Whither Social Choice?

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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 : $W(u_1, \dots, u_n)$ with $(u_1, \dots, u_n)$ given from outside (Sen, d’Aspremont-Gevers)
  - Or indifference curves: $W(u_1, \dots, u_n)$ with $(u_1, \dots, u_n)$ 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 Ω 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

Donald's preferences	Ted's preferences
(r,r)	(b,r)
(b,b)	(r,b)
(r,b)	(r,r)
(b,r)	(b,b)

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

  ⇒ Social welfare = 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: $W(Ev_1, \ldots, Ev_n)$
  - Ignores inequalities due to luck
  - Irrational (violates dominance, time consistency): Allow gambling and then redistribute prizes
- Ex post approach: $EW(v_1, \ldots, v_n)$
  - 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

  ⇒ 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

$$E \sum_{i \in n(x_s)} u_i\big(e(x_s)\big) - u_i(c)$$

- 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:

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