements in view of the fact that two extended social alternatives are judged indifferent as long as the game form G remains the same, no matter how the consequential outcomes x and x^* differ. In between these two polar extreme cases, there exist many normative welfare judgements which weigh the consequentialist considerations against the non-consequentialist considerations, and they can be articulated in terms of the concept of extended preference orderings. In the third place, our articulation of the social choice mechanism for decision-making rules makes use of the dual preference structure on the part of each individual. There is nothing anomalous in this somewhat non-standard articulation. Two salient examples in which such a structure is invoked in the literature are Arrow's (1951/1963) distinction between *tastes* and *values*, and John Harsanyi's (1955) distinction between *subjective preferences* and *ethical preferences*. In Arrow's (1951/1963, p.18) parlance, "there will ... be a difference between the ordering of social states according to the direct consumption of the individual and the ordering when the individual adds his general standards of equity (or perhaps his standards of pecuniary emulation). We may refer to the former ordering as reflecting the *tastes* of the individual and the latter as reflecting his *values*." Likewise, Harsanyi (1955, p.315) made use of the dual preference structure in accordance with the following theoretical scenario: "[E]ach individual is supposed to have a social welfare function of his own, expressing his own individual value --- in the same way as each individual has a utility function of his own, expressing his own individual taste Even if both an individual's social welfare function and his utility function in a sense express his own individual preferences, they must express preferences of different sorts: the former must express what this individual prefers (or, rather, would prefer) on the basis of impersonal social considerations alone, and the latter must express what he actually prefers, whether on the basis of his personal interests or on any other basis. The former may be called his 'ethical' preferences, and the latter his 'subjective' preferences."^{8, 9}

Let us now complete the description of the two-stage social choice procedure. Given a profile $\mathbf{R} \in U_{\mathbf{R}}$ of individual preference orderings over consequential outcomes, let $A(\mathbf{R})$ be the set of feasible extended social alternatives, which is defined by

$$A(\mathbf{R}) = \{(x, G) \mid x \in O_{NE}(G, \mathbf{R})\}.$$

Given a profile $\mathbf{Q} \in U_{\mathbf{Q}}$ of individual ordering functions, the set of best feasible extended social alternatives can be defined by

$$B_{\mathbf{Q}}(\mathbf{R}) = \{(x^*, G^*) \in A(\mathbf{R}) \mid (x^*, G^*) \mathbf{Q}(\mathbf{R})(x, G) \text{ for all } (x, G) \in A(\mathbf{R})\},$$

where $Q = F(Q)$. Finally, the game form, which embodies the socially best conferment of individual rights, may be identified as $G^* \in C_F(Q, R)$, where

$$C_F(Q, R) = \{G^* \in G \mid (x^*, G^*) \in B_Q(R) \text{ for some } x^* \in X\}$$

and $Q = F(Q)$.

A salient feature of this theoretical scenario may deserve emphasis. The socially best conferment of individual rights may hinge squarely on the realization of the profile $R \in U_R$ of individual preference orderings defined over consequential outcomes through the following two possible channels. In the first place, the dependence of $G^* \in C_F(Q, R)$ on R may be due to the dependence of $A(R)$ on R . In the second place, it may be due to the fact that the realization of the social ordering function $Q = F(Q)$ at R , viz., $Q(R)$, may be crucially dependent on the specification of $R \in U_R$. However, it may not be without interest to see the conditions under which these two channels are effectively blocked and we are assured of the existence of an initial conferment of rights $G^* \in G$ satisfying

$$G^* \in \cap C_F(Q, R) \text{ over all } R \in U_R.$$

In Gotoh, Suzumura and Yoshihara (2003), we have identified a set of sufficient conditions under which such a uniformly applicable game form embodying individual rights exists under an extended constitution function F having some “nice” democratic and libertarian properties. Needless to say, these conditions cannot but be rather stringent, and they can be satisfied only in some exceptional circumstances. In general, we must be ready to encounter the circumstances where the socially best conferment of individual rights, even when it exists, hinges squarely on the realized profile of individual preference orderings over consequential outcomes. In other words, the socially best conferment of individual rights cannot but be welfaristic in nature in the generalized sense in that the conferred individual rights are, more often than not, dependent on individual preference orderings over the set of consequential outcomes.

Stocktaking may be in order before we conclude this section. Recollect that the game form approach to individual rights articulates the contents of rights in terms of the freedom of choice on the part of each individual as long as his admissible strategies is concerned, and it is the role assigned to the outcome function to bring the profile of voluntarily chosen individual strategies into the social outcome in reflection of the prevailing law and order in the society. The initial conferment of rights is socially decided prior to the commencement of the game, and this social decision is made behind the “thin” veil of ignorance. Since this veil of ignorance prohibits individuals from knowing which profile of individual preference orderings over con-

sequential outcomes will prevail in the future, each individual will participate in the primordial stage of rule selection by expressing his ordering function which specifies his judgement ordering over extended social alternatives when the profile of individual preference orderings over consequential outcomes is revealed. The profile of individual ordering functions will be aggregated into the social ordering function through the extended constitution function. It is this social ordering function that helps the society to determine the initial conferment of rights. When the profile of individual preference orderings over consequential outcomes is revealed after the “thin” veil of ignorance is lifted, the realization of the social ordering function, viz., the social ordering over extended social alternatives, identifies the game form embodying the socially best initial conferment of rights.

Note that the concept of individual preference orderings plays two essential roles in this theoretical scenario for the two-stage social choice procedure. In the first place, the individual ordering functions serve as the informational basis for the formation of social ordering function in the primordial stage of rule selection which, in turn, serves as the vehicle for social choice of the initial conferment of individual rights. In the second place, the individual preference orderings over consequential outcome serve as the informational basis for identifying the socially best game form which embodies individual rights to be conferred. The same individual preference orderings and the identified game form constitute the fully-fledged game to be played, and the consequential outcome is determined by the equilibrium of this game.

It is hoped that this theoretical scenario serves as a coherent answer to Arrow’s demand for the reasons of rights and Sen’s plea for the theory of initial conferment of rights.

7. Competition Law and Competition Policy: An Illustration

The two-stage social choice procedure described in the previous section is admittedly rather abstract, and it makes use of the fictitious device of the “thin” veil of ignorance which surrounds the primordial stage of rule selection. It is also rather non-standard in its informational basis of social choice, as well as in the object of social choice. Indeed, rather than the profile of individual preference orderings over consequential outcomes widely invoked in the standard social choice theory, it is based on the profile of individual ordering functions along with the profile of individual preference orderings over consequential outcomes; also, it is concerned with the social choice of game forms embodying individual rights rather than the social choice of consequential outcomes as in the standard social choice theory. In view of these conspicuous contrasts between the proposed approach and the standard approach, it may not be without interest to illustrate the empirical relevance of the proposed two-stage social choice procedure in terms of a concrete example.¹⁰

It goes without saying that the competition law is a set of rules prescribing the fair game

of competition in the market which carries fundamental importance in the market economy, just as the constitutional law is a set of rules prescribing the rights and duties of people in the constitutional state which carries fundamental importance in the civil society. It is to implement the fair market game prescribed in the competition law that the competition policy authority monitors the play of the market game and interferes in private transactions, if necessity dictates, to rectify the infringement on the fair rule of competition.

Since the competition law and competition policy play such a fundamental role in the market economy, an uninformed layman may be excused to surmise that the history of competition law and competition policy is as old as the market economy itself, which goes back all the way to antiquity. As a matter of fact, however, the history of competition law and competition policy is far shorter than the market economy itself, and it is just over 100 years even in the United States of America where the history of competition law and competition policy was started. Japan is the nation having the second longest history in the world in this arena, where the point of departure dates back to 1947 when the original antimonopoly law was transplanted from the American soil under the auspices of occupation authorities. The history in Western Europe is even shorter. For example, it was only in 1956 that the French competition law was promulgated. In Eastern Europe, it was not until the demise of the socialist regime in the late 1980s that the competition law and competition policy were transplanted from the Western soil in hot haste. It follows that the competition law of a nation is not necessarily a natural outgrowth of the spontaneous order generated in the historical evolution of market competition, but is in fact an artifact of rational design and social choice in view of the historical and international circumstances in which the nation is situated.¹¹

In the process of rational design and social choice of a fair market game, it is of crucial importance that the deliberative arena is prepared so that the public deliberation is guided by the impartial considerations of procedural fairness, on the one hand, and the consequentialist concern with public welfare, on the other hand, rather than the unilateral promotion of one vested interest or the other; otherwise, the game form which stipulates the rules of competition will be tailored to suit the order of the interest group which dominates in the political arena. Once the fair market game is rationally designed and socially chosen, it is left to the private agents to compete freely in the market for the satisfaction of their private incentives as long as they compete in full accordance with the fair rule of competition. It should be clear that there is a close family resemblance between the design and implementation of the fair market game and the two-stage procedure of social choice discussed in abstract in the previous section. Even the abstract fiction of the primordial stage of rule selection behind the “thin” veil of ignorance has a natural counterpart in the rational design and social choice of fair market game in the request for the deliberative arena where public deliberation on the design and implementation of a fair market game should be guided solely by impartial considerations. The “thin” veil of ignorance

is nothing other than the rhetoric which crystallizes the plea for those who participate in the public deliberation for rational design and social choice to put themselves through imaginary exchange of circumstances in the position of an impartial judge whose solemn task is to weigh the consequentialist considerations of public welfare against the non-consequentialist considerations of procedural fairness. It is true that the social choice procedure along this line can be strategically manipulated if people in the position to participate in the public deliberation process fail to be faithful to the request for being impartial, and act instead for the promotion of some private incentives of their own. It is in this sense that “the eventual guarantee for individual freedom cannot be found in mechanisms of collective choice, but in developing values and preferences that respect each other’s privacy and personal choices [Sen (1970a, p.85)].”.

8. Concluding Remarks

Let us conclude by summarizing the main messages of this paper in the following four points.

In the first place, Sen’s impossibility of a Paretian liberal rendered a great service to the whole area of normative economics by revealing the logical conflict between public welfare and individual rights. Although we identified several problems with Sen’s articulation of libertarian rights in terms of the individual decisiveness in social choice and introduced the alternative game form articulation thereof, it is not our contention that the conflict between the weak welfaristic requirement of Pareto efficiency and the non-welfaristic requirement of social respect for individual rights can be thereby resolved. As a matter of fact, the logical conflict between these two values, which Sen identified by means of his impossibility of a Paretian liberal, persists even if we replace his social choice theoretic articulation of rights with almost any sensible alternative articulation, game theoretic or otherwise, of rights. As was acutely pointed out by Arrow (1951/1963, p.109) in a different context, “[t]he paradox of social choice cannot be so easily exorcised.”

In the second place, the issue of individual rights can be decomposed into the following three issues, viz., the issue of formal contents of rights, the issue of social realization of rights, and the issue of initial conferment of rights. Since Sen himself was exclusively interested in exposing the logical conflict between welfare and rights, he did not pose the issue of initial conferment of rights. However, he endorsed the importance of this issue in his response [Sen (1992)] to Gaertner, Pattanaik and Suzumura (1992), and it was in our attempt to answer his plea for the theory of initial conferment of rights that the two-stage social choice procedure for decision-making rules was developed. We should also emphasize in passing that the game form approach treats the issue of social realization of rights in close association with the play of the game after the game form embodying rights and the profile of individual preference order-

ings over consequential outcomes are revealed. However, this is not to say that the realization of game form rights hinges in any sense on the existence of a Nash equilibrium in the second stage game of our two-stage model. As long as there is no interference in any player's choice of his admissible strategy specified by the socially chosen game form in the play of the second stage game, the individual game form rights are fully realized even when there is no Nash equilibrium of the game.

In the third place, although the formal contents of game form rights have nothing to do with the individual preference orderings over consequential outcomes, the initial conferment of game form rights is socially chosen through the medium of the extended constitution function which aggregates the profile of individual ordering functions into the social ordering function. Recollect that an ordering function, be that may individual or social, is a function which maps each profile of individual preference orderings over consequential outcomes into a preference ordering over extended social alternatives. The fact that the initial conferment of game form rights makes use of the information about individual preference orderings in an extended sense leads us to the following observation. Starting from Sen's impossibility of a Paretian liberal, which he presented as a powerful vehicle in his devastating criticism against welfarism, and trying to rectify Sen's articulation of individual rights, we ended up with the two-stage scenario of social choice of decision-making rules reinstating the importance of preference information in a generalized sense. In view of the past debates on the role of individual preferences in the theory of rights, this rehabilitated role of preference information in a generalized sense may be of some interest.

In the fourth and last place, it may be worth calling the reader's attention to the fact that the two-stage social choice procedure proposed in this paper represents an attempt to shift the focus of social choice theory from the social choice of consequential outcomes to the social choice of game forms embodying individual rights, leaving the determination of consequential outcomes to the decentralized play of the game. We have exemplified the empirical relevance of this shift of focus in terms of the social choice of competition law in the market economy.

Footnotes

¹ It is noteworthy that Pigou (1920/1952 edition, p.759) had made an early use of the non-welfaristic notion of human rights when he discussed people's claim rights to "a minimum standard of real income", which "must be conceived, not as a subjective minimum of satisfaction, but as an objective minimum of conditions". As a matter of fact, his characterization of "an objective minimum of conditions" is close to what is now called the "basic needs", which consists of "some defined quantity and quality of house accommodation, of medical care, of education, of food, of leisure, of the apparatus of sanitary convenience and safety where work is carried on ...". Presumably, Pigou would have believed that such rights could be justified on the utilitarian grounds in the Benthamite tradition of regarding rights as intrinsically unimportant, but instrumentally crucial. However, the *Economics of Welfare* is completely reticent on the utilitarian justification of these claim rights, and we are left in the dark as to how central was the consideration of these rights in Pigou's "old" welfare economics.

² Both Abram Bergson (1938) and Paul Samuelson (1947, Chapter VIII) were careful enough not to make premature commitment to welfarism in their initial exposition of the concept of a social welfare function. However, Samuelson's famous Chapter VIII on welfare economics in the *Foundations of Economic Analysis* has a passage where an explicitly welfaristic formulation of the concept of a social welfare function is presented. To be more specific, in p.228 of the *Foundations*, there is an expression for social welfare W as a function of the profile of individual utilities: $W = F(U^1, U^2, \dots)$. It is precisely this formulation that is often cited, e.g. by Sen (1979b), as a sure-fire proof that the Bergson-Samuelson social welfare function is unambiguously welfaristic in nature.

³ Recollect that the welfarism means that social welfare is a function of individual utility or welfare levels and nothing else, so that any two social states are ranked entirely on the basis of individual utilities or welfares in the respective social states. The strict ranking welfarism is a constrained version of welfarism, which requires that, if individual utility or welfare rankings happen to be strict, then any two social states are ranked entirely on the basis of individual utilities or welfares in the respective social states.

⁴ An ordering R on the set X is a binary relation which satisfies (a) *completeness*, viz., $(x, y) \in R$ or $(y, x) \in R$ holds for all $x, y \in X$ such that $x \neq y$, (b) *reflexivity*, viz., $(x, x) \in R$ holds for all $x \in X$, and (c) *transitivity*, viz., $(x, y) \in R$ and $(y, z) \in R$ imply $(x, z) \in R$ for all $x, y,$

$z \in X$.

⁵ A social choice rule f is said to satisfy the axiom of *collective rationality* if, for any profile $\mathbf{R} \in \mathbb{R}$, there exists a corresponding social preference ordering, say $R = h(\mathbf{R})$, such that the social choice function $C^{\mathbf{R}} = f(\mathbf{R})$ can be construed to be optimizing the social preference ordering R subject to the feasibility constraints, viz.,

$$C^{\mathbf{R}}(S) = \{x^* \in S \mid (x^*, x) \in R \text{ for all } x \in S\}$$

holds for all $S \in \Sigma$. A social choice rule f is said to satisfy the axiom of *independence of irrelevant alternatives* if, for any profiles $\mathbf{R}, \mathbf{R}^* \in \mathbb{R}$ and any opportunity set $S \in \Sigma$, $C^{\mathbf{R}}(S) = C^{\mathbf{R}^*}(S)$ holds as long as $R_i(S) = R_i^*(S)$ holds for all $i \in N$, where $R_i(S) = R_i \cap (S \times S)$ is the restriction of R_i on S , $R_i^*(S) = R_i^* \cap (S \times S)$ is the restriction of R_i^* on S , and $C^{\mathbf{R}} = f(\mathbf{R})$ and $C^{\mathbf{R}^*} = f(\mathbf{R}^*)$.

⁶ At this juncture, it may not be out of place to recollect that these two conceptions of procedural fairness received due attention from one of the pioneers of the “new” welfare economics based on the concept of a social welfare function, viz., Abram Bergson. In his early critical examination of Arrow’s social choice theory, Bergson (1954, p.236) observed as follows: “[A]ssuming the rule itself to be valued ethically, this might be in one or the other or both of two ways. It might be appraised as a political process for its own sake, e.g., majority rule is a good thing in itself. It might be appraised for its consequences, that is, in terms of the nature of the social states, exclusive of the political process, that the rule is likely to establish, e.g., the concern might be with the likely effects on the distribution of income. ... Opinions will differ as to how much weight should be attached to each, but even on a purely ethical plane few will contend one should follow either to the complete neglect of the other.” To the best of my knowledge, however, the logical implication of this acute observation has never been explored in the literature of normative economics.

⁷ To the best of our knowledge, the first attempt to pursue the logical consequence of Arrow’s idea was made by Pattanaik and Suzumura (1994; 1996). See, also, Suzumura (1996).

⁸ Although our scenario has much in common with Arrow’s and Harsanyi’s scenarios as long as the dual individual preference structure is concerned, it may deserve emphasis that Arrow’s

values as well as Harsanyi's ethical preferences are defined in the space of consequential outcomes, whereas our individual ordering functions is a mapping which sends the profile of individual preference orderings over consequential outcomes into an ordering defined in the space of extended social alternatives.

⁹ One of Sen's (1977a; 1982, p.99) criticisms against traditional economic theory is that the traditional theory has *too little* structure in that "[a] person is given *one* preference ordering, and as and when the need arises this is supposed to reflect his interests, represent his welfare, summarize his idea of what should be done, and describe his actual choices and behaviour. Can one preference ordering do all these things? A person thus described may be 'rational' in the limited sense of revealing no inconsistencies in his choice behaviour, but if he has no use for these distinctions between quite different concepts, he must be a bit of a fool. The *purely* economic man is indeed close to being a social moron. Economic theory has been much pre-occupied with this rational fool decked in the glory of his *one* all-purpose preference ordering. To make room for the different concepts related to his behaviour we need a more elaborate structure."

¹⁰ Recollect that Friedrich Hayek (1976, p.2) made the following interesting observation on the role of the government, which seems relevant to the empirical illustrations to follow: "Even in the modern welfare societies the great majority and the most important of the daily needs of the great masses are met as a result of processes whose particulars government does not and cannot know. The most important of the public goods for which government is required is thus not the direct satisfaction of any particular needs, but the securing of conditions in which the individuals and smaller groups will have favourable opportunities of mutually providing for their respective needs."

¹¹ This is not to deny that the rational design and social choice of a set of institutional rules more often than not reflect the historical evolution of tacit rules and conventions which emerged to serve as a surrogate for publicly promulgated set of rules.

References

- Arrow, K. J. (1951/1963): *Social Choice and Individual Values*, New York: John Wiley & Sons, 1st ed., 1951; expanded 2nd ed., 1963.
- Arrow, K. J. (1987): "Arrow's Theorem," in Eatwell, J., Milgate, M., and P. Newman, eds., *The New Palgrave: A Dictionary of Economics*, Vol.1, London: Macmillan, pp.124-126.
- Bentham, J. (1843): "Anarchical Fallacies". First published in English in: Bowring, J., ed., *The Works of Jeremy Bentham*, Vol.II, Edinburgh: William Tait. Republished in 1955, Bristol: Thoemmes Press, pp.489-534.
- Bergson, A. (1938): "A Reformulation of Certain Aspects of Welfare Economics," *Quarterly Journal of Economics*, Vol.52, pp.310-334.
- Bergson, A. (1954): "On the Concept of Social Welfare," *Quarterly Journal of Economics*, Vol.68, pp.233-252.
- Berlin, I. (1969): *Four Essays on Liberty*, Oxford: Clarendon Press.
- Deb, R., Pattanaik, P. K. and L. Razzolini (1997): "Game Forms, Rights, and the Efficiency of Social Outcomes," *Journal of Economic Theory*, Vol.72, pp.74-95.
- Farrell, M. J. (1976): "Liberalism in the Theory of Social Choice," *Review of Economic Studies*, Vol.43, pp.3-10.
- Gaertner, W. and P. K. Pattanaik (1988): "An Interview with Amartya Sen," *Social Choice and Welfare*, Vol.5, pp.69-79.
- Gaertner, W., Pattanaik, P. K., and K. Suzumura (1992): "Individual Rights Revisited," *Economica*, Vol.59, pp.161-177.
- Gärdenfors, P. (1981): "Rights, Games and Social Choice," *Noûs*, Vol.15, pp.341-356.
- Gibbard, A. (1973): "Manipulation of Voting Schemes: A General Result," *Econometrica*, Vol.41, pp.587-601.
- Gibbard A. (1974): "A Pareto Consistent Libertarian Claim," *Journal of Economic Theory*, Vol.7, pp.388-410.
- Gotoh, R., Suzumura, K. and N. Yoshihara (2003): "On the Libertarian Assignment of Individual Rights," Working Paper, Institute of Economic Research, Hitotsubashi University.
- Harsanyi, J. C. (1955): "Cardinal Welfare, Individualistic Ethics, and Interpersonal Comparisons of Utility," *Journal of Political Economy*, Vol.63, pp.309-321.
- Hayek, F. A. (1960): *The Constitution of Liberty*, London: Routledge & Kegan Paul.
- Hayek, F. A. (1976): *Law, Legislation and Liberty*, Vol. 2, *The Mirage of Social Justice*, Chicago: The University of Chicago Press.

- Hicks, J. R. (1959): *Essays in World Economics*, Oxford: Clarendon Press.
- Hicks, J. R. (1975): "The Scope and Status of Welfare Economics," *Oxford Economic Papers*, Vol.27, pp.307-326.
- Kaplow, L. and S. Shavell (2001): "Any Non-Welfarist Method of Policy Assessment Violates the Pareto Principle," *Journal of Political Economy*, Vol.109, pp.281-286.
- Kaplow, L. and S. Shavell (2002): *Fairness Versus Welfare*, Cambridge, Mass.: Harvard University Press.
- Kelly, J. S. (1987): "An Interview with K. J. Arrow," *Social Choice and Welfare*, Vol.4, pp.43-62.
- Mill, J. S. (1859): *On Liberty*, London: Parker. Reprinted in: Robson, J. M., ed., *The Collected Works of John Stuart Mill*, Vol.XVIII, Toronto: University of Toronto Press, 1977, pp.213-310.
- Nozick, R. (1974): *Anarchy, State and Utopia*, Oxford: Basil Blackwell.
- Pattanaik, P. K. (1996): "On Modelling Individual Rights: Some Conceptual Issues," in Arrow, K. J., Sen, A. K., and K. Suzumura, eds., *Social Choice Re-examined*, Vol. I, London: Macmillan, pp.100-128.
- Pattanaik, P. K. and K. Suzumura (1994): "Rights, Welfarism and Social Choice," *American Economic Review: Papers and Proceedings*, Vol.84, pp.435-439.
- Pattanaik, P. K. and K. Suzumura (1996): "Individual Rights and Social Evaluation: A Conceptual Framework," *Oxford Economic Papers*, Vol.48, pp.194-212.
- Peleg, B. (1998): "Effectivity Functions, Game Forms, Games, and Rights," *Social Choice and Welfare*, Vol.15, pp.67-80.
- Pigou, A. C. (1920): *The Economics of Welfare*, London: Macmillan.
- Rawls, J. (1958): "Justice as Fairness," *Philosophical Review*, Vol.67, pp.164-194.
- Rawls, J. (1971): *A Theory of Justice*, Cambridge, Mass.: Harvard University Press.
- Robbins, L. (1932/1935): *An Essay on the Nature and Significance of Economic Science*, London: Macmillan, 1st ed., 1932; 2nd ed., 1935.
- Samuelson, P. A. (1947/1983): *Foundations of Economic Analysis*, Cambridge, Mass.: Harvard University Press, 1947; Enlarged ed., 1983.
- Samuelson, P. A. (1974): "Complementarity: An Essay on the 40th Anniversary of the Hicks-Allen Revolution in Demand Theory," *Journal of Economic Literature*, Vol.12, pp.1255-1289.
- Sen, A. K. (1970a/1979): *Collective Choice and Social Welfare*, San Francisco: Holden-Day, 1970. Republished, Amsterdam: North-Holland, 1979.
- Sen, A. K. (1970b): "The Impossibility of a Paretian Liberal," *Journal of Political Economy*, Vol.78, pp.152-157.
- Sen, A. K. (1976): "Liberty, Unanimity and Rights," *Economica*, Vol.43, pp.217-245.

- Sen, A. K. (1977a): "Rational Fools: A Critique of the Behavioural Foundations of Economic Theory," *Philosophy and Public Affairs*, Vol.6, pp.317-344. Reprinted in Sen (1982, pp.84-106).
- Sen, A. K. (1977b): "On Weights and Measures: Informational Constraints in Social Welfare Analysis," *Econometrica*, Vol.45, pp.1539-1573.
- Sen, A. K. (1979a): "Utilitarianism and Welfarism," *Journal of Philosophy*, Vol.76, pp.463-489.
- Sen, A. K. (1979b): "Personal Utilities and Public Judgements: Or What's Wrong with Welfare Economics," *Economic Journal*, Vol.89, pp.537-558.
- Sen, A. K. (1982): *Choice, Welfare and Measurement*, Oxford: Basil Blackwell.
- Sen, A. K. (1983): "Liberty and Social Choice," *Journal of Philosophy*, Vol.80, pp.5-28.
- Sen, A. K. (1992): "Minimal Liberty," *Economica*, Vol.59, pp.139-160.
- Sugden, R. (1985): "Liberty, Preference, and Choice," *Economics and Philosophy*, Vol.1, pp.213-229.
- Sugden, R. (1993): "Rights: Why Do They Matter, and to Whom?" *Constitutional Political Economy*, Vol.4, pp.127-152.
- Sugden, R. (1994): "The Theory of Rights," in Siebert, H., ed., *The Ethical Foundations of the Market Economy*, Tübingen: J. C. B. Mohr, pp.31-53.
- Suzumura, K. (1978): "On the Consistency of Libertarian Claims," *Review of Economic Studies*, Vol.45, pp.329-342; "A Correction," *Review of Economic Studies*, Vol.46, p.743.
- Suzumura, K. (1980): "Liberal Paradox and the Voluntary Exchange of Rights Exercising," *Journal of Economic Theory*, Vol.22, pp.407-422.
- Suzumura, K. (1983): *Rational Choice, Collective Decisions, and Social Welfare*, New York: Cambridge University Press.
- Suzumura, K. (1990): "Alternative Approaches to Libertarian Rights in the Theory of Social Choice," in Arrow, K. J., ed., *Markets and Welfare: Issues in Contemporary Economics*, Vol. I, London, pp.215-242.
- Suzumura, K. (1996): "Welfare, Rights, and Social Choice Procedure: A Perspective," *Analyse & Kritik*, Vol.18, pp.20-37.
- Suzumura, K. (1999a): "Consequences, Opportunities, and Procedures," *Social Choice and Welfare*, Vol.16, pp.17-40.
- Suzumura, K. (1999b): "Paretian Welfare Judgements and Bergsonian Social Choice," *Economic Journal*, Vol.109, pp.204-220.
- Suzumura, K. (2000a): "Welfare Economics Beyond Welfarist-Consequentialism," *Japanese Economic Review*, Vol.50, pp.1-32.
- Suzumura, K. (2000b): "On the Rule-Oriented Approach to Fair Trade," *Journal of Japanese*

- Trade and Industry*, July/August 2000, pp.26-29.
- Suzumura, K. (2002): "Introduction," in Arrow, K. J., Sen, A. K., and K. Suzumura, eds., *Handbook of Social Choice and Welfare*, Vol.I, Amsterdam: Elsevier, pp.1-32.
- Suzumura, K. (2003): "An Interview with Paul Samuelson: Welfare Economics, 'Old' and 'New', and Social Choice Theory," Working Paper, Institute of Economic Research, Hitotsubashi University.
- Suzumura, K. and Y. Xu (2001): "Characterizations of Consequentialism and Non-consequentialism," *Journal of Economic Theory*, Vol.101, pp.423-436.
- Suzumura, K. and Y. Xu (2003): "Consequences, Opportunities, and Generalized Consequentialism and Non-consequentialism," *Journal of Economic Theory*, Vol.111, pp.293-304.
- van Hees, M. (1999): "Liberalism, Efficiency, and Stability: Some Possibility Results," *Journal of Economic Theory*, Vol.88, pp.294-309.