

PHPE 400

Individual and Group Decision Making

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Utility Profiles



Let X and V be nonempty sets with $|X| \geq 3$ and V finite.

A **utility function** on a set X is a function $u : X \rightarrow \mathbb{R}$

Let $\mathcal{U}(X)$ be the set of all functions $u : X \rightarrow \mathbb{R}$

A **profile** is a function $\mathbf{U} : V \rightarrow \mathcal{U}(X)$, write \mathbf{U}_i for voter i 's utility function on X in profile \mathbf{U} .

A **Social Welfare Functional (SWFL)** is a function f mapping profiles of utilities to asymmetric relations on X . So for each profile \mathbf{U} , $f(\mathbf{U})$ is the social preference order on X .

Sum Utilitarian: Define f_S as follows: For all $x, y \in X$,

$$x f_S(\mathbf{U}) y \text{ if and only if } \sum_i \mathbf{U}_i(x) \geq \sum_i \mathbf{U}_i(y)$$

Lexicographic Maximin: Define f_M as follows: For all $x, y \in X$,

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breaking ties lexicographically: e.g., $\langle 9, 3, 1, 2 \rangle$ is “less than” $\langle 1, 2, 4, 8 \rangle$.

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Both SWFLs satisfy versions of Arrow's axioms, including non-dictatorship!

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Arrow: “...It requires a definite value judgment not derivable from individual sensations to make the utilities of different individuals dimensionally compatible and still a further value judgment to aggregate them according to any particular mathematical formula. If we look away from the mathematical aspects of the matter, it seems to make no sense to add the utility of one individual, a psychic magnitude in his mind, with the utility of another individual. Even Bentham had his doubts on this point.”

(Social Choice and Individual Values, p. 11).

The problem with interpersonal comparison of utilities.

Mary seashore P museums P camping

Sam camping P museums P seashore

- ▶ The seashore is the only alternative that Mary finds bearable, although she feels more negative about going to the mountains than to the museums.
- ▶ Each choice is fine with Sam, although he would much prefer going to the mountains.

	Mary	Sam	Total
Seashore	20		
Museums	10		
Mountains	9		

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Seashore	20	86	
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For Mary, the difference between the seashore and the mountains crosses the threshold between the bearable and the intolerable. She feels that her “right to an emotionally recuperative vacation will be violated by following a utilitarian scheme.

	Mary	Sam	Total
Seashore	200	86	286
Museums	100	93	190
Mountains	90	100	190

Mary: My preferences are so intense in comparison with yours that my scale should range between 0 and 1,000, if yours range between 0 and 100.

	Mary	Sam	Total
Seashore	20	86	106
Museums	10	93	103
Mountains	9	100	109

Sam: You think that my preferences are rather weak, but the fact is I feel things quite deeply. I have been brought up in a culture very different from yours and have been trained to avoid emotional outbursts...But I have strong feelings all the same.

	Mary	Sam	Total
Seashore	20	86	106
Museums	10	93	103
Mountains	9	100	109

Sam: I do not think that extra weight *should* be given in a utilitarian calculation to those who are capable of more intense preferences.

- ▶ Is Mary's preference for the seashore *really* stronger than Sam's for the mountains? Or, is Mary just a more vocal person?
- ▶ If some people's preferences are in fact stronger than others', how could we *know* this?
- ▶ Does it make any more sense to compare Sam's preferences with Mary's than it does to compare a dog's preference for steak bones with a horse's preference for oats?
- ▶ Even if we answer all these questions affirmatively, is it morally proper to respond to such information in making social choices?

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- ▶ Moral objections.

We already discussed the epistemological objection.

A standard moral objection

Suppose there are two agents, Alice and Bob.



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Then Utilitarianism says that y is better than x .

A standard Utilitarian reply is that, well, there may be other people who find out about the pushing and experience an overcompensating utility loss, etc. But this seems to dodge the fundamental issue: Utilitarianism allows the robot to *use one person as a resource* to increase total utility.

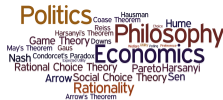
Nozick against Utilitarianism



Nozick: “[T]here is no *social entity* that undergoes some sacrifice for its own good. There are only individual people, different individual people, with their own individual lives. Using one of these people for the benefits of others, uses him and benefits the others. Nothing more. What happens is that something is done to him for the sake of others. Talk of an overall social good covers this up. (Intentionally?) To use a person in this way does not sufficiently respect and take account of the fact that he is a separate person, that his is the only life he has. *He* does not get some overbalancing good from his sacrifice, and no one is entitled to force this upon him” (*Anarchy, State and Utopia*, pp. 32-33).

Upshot: a **Nozickian robot** would not push Alice to the ground for Bob’s enjoyment, even if it were sure this would increase total utility.

Rawls against Utilitarianism



There is another problem in the Alice-Bob example, in addition to the Utilitarian robot using Alice as a resource to benefit Bob.

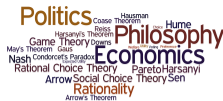
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It is that Bob enjoys a utility gain from watching another person suffer. According to Utilitarianism, such a utility gain cannot be ignored.

Rawls against Utilitarianism



Rawls: “In utilitarianism... in calculating the greatest balance of satisfaction it does not matter, except indirectly, what the desires are for.... [W]e ask no questions about their source or quality but only how their satisfaction would affect the total of well being. Social welfare depends directly and solely upon the levels of satisfaction or dissatisfaction of individuals. Thus, if men take a certain pleasure in discriminating against one another, in subjecting others to a lesser liberty as a means of enhancing their self-respect, then the satisfaction of these desires must be weighed in our deliberations according to their intensity, or whatever, along with other desires” (*A Theory of Justice*, p. 27).

Utility monsters



Nozick: “Utilitarian theory is embarrassed by the possibility of **utility monsters** who get enormously greater gains in utility from any sacrifice of others than these others lose. For, unacceptably, the theory seems to require that we all be satisfied in the monster’s maw, in order to increase total utility” (*Anarchy, State, and Utopia*, p. 41).

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Of course, a Utilitarian could claim that in the actual world, there are no utility monsters—raising again the epistemological problem of how they know this—while of course admitting, true to their doctrine, that if there were utility monsters, we *should* be sacrificed for them.

Suppose that you have a choice between:

1. Cure one young person of a terminal illness.
2. Cure n young people of a mild illness that will cause them to have a mild headache for one day.

How large must n be to justify choosing the second option?

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Anti-Aggregationism: there is no n that would ever justify the second option.

More reading about Utilitarianism



K. Arrow (1951), *Social Choice and Individual Values*, John Wiley & Sons.

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J. Rawls (1971), *A Theory of Justice*, Harvard University Press.

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