

Essays: Be specific and detailed

Explanatory and ethical component

No replication across answers

What is Arrow's theorem and what is its relevance? (week 9)

If talking about Arrow's- tell the condition but also evaluate, there's a discussion

Central lesson of that week

Critique/ response to attempt to get out of the problem of there not being a Condorcet winner in n-dimensions and cycling.

Maybe we could come up with a new voting system that would circumvent cycling and instability. So instead of trying all the systems Arrow looked at the general conditions that a non-arbitrary (democratic) decision rule would have to satisfy normatively.

- Arrow was trying to prove what does it mean to say an outcome is in the best interest of a firm or country.
- His Conditions:
 1. U universal domain
 - no restraint on how individuals order their preferences in an election
 2. Pareto Principle:
 - If everyone prefers x to y then the social welfare function should put x over y
 3. Independence of irrelevant alternatives
 - Society's preference of x over Y should not be affected by its preference over z
 4. Non-dictatorship
 - No individual whose preferences are automatically social preferences
 - No dictator decided social welfare function (SWF)

Arrow's Theorem: Any mechanisms that respects the 1st three conditions will break condition D. There will be a dictator.

- How damaging are Condorcet cycles?
- Should we really worry about Arrow's Theorem?

Transitive and complete:

- Transitive: if an individual $x > y$, and $y > z$ then $x > z$
- Complete: for any x & y either $x \geq y$ or $y \geq x$

Theorem 4 - Arrow's Theorem. There is no SWF satisfying conditions U, P, I and D. (No social decision procedure satisfying U, P, I and D)

Proof: the set of all members of society is decisive (Condition P). But this set can always be partitioned in such a way that one of the subsets is decisive (by Theorem 3), unless the subset has only one member, which violates condition D

The key one is Independence from Irrelevant Alternatives – hence the paradoxes and manipulability

Lesson:

- The results of social decision mechanisms are determined by both the preferences and the mechanism itself
 - If you take all individual's preferences you will get a different collective result e.g. majoritarian, preferential, border etc.
- Its not just preferences but how we count them