Transparency, automated redistricting, and partisan strategic interaction in Mexico

A. Trelles[1] M. Altman[2] E. Magar[3] M.P. McDonald[4]

[1]Pitt

[2]MIT

[3]ITAM

[4]UFL

El Colegio de México
10/29/15

Motivation

Redistricting by independent commission

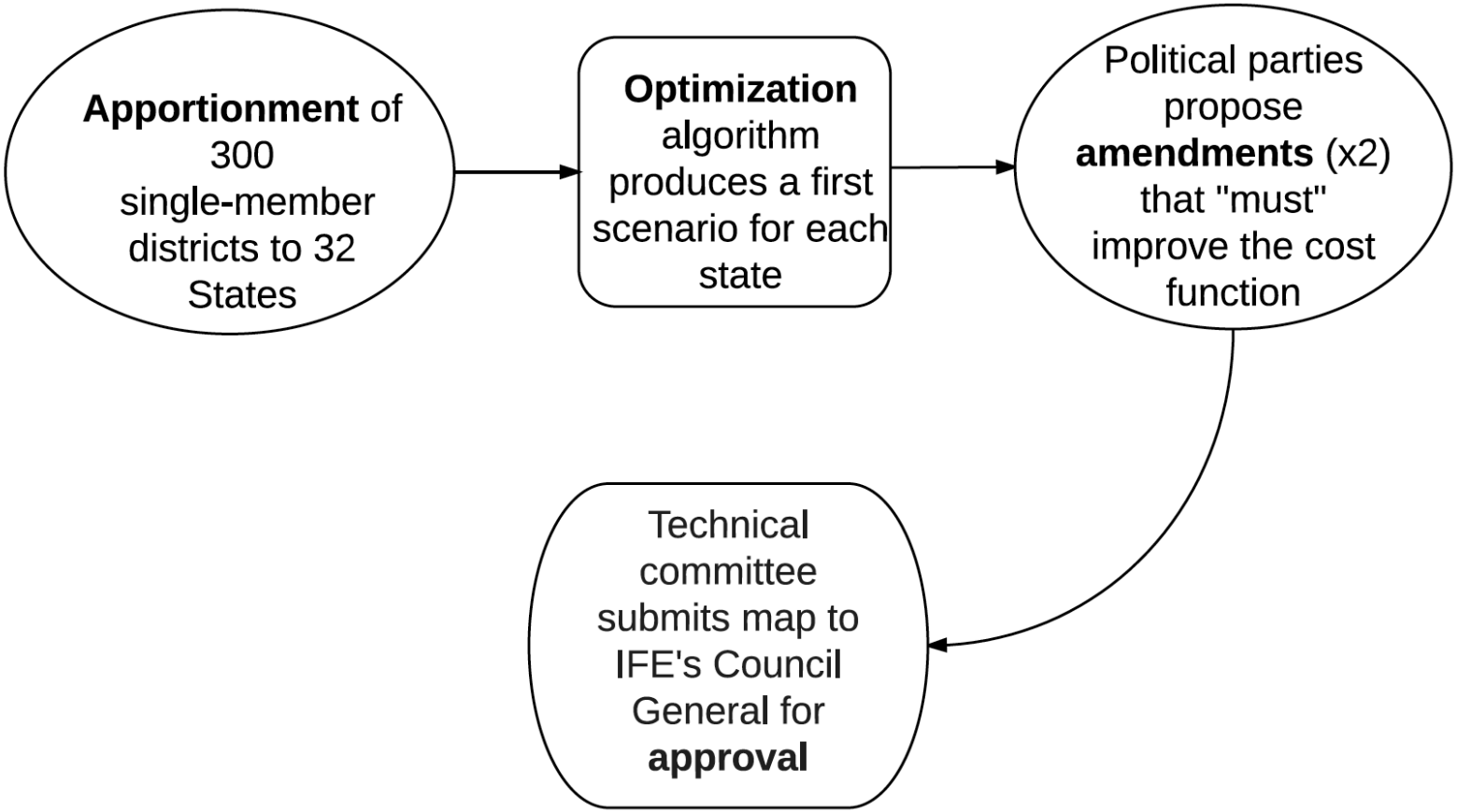
1. Taking politicians out of map drawing ensures a fair result?
2. Can parties influence district boundaries? How?
3. How can the redistricting process be made more transparent?

Paper inspects the case of Mexico since 1997

Background on Mexico

- 32 states
- Democratic since 1997
- Lower chamber of Congress elected every 3 years
- Mixed system: 300 SMD + 200 PR seats
- Single-term limits removed in 2018
- Independent board (IFE) organizes elections and redistricting

The redistricting process



Apportionment

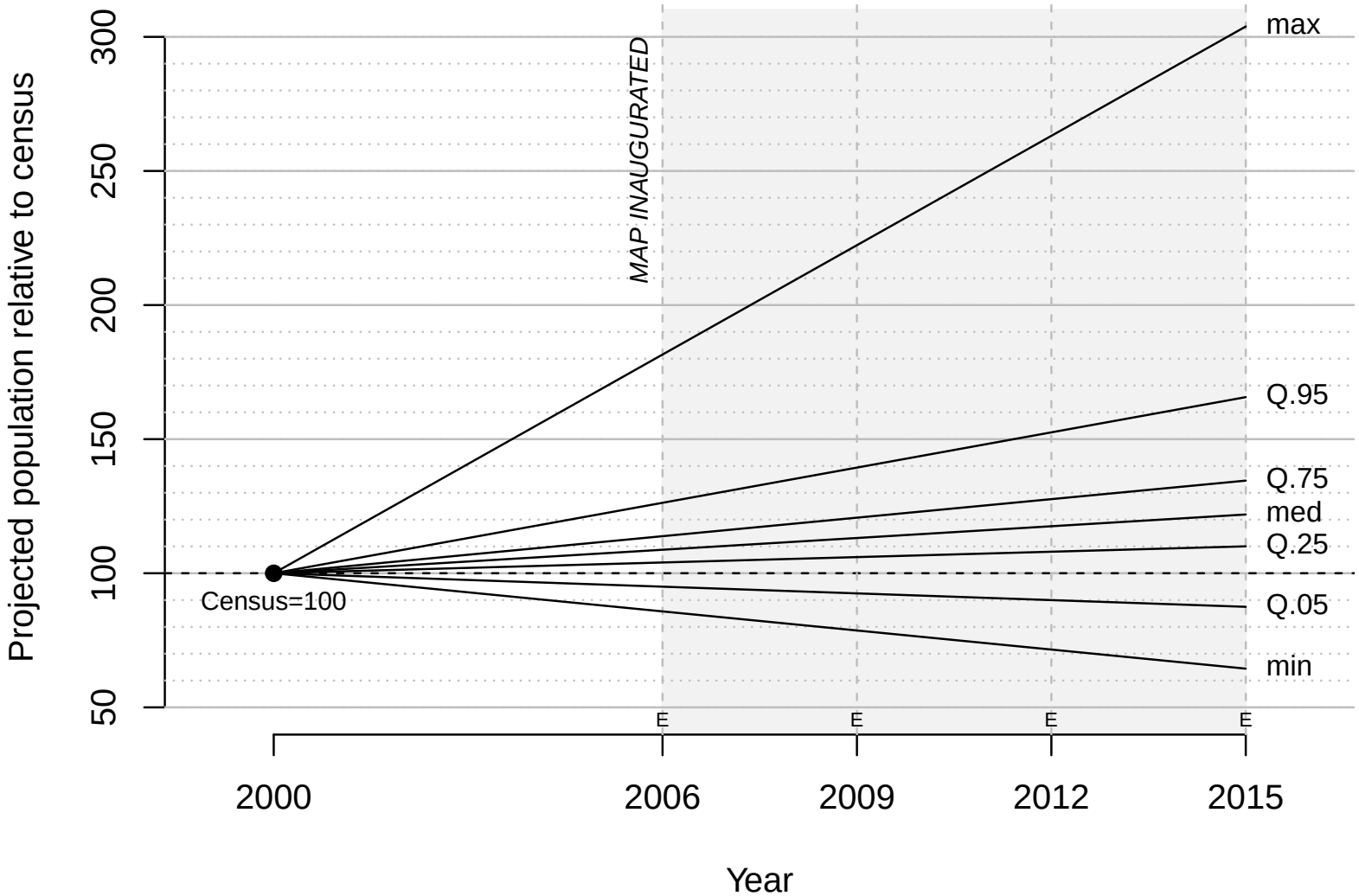
Hamilton method used:

- The quota (or price of a seat) is $Q = \frac{\text{nation's population}}{300}$
- First allocation is $\frac{\text{state's population}}{Q}$, rounded down
- Every state gets 2 seats min
- Unallocated seats, if any, awarded to states with largest fractional remainders

Most recent decennial census must be used

- ... but no obligation to redistrict as soon as available
- 6-year lag on average: 199**7**, 200**6**, 201**5**

District populations: linear projection

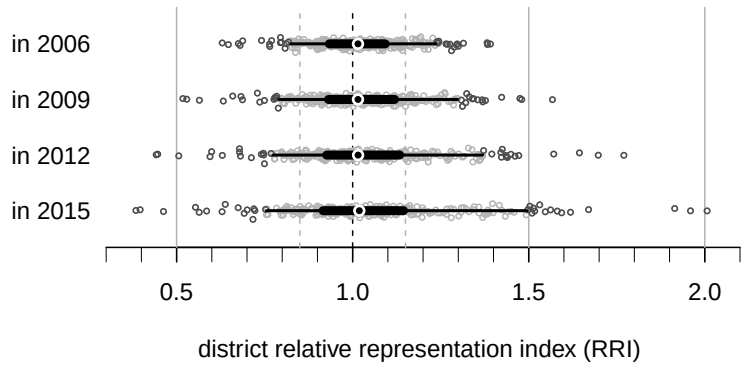


Plus: bureaucratic leeway in new district sizes

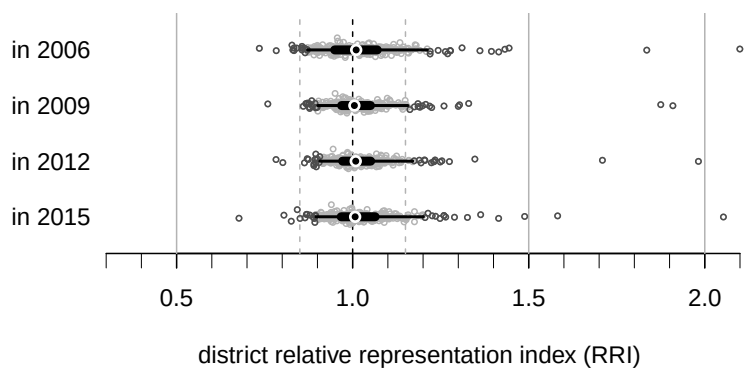
Malapportionment is substantial

$$RRI = \frac{nat.pop./300}{\text{district size}}$$

2006 map (drawn with 2000 census)



2015 map (drawn with 2010 census)



Automated redistricting

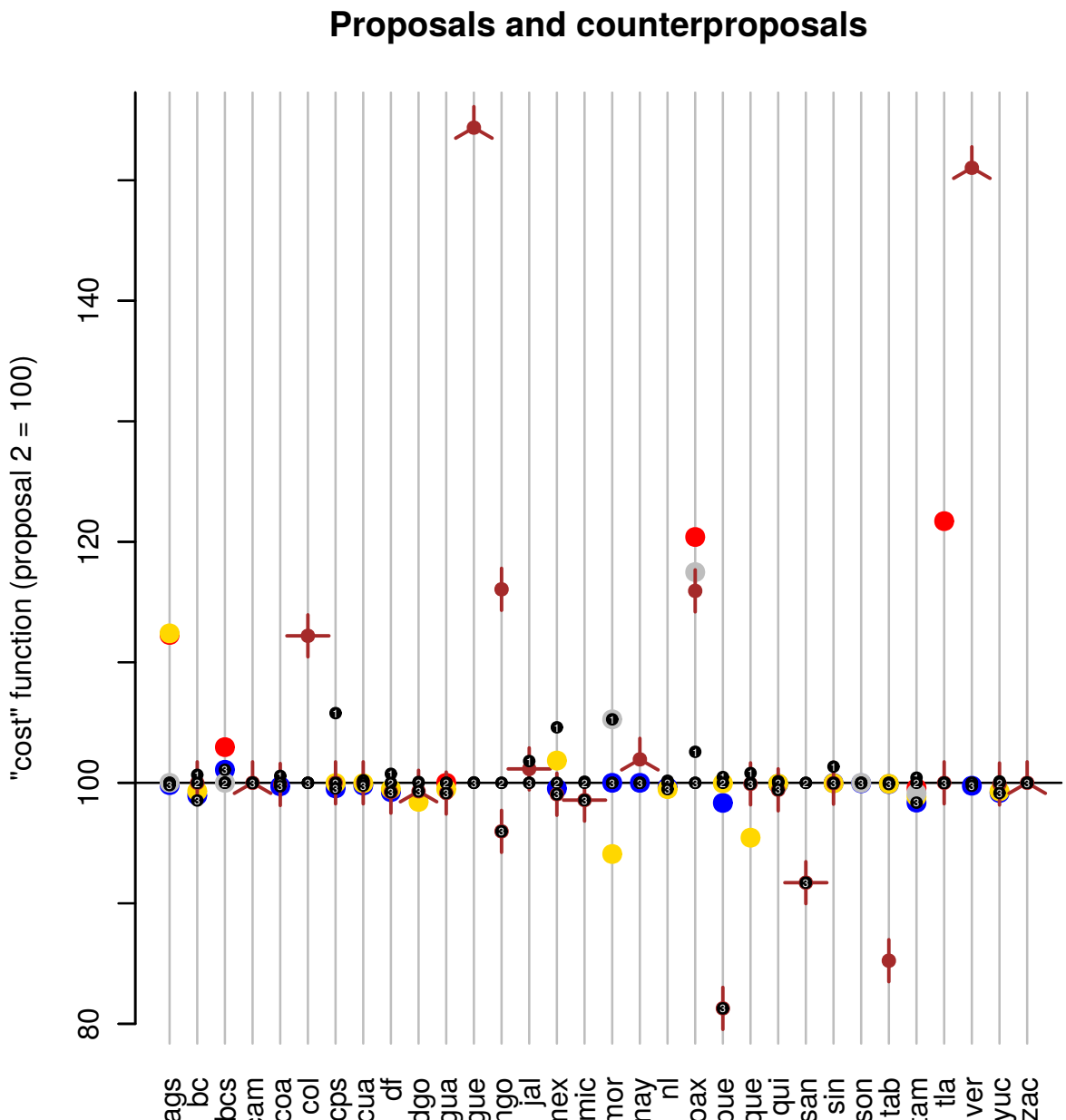
Redistricting by experts since 1997

1. no district crosses state boundaries
2. optimization algorithm $\rightarrow$ proposal
3. parties propose amendments ("must" improve score)
4. repeat 2 and 3 once
5. board approves new map

$$\texttt{Score} = .4 \times \texttt{PopBalance} + .3 \times \texttt{MunicBoundaries} + .2 \times \texttt{TravelTime} + .1 \times \texttt{Compactness}$$

$\pm 15\,\%$ imbalance considered legal (!)

Party amendments



Parties protect strongholds?

District similarity index = share common population
(Cox&Katz 2002)

Similarity between	min	25 %	median	75 %	max
initial proposal and SQ	0.128	0.419	0.584	0.755	1
final proposal and SQ	0.125	0.437	0.643	0.805	1
final and initial proposals	0.174	0.705	0.967	1	1

The bigger project

Draw Mexico project = offspring of *Public Mapping Project in U.S.*

Remove opaqueness from redistricting process

`DistrictBuilder` is open-source, web-based software

- enables widespread DIY redistricting thru cloud computing
- internet lets anyone draw/inspect maps: crowdsourcing
- redistricting contests in 6 US states $\rightarrow$ hundreds of legal plans

Application to Mexico ▸ Link: MexDemo (Donations anyone?)

Wrap-up

- Transparency in commission's work is a must for accountability
- Mexico case study:
  1. Explicit rules violated
  2. Ad-hoc operationalization
  3. Parties acting as if implicit rules operational
- None can be assessed from publicly available information

Thank you!

Wrap-up

- Transparency in commission's work is a must for accountability
- Mexico case study:
  1. Explicit rules violated
  2. Ad-hoc operationalization
  3. Parties acting as if implicit rules operational
- None can be assessed from publicly available information

Thank you!