

ECONOMICS



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Social Choice and Social Welfare

CAMBRIDGE – Human beings have always lived in groups, and their individual lives have invariably depended on group decisions. But the challenges of group choice can be daunting, particularly given the divergent interests and concerns of the group's members. So, how should collective decision-making be carried out?

A dictator who wants to control every aspect of people's lives will seek to ignore the preferences of everyone else. But that level of power is hard to achieve. More important, dictatorship of any kind can readily be seen to be a terrible way to govern a society.

So, for both ethical and practical reasons, social scientists have long investigated how the concerns of a society's members can be reflected in one way or another in its collective decisions, even if the society is not fully democratic. For example, in the fourth century BC, Aristotle in Greece and Kautilya in India explored various possibilities of social choice in their classic books, *Politics* and *Economics*, respectively (the Sanskrit title of Kautilya's book, *Arthashastra*, translates literally as "the discipline of material wellbeing").

The study of social choice as a formal discipline first came into its own in the late eighteenth century, when the subject was pioneered by French mathematicians, particularly J. C. Borda and Marquis de Condorcet. The intellectual climate of the time was greatly influenced by the European Enlightenment, with its interest in reasoned construction of a social order, and its commitment to the creation of a society responsive to people's preferences.

But the theoretical investigations of Borda, Condorcet, and others often yielded rather pessimistic results. For example, the so-called "voting paradox" presented by Condorcet

showed that majority rule can reach an impasse when every alternative is defeated in voting by some other alternative, so that no alternative is capable of standing up to the challenge of every other alternative.

Social choice theory in its modern and systematic form owes its rigorous foundation to the work of Kenneth J. Arrow in his 1950 Columbia University PhD dissertation. Arrow's thesis contained his famous "impossibility theorem," an analytical result of breathtaking elegance and reach.

Arrow's theorem shows that even very mild conditions of reasonableness in arriving at social decisions on the basis of simple preference rankings of a society's individuals could not be simultaneously satisfied by any procedure. When the book based on his dissertation, *Social Choice and Individual Values*, was published in 1951, it became an instant classic.

Economists, political theorists, moral and political philosophers, sociologists, and even the general public rapidly took notice of what seemed like – and indeed was – a devastating result. Two centuries after visions of social rationality flowered in Enlightenment thinking, the project suddenly seemed, at least superficially, to be inescapably doomed.

It is important to understand why and how Arrow's impossibility result comes about. Scrutiny of the formal reasoning that establishes the theorem shows that relying only on the preference rankings of individuals makes it difficult to distinguish between very dissimilar social choice problems. The usability of available information is further reduced by the combined effects of innocuous-seeming principles that are popular in informal discussions.

It is essential, particularly for making judgments about social welfare, to compare different individuals' gains and losses and to take note of their relative affluence, which cannot be immediately deduced only from people's rankings of social alternatives. It is also important to examine which types of clusters of preference rankings are problematic for different types of voting procedures.

Nonetheless, Arrow's impossibility theorem ultimately played a hugely constructive role in investigating what democracy demands, which goes well beyond counting votes (important as that is). Enriching the informational base of democracy and making greater use of interactive public reasoning can contribute significantly to making democracy more workable, and also allow reasoned assessment of social welfare.

Social choice theory has thus become a broad discipline, covering a variety of distinct questions. Under what circumstances would majority rule yield unambiguous and consistent decisions? How robust are the different voting procedures for yielding cogent results? How can we judge how well a society as a whole is doing in light of its members'

disparate interests?

How, moreover, can we accommodate individuals' rights and liberties while giving appropriate recognition to their overall preferences? How do we measure aggregate poverty in view of the varying predicaments and miseries of the diverse people who comprise the society? How do we arrive at social valuations of public goods such as the natural environment?

Beyond these questions, a theory of justice can draw substantially on the insights and analytical results emerging from social choice theory (as I discussed in my 2009 book *The Idea of Justice*). Furthermore, the understanding generated by social choice theorists' study of group decisions has helped some research that is not directly a part of social choice theory – for example, on the forms and consequences of gender inequality, or on the causation and prevention of famines.

The reach and relevance of social choice theory is extensive. Rather than undermining the pursuit of social reasoning, Arrow's deeply challenging impossibility theorem, and the large volume of literature that it has inspired, has immensely strengthened our ability to think rationally about the collective decision-making on which our survival and happiness depend.

<https://www.project-syndicate.org/commentary/kenneth-arrow-impossibility-theorem-social-welfare-by-amartya-sen-2014-11>