Representational Biases under Proportional Representation

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Parliamentary Representation and Electoral Systems

- PR delivers well on indicators of representation
    - Congruence
    - Disproportionality
    - Party system fractionalization (ENP)
- Common version of PR: districted PR
    - employed by more than half of democratic states

Parliamentary Representation under Districted PR (I)

- The study of representation treats districted PR as national-district PR

  - When evaluating representation across countries, votes are identified by the party for which they are cast

- However:

  (1) Interests are districted: voters', MP's, and parties'

  (2) Institutions vary by district: heterogeneity in district magnitude (DM) within states

- These two facts have implications for the study of representation

Parliamentary Representation under Districted PR (II)

(1) Interests are district-specific

(2) Institutions converting votes to seats vary by district

- Large heterogeneity within countries: same representation on average, but fraction of parliament elected by small / large districts differ across countries

- Incorporate these into the study of representation:
    - Party system fragmentation
    - Disproportionality
    - Inequality in representation (today)

Today: Are Voters Equal under Proportional Representation?
in collaboration with Liran Harsgor, Raz Sheinerman

Two basic Questions

Are voters under proportional representation equally represented in parliament?

- (i) Is there a systematic ideological bias in representation under PR?

- (ii) What districting principles enhance representational equality among voters?

A New Approach to Evaluating Parliamentary Representation: Main Findings

Key findings

1. Under districted PR, compared to the electorate the parliamentary pie is often biased in favor of supporters of right-leaning parties (and large parties)

2. Irrespective of the median (or avg.) district, the fraction of parliament elected via small districts affects representational inequality.

Geographically Motivated Representation under PR

- **Voters**
  - Vary in their interest by region (more on this below)
- **Parties** often have to prioritize interests that correlate with districts
  - Subsidize industry vs. agriculture
  - Invest in north or south
  - Pork
- **MP's** are not district-blind in their efforts
  - Bowler and Farrell (1993)
  - Strattman and Baur (2002)
  - Heitshusen et al. (2005)
  - Shugart et al. (2005) on personal vote

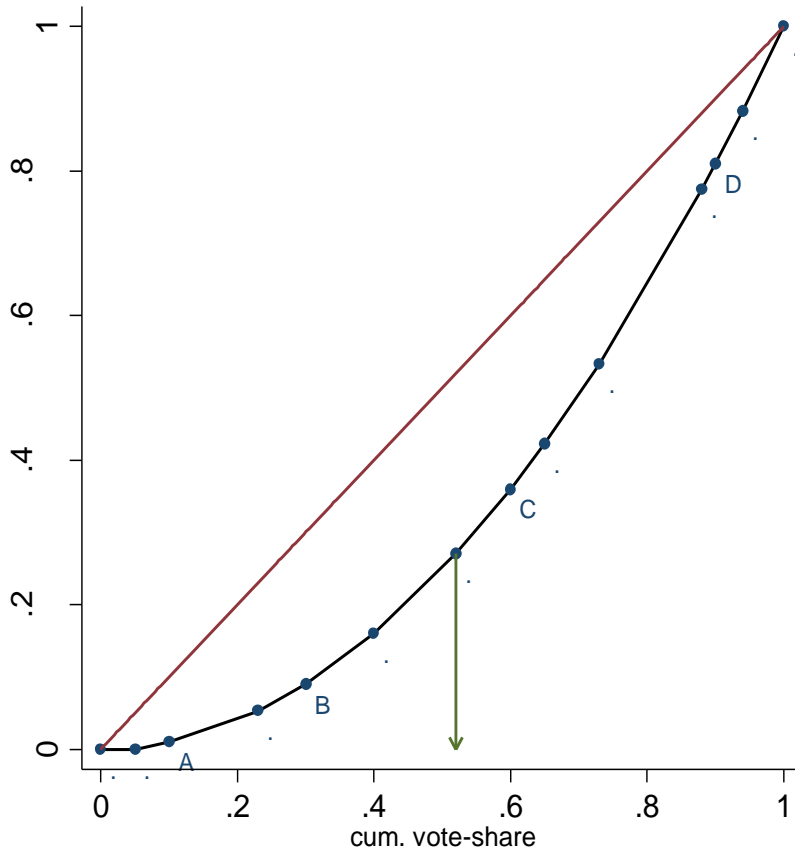# Evaluating Representation under Districted Systems: Setup

	p_1	p_2	.. p_K	Total
d_1	V_{11}, S_{11}	V_{12}, S_{12}		
d_2	V_{21}, S_{21}	V_{22}, S_{22}		
$\vdots$				
d_N				
Total				V, S

Conversion Ratio (CR): seat-share/vote-share

e.g., $\dfrac{s_{11}/S}{v_{11}/V}$

Representational Inequality (RI)

- inequality curve
  - conversion ratio (CR): seat-share/vote-share
  - How many are underrepresented?
  - By how much are they underrepresented?
- RI summary index (area)
- voters supporting different parties residing in same district (A, B)
  - are seats occupied by those parties that voters supported?
- voters supporting the same party residing in different districts (A,C)
  - does the party in parliament reflect its electoral base of support?
- any two voters (A,D)

Representational Inequality: Hypotheses

Within countries

(i) Whose voice is louder?

H1: In countries characterized by substantial variation in DM, supporters of right-wing parties are overrepresented compared with their left-wing counterparts, and the effect declines with district magnitude

- Monroe and Rose (2002)
- Rodden (2010)

Across countries

(ii) How does the districting structure affect representational inequality?

H2: The greater the share of parliament elected via small districts the greater is inequality

Focus on Districted PR

Advantages

- Prevalence
  - 70% of democracies have proportional representation (PR)
  - 80% of PR systems are districted
- Variation in distribution of DM across countries
- The literature often categorizes electoral systems by middle district
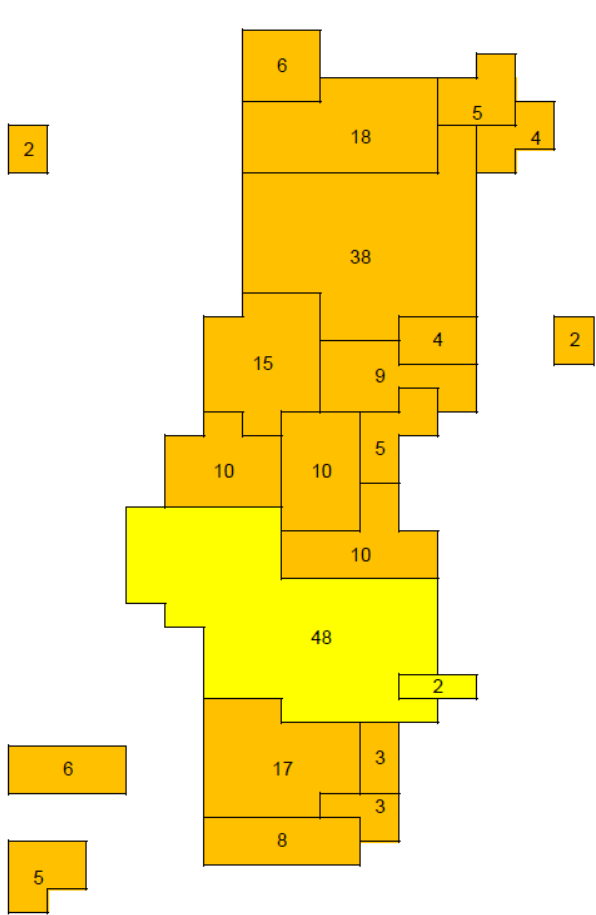
Challenges

- Compensatory seats (as separate districts or added to current districts)
- Variation in other mechanisms (formula, malapportionment, threshold…)
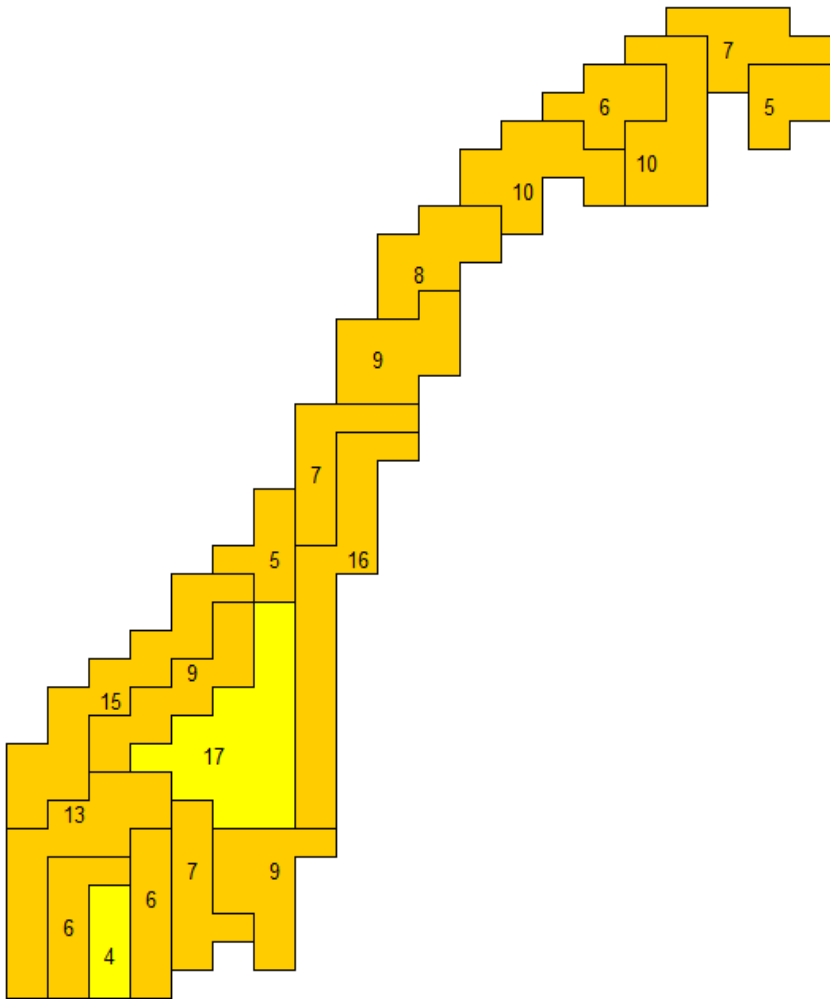
Example: Portugal (22 Electoral Districts)

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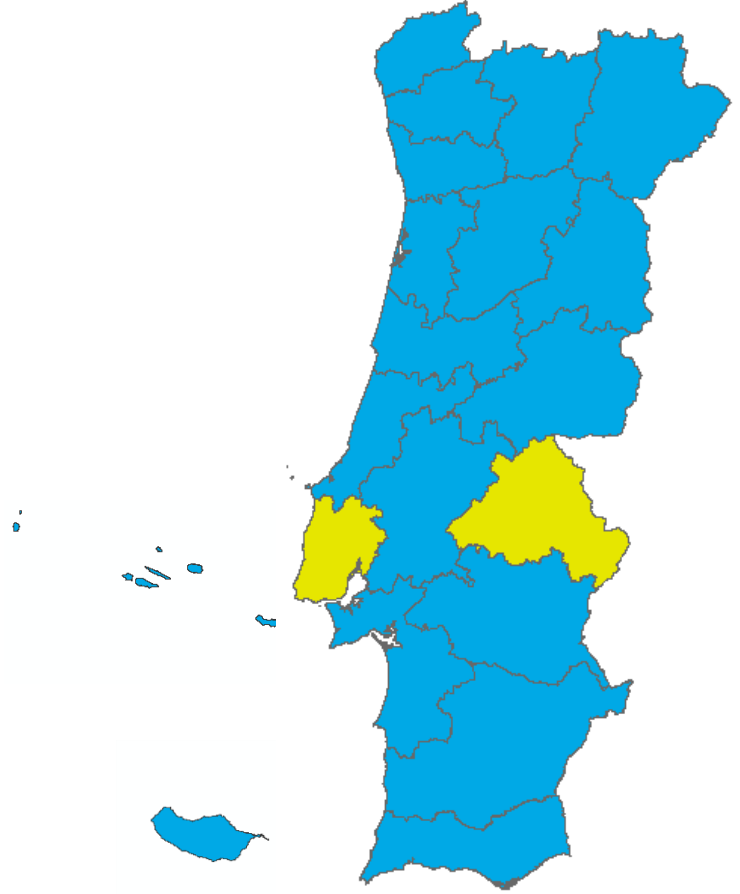
Norway: 19 Electoral Districts
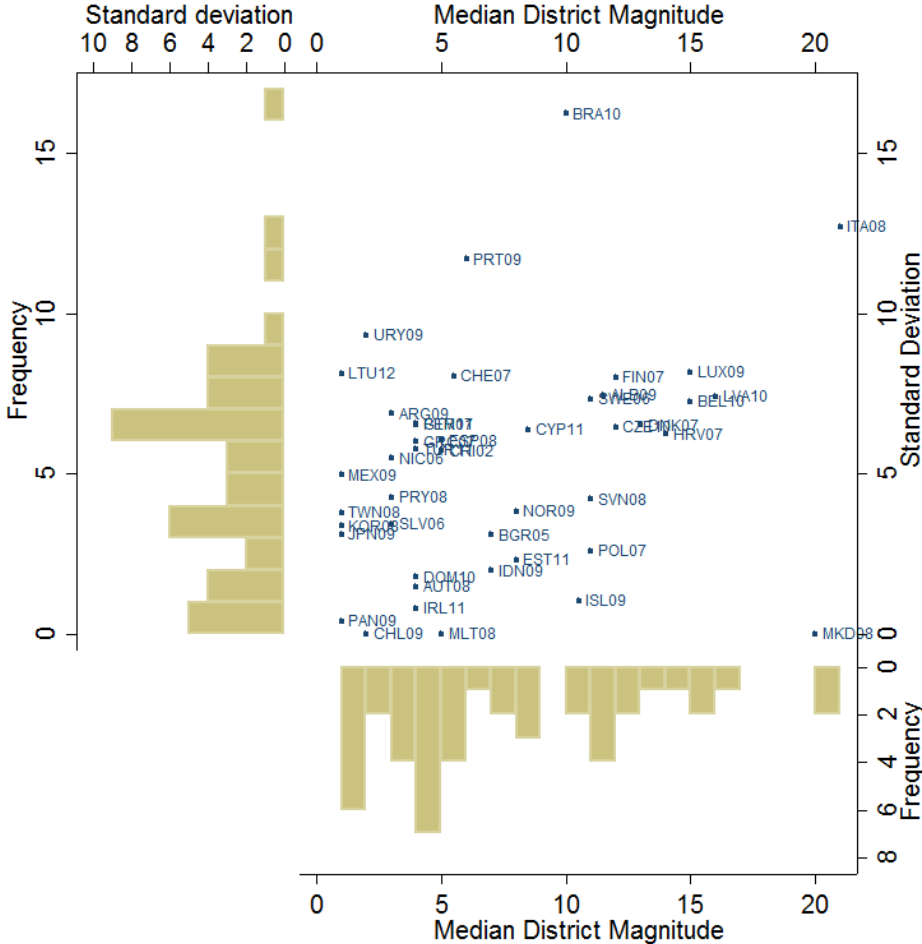
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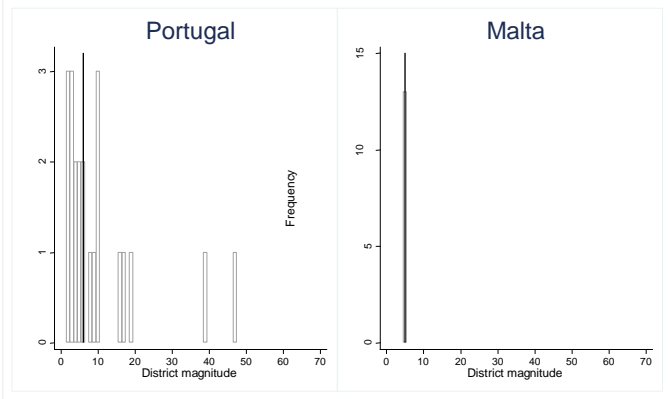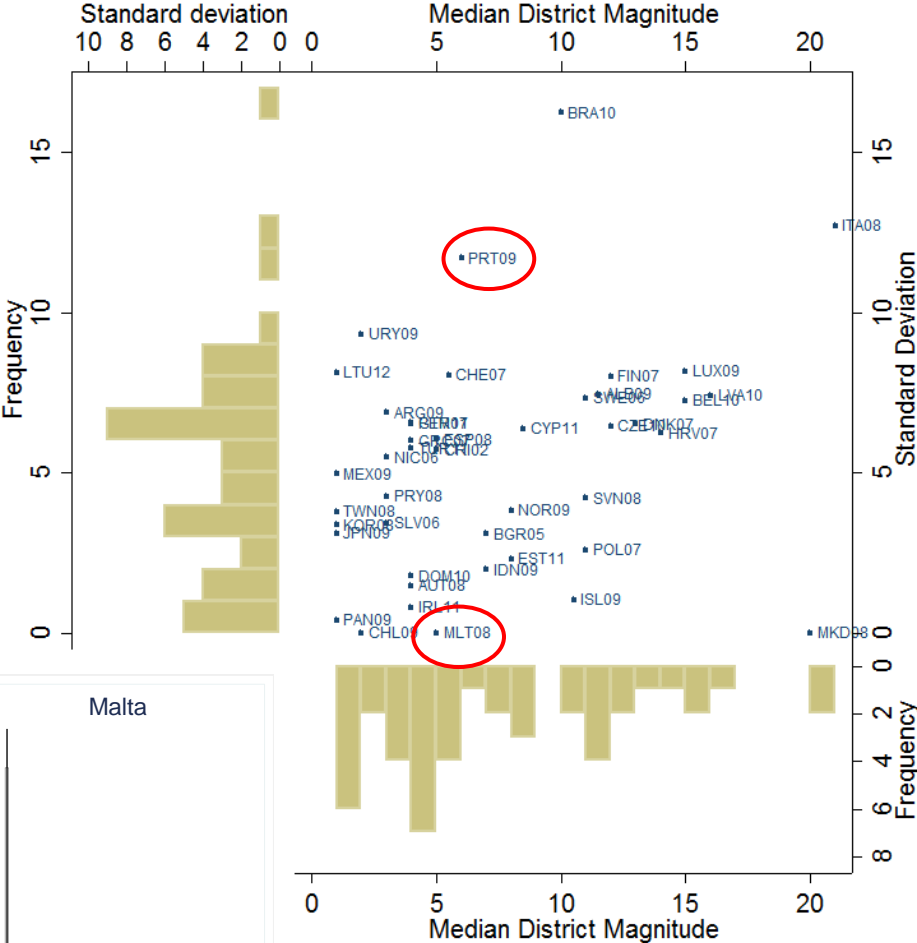
District magnitude in Districted PR's

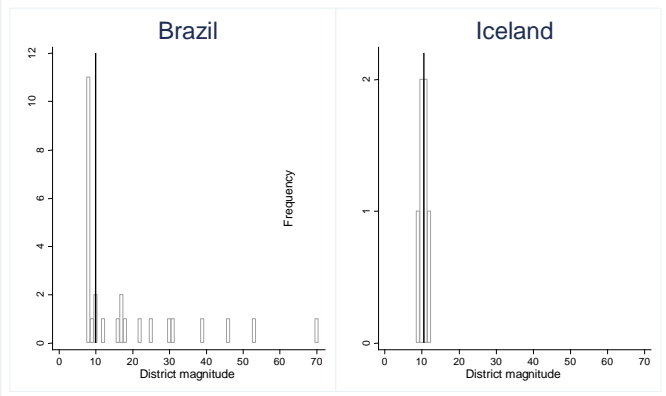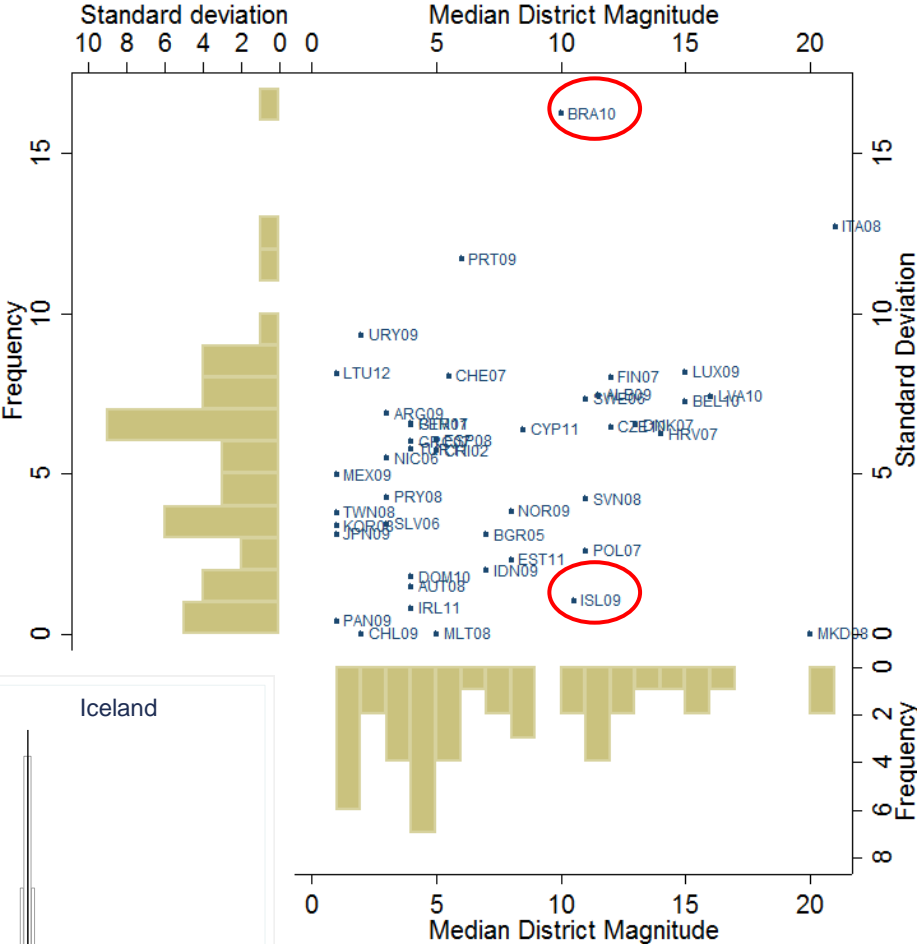District magnitude: minimum, median (x), average (◆), maximum
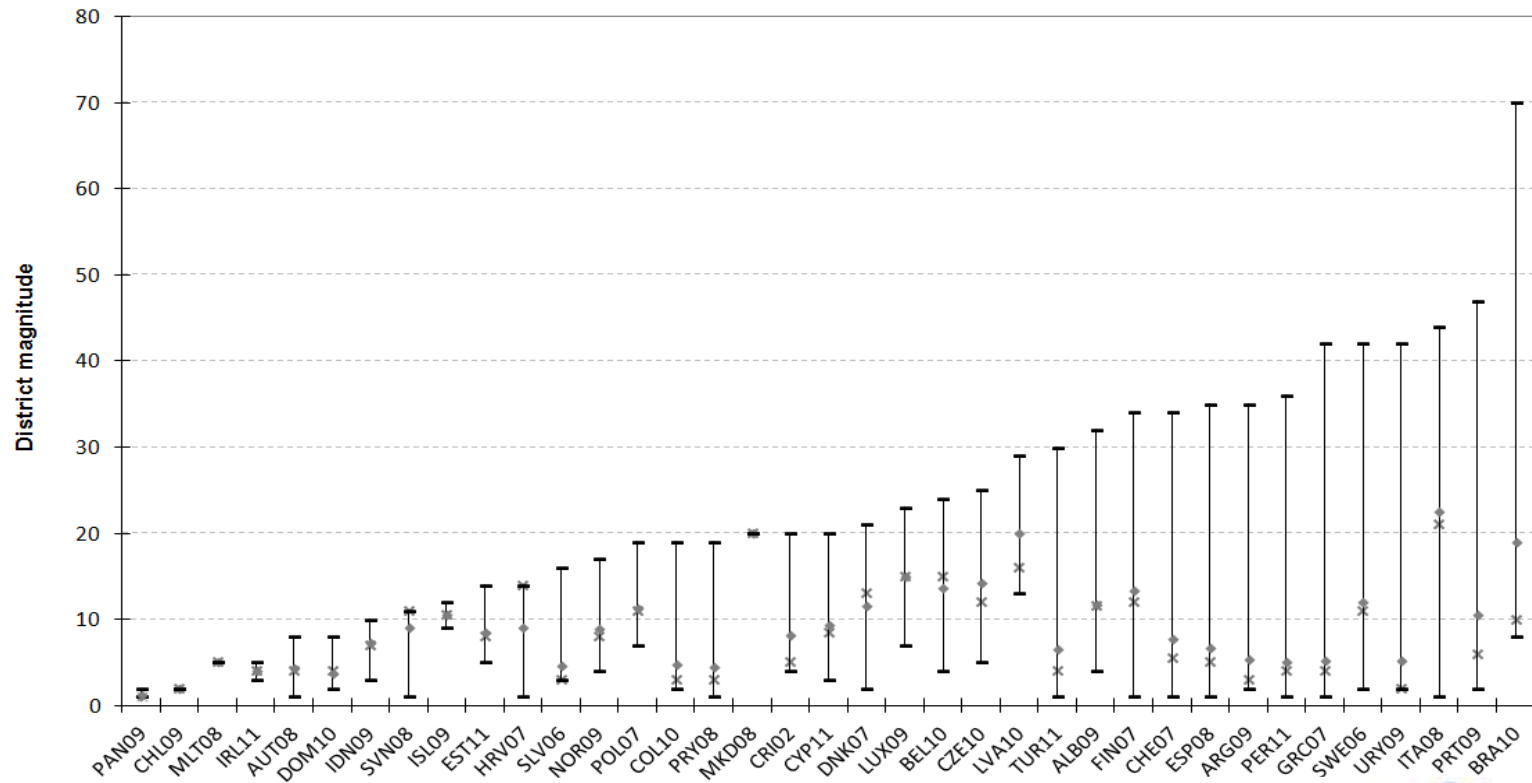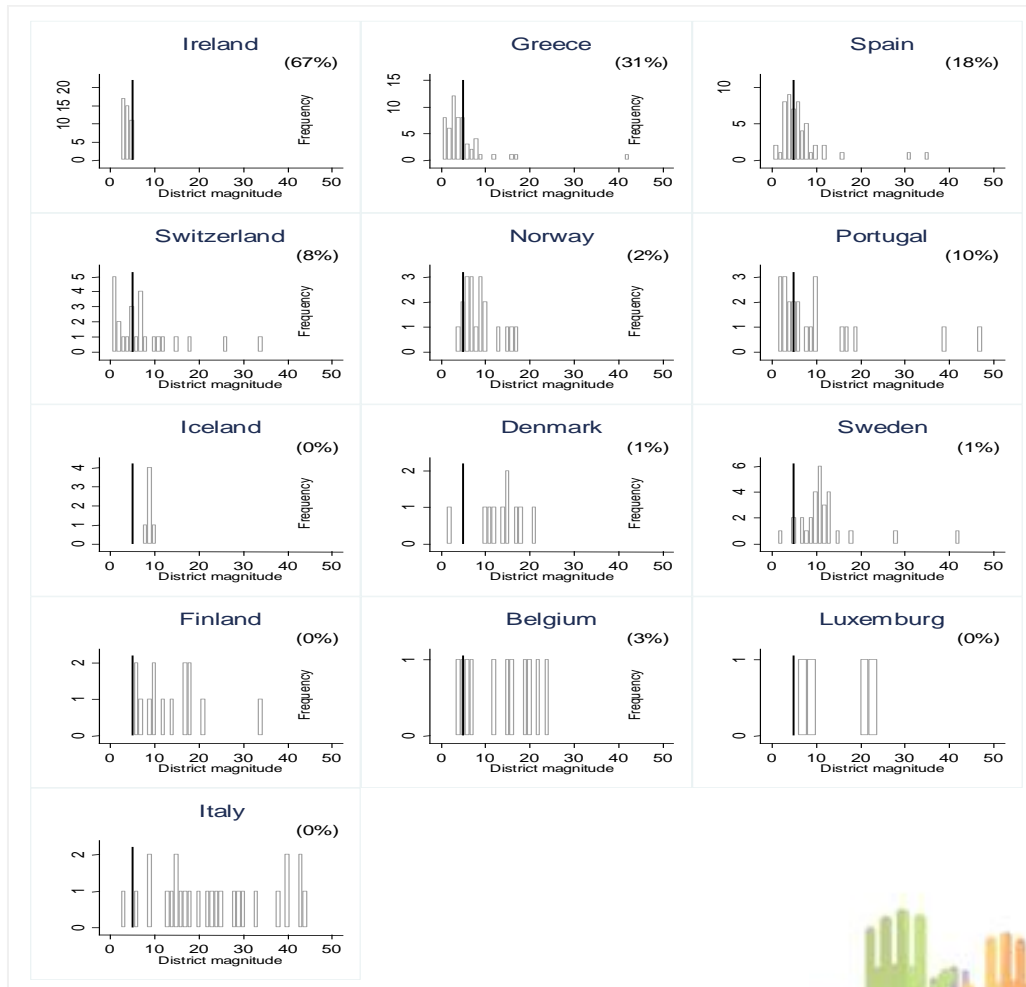
District magnitudes: medians and standard deviations (Districted PR + mixed systems)

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Distributions of District Magnitude under Districted PR (Western Europe)

Data used (here)

- Election results (votes, seats) at the district level per country
  - 236 parties (158 in parliaments)
  - 1391 districts (330 in districted PR)
  - 20 Countries:

    Districted PR: Belgium (2010), Denmark (2007), Finland (2007), Greece (2007), Iceland (2009), Ireland (2011), Italy (2008), Luxemburg (2009), Malta (2008), Norway (2009), Spain (2008), Sweden (2006), Switzerland (2007), Portugal (2009)

    Complemented by

    National-district PR: Germany (2009), Israel (2009), New Zealand (1996), the Netherlands (2010)

    Majoritarian: Canada (2011), New Zealand (1993), the UK (2010)

Are Voters Equal?

i. Whose Voice Is Louder?

H1: In countries with large variation in DM, supporters of right-wing parties are overrepresented and especially so in small districts

- ideological L-R placement coding of parties based on manifestos (Benoit and Laver, 2006). Also, expert survey of ideological party placement (Chapel Hill dataset)
- estimate:

$$CR_{ij} = b_0 + b_1 \ln(dm_i) + b_2 partyLR_j + b_3 \ln(dm_i) * partyLR_j$$

- QoI: the association between ideology and conversion ratio

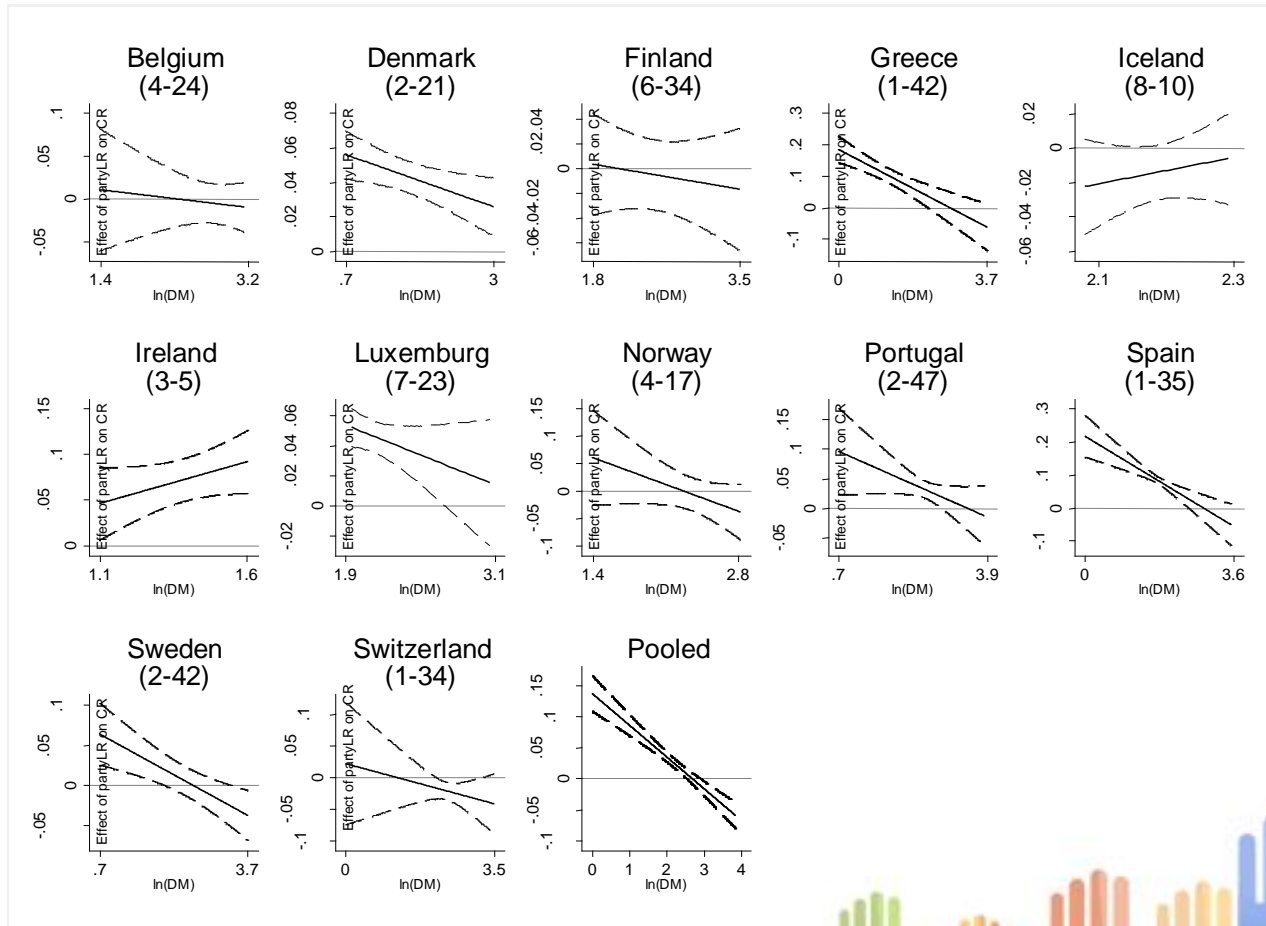$$\frac{\partial CR_{ij}}{\partial partyLR_j} = b_2 + b_3 ln(dm_i)$$

- should see

    small districts: CR(R)>1, CR(L)<1
    large districts: no relationship

i. Whose Voice Is Louder?
The Effect of Party Ideology on Vote-to-Seat Conversion

ii. Cross Country: How Does Districting Structure Affect Representational Inequality?

H2: The greater the share of parliament elected via small districts the greater is inequality

$$RI_c = b_0 + b_1 \text{``hump''}_c + b_2 \ln(dm_c) + CTRLs$$

| Model	% legislators elected in districts <7, 5, 3		Central DM (med. Leg.)	STV	Electoral formula (Lijphart)	Constant	R^2
i			-0.08	-0.10	0.02	**0.41**	0.77
			(0.02)	(0.07)	(0.07)	(0.09)	
ii	%<7	**0.32**	-0.04	**-0.31**	-0.02	**0.31**	0.88
		(0.09)	(0.02)	(0.08)	(0.02)	(0.07)	
iii	%<5	**0.36**	**-0.04**	**-0.11**	**-0.03**	**0.34**	0.97
		(0.03)	(0.01)	(0.03)	(0.01)	(0.03)	
iv	%<3	**0.31**	**-0.05**	-0.02	-0.02	**0.37**	0.91
		(0.06)	(0.01)	(0.05)	(0.02)	(0.06)	

* N=21. Robustness: avg. DM, med. DM, alternative electoral formula coding (Rae, Gallagher, Benoit).

Representational Inequality and Small Districts:

Alternative Cutoff Points

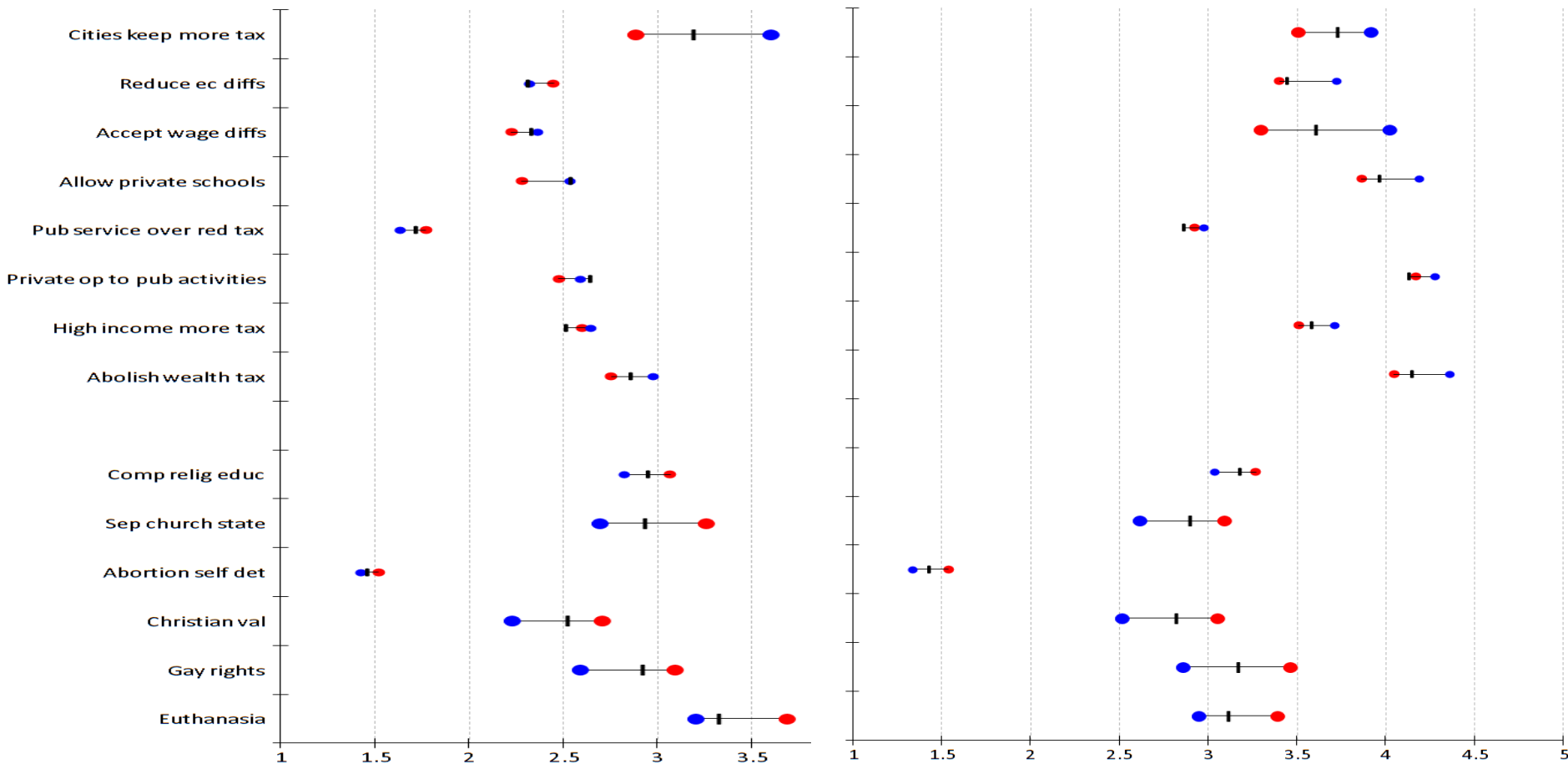b_1: the effect of fraction of parliament elected in small districts on RI
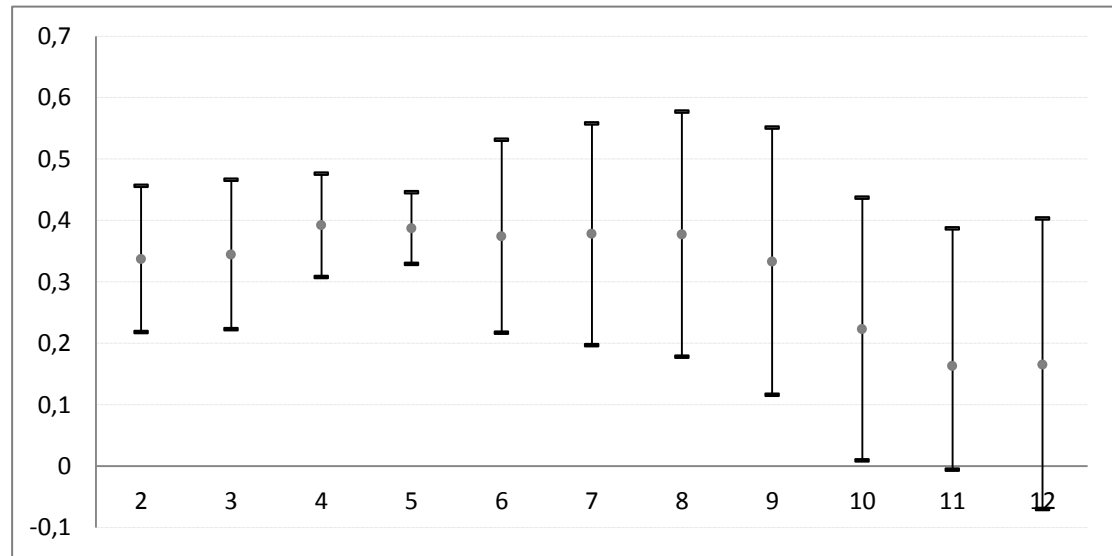
Cutoff district magnitude

Norway 2009: Policy Positions among Co-partisans Residing in Different Regions

Labour supporters

Conservatives supporters

Oslo vs. West. 1= ec. left, soc. liberal

Conclusion: Unequal Representation of Voters

- The parliamentary pie is often biased in favor of right-leaning (and large) parties compared with the distribution of votes.
    - Bias originates mostly in small districts
- Across countries: the greater the share of parliament elected via small districts the greater is inequality, irrespective of magnitude of central district.
- Voters across regions (districts) differ in their positions so over/under representation does not cancel out.
- Representation is not an 'on average' quantity.