How to Improve Presidential Elections

E. Maskin
Harvard University

Roy Gardner Memorial Lecture
Indiana University
Bloomington
October 4, 2018
• Donald Trump is President
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• How could this have happened?
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  – defeated Hillary Clinton in general election
• But in first 17 primaries he won, anti-Trump vote bigger than pro-Trump vote
• Same thing in general election
  – even in Florida, Michigan, North Carolina, Pennsylvania, and Wisconsin (all of which Trump won) anti-Trump vote exceeded pro-Trump vote
no contradiction
no contradiction

• in primaries
no contradiction

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  – Trump got less than 50% vote in each first 17 victories
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  – given Trump’s extreme views, might well have been defeated had there been just *one* mainstream rival
    • in March 8 poll, *both* Cruz and Rubio would have easily beaten Trump in two-candidate contest
  – voting-splitting among Rubio, Cruz, Kasich and others ensured Trump’s nomination
• in general election
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  – so vote-splitting between Clinton and Stein allowed Trump to win.
Many other voting-splitting examples from U.S. presidential history
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  - but nearly 100,000 voters voted for Ralph Nader
  - probably overwhelming majority of Nader voters would have voted for Gore had Nader not been on ballot
  - voting-splitting between Gore and Nader handed election to Bush
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<thead>
<tr>
<th>Candidate</th>
<th>Percentage</th>
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<tr>
<td>Bill Clinton</td>
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Final example: 1992 U.S. Presidential election

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- Bush might well have won in absence of Perot
- vote-splitting (between Bush and Perot)
What do these examples show?
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• Republican primaries and general elections use *plurality rule* (first-past-the-post) as election method
  – each voter votes for one candidate and winner is candidate with most votes, even if doesn’t get majority

• plurality rule vulnerable to vote-splitting
  – two or more similar candidates split the vote, allowing a very different candidate to win
Is there a better way to elect presidents?
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• Answer: yes
Examples suggest that voting for just one candidate does not provide enough information about voters’ preferences.
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• Gore would probably have defeated Bush (Junior) in Florida head-to-head, but this not reflected in outcome

• Bush (Senior) might have defeated Bill Clinton in two-way match-up, but we don’t know
• Solution: should have voters provide *rankings* of candidates
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e.g.  Rubio  Trump
     Kasich  or  Kasich
     Trump  Rubio
• Solution: should have voters provide *rankings* of candidates

e.g. Rubio Trump
     Kasich or Kasich
     Trump Rubio

• What should we do with these rankings?
“True” Majority Rule/Condorcet’s method
(per Marquis de Condorcet)
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• voters submit rankings
“True” Majority Rule/Condorcet’s method (per Marquis de Condorcet)

• voters submit rankings

• elect candidate who (according to rankings) would beat each of the others in head-to-head contest
For example, suppose Republican electorate breaks down as follows
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  - if either of Rubio or Kasich drop out, other beats Trump
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  - as he was in Florida
• Once voters submit *rankings*, many systems besides true majority rule become possible
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• Why limit ourselves to majority rule?
For example, might use *runoff voting* (used in France, Brazil, Russia)
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- if some candidate gets majority of first-place votes, elected
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- otherwise, look at 2 candidates getting most first-place votes
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- if some candidate gets majority of first-place votes, elected
- otherwise, look at 2 candidates getting most first-place votes
- whichever candidate preferred by majority is elected
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- no candidate gets majority of first-place votes
- so Trump faces Rubio
40% 35% 25%
Trump Rubio Kasich
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• no candidate gets majority of first-place votes
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  – majority prefer Rubio (35% + 25%)
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- no candidate gets majority of first-place votes
- so Trump faces Rubio
  - majority prefer Rubio (35% + 25%)
  - so Rubio elected in runoff
• no candidate gets majority of first-place votes
• so Trump faces Rubio
  – majority prefer Rubio (35% + 25%)
  – so Rubio elected in runoff
• saw earlier that majority rule elects Kasich
Which method – runoff voting or majority rule – is better?
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• Way to answer question: which method does better job of satisfying basic requirements (principles) that any good voting rule should satisfy
Consensus principle/Pareto principle
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• if everyone agrees candidate A better than B, B won’t be elected
Consensus principle/Pareto principle

• if everyone agrees candidate A better than B, B won’t be elected

• satisfied by both true majority rule and runoff voting
Equal-treatment principle/anonymity principle
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- all voters should count equally (doesn’t matter who you are)
Equal-treatment principle/anonymity principle

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- violated by Electoral College method
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Neutrality
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- electoral rules should treat all candidates equally
Neutrality

- electoral rules should treat all candidates equally

• Both true majority and runoff voting satisfy neutrality
“No vote splitting” Principle
(Independence of Irrelevant Candidates)
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• which of candidates A and B wins should not depend on whether candidate C is running or not
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  – if A is winner when A, B, and C running, must beat each of B and C by majority
“No vote splitting” Principle
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• True majority rule satisfies IIC (if beats B and by a majority, then still beats)
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  – but still beats B majority if C not running
“No vote splitting” Principle
(Independence of Irrelevant Candidates)

• which of candidates A and B wins should not depend on whether candidate C is running or not

• True majority rule satisfies IIC (if beats B and by a majority, then still beats)
  – if A is winner when A, B, and C running, must beat each of B and C by majority
  – but still beats B majority if C not running

• But runoff voting violates IIC
<table>
<thead>
<tr>
<th>40%</th>
<th>35%</th>
<th>25%</th>
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</thead>
<tbody>
<tr>
<td>Trump</td>
<td>Rubio</td>
<td>Kasich</td>
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- saw that in 3-way race, *Rubio* wins
• saw that in 3-way race, *Rubio* wins
• but notice that if Trump doesn’t run, *Kasich* wins
• saw that in 3-way race, *Rubio* wins
• but notice that if Trump doesn’t run, *Kasich* wins
• so runoff voting violates “no vote splitting” principle (IIC)
So far, true majority rule fares better than runoff voting
So far, true majority rule fares better than runoff voting

- both satisfy consensus, anonymity, and neutrality
So far, true majority rule fares better than runoff voting

- both satisfy consensus, anonymity, and neutrality
- but only majority rule satisfies IIC
But majority rule has a flaw:
But majority rule has a flaw:

• there may not always be a candidate that beats all the others
<table>
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<th>32%</th>
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But Kasich beats Trump! (65% to 35%)
Trump  Rubio  Kasich
Rubio  Kasich  Trump
Kasich  Trump  Rubio

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• this is called a *Condorcet cycle*
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- this is called a *Condorcet cycle*
- majority rule violates *decisiveness principle*, which requires that a winner always exists
Rubio beats Kasich (68% to 32%)
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But Kasich beats Trump! (65% to 35%)

• this is called a Condorcet cycle
• majority rule violates decisiveness principle, which requires that a winner always exists
• runoff voting satisfies decisiveness
• So true majority rule satisfies
  consensus
  anonymity
  neutrality
  IIC
• So true majority rule satisfies consensus anonymity neutrality IIC

• Runoff voting satisfies consensus anonymity neutrality decisiveness
Does any voting method satisfy all five principles?
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- consensus
- anonymity
- neutrality
- IIC
- decisiveness
Does any voting method satisfy all five principles?

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Answer: No
Does any voting method satisfy all five principles?

- consensus
- anonymity
- neutrality
- IIC
- decisiveness

Answer: No
• Implied by Arrow’s Impossibility Theorem
But Arrow’s theorem too negative
But Arrow’s theorem too negative

• insists electoral method must work for *any* rankings by voters
But Arrow’s theorem too negative

- insists electoral method must work for any rankings by voters
- but some rankings may be quite unlikely
For example, most Republicans either love Trump or hate him
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- so might have rankings

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```
Trump          Trump          Rubio          Kasich
Kasich or     Rubio or     Kasich or     Rubio
Rubio         Kasich      Trump          Trump

– but not
Rubio          Kasich
Trump or      Trump
Kasich        Rubio
```
• this sort of polarization may be bad for Republican party
• this sort of polarization may be bad for Republican party
• but very good for majority rule
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• but very good for majority rule
• if most voters polarized, then the majority rule *is* decisive (no Condorcet cycles)
• Define a voting method to work well for restricted class of rankings if it satisfies consensus, anonymity, neutrality, IIC, and decisiveness when voters’ rankings drawn from that class
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(e.g. true majority rule works well for the class of polarized rankings)
Dasgupta-Maskin Majority Domination Theorem:
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• if a voting method works well for some particular class of rankings, then true majority rule also works well for that class
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- furthermore, there exists some class of rankings for which true majority rule works well but other voting method does not
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- if a voting method works well for some particular class of rankings, then true majority rule also works well for that class
- furthermore, there exists some class of rankings for which true majority rule works well but other voting method does not
- thus, true majority rule works well *more often* than any other method
• Thus there is precise sense in which true majority rule is best
• Thus there is precise sense in which true majority rule is best
• true majority rule not always decisive
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• true majority rule not always decisive
  – then need tie breaker
Majority Rule could help in another way
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• In general election, many voters reviled Trump
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  – but Bloomberg and Sanders choose not to run
  – afraid of taking votes away from Clinton and handing election to Trump - - vote splitting again
  – public left with 2 deeply disliked candidates
42%
Trump
Bloomberg
Clinton

40%
Clinton
Bloomberg
Trump

18%
Bloomberg
Clinton-Trump
• Bloomberg beats Trump (60% to 40%)
- Bloomberg beats Trump (60% to 40%)
- Bloomberg beats Clinton (58% to 42%)
• Bloomberg beats Trump (60% to 40%)
• Bloomberg beats Clinton (58% to 42%)
• Bloomberg is majority winner
<table>
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- Bloomberg beats Trump (60% to 40%)
- Bloomberg beats Clinton (58% to 42%)
- Bloomberg is majority winner
- Trump is plurality winner
Will we see true majority rule adopted for presidential elections?
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• up to individual states - - no Constitutional change needed
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- something quite close to majority rule (ranked choice) already used in several American cities, e.g. San Francisco and Minneapolis
- State of Maine has adopted ranked choice for governor, U.S. Senate, and U.S. House of Representatives
- so there’s reason for optimism that presidential elections will improve