3. Public Choice in a Direct Democracy

I. Unanimity Rule

II. Optimal Majority Rule
   a) Choosing the optimal majority
   b) Simple majority as the optimal majority

III. Majority Rule
   a) Exploitation of the minority
   b) Cyclical preferences
   c) Multidimensional issues

IV. Log-Rolling

V. Agenda manipulation

VI. Alternatives to the majority rule

VII. Exit and Voice

VIII. Summary: Normative properties of majority rule

Basic Literature is Mueller, 2003, pp. 67-206
I. Unanimity rule

To reach Pareto-optimal results for public decisions, unanimity is needed for. Otherwise, single individual preferences would be neglected, and the decision would leave losers.

See following slides and Mueller (2003), pp. 67-72.

An important implication is that the rule determines whether or not and if so where, a Pareto optimum can be met.

Shortcomings of the unanimity rule:

- much information needed,
- much time needed, and
- strategic behaviour possible.
For decision making in a direct democracy, the choice of a voting rule seems decisive.

Where can the voting procedure be of relevance in today’s world?

- clubs,
- parliament (constitutional amendments)
- EU (treating member states as individuals), …

Two “rules” (Rousseau) for setting the voting rule:

- import topics demand unanimity, and
- fast decisions demand minimal majorities.
The unanimity rule

\[ X_A = Y_A - tG \]
\[ X_B = Y_B - (1 - t)G \]

\[ U_A = U_A (Y_A - tG, G) \]
\[ U_B = U_B (Y_B - (1 - t)G, G) \]

\[ \Delta U_A = \frac{\delta U_A}{\delta X} (-t) dG + \frac{\delta U_A}{\delta G} dG + \frac{\delta U_A}{\delta X} (-G) dt \]

\[ \Delta U_B = \frac{\delta U_B}{\delta X} (-1 + t) dG + \frac{\delta U_B}{\delta G} dG + \frac{\delta U_B}{\delta X} (G) dt \]
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\[
\left(\frac{dt}{dG}\right)^A = \frac{\delta U_A / \delta G - t \delta U_A / \delta X}{G(\delta U_A / \delta X)}
\]

\[
\left(\frac{dt}{dG}\right)^B = \frac{\delta U_B / \delta G - (1 - t) \delta U_B / \delta X}{G(\delta U_B / \delta X)}
\]

\[
\frac{\delta U_A / \delta G}{\delta U_A / \delta X} + \frac{\delta U_B / \delta G}{\delta U_B / \delta X} = 1
\]

\[
\frac{\delta U_A / \delta G}{\delta U_A / \delta X} = t
\]

\[
\frac{\delta U_B / \delta G}{\delta U_B / \delta X} = (1 - t)
\]
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Figure 3.1: Optimal quantities for a voter at different tax prices
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**Figure 3.2: Mapping of voter preferences into tax-public good space**

- **G**
- **t**
- **t₅**
- **t₃₃**
- **G₁**, **G₀**, **G₂**
- **A**

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**Figure 3.3: Contract curve in public good-tax space**

- Percentage of tax paid by...
- Annotations: B, A, t₀, t₁₀₀, t₇₁, t₅₁, t₄₁, t₃₁, t₂₁, t₁₁, t₀₀, A₁, A₂, A₃, A₄, A₅, B₁, B₂, B₃, B₄, B₅, C, C₁, E, L, G, F, G₁, G₂.
II. Optimal majority

Unanimity is not realistic, not so much because of individual strategic behaviour but because of its enormous cost. Buchanan and Tullock (1962) show that the optimal majority depends on cost related to the decision.

a) Choosing the optimal majority

Two types of cost occur:

• (external) cost \( C \) of the losers of the decision and
• cost \( D \) of achieving the required majority.

Whereas \( C \) is decreasing with the number of people who agree on the decision, \( D \) is increasing with the number of citizens who have to agree.
Figure 3.4: Choosing the optimal majority

Expected costs

Number of individuals whose agreement is required for collective action

C+D

D

C

K

N

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Figure 3.5: Conditions favouring a simple majority as the optimal majority

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![Diagram](image)
Obviously, the optimal majority is not the same for all decisions to be made.

External cost \( C \) may vary depending on the nature of the decision and on the size \( N \) of the community.

The cost curve \( D \) associated with the number of individuals necessary to form a consensus may shift rightwards with increasing \( N \).

**b) Simple majority as the optimal majority**

So, generally speaking, what is the optimal majority? It can’t be below \( N/2 \).

See Figure 3.5, which shows a special case in that there is a kink at \( N/2 \).

Approximately, \( N/2 \), i.e. simple majority can be assumed to be the optimal majority in big communities.
III. Majority rule

a) Exploitation of the Minority

Consider a society which is better off with a collective good (such as redistribution) than without; consider also two groups, the rich and the poor.

A tax introduced would finance the collective good, depending on the kind of tax, either both groups would gain or one of the groups would lose.

Unanimity rule would lead to one of many Pareto optima, because either the society would remain at the status quo ante, or both groups win.

Majority voting would not lead to a Pareto optimum, as the majority is likely to exploit the minority.

See Figure 3.6.
Figure 3.6: Outcomes under the unanimity and the simple majority rule

Majority rule outcomes, rich in majority

Unanimity rule outcomes

Majority rule outcomes, poor in majority
One lesson from the discussion of a collective good is to restrict the decisions to those individuals directly involved both in the decision and its consequences.

In other words, it is highly sensible to reduce the number of public goods and to increase the number of club goods.

For the European Union, this lesson is also of importance.

As long as the unanimity rule holds for many issues – but also if not – the process should come up with modest harmonisation efforts to minimise the number and cost of losers.

➔ Subsidiarity principle, implying that measures should be taken on the lowest possible level.
b) Cyclical Preferences

Consider three persons who shall divide 100 € among themselves.

Possible outcome:

(1): 55/45/0,
(2): 50/0/50,
(3): 0/60/40,

V1: (1) > (2) > (3) < (1),
V2: (1) > (2) < (3) > (1),
V3: (1) < (2) > (3) > (1).

Community under majority rule: (1) > (2) > (3) > (1).

The community cannot find a first best solution but produces a cycle.
If society has to decide about a single issue and if all voters have single peaked preferences, then the median position cannot lose under majority.
d) The median and multidimensional issues

How does it work when multidimensional issues are discussed? Then, the outcome depends on the number of committee members who decide:

- committee of 1: no problem (Figure 3.8).
- committee of 2: contract curve (Figure 3.9),
- committee of 3: no solution (Figure 3.10) or like a committee of 2 (Figures 3.11 and 3.12).
Figure 3.8: Outcome for a committee of one

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Figure 3.9: Outcomes for a committee of two
Figure 3.10: Cycling outcomes for a committee of three
Figure 3.11: Equilibrium outcome for a committee of three