POLITICAL ECONOMY

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Course Material Developed by Department of Economics,

Faculty of Social Sciences, Eötvös Loránd University Budapest (ELTE)

Department of Economics, Eötvös Loránd University Budapest

Institute of Economics, Hungarian Academy of Sciences

Balassi Kiadó, Budapest

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Authors: Judit Kálmán, Balázs Váradi
Supervised by Balázs Váradi

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Week 2

The choice of voting rule

Arguments for the unanimity rule

- If a group decision can generate positive gains for everyone…
- …requiring unanimous consent for taking it guarantees that everyone gains.
- A series of such votes should take the participants towards the Pareto frontier.
- The *procedure* might effect *where* on the frontier they get.

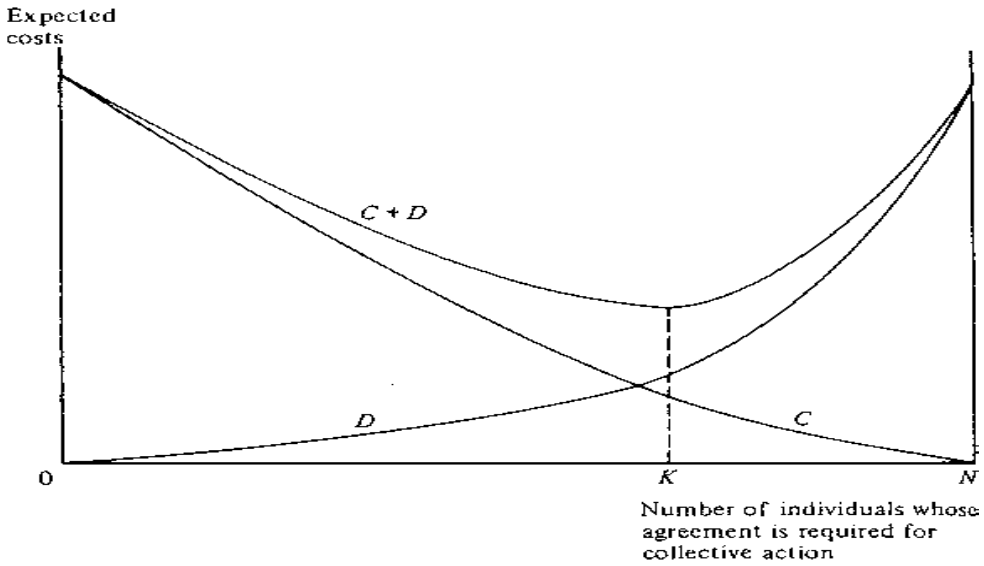
Criticisms of the unanimity rule

- The procedure might take a lot of time
- It might encourage strategic behavior (”bargaining problem”)
  - The outcome will depend on the bargaining abilities, discount rates and risk aversion of the individuals…

…but is that a problem?

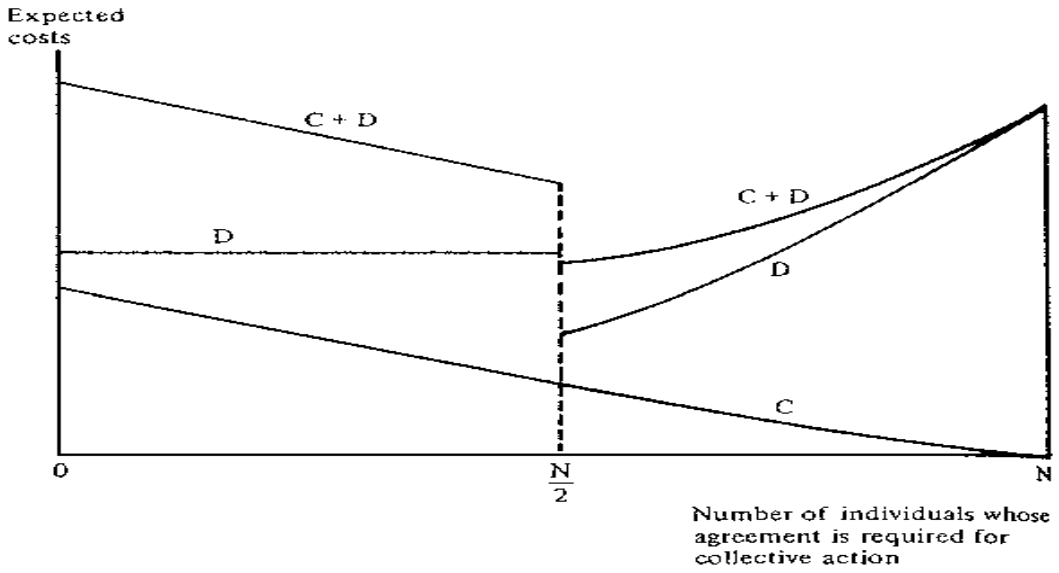
The optimal majority

- Unanimity? Qualified majority? Simple majority? Majority of those present?
- Examples:
    - Changing the contributions of co-owners in a condominium
    - Changing the rules of admitting/blackballing a co-owners in a condominium
    - Referendum on giving up some sovereignty (joining NATO)
    - Minor design change on the website of a business partnership



C: expected costs from losing the vote

D: expected time and transaction costs

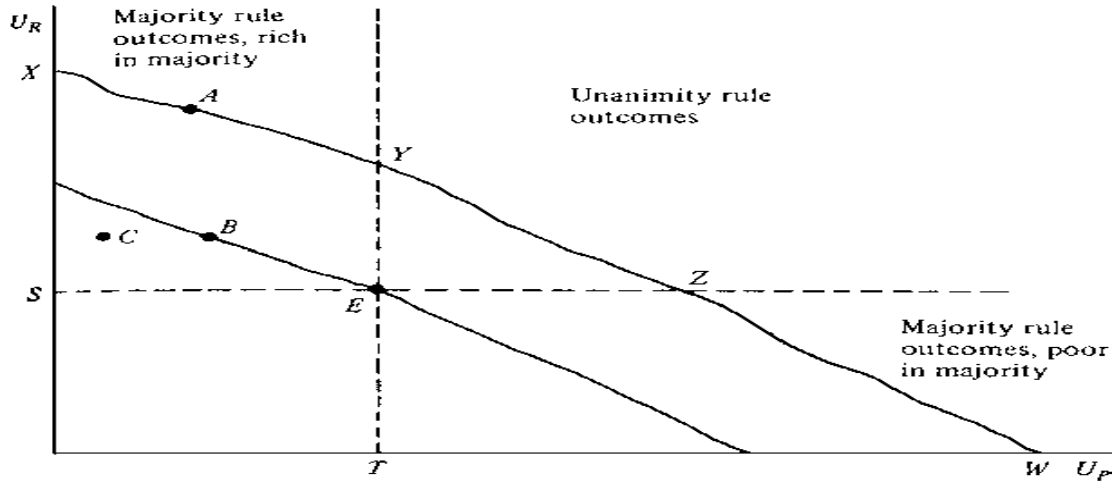


C: expected costs from losing the vote

D: expected time and transaction costs (considering that overturning the decision could be an option, too)

Simple majority voting rule – properties

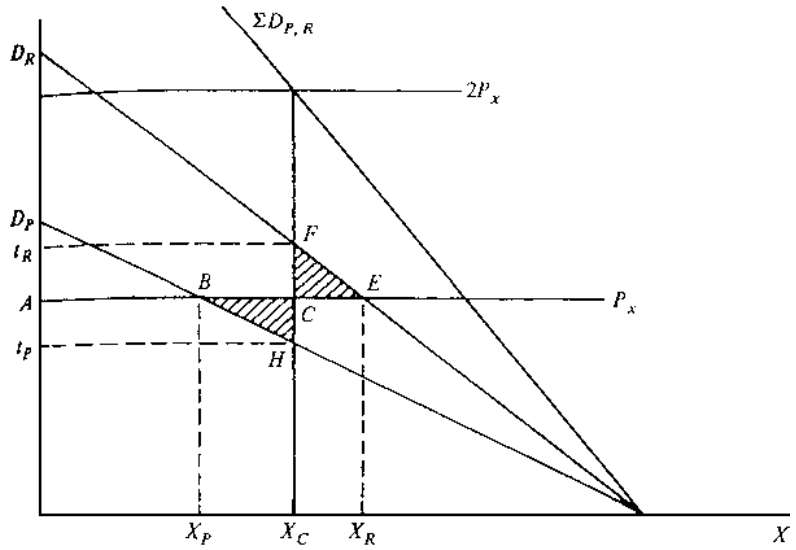
As soon as the voting rule is not unanimity, redistribution becomes an issue:



Majority vote

- If R is the majority, they can take society from E not just to YZ, but to A, B, even C!
- Is this (A, B, C) just a theoretical possibility?
  - No! Think of state provision of local public goods or even private goods!

Public provision of private goods



If X_C of X is publicly provided and t_P and t_R
is charged, who is better off, who is worse off
than under private provision (B, E)?

- This is no mere abstraction.
- Who is the beneficiary under these policies?
  - E.g. free elementary schooling
  - E.g. free higher education
  - E.g. subsidies to cultural services (opera, theater)

Redistribution in real life

Table 3.5. *Distribution of transfers by quintile and average transfers as a percent of median equivalent income*

		Bottom	2	3	4	Top	Total	Average transfers as a percent of median equivalent income
Australia	1981	42.8	22.2	13.3	12.5	9.2	100.0	10.8
	1985	40.1	24.6	14.4	12.9	8.0	100.0	11.3
Belgium	1985	22.9	22.5	21.9	16.6	16.1	100.0	33.3
	1988	21.5	23.6	20.1	16.1	18.7	100.0	34.9
Switzerland	1982	38.5	19.2	15.6	13.3	13.3	100.0	7.3
Canada	1981	33.0	22.9	17.9	14.1	12.1	100.0	10.1
	1987	29.5	24.2	19.2	15.0	12.1	100.0	12.4
France	1979	19.7	21.2	18.8	17.7	22.6	100.0	22.2
	1984	17.5	21.8	18.4	17.7	24.7	100.0	25.0
Germany	1984	21.8	22.2	16.7	21.0	18.3	100.0	19.8
Ireland	1987	32.0	21.9	21.3	15.2	9.6	100.0	20.5
Italy	1986	15.6	16.4	19.7	20.7	27.6	100.0	21.4
Luxembourg	1985	17.3	18.3	19.5	22.5	22.4	100.0	23.7
Netherlands	1983	21.8	21.8	18.4	20.4	17.6	100.0	28.5
	1987	24.9	21.3	16.9	17.7	19.2	100.0	28.3
Norway	1979	34.0	20.9	16.4	13.6	15.1	100.0	13.5
	1986	21.5	16.6	14.2	12.2	11.0	100.0	15.1
Sweden	1981	18.0	23.9	19.8	19.5	18.7	100.0	35.0
	1987	15.2	25.8	21.7	19.9	17.4	100.0	35.5
United Kingdom	1979	30.6	20.0	17.4	17.0	15.0	100.0	18.5
	1986	26.7	25.9	19.4	16.1	11.9	100.0	24.3
United States	1979	29.7	21.1	17.4	14.7	17.1	100.0	8.9
	1986	29.2	21.2	17.1	17.5	15.1	100.0	9.4
Finland	1987	25.9	22.6	18.2	15.8	17.6	100.0	27.7

Source: Atkinson, Rainwater, and Smeeding (1995), Table 7.5, p. 107.

The problem of cycling under simple majority voting

Condorcet: three people: A,B,C; three outcomes, X, Y, Z.

	A's ranking	B's ranking	C's ranking
First	X	Y	Z
Second	Y	Z	X
Third	Z	X	Y

Or: divide $100 among three people!

No cycling if 1-dimension and single-peaked preferences

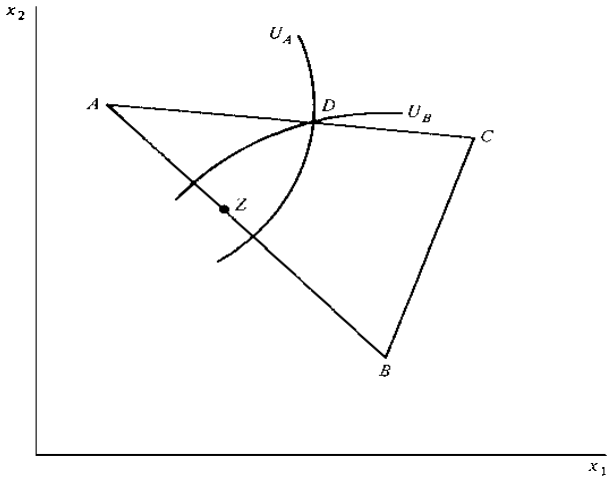
Theorem (Black, 1948): If x is a single-dimensional issue, and all voters have single-peaked preferences defined over x, then x_m, the median position, cannot lose under majority rule.

But is the universe of policy alternatives single dimensional? And are preferences single peaked?

- E.g. the Vietnam/Iraq war

What if issues are multi-dimensional?

In general, even if preferences are single-peaked, the Pareto sets of majority coalitions are disjoint:



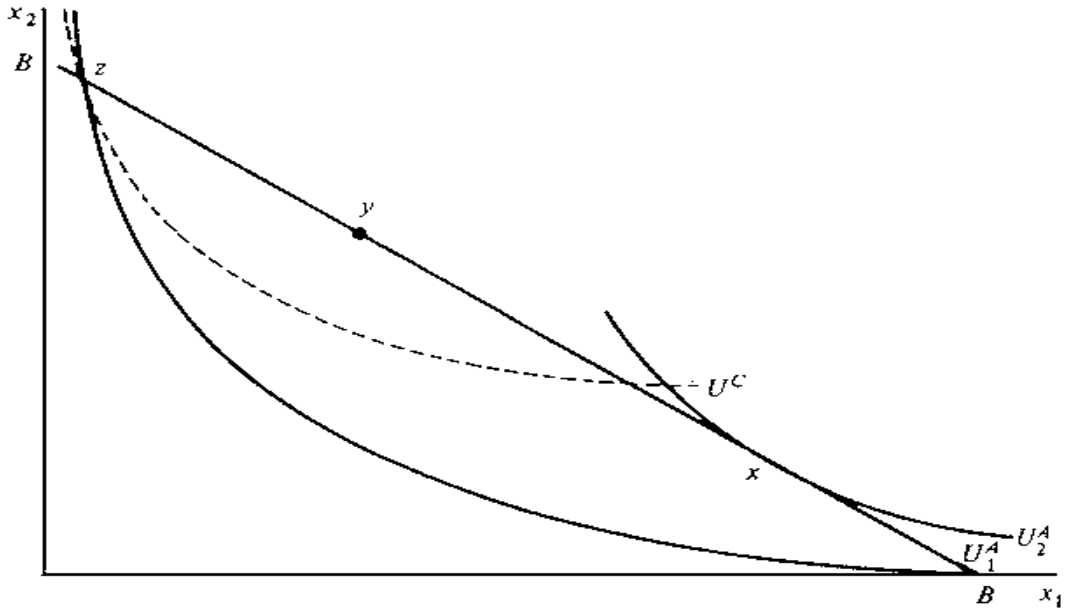
Non-spatial preferences

Def. Extremal restriction: If for any ordered triple (x, y, z) there exists an individual i with preference ordering x P_i y and y P_i z, then every individual j who prefers z to x (zP_j x) must have preferences zP_j y and yP_j x.

- *Theorem (Sen, 1970): Majority rule defines an ordering over any triple (x, y, z) iff all possible sets of individual preferences satisfy extremal restriction.*

Is the extremal restriction excluding only weird preferences?

Alas, no. Consider A and C and x, y and z:



So how likely are cycles?

These theorems suggest cycles are *possible*, but are they *likely*?

Simulations suggest, cycles are less:

- the more voters have identical preferences,
- the more voters have single-peaked preferences,
- the fewer pairs of voters have conflicted preferences.

Is qualified majority a way to get rid of cycles?

Think of preferred outcomes uniformly distributed in an equilateral triangle.
There are cycles under simple majority rule, anything goes under unanimity, but a unique stable equilibrium exists under the 5/9-majority rule.
Under very special conditions, as *n*, the number of dimensions approaches infinity, this threshold majority, $1–[n/(n+1)]^n$, approaches $1–1/e≈64\%$

Connections of cycling thresholds

Theorem (Weber 1993): Let N be the number of voters, N ≥ 2, A the number of alternatives, A ≥ 2, and M the number of voters required to select an alternative, (*N/2) < M ≤ N − 1. Then there exists at least one set of individual preference orderings that leads to a cycle, if:*

$N \geq MA/(A-1)$.

Logrolling

Trading votes outright is usually banned, but quid-pro-quo („I shall vote for this *if* you vote for that") is widespread.

Voters	Issue X	Issue Y
A	-2/-10	-2/-10
B	5	-2
C	-2	5

B and C can trade. If these are cardinal transferable utilities, that can improve general welfare, too. Or it may not.

Two issues:

- Bluffing (misstating cardinal utilities)
- Cheating (not acting on promises)

Also logrolling is linked to intransitivity of social preferences.

You can test for logrolling by looking for coefficients of explanatory variables for votes that are not directly linked to interests related to that vote, but are to other votes. (Strattman 1992)

Agenda manipulation

Theorem (McKelvey, 1976): When individual preferences are such as to produce the potential for a cycle with sincere voting under majority rule, then an individual who can control the agenda of pairwise votes can lead the committee to any outcome in the issue space he chooses.

I.e. there is huge room for manipulation!

Serial divide-the-cake

Size of the cake: *G*, *n* (risk-neutral) players, *m/n* majority vote, offer serially extended by random members, game over if proposal gets (*m/n*) majority.

Reservation claim of those in the coalition (but not the proposer), x:

$$x = \frac{1}{n}[G - (m-1)x] + \frac{m-1}{n}x + \frac{m-n}{n} \cdot 0.$$

Hence the proposer's share will be:

$$\left(\frac{n-m+1}{n}\right) G.$$

Why so much stability?

- Issues often are of one dimension.
- Voting is often one dimension at a time.
- Sophisticated strategic behavior in logrolling.

Empirical results

- More in line with ”tyranny of the majority” or ”universalism” than with cycles.