Whither Social Choice?

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With thanks to co-authors:
Contents

• What good is social choice?
• Five puzzles:
  – Arrow’s theorem
  – Sen’s liberal paradox
  – Harsanyi’s aggregation theorem
  – The repugnant conclusion
  – Maximin or not maximin?
• The Life Project
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What good is social choice?

**Potential**

• Aim: evaluation of public policies and social situations (inequalities, poverty, social justice)

• Large scope: economy, politics

• Products:
  – Growth, inequality and poverty measures
  – Cost-benefit analysis criteria, public policy evaluation criteria
  – Allocation rules for micro and macro problems
  – Voting rules
What good is social choice?

Achievements

• Theory
  – Inequality and poverty measures (outcomes, opportunities), dominance criteria
  – Social welfare functions, weighted cost-benefit analysis
  – Fair allocation, mechanism design
  – Voting rules: old and new rules, social welfare
  – Impossibility theorems
What good is social choice?

Achievements

• Practice
  – GDP still omnipresent, many alternatives owe nothing to social choice
  – Cost-benefit analysis still done with surplus, compensation tests, seldom with social welfare function
  – Utilitarianism dominates public economics
  – Inequality: varied success
  – School choice, market design
  – Voting rules?

• Why?
  – Simple practical recipe for social welfare measurement is still missing
  – Data are often too rudimentary
What good is social choice?

*Strong demand*

- GDP is despised
- Cost-benefit analysis is considered repugnant
- Utilitarianism is questioned (tax theorists)
- Current voting rules are criticized
Action plan:

- Theory: “overcome” impossibilities
- Practice: propose a menu of concrete social welfare criteria
  (Why a menu? Accommodate the diversity of views on social progress)
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“The” impossibility theorem

• Arrow 1950, Sen 1970: incompatibility of:
  – Pareto: respect unanimity
  – Independence of irrelevant alternatives: subsets of options are ranked only on the basis of individual preferences on these options
  – Non-dictatorship no one imposes personal preferences on society
“The” impossibility theorem

• Arrow 1950, Sen 1970: incompatibility of:
  – Pareto
  – Independence of irrelevant alternatives
  – Non-dictatorship

• Independence of irrelevant alternatives is much too restrictive (not satisfied by any criterion in fair allocation or cost-benefit analysis, or the market); non-manipulability not a strong argument for it
“The” impossibility theorem

• Arrow 1950, Sen 1970: incompatibility of:
  – Pareto
  – Independence of irrelevant alternatives
  – Non-dictatorship

• Interpersonal comparisons are needed
  – Either utilities: $W(u_1, \ldots, u_n)$ with $(u_1, \ldots, u_n)$ given from outside (Sen, d’Aspremont-Gevers)
  – Or indifference curves: $W(u_1, \ldots, u_n)$ with $(u_1, \ldots, u_n)$ constructed from ordinal preferences (Bergson-Samuelson)
Applications of first approach

• Capabilities approach (Sen): in practice, it veers toward objective measures (no diversity of individual orderings)

• Happiness approach (Layard): takes happiness answers at face value
  – Does this reflect people’s values?
  – Comparable across people and across periods?
Examples of second approach

- “Intuitive” calibration of preferences (common in tax theory)
- Borda: $u_i(x)$ rank of $x$ in preferences
- Samuelson, Pazner-Schmeidler: $u_i(x_i)$ fraction of $\Omega$ that is as good as $x_i$
- Samuelson: $u_i(x_i)$ income needed to obtain same satisfaction as with $x_i$ at reference prices. Convenient to go “beyond GDP” and incorporate non-market aspects: add reference non-market attributes (health, security, environment...)
Open questions

• Choice of references for “equivalence utilities”
• Estimation of preferences
• How to use/refine happiness data
• Behavioral problems with preferences
• Link voting-social welfare
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The liberal paradox

- Sen 1970, Gibbard 1974
  - (Pareto)
  - Liberalism: everyone has a reserved domain
- The problem comes from conditional preferences = preferences about others

<table>
<thead>
<tr>
<th>Donald’s preferences</th>
<th>Ted’s preferences</th>
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<tbody>
<tr>
<td>(r,r)</td>
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<td>(b,r)</td>
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How to handle other-regarding preferences?

• Launder them?
  – Restrict social choice on self-centered preferences
  – Other-regarding preferences belong to democratic debates (ethical and political values)

• Take them into account?
  – Sort of public good – externality
  – Closely linked to preferences for social relations
  – One only has to check that these preferences are respectable (preferences based on principles)
    Ex.: OK not to want to be the last one, but not acceptable to prefer leveling down
Practical importance of this issue

• Important nuisances (on self-centered preferences as well as total preferences):
  – Consumerist conformism
  – Excessive work and growth
  – Competitive greed and risk-taking

• Evaluate institutions by how they treat people’s other-regarding preferences
  – Individualized flexibility (vs. group solidarity)
  – Inequalities (harm the worse-off, destroy empathy)
Open questions

• Adapt measures of well-being to other-regarding and social aspects
• How to sort out respectable preferences?
• Develop social relations in our models
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The aggregation theorem

• Harsanyi (1955):
  – Pareto (ex ante)
  – Expected utility for both individuals and society
  \[ \Rightarrow \text{Social welfare} = \text{weighted sum of VNM utilities} \]

• Sen-Weymark: still compatible with any separable SWF for suitably chosen utilities

• However, this theorem constrains inequality aversion to espouse risk aversion, and implies neglecting ex ante and ex post fairness
Two possibilities

• Ex ante approach: $W(Ev_1, ..., Ev_n)$
  – Ignores inequalities due to luck
  – Irrational (violates dominance, time consistency):
    Allow gambling and then redistribute prizes
• Ex post approach: $EW(v_1, ..., v_n)$
  – Paternalistic (violates Pareto)
  – Not separable
  – Ignores ex-ante fairness (in simple formulations)

• Practically relevant: if bad health reduces marginal utility and total utility, should we scale back health insurance? (ex ante: yes; ex post: no)
Pareto and risk

- Risk = imperfect information
- A situation may be risky for individuals without being risky for society: one then knows the distribution of ex post individual preferences (more respectful to rely on them than on ex ante preferences)
- Pareto is compelling when social and individual risk are aligned: full equality in every state of the world
- In between? The latter principle is already constraining
A particular ex post criterion

- In every state of the world, replace the distribution by the equally-distributed equivalent (EDE)
- Apply weighted utilitarianism to the EDE
  - Rational (Expected value of social welfare)
  - Satisfies Pareto when full equality in every state
- Problem: what weights in the sum?
  - One interesting option: dictatorship of the most risk averse = maximin on certainty-equivalent of EDE-
    maximin
  - Another option: equalize marginal utility at poverty threshold (and take equal weights)
Ex post drops separability

• E.g.: past generations
• They affect the EDE if the EDE is not additively separable, e.g.

\[ \varphi^{-1} \left( \frac{1}{n} \sum_{i} \varphi(x_i) \right) \]

• Their utility levels and their demographics affect the evaluation of policies with future impacts
Open questions

• Ex ante fairness: It is in principle possible to integrate a proxy for ex ante chances into the measure of ex post well-being

• Variable populations across states of the world: lower inequality aversion across states than within states?

• Ambiguity aversion? Rationality under uncertainty
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The repugnant conclusion

• Parfit (1984)
  – Pareto extended to existence
  – Minimal preference for equality
  ⇒ A sufficiently numerous poor population is always better than any fixed affluent population

• Two options:
  – Drop extended Pareto: to exist may be good for the individual and bad for society (Bossert-Blackorby-Donaldson)
  – The repugnant conclusion is not so repugnant
Population ethics

• Critical level should perhaps depend on the population size: the more people have existed, the more difficult one can be about bringing new people to existence (Ng, Asheim-Zuber)

• Note: this drops separability
Open questions

• Population ethics is not about the size of a cohort, or of people living at the same time, but about the whole human population: Do we know this number (in the past)? Do we know how policies affect it (in the future)?
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The tyranny of the worst-off

• Maximin theorem 1:
  – Pareto
  – Multidimensional Pigou-Dalton (for non-crossing indifference curves)
  – Independence of non-indifferent alternatives, or separability
  ⇒ absolute priority of the worst-off (maximin or leximin)

• Two options:
  – Weaken Pigou-Dalton (apply to “regular” cases)
  – Add information (about concavifying preferences), not separable
Another tyranny of the worst-off

• Maximin theorem 2:
  – Pareto
  – A small gain for many rich can’t justify a substantial sacrifice for a poor
  – Pigou-Dalton
  – Replication invariance
  ⇒ Absolute priority of the worst-off

• Options:
  – Abandon replication invariance: generalized Gini (not separable)
  – Work on bounded population, with strong inequality aversion
Yet another tyranny

• Maximin theorem 3: under risk,
  – Pareto when no risk or full equality ex post
  – Expected utility at social level
  – Riskless allocations are evaluated without taking account of risk attitudes
  – Minimal equity preference
  \[ \Rightarrow \text{maximin on riskless allocations and maximin on CE(EDE)} \]

• Options:
  – Weaken Pareto further
  – Accept greater role for risk attitudes
How to avoid the maximin?

• For theorems 1-2, dropping separability opens doors: define inequality aversion as a function of the profile of the population

• In theorem 3, separability is already dropped
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Broader set of open questions: The Life Project

• Separability of subpopulations simplifies but also constrains a lot

• Drop separability to separate inequality aversion from risk aversion, to avoid repugnant conclusion, to avoid absolute priority to the worst off

• Dropping separability implies evaluating the whole human population for every policy

• Why stop at the human beings? Inter-“being” comparisons are needed
Implementing the Life Project approach

• Develop comprehensive theory of the good for the whole population of living beings
• Develop approximation methods for special, local changes, retrieving some form of separability (with fixed parameters coming from the big picture)
Example

- Criterion

\[ E \sum_{i \in n(x_s)} u_i(e(x_s)) - u_i(c) \]

- Marginal social value of \( x_{js} \):

\[ \frac{\partial e(x_s)}{\partial x_{js}} p_s \left[ \sum_{i \in n(x_s)} \frac{\partial u_i}{\partial e(x_s)} \right] \]

- Critical level in \( s \):

\[ u_j(e^+) = u_j(c) + \sum_{i \in n(x_s)} u_i(e) - u_i(e^+) \]