Voting and Deliberation

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REVIEW

Austen-Smith and Feddersen show that in a general setting that a “small" amount of ex ante heterogeneity interferes with honest revelation of information.

DELIBERATION WORKS, I

Preference Uncertainty

Standard binary voting, information environment, but assume that preferences may not be aligned.
For some preferences given by: $u(a, X) = -.5(a - X)^2$
For others given by: $v(a, X) = -u(a, X)$
Assume that everything thinks that they are in majority. Full information outcome is equilibrium (in weakly undominated strategies).
Deliberation: Tell Truth.
Voting: Behave sincerely given all information.
Honesty Optimal because you believe that majority will use information “properly."

DELIBERATION WORKS, II

Redundant Information

At least two other people know exactly what you know. Under this condition, a voter's behavior is not relevant in a truth-telling equilibrium, so truth-telling is an equilibrium.

DELIBERATION WORKS, III

Extended Preferences
Assume that you can reward people for “correct" information. This can break near indifference and induce relevation.

ASIDE

Laslier and Weibull show that informative voting is an equilibrium in a slightly perturbed voting game when the population is large.

Perturbation:

With small probability a (small) subset of voters determines outcome.

Mechanism is arranged so that agents have incentive to vote honestly.

BROAD INDIFFERENCE

Voter behavior makes a difference with small probability, yet conditioning on low probability event (being pivotal) is essential for equilibrium analysis.
Implications for:

1. Robustness
2. Participation or information acquisition (substantively). We should be thinking about reasons why people do participate and how institutional environment matters.
3. Equilibrium Refinement (technically)

ENDOGENOUS INFORMATION ACQUISITION

1. N agents.
2. Two actions, states, and signals.
3. Symmetric access to information and preferences.
4. Information is costly.
5. Signal shifts prior from .5 to $p > .5$.

THE PROBLEM

Design mechanism that maximizes social welfare subject to incentive constraints.

WHAT IS THE PROBLEM?

If agents have the same preferences over outcomes, what is the problem?

Information acquisition is a private decision with positive externalities.

People may wish to free ride on the information of others.

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FIRST BEST: Warm up

Assume incentive problems do not exist. What is the optimal way to collect information?

Social planner tries to maximize: $NEu - cL$, where Eu is expected payoff and L is expected number of information purchases.

COMPUTATION

Definitions:

$$B(d) = \frac{p^d}{p^d + (1-p)^d}$$

$$R(d) = 1 - B(d)$$

$$p(d) = pB(p) + (1-p)R(d)$$

If you have d more i signals than j signals, then $B(d)$ is the probability the next signal is i.
If you have d more i signals than j signals, then $p(d)$ is the probability that i is the state.
d is the gap.

FIRST BEST

Proposition

There exists a decreasing function g such that $g(n+1) = g(n)$ or $g(n+1) = g(n) - 1$, and $g(N-1) = 1$. If, after asking n voters, make the majority decision if the gap is $g(n)$, otherwise continue.

Solution is sequential sampling.
When you are confident enough, stop.
The earlier you stop, the stronger the evidence needed.

DYNAMIC PROGRAMMING

$W(n,d)$ value given n pieces of information and gap d, ignoring past information costs.

$$W(N,d) = NB(d)$$

$$W(n,d) =$$

$$\max\{NB(d), p(d)W(n+1,d+1)+(1-p(d))W(n+1,d-1)-c\}$$

- $W(n,d)$ weakly decreasing in n.
  More strategies with n low.
- If you stop at (n,d) you would at (n',d) for all $n' > n$.
  $W(n,d)$ is decreasing in n.
- There exists f such that continue asking if and only if $n < f(d)$.
- $f(d) > f(d+1)$ If you stop at $(f(d),d)$, then you must stop at $(f(d)-1, d+1)$ So $f(d+1) \leq f(d) - 1$
- $g(N-1) = 1$
  If $d > 1$ with one potential observation, the information doesn't influence choice.
- $g(n) = \min\{d : n \geq f(d)\}$ is such that $g(n) = g(n-1)$ or $g(n-1) - 1$.

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How does respecting incentive condition change this?

You need to convince people that their information is valuable.

Keep number of searches secret.

SEARCH FOR THE OPTIMAL MECHANISM

Mechanism in a game played by N agents and nature and an equilibrium of the game.
Note: This is not a standard problem because ex ante agents have no information.
Without loss of generality:

1. Mechanism is Sequential with Random Order.
2. Agents report information on their moves.
3. Agents have trivial information sets.
4. Agents acquire information and report in truthfully whenever asked to move.

WHY?

Agents have less information that the center.
Incentive problems milder when people know less.
Mechanism doesn’t tell voter how many others acquired information or how they voted.

INCENTIVE COMPATIBILITY

Two concerns:
People report truthfully.
People obtain information when asked.
The first is not really a problem. The second is.
When asked, voter must believe that the chances of getting correct answer as the result of an informed vote equal the costs of information.

OPTIMAL EX POST EFFICIENT MECHANISM

- Cut off rule qualitatively as before.
- Randomization.
- Agents think that the are decisive with sufficient probability.

PROPERTIES

- No information sharing.
- No committees.

WHAT IS MISSING

- No joint production or complementarity.
- No differences of opinion.