The Benefits of Costly Voting

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"The object of our deliberations is to promote the good purposes for which elections have been instituted, and to prevent their inconveniences." (Edmund Burke, Irish Statesman 1729-1797)

**The More the Merrier?**

- Normally think that ensuring all participate in voting would improve the final outcome.
- Many countries (including Argentina, Australia, Belgium, and Greece) have compulsory voting to ensure inclusion.
- In social valuation, the strength of preference counts.
- While in voting, it is not possible to demonstrate intensity of preferences.
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- There may be gains by excluding voters with only mild feelings about the alternatives.
- If one’s vote counts for more than one’s strength of feeling then one may change the outcome in a detrimental way.
- In Australia where voting is mandatory, donkey votes, those that simply were cast by order of a ballot, give a 1% edge to those listed first (Orr, 2002, and King and Leigh, 2009).
- A cost to voting can deter participation by those with weak preferences (or not well informed).
- Literature: costly voting is detrimental since it deters voting (and is a cost to those that do vote) leading to a paradox of why people vote (see Dhillon and Peralta, EJ 2002).
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Two options, $A$ and $B$, and two voters: one prefers $A$ and the other prefers $B$.

- 1/2 chance that a voter has utility of 1 for preferred option (and -1 for other)
- 1/2 chance of 3 for preferred option (and -3 for other).

If cost of voting is 0, everyone votes and social surplus is 0.
If cost of voting is 2/3 & only those with a high value vote,
- Social surplus only when one voter has a higher value and the other the lower value.
- This yields a gain of 3-1=2 and occurs 1/2 the time.
- Net social benefits of voting is 1/3.

Is this an equilibrium?
- a vote improves one’s option’s chances by 1/2.
- If one has a value $v$, one votes if $v/2 > c$.
- Notice $3/2 > c = 2/3 > 1/2$.

if $p$ is chance of low type, net social benefit > 0 if $(v_h - v_\ell)p > c$ (it is an equilibrium if $v_h/2 > c > v_\ell/2$).
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Related Literature

- Bulkley et al. (2001) and Osborne et al. (AER, 2000). With costly voting, only voters from the extremes will participate.
- Borgers (AER, 2004) shows with costly voting, voluntary voting is superior to mandatory voting (still with voting costs) and random selection of a winner (with no voting).
  - No difference in intensity of preference.
- Krasa and Polborn (Games, 2009) vary the Borgers model by allowing for ex-ante asymmetry of preferences. For a large number of voters, optimal to move toward mandatory voting.
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Our work

- We wish to find when with voluntary voting, costly voting is superior.
- Under the Borgers framework, there is no intensity to preference, so best to not have voting costs.
- Say a department wishes to vote on whether or not to hire a job candidate.
  1. The department can make it mandatory to show up to a meeting.
  2. The department can buy nice cookies for the meeting.
  3. The department can allow for electronic voting.
  4. The department can schedule the meeting late at night.
- Our analysis adds 3 and 4 as possibilities.
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Continuous Model

- Two types of voters
- $n$ voters of each type (overall $2n$ voters).
- Each voter $i$ has value $v_i \geq 0$ is drawn from $F$.
- If $1 \leq i \leq n$, voter $i$ is a type $A$ voter who values a win by $A$ at $v_i$ and a win by $B$ at 0.
- If $n + 1 \leq i \leq 2n$, voter $i$ is a type $B$ voter who values a win by $B$ at $v_i$ and a win by $A$ at 0.
- All voters have the same cost $c$. 
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  - If \( n + 1 \leq i \leq 2n \), voter \( i \) is a type B voter who values a win by \( B \) at \( v_i \) and a win by \( A \) at 0.
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- All voters have the same cost $c$. 
The social surplus to voting is then the expected value of the winner minus the costs of voting:

$$SSV(c) = \sum_{a=0}^{n} \sum_{b=0}^{n} \binom{n}{a} \binom{n}{b} F(v^*(c))^{2n-a-b} (1 - F(v^*(c)))^{a+b}. $$

$$\left[ (n - \max\{a, b\}) E[V_i | V_i < v^*(c)] + \max\{a, b\} E[V_i | V_i > v^*(c)] \right]$$

$$- 2(1 - F(v^*(c)))n \cdot c.$$
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If $\lim_{v \to 0} F'(v) v = 0$, $\lim_{v \to 0} F'(v) F(v) = 0$ and $E[v] \cdot F'(0) > 1$, then it is optimal to have $c > 0$.

Proof

Was by taking the derivative w.r.t. $c$ and taking the limit as $c \to 0$.

Remarks

- $E[v] \cdot F'(0) > 1$ is equivalent to $\lim_{v^* \to 0} \frac{dE[V|V>v^*]}{dv^*} > 1$
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![Graph of net surplus and density over c and v](image-url)
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**Proposition**

If there are $n$ voters of each type with symmetric distributions of values, then (i) there is overvoting (ii) there should be no fines to encourage voting (no mandatory voting) (iii) there should be a poll tax to discourage voting.

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- We have thus far studied where there is an even type supporting each alternative.
- What happens if this can vary?
- Each voter has an equal but random chance of supporting either candidate.

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We show that increasing the (wasteful) cost of voting may paradoxically be beneficial to society.

Note increasing a wasteful cost of voting may be politically more viable than imposing a poll tax (or more efficient if there are financial constraints).
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Continuous Model

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