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Abstract

A welfaristic method of policy evaluation focuses exclusively on the effect of the policy on individuals' utilities. In contrast, a non-welfaristic way of assessing policies attaches some importance to factors other than the effects of policies on individuals' utilities. This paper develops a general framework to examine alternative approaches to policy assessment and their compatibility with the dominance rule underlying the weak Pareto principle.
Keywords: Welfarism, non-welfaristic assessment of policies, weak Pareto principle

1 Introduction

Much of normative economics accepts as a fundamental tenet the weak Pareto principle, which requires that one social policy must be judged socially superior to another social policy if the former offers a higher level of utility than the latter for every individual in the society. Much of normative economics is also based on welfarism, that is, the ethical principle that the welfare evaluation of alternative social policies must be based exclusively on their effects on the utilities of the individuals in the society. There has been, however, growing recognition on the part of economists that welfarism is a restrictive framework for normative economics and that often non-utility aspects, as well as individual utilities, must be taken into account in the evaluation of social policies. For example, when considering the punishment of a certain crime, not only do people consider how the utilities of the individuals involved are affected, but they also take into account the fairness of the punishment. Similarly, when a certain legislation concerning, say, internet security, is proposed, the effects on individuals' utilities are certainly legitimate concerns; at the same time considerations involving personal liberty and individual rights to privacy also play an important role in evaluating such legislations. The welfaristic framework of traditional welfare economics is too restrictive to accommodate these concerns about individual rights, liberties, fairness, etc.

If one gives up welfarism to accommodate non-welfaristic concerns, can one still retain the weak Pareto principle cherished for so long in so much of welfare economics? This issue was first raised by Sen (1970) in the specific context of individual rights; more recently, the same issue has been raised in a very different fashion by Kaplow and Shavell (2001). The purpose of this paper is three-fold. In this paper, we first develop a general framework to address non-welfaristic concerns as well as welfaristic concerns in welfare economics. In particular, in this general framework, we explore the relationship between the requirement that welfare evaluation should respect the principle of dominance defined in terms of certain criteria for assessing social policies and the requirement that such welfare evaluation should be based exclusively on the assessment of social policies in terms of those criteria. Next, we re-examine Kaplow and Shavell's result in our general framework and present several related results. Finally, we interpret our results and comment on the possibility of incorporating the dominance criterion underlying the Pareto principle in a non-welfaristic approach to policy assessment.

2 The Basic Framework

Let X be the set of all conceivable social states. A social state x in X is interpreted as a comprehensive description of all the features of the world that may be considered relevant for the assessment of social welfare. Such a complete description would presumably include a specification of the consumption bundle of every individual in the society, but it may also go beyond the consumption bundles by including other specifications such as the amount of freedom enjoyed by each individual, the structure of individual rights, the fitness of rewards and punishment, and so on. The society is denoted by a finite non-empty set $N = \{1, 2, ..., n\}$.

A social welfare function, F, is a function from X to the real line, $\mathbf{R}$. An individual i's utility function, U_i, is also a function from X to $\mathbf{R}$.

For our purpose, it will be convenient to assume that the social welfare evaluation of a social state involves the use of a set, $H = \{h_1, ..., h_k\}$, of real-valued functions defined over X, where $k \geq n$, and, for every $i \in N, h_i$ is simply individual i's utility function U_i. We assume that the social welfare function can be written as follows:

$$F(x) = W(h_1(x), ..., h_k(x)) \qquad ...(1)$$

The intuition underlying H may be explained as follows. Suppose the social welfare evaluation of a social state is based only on the assessment of the utility of each individual and the freedom enjoyed by each individiual. Then, k, the cardinality of H, will be $2n$, where, for every $i \in N$, h_i is the utility function of individual i and, for every $j \in \{n + 1, ..., k\}$, h_j is a real valued function, which, for every social state x, gives an index $h_j(x)$ of the amount of freedom enjoyed by i in x.

Suppose the social welfare function can be written as in (1). Let H' be some non-empty subset of H. We say that F is *exclusively* $H'-$*dependent* (or, equivalently, F satisfies exclusive $H'-$dependence) iff, for all $x, x' \in X$, [for all $h \in H'$, $h(x) = h(x')$] implies $F(x) = F(x')$.

When (and only when) H' is the set of all the individuals$'$ utility functions, and F is exclusively $H'-$dependent, we say that F is *welfaristic*. Thus, F is welfaristic iff, for all $x, x' \in X$, if [$U_i(x) = U_i(x')$ for all $i \in N$], then $F(x) = F(x')$. When the social welfare function is welfaristic, we can write it as

$$F(x) = J(U_1(x), ..., U_n(x)) \qquad ...(2)$$

It is obvious that, when $k = n$, so that, right at the outset, social welfare evaluation is assumed to be based only on the individuals$'$ utilities, F will take the form given by (2).

Let H' be a given non-empty subset of H. We say that F satisfies *weak* H'*−dominance* iff, for all $x, x' \in X$, [for all $h \in H', h(x) > h(x')$] implies $[F(x) > F(x')]$. Clearly, F satisfies the familiar weak Pareto principle iff it satisfies weak $\{h_{1,...,} h_n\}$− dominance.

3 The Results

3.1 Some general results

It will be useful to note some general results before we take up specific issues relating to welfaristic and non-welfaristic social welfare functions.

We first give two examples to show that, a social welfare function can satisfy weak H'-dominance without being exclusively H'-dependent, and conversely, for some subset H' of H, a social welfare function can be exclusively H'-dependent without satisfying weak H'-dominance. In particular, since we construct the relevant examples by taking H' to be $\{h_1, ..., h_n\}$, the examples show that welfarism and the weak Pareto principle are independent of each other in the sense that neither implies the other.

Example 1. Let $N = \{1, 2\}$. Let $x \in X$ be a specification of: (i) a consumption bundle x_i for every consumer $i \in N$, the consumption bundle of a consumer being a point in $\mathbf{R}^g_+$, where g is some positive integer;[1] and (ii) a rewards-punishment structure that can be either M or M'. Let $\mathbf{0}$ denote the specification of consumption bundles of the consumers, where every consumer's consumption of every commodity is 0. For all $i \in N$, let $u_i : \mathbf{R}^g_+ \to \mathbf{R}_+$ be such that u_i is strictly increasing in all its arguments. For all $i \in N$, let $U_i : X \to \mathbf{R}_+$ be such that, for all $x \in \mathbf{X}$, $U_i(x) = u_i(x_i)$, where x_i is i's consumption bundle figuring in x. Assume that $U_i(\mathbf{0},M) = U_i(\mathbf{0},M') = 0$ for all $i \in N$. Let $V(\mathbf{0}, M) = -1$ and $V(\mathbf{x}) = 0$ for all $x \in X - \{(\mathbf{0}, M)\}$. Define the social welfare function F as follows:

for all $x \in X$, $F(x) = U_1(x) + U_2(x) + V(x)$.

Letting H' denote $\{U_1, U_2\}$, it is clear that, F satisfies weak H'-dominance (i.e., F satisfies the weak Pareto principle), but it is not exclusively H'-dependent (i.e.,

[1] $\mathbf{R}_+$ denotes the set of all non-negative numbers and $\mathbf{R}^g_+$ is the g-fold Cartesian product of $\mathbf{R}_+$.

F is not welfaristic): $U_i(\mathbf{0}, M) = U_i(\mathbf{0}, M')$ for all $i \in N$, but $F(\mathbf{0}, M) = -1 \neq F(\mathbf{0}, M') = 0$. ■

Example 2. Let every $x \in X$ be a specification of a consumption bundle x_i for every consumer $i \in N$, the consumption bundle of a consumer being a point in $\mathbf{R}^g_+$, where g is some positive integer. Let $n = \{1, 2\}$. For all $i \in N$, let u_i be any continuous real-valued function over $\mathbf{R}^g_+$, which is strictly increasing in all its arguments. For all $i \in N$, let $U_i : X \to \mathbf{R}_+$ be such that, for all $x \in \mathbf{X}$, $U_i(x) = u_i(x_i)$. Define the social welfare function F as follows:

for all $x = (x_1, x_2) \in X = \mathbf{R}^g_+ \times \mathbf{R}^g_+$, $F(x) = - \mid u_1(x_1) - u_2(x_2) \mid$.

Letting H' denote $\{U_1, U_2\}$, it is clear that, though F is exclusively H'-dependent (i.e., F is welfaristic), it does not satisfy the weak Pareto principle. ■

Example 1 shows that weak $H'-$dominance does not necessarily imply exclusive H'-dependence.[2] The following proposition, however, shows that, the social welfare function must be exclusively $H'-$dependent if it satisfies a certain restriction (see (3) below) in addition to weak $H'-$dominance.

Proposition 3. Let H' be a proper non-empty subset of H. Suppose F satisfies weak H'-dominance in addition to the following property

for all $x \in X$, there exists $x' \in X$ such that $F(x')$ is arbitrarily close to $F(x)$ and $[h(x') > h(x)$ for all $h \in H]$. ...(3)

Then F is exclusively $H'-$dependent.

Proof. Suppose F is not exclusively $H'-$dependent. Then, for some $x, x' \in X$, $h(x) = h(x')$ for all $h \in H'$, and $F(x) \neq F(x')$. Without loss of generality, assume that $F(x) > F(x')$. Consider x'. By (3), there exists $y \in X$ such that $F(y)$ is arbitrarily close to $F(x')$ and $[h(y) > h(x')$ for all $h \in H]$. Since $F(y)$ is arbitrarily close to $F(x')$ and $F(x) > F(x')$, we obtain $F(x) > F(y)$. Noting that $[h(y) > h(x')$ for all $h \in H]$ and $[h(x) = h(x')$ for all $h \in H']$, we have $[h(y) > h(x)$ for all $h \in H']$. Hence, $[F(x) > F(y)]$ contradicts the assumption that F satisfies weak $H'-$dominance. ■

How reasonable is (3) as an assumption? The intuition of (3) relies on: (i) the possibility of 'minor' changes in x leading to a 'very small' increase in the value of

[2]See also Chang (2001) for an example in which F satisfies the weak Pareto principle but is not welfaristic.

every $h \in H$; and (ii) an appeal to continuity to argue that a 'very small' increase in the value of every $h \in H$ should produce only a 'very small' change in the value of F. Suppose, the shift from x' to y represents only small changes that lead to an arbitrarily small increase in the value of every $h \in H$. Further, suppose these arbitrarily small increases in the values of all $h \in H$ generate an arbitrarily small increase in the value of F. Then clearly (3) will be satisfied. Note that, in the special case where $H' = \{h_1, ..., h_n\} = \{U_1, ..., U_n\}$, Kaplow and Shavell (2001) introduce two assumptions (see assumptions 6 and 7 in the next section) that, together, ensure (3).

Proposition 3 raises the question whether, in the presence of (3), exclusive $H'-$dependence necessarily implies weak $H'-$dominace. Our Example 2 shows that the answer to this question has to be in the negative: the social welfare function there satisfies (3) in addition to exclusive H'-dependence but does not satisfy weak $H'-$dominance.

Our next proposition shows that, though exclusive H'-dependence does not imply weak H'-dominance, if the social welfare function satisfies certain restrictions (given by (4), (5) and (6) below) in addition to exclusive H'-dependence, then it must satisfy weak $H'-$dominance.

To present Proposition 4, we first introduce the following assumptions.

For all $x, x' \in X$ and every non-empty subset S of H, there exists $y \in X$ such that, for

all $h \in S, h(y) = h(x)$, and, for all $h \in H - S, h(y) = h(x')$. ...(4)

For all $x, x' \in H$, if $[h(x) \geq h(x')$ for all $h \in H]$, then $F(x) \geq F(x')$. ...(5)

For all $x \in X$, there exists $x' \in X$ such that $(h_1(x'), \ldots, h_k(x'))$ is arbitrarily close to $(h_1(x), \ldots, h_k(x))$ and $F(x') > F(x)$. ...(6)

Proposition 4. Let H' be a proper non-empty subset of H. Suppose (4), (5), and (6) hold, and F is exclusively H'-dependent. Then F satisfies weak H'-dominance.

Proof. Suppose F does not satisfy weak H'-dominance. Then, for some $x, x' \in X$, $h(x) > h(x')$ for all $h \in H'$, and $F(x') \geq F(x)$. Consider x'. By (6), there exists $y \in X$ such that $(h_1(y), \ldots, h_k(y))$ is arbitrarily close to $(h_1(x'), \ldots, h_k(x'))$ and $F(x') < F(y)$. Since $(h_1(y), \ldots, h_k(y))$ is arbitrarily close to $(h_1(x'), \ldots, h_k(x'))$ and $h(x) > h(x')$ for all $h \in H'$, it follows that $h(x) > h(y)$ for all $h \in H'$. Noting that $F(x') \geq F(x)$ and $F(x') < F(y)$, we obtain $F(x) < F(y)$. Consider y and x. By (4), there exists $z \in X$ such that, for all $h \in H'$, $h(z) = h(x)$, and, for all $h \in H - H'$, $h(z) = h(y)$. Since F is exclusively H'-dependent, it follows that $F(z) = F(x)$. Thus, $F(z) < F(y)$. Noting that $h(z) = h(x) > h(y)$ for all $h \in H'$, and, $h(y) = h(z)$ for all $h \in H - H'$, by (5), we have $F(z) \geq F(y)$, a contradiction. ■

How reasonable are (4), (5) and (6) as assumptions? (4) basically assumes a reasonably rich physical domain of the universal set X, while condition (5) is a monotonicity requirement for F over the entire set of criteria that are used for making social welfare judgegments. Finally, (6) requires the possibility of local improvement. The intuition of (6) relies on: (i) the possibility of increasing the value of F through a 'very small change in x'; and (ii) an appeal to 'continuity' to argue that a 'very small change in x' leads to only a very small change in the value of every $h \in H$. For the special case where $H' = \{h_1, \cdots, h_n\} = \{U_1, \cdots, U_n\}$, see assumptions 9 and 10 in the next section that, together, ensure (4), (5) and (6).

Note that even in the presence of (4), (5) and (6), weak $H'-$dominance does not imply exclusive H'-dependence. This is shown by our Example 1, where (4), (5) and (6) hold, and the social welfare function satisfies weak H'-dominance, but violates exclusive H'-dependence.

The following proposition, Proposition 6, is a consequence of Propositions 3 and 4.

Proposition 5. Let H' be a proper non-empty subset of H. Suppose (3), (5) and (6) hold, and (4) holds for $S = H'$. Then F is exclusively H'-dependent if and only if F satisfies weak H'-dominance.

Therefore, under certain relatively mild assumptions, weak H'-dominance is equivalent to exclusive H'-dependence; in particular, under such assumptions, a social welfare function is welfaristic if and only if it satisfies the weak Pareto principle.

3.2 Welfarism and the weak Pareto principle: Some specific results

For this sub-section, we turn to the specific framework used in Kaplow and Shavell (2001). To begin with, consider the following assumptions due to Kaplow and Shavell

(2001).

Assumption 6. There exists a good a such that,

if two social states, x and x', are identical except for that, for all $i \in N$, i's consumption of a in x is greater than i's consumption of a in x', then $U_i(x) > U_i(x')$ for all i. ...(7)

Assumption 7. Among all the goods a satisfying (7), there exists a good m such that F is continuous in $(m_1, ..., m_n)$, where, for all $i \in N$, m_i denotes i's consumption of good m.

Now suppose $H' = \{h_1, ..., h_n\} = \{U_1, ..., U_n\}$. Then weak H'-dominance is the same as the weak Pareto principle, and, further, Assumptions 6 and 7, together, imply (3) when H' is $\{h_1, ..., h_n\}$.

Therefore, Proposition 8, which constitutes the result of Kaplow and Shavell (2001), follows immediately from Proposition 3.

Proposition 8. If F satisfies assumptions 6 and 7, and the weak Pareto principle, then it must be welfaristic.

It may be of interest to note that, even in the presence of assumptions 6 and 7, welfarism does not imply the weak Pareto principle. This is shown by Example 2, where F is welfaristic but does not satisfy the weak Pareto principle, though assumptions 6 and 7 are clearly satisfied. To derive the equivalence of welfarism and the weak Pareto principle, we first consider the following assumptions that are similar to assumptions 6 and 7 in spirit.

Assumption 9. There exists a good a such that,

each U_i is continuous and monotonic in good a, and, for all $x, y \in X$, if $U_i(x) > U_i(y)$ for some $i \in N$, there exists $z \in X$ such that [y and z are identical except that i's consumption of the good a is larger in z than in y], [$U_i(z) \geq U_i(x)$], and [$h(z) = h(y)$ for all $h \in H - \{U_i\}$]. ...(8)

Assumption 10. Among all the goods a satisfying (8), there exists a good m such that,

if two social states, x and x', are identical except that, for all i, i's consumption of a in x is greater than i's consumption of a in x', then

$F(x) > F(x')$.

Suppose $H' = \{h_1, \ldots, h_n\} = \{U_1, \ldots, U_n\}$. Then, weak H'-dominance is the same as the weak Pareto principle. Further, we note that assumptions 9 and 10, together, imply (4) for $S = H'$, (5) and (6). Therefore, Proposition 11 below follows immediately from Proposition 4, while Proposition 12 follows directly from Proposition 5.

Proposition 11. If F satisfies assumptions 9 and 10, and is welfaristic, then it must satisfy the weak Pareto principle.

It may be noted that, even in the presence of assumptions 9 and 10, the weak Pareto principle does not imply welfarism. This is shown by Example 1, where F satisfies the weak Pareto principle but is not welfaristic, though assumptions 9 and 10 are clearly satisfied.

Proposition 12. If F satisfies assumptions 6, 7, 9 and 10, then F is welfaristic if and only if F satisfies the weak Pareto principle.

3.3 Non-Welfaristic Approaches and the Dominance Criterion

In this section, we comment on the intuitive significance of the results obtained in Section 3.2. According to Proposition 8, if certain relatively mild assumptions are satisfied, then a non-welfarist must be prepared to violate the weak Pareto principle. On the other hand, Proposition 11 basically says that, given certain mild conditions, a welfarist must necessarily accept the weak Pareto Principle, and Proposition 12 implies that, in the presence of certain conditions, a welfarist can be characterized as someone who always respects the weak Pareto principle.

Proposition 11 does not really come as a surprise. While it is logically possible for someone to be a welfarist without accepting the weak Pareto principle, it would be intuitively a very odd ethical position indeed if one violates the weak Pareto principle while maintaining that the utilities of the individuals are the only relevant criteria by which alternative social states should be judged. The situation is rather different in the case of Propositions 8 and 12. Each of these two propositions implies that a non-welfarist must be ready to violate the weak Pareto principle. Given the important role that the weak Pareto principle has played in economics and in welfare economics in particular, the necessary violation of the weak Pareto principle by a non-welfarist does constitute a disturbing conclusion. One can imagine a non-welfarist taking the intuitive position that he would respect the weak Pareto principle, but, in situations where the weak Pareto principle is not applicable (that is, when there is a conflict of interests of the different individuals), he would sometimes take into account non-welfaristic criteria for assessing the social states. What Proposition 8 says is that, given assumptions 6 and 7, both of which are very plausible, such an ethical position is not sustainable, so that, in the presence of these two assumptions, it is not open to one to go by the weak Pareto principle when it is applicable and to bring in non-welfaristic values when the weak Pareto principle is not applicable. The basic message here is very similar to that in Sen (1970), though Sen (1970) approached the issue through a very different route.

Note that the weak Pareto principle basically represents the dominance rule formulated with reference to individual utilities visualized as the only relevant criteria for judging the social states. Propositions 8 and 12 imply that, in general, a non-welfarist cannot satisfy this specific version of the general dominance rule. One can, however, reformulate the dominance rule with reference to the set of criteria a non-welfarist may consider to be relevant, and, as shown by Example 13, the non-welfarist should not face any inherent problem in satisfying this reformulated version of the dominance rule.

Example 13. Let H' be a non-empty subset of H, and let $F(x) = \sum_{h \in H'} h(x)$. Clearly, F satisfies weak H'-dominance, and, if $H - \{U_1, \ldots, U_n\}$ is nonempty, then F is non-welfaristic. Note that, if $\{U_1, \ldots, U_n\}$ is a proper subset of H', then it is possible for Assumptions 6 and 7 to be both satisfied even though F is non-welfaristic and satisfies weak H'-dominance. ■

4 Conclusion

In evaluating social policies, policymakers are often urged to consider, in addition to the individuals' utilities, non-welfaristic factors, such as the degree of freedom enjoyed by individuals, violations of individual rights, and the fairness of rewards and punishments. Over the last few decades, economists have become increasingly sympathetic to such a non-welfaristic approach to the evaluation of social policies. The approach has, however, raised several important issues. Among them, the issue that the widely accepted weak Pareto principle is not compatible with any non-welfaristic approach has been identified and discussed by several writers (see, for example, Sen (1970), and Kaplow and Shavell (2001)). One implication of their work is that, given some mild conditions, if one sticks to the weak Pareto principle, one must reject any non-welfaristic way of assessing social policies[3].

In this paper, we have proposed a framework to address welfaristic as well as non-welfaristic concerns in welfare economics. In particular, in this framework, we have explored, at a general level, the relationship between the dominance principle defined in terms of a set of criteria for assessing social policies and the principle that the welfare evaluation of social policies should be based exclusively on the assessment of the policies in terms of those criteria. With the help of this general framework, we consider several results (including results similar to those of Sen (1970), Kaplow and Shavell (2001) and Campbell (2002)), that highlight different aspects of the relationship between welfarism and the weak Pareto principle. We show that, under some mild conditions, welfarism and the weak Pareto principle are equivalent. We also argue that a non-welfarist should not be disturbed by every violation of the weak Pareto principle and that the violation of the weak Pareto principle should not cause any deep moral concerns. This is because, in a suitable framework for addressing non-welfaristic aspects of social policies, the weak Pareto principle is not a proper rule to be invoked and should be replaced by an appropriate dominance property. As we have shown, under certain mild conditions, any non-welfaristic method of policy evaluations is consistent with the corresponding dominance property. Thus, in such a framework, the issue of the incompatibility between non-welfaristic method of policy evaluations and the corresponding dominance property vanishes.

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[3] See, however, Chang (2001) for an argument against assumption 7

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