The Changing Polarization of Party Ideologies: The Role of Sorting

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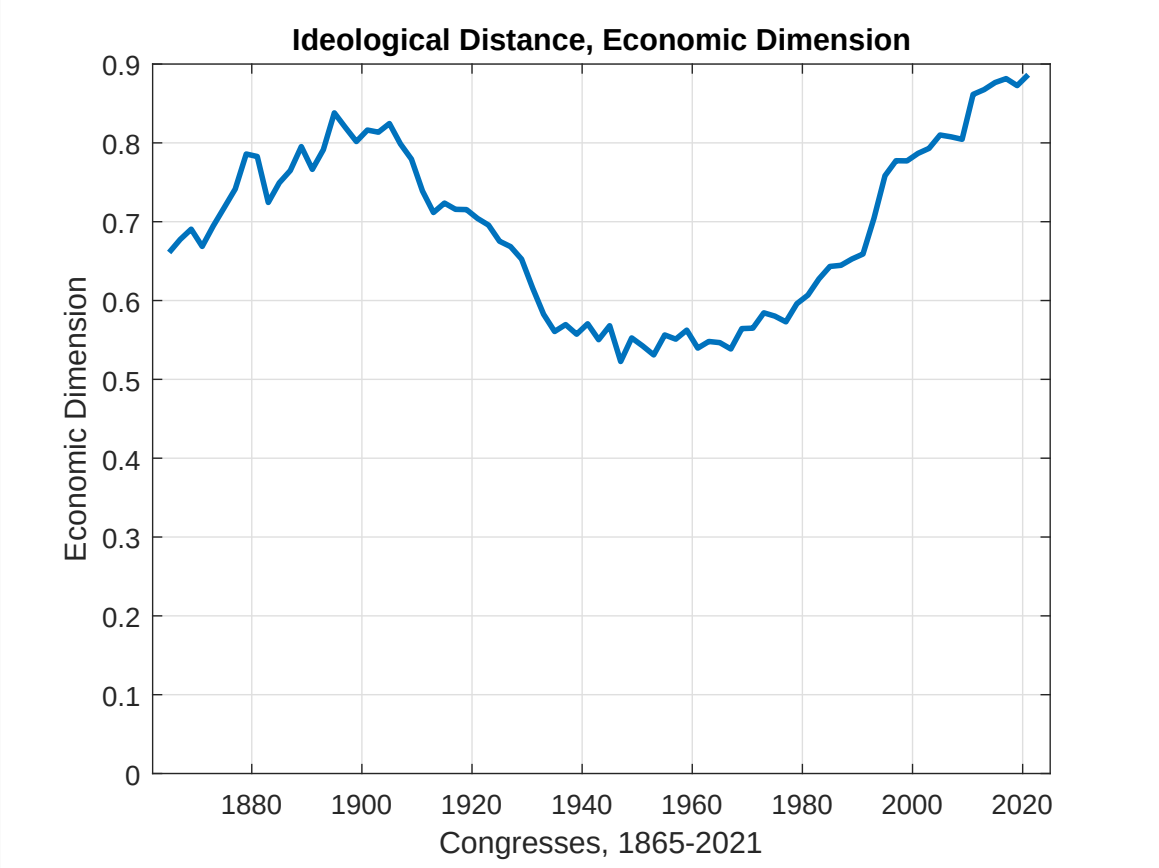
Political Ideology Data

- Ideology scores developed by K. Poole and W. Rosenthal (1997)
- Using roll calls, they map every congress member to a point in 2-dimensional ideology space $[-1, 1]^2$
- Dim 1 relates to preferences regarding government intervention in economic affairs (left vs right / big vs small gov't)
- Dim 2 relates to preferences regarding other issues, such as civil rights, regional issues, ...
- Available for all Congresses and is regularly updated by voteview.com

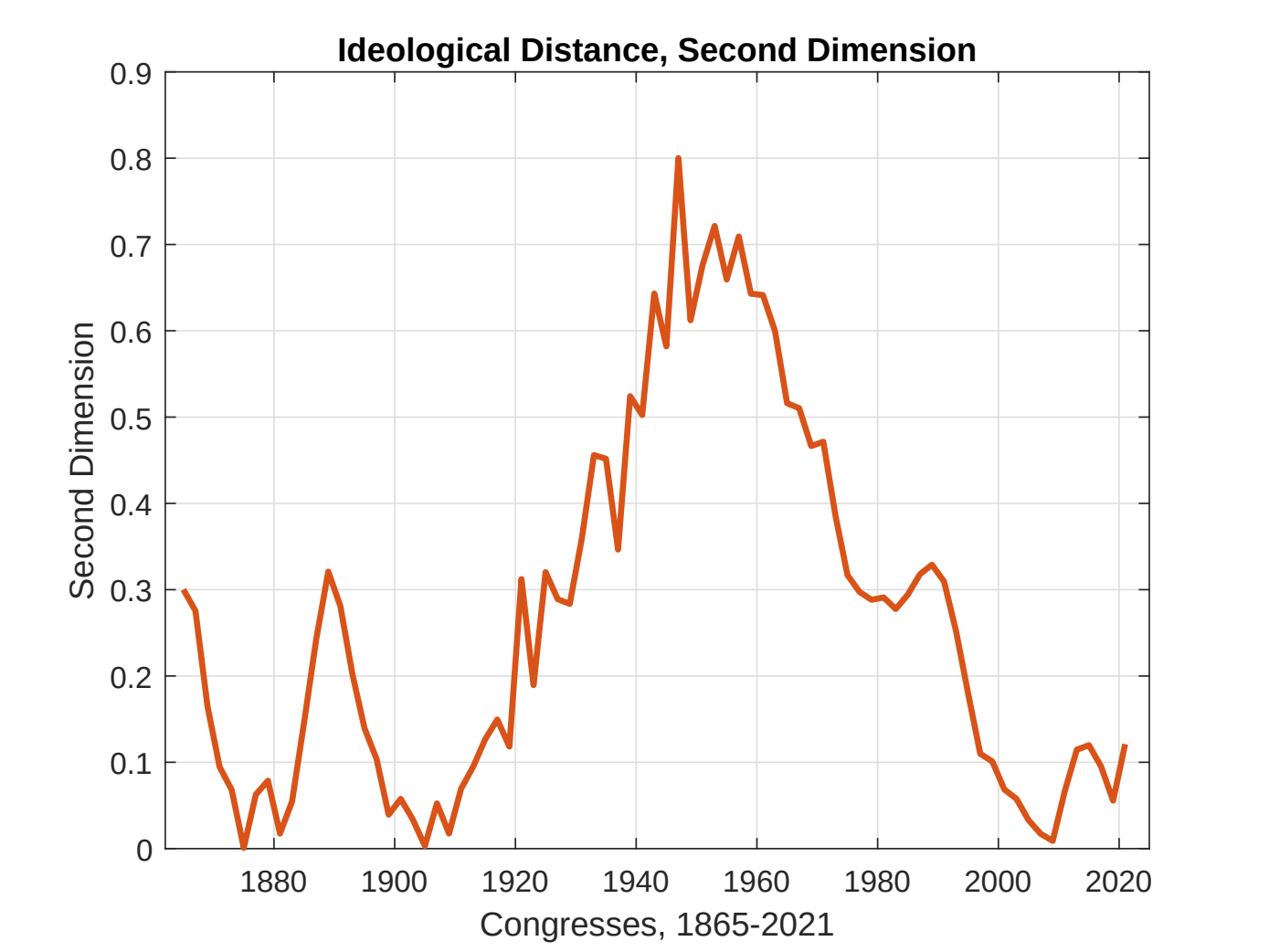
Polarization Along the Primary (Economic) Dimension

Absolute Difference in Avg Dim 1 Scores of Democrats and Republicans

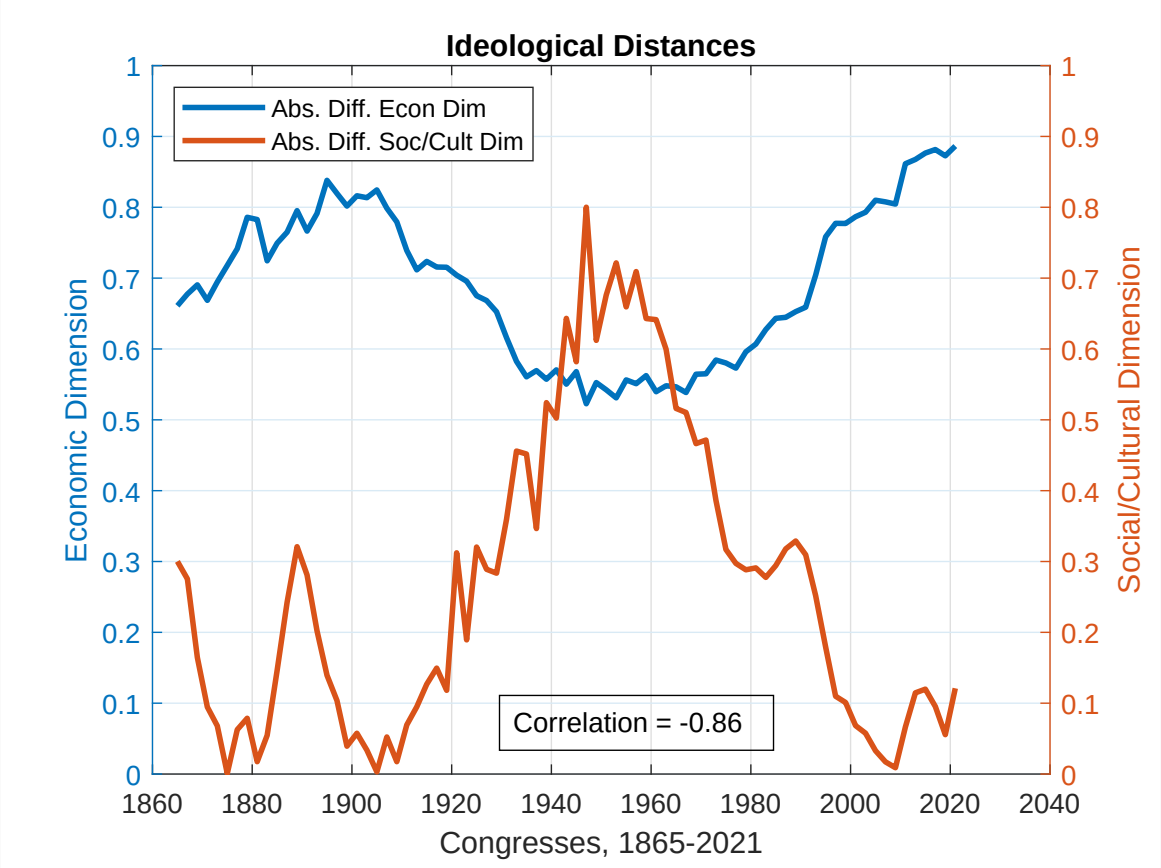


Polarization Along the Second (Social) Dimension

Absolute Difference in Avg Dim 2 Scores of Democrats and Republicans



Inverse Association



Key Takeaways

- Polarization along the two dimensions is strongly inversely related
- We show that a simple model of sorting into parties can get this negative relationship
- The main idea:
  - If a party is against desegregation and if it is a very salient issue with some voters, the party will attract both the poor and the rich
  - The same goes for the party that is for desegregation
  - The greater mixing of rich and poor within each party means less polarization w.r.t. economic issues

Contribution

- Active literature on political polarization . . .

  McCarty, Poole, and Rosenthal (2006), Dixit and Weibull (2007), Herrera, Levine, and Martinelli (2008), Krasa and Polborn (2014), Konishi and Pan (2020), Drautzburg, Livshits, and Wright (2021), Azzimonti and Fernandes (2021), . . .

- . . . and a closely related literature on policy divergence

  Downs (1957), Wittman (1973), Roemer (2001) . . .

- Generally focuses on polarization/divergence of policies along a single dimension

- We present a model of two-party competition in a 2-dim policy space in which the inverse association is explained

Model

Voters

- 2 dimensions to policy, denoted $(w, z) \in \mathbb{R}^2$
- Utility decreases with distance of enacted policy (w, z) from a voter's preferred policy (x, y)

$$-[(w-x)^2 + (z-y)^2]$$

- Voter types $\sim q(x, y)$ with $q(\cdot)$ symmetric around $(0, 0)$

Time Line

A Model of Primaries

- People expect party platforms to be (w_k^e, z_k^e), $k \in \{D, R\}$
- Given this expectation, each voter attends the primary of the party whose policies gives her the highest utility
- The policy platforms (w_k, z_k), $k \in \{D, R\}$ maximize the equally-weighted expected utility of primary attendees
- Voting for the national election happens
- Equilibrium:

$$(w_k^e, z_k^e) = (w_k, z_k), k \in \{D, R\}$$

General Elections

- The parties go into the general elections with policies set in the primaries (to which they are committed)
- The party with the most votes wins

General Election, cont.

- Voter (x, y) votes for party D if

$$-[(x - w_D)^2 + (y - z_D)^2] + A > -[(x - w_R)^2 + (y - z_R)^2]$$

- A is a zero mean aggregate shock $\sim F(A)$

- D-party wins if $A \geq \bar{A}$

$$\bar{A} = \left[w_D^2 + z_D^2\right] - \left[w_R^2 + z_R^2\right]$$

- Prob of D party win: $1 - F\left(\left[w_D^2 + z_D^2\right] - \left[w_R^2 + z_R^2\right]\right)$

Primaries

Sorting based on anticipated party platforms

- Voter (x, y) attends D-party primary if

$$-(x - w_D^e)^2 - (y - z_D^e)^2 \geq -(x - w_R^e)^2 - (y - z_R^e)^2$$

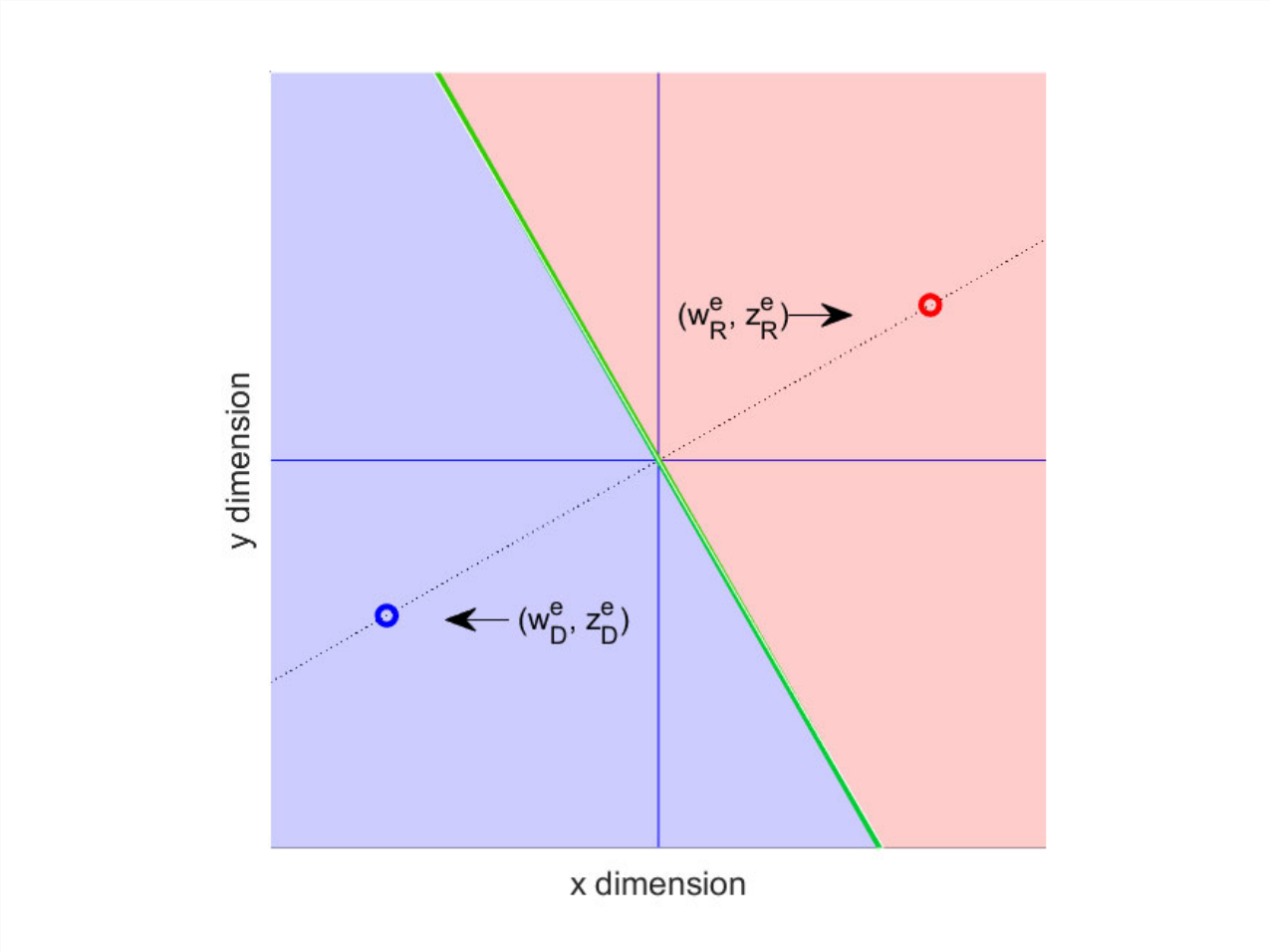
  and attends the R-party primary otherwise

- We consider only symmetrically opposed expected party platforms:

$$\{w_R^e, z_R^e\} = \{-w_D^e, -z_D^e\}$$

Primaries

Sorting based on anticipated party platforms



Primaries

Determination of Party Platforms

D party chooses (w, z) to maximize equally-weighted (mean) expected utility of primary attendees, taking into account the prob of winning

$$(w_D, z_D) = \underset{(w,z)}{\operatorname{argmax}}$$
$$\left\{ \begin{array}{c} \pi\left(w, z, w_R^e, z_R^e\right) \mathbb{E}_{(x,y)|\mathbb{H}_D(\mathcal{P}^e)} \left(-\left[(w-x)^2 + (z-y)^2\right]\right) + \\ \left[1 - \pi\left(w, z, w_R^e, z_R^e\right)\right] \mathbb{E}_{(x,y)|\mathbb{H}_D(\mathcal{P}^e)} \left(-\left[(w_R^e - x)^2 + (z_R^e - y)^2\right]\right) \end{array} \right\}$$

Maximization of **mean expected utility** can be micro founded (Lindbeck and Weibull (1987))

- Simplifies to

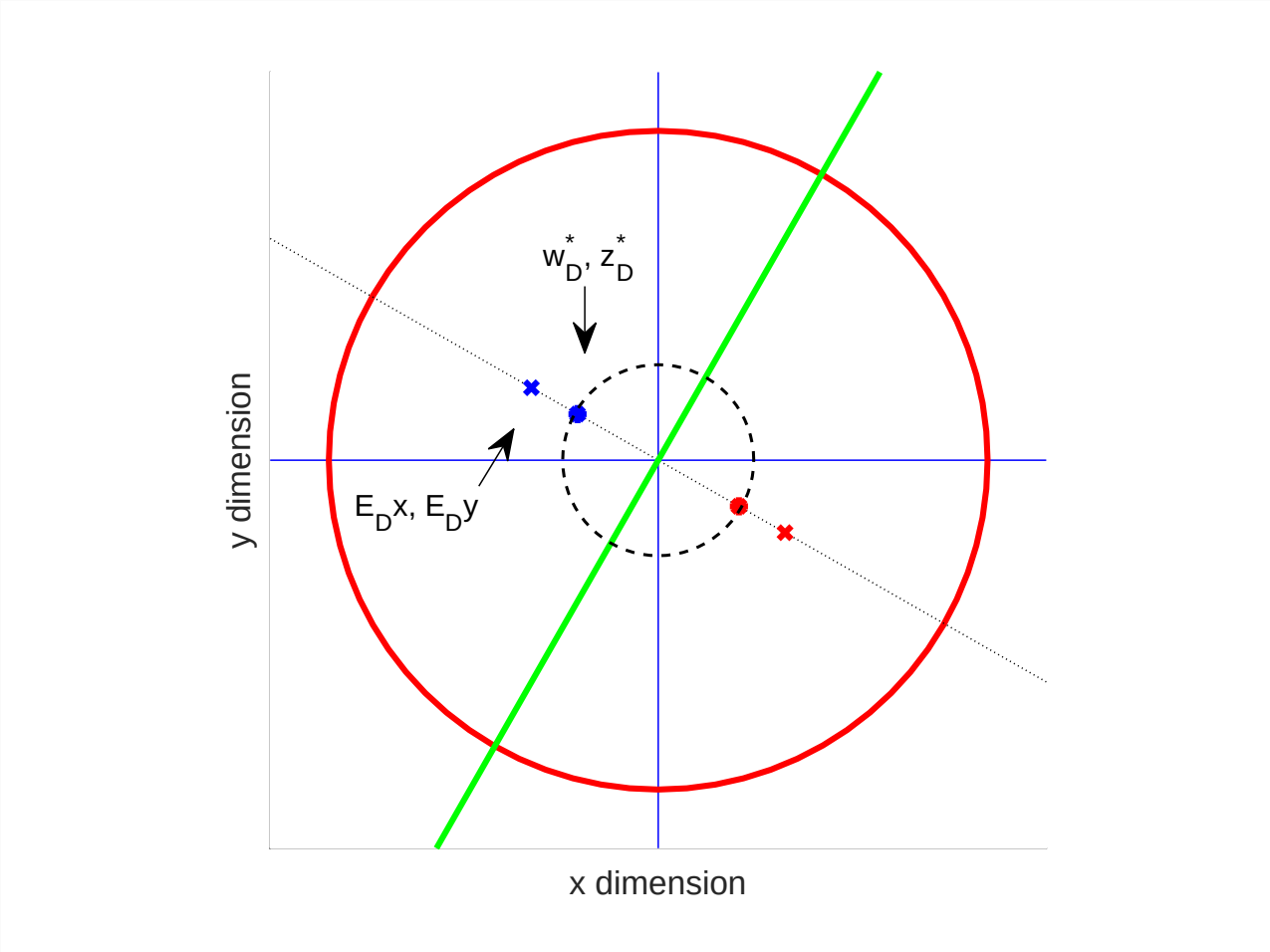
$$(w,z) = \text{argmax} \overbrace{\left[1 - F\left(w^2 + z^2 - \left[{w_R^e}^2 + {z_R^e}^2\right]\right)\right]}^{\text{Prob of winning}} \times \mathbb{E}_{(x,y)|\mathbb{H}_D(\mathcal{P}^e)} \underbrace{\left(-\left[(w-x)^2 + (z-y)^2\right] + \left[(w_R^e - x)^2 + (z_R^e - y)^2\right]\right)}_{\text{Net gain from winning}}$$

Symmetric Equilibrium

Assume

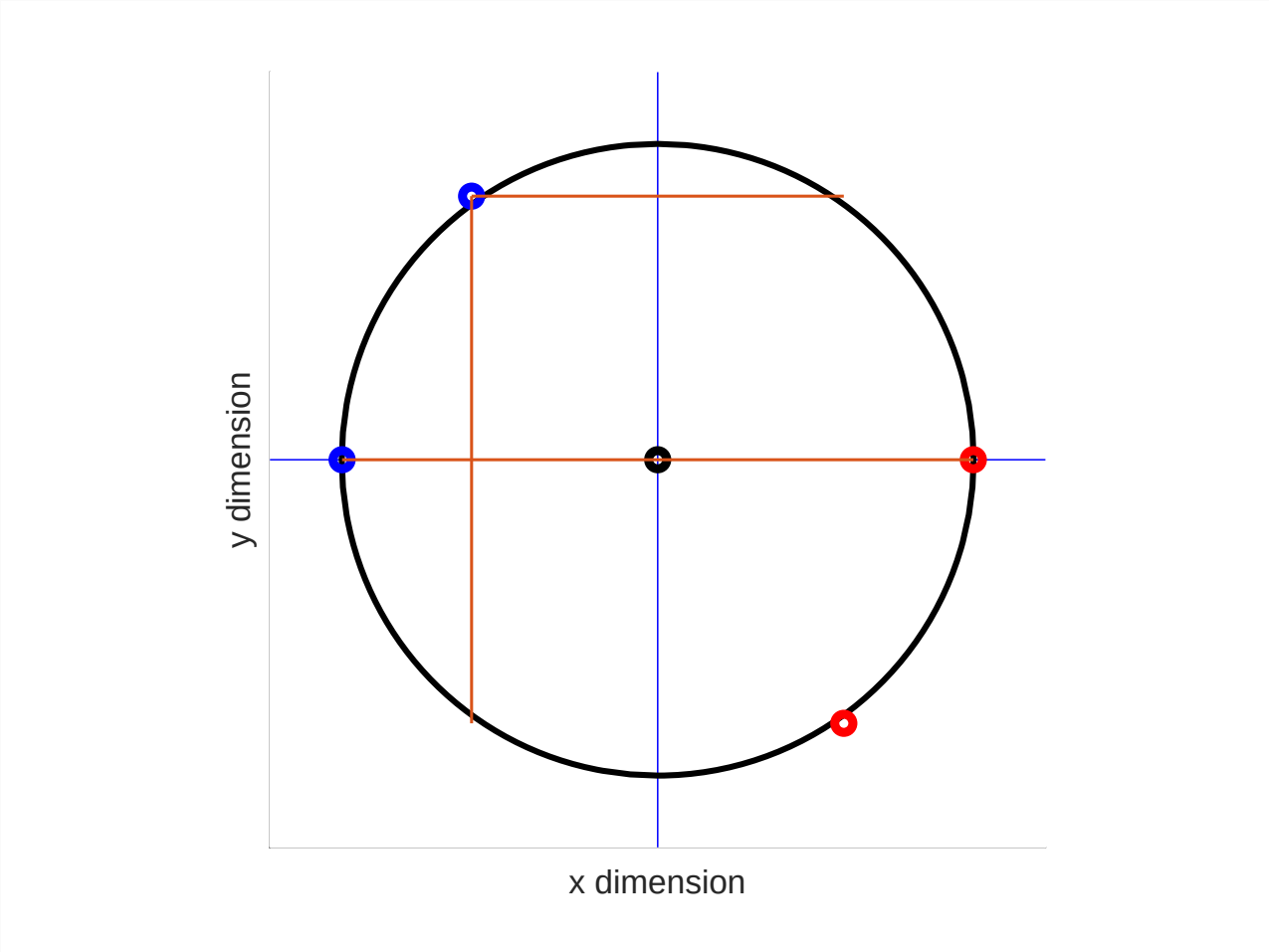
- $q(x, y)$ is uniform on a disk of radius θ
- A is uniform on $[-\alpha, \alpha]$

- The optimal (w, z) is on the ray connecting the mean preferences of the people, $(0, 0)$, to the mean preferences of primary attendees, $(\mathbb{E}_k x, \mathbb{E}_k y)$
- Distance of policy platform from the origin is determined by the standard deviation of A



The distance of $(\mathbb{E}_D x, \mathbb{E}_D y)$ from the origin is $0.4244 \times \theta$

Inverse Assoc. of Ideological Distances Across Equilibria

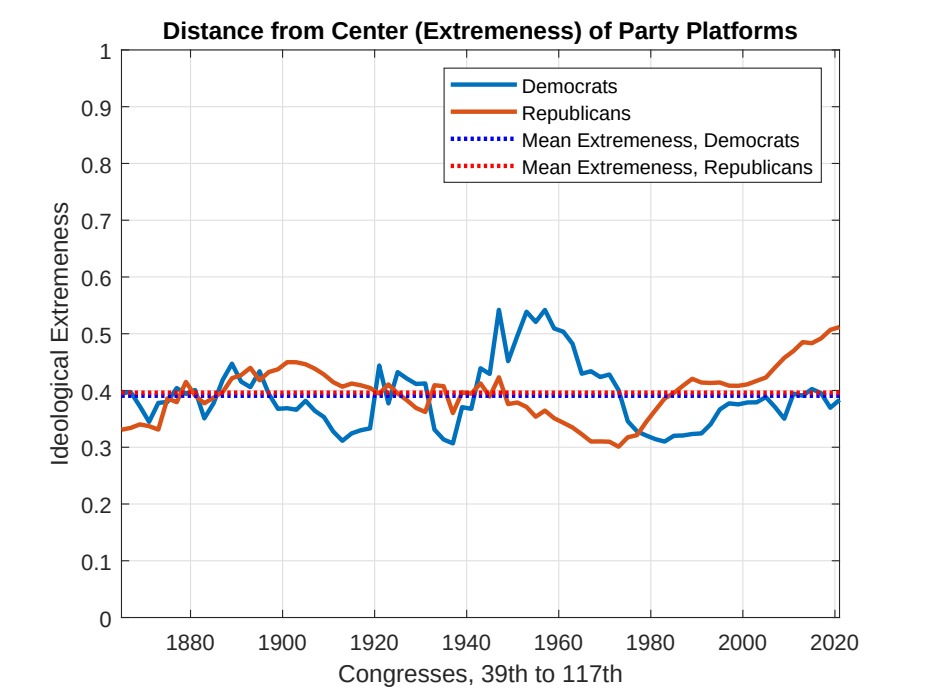


Quantitative Analysis

Calibration of α, θ

- (α, θ) is chosen to match the average distance of party means from origin observed in the Poole-Rosenthal data
  - There is a range of (α, θ) pairs that can perform this match
  - The distance of policies from origin is not varying through time
  - The only reason Dim 1 and Dim 2 polarization will vary is because the cutting line will vary

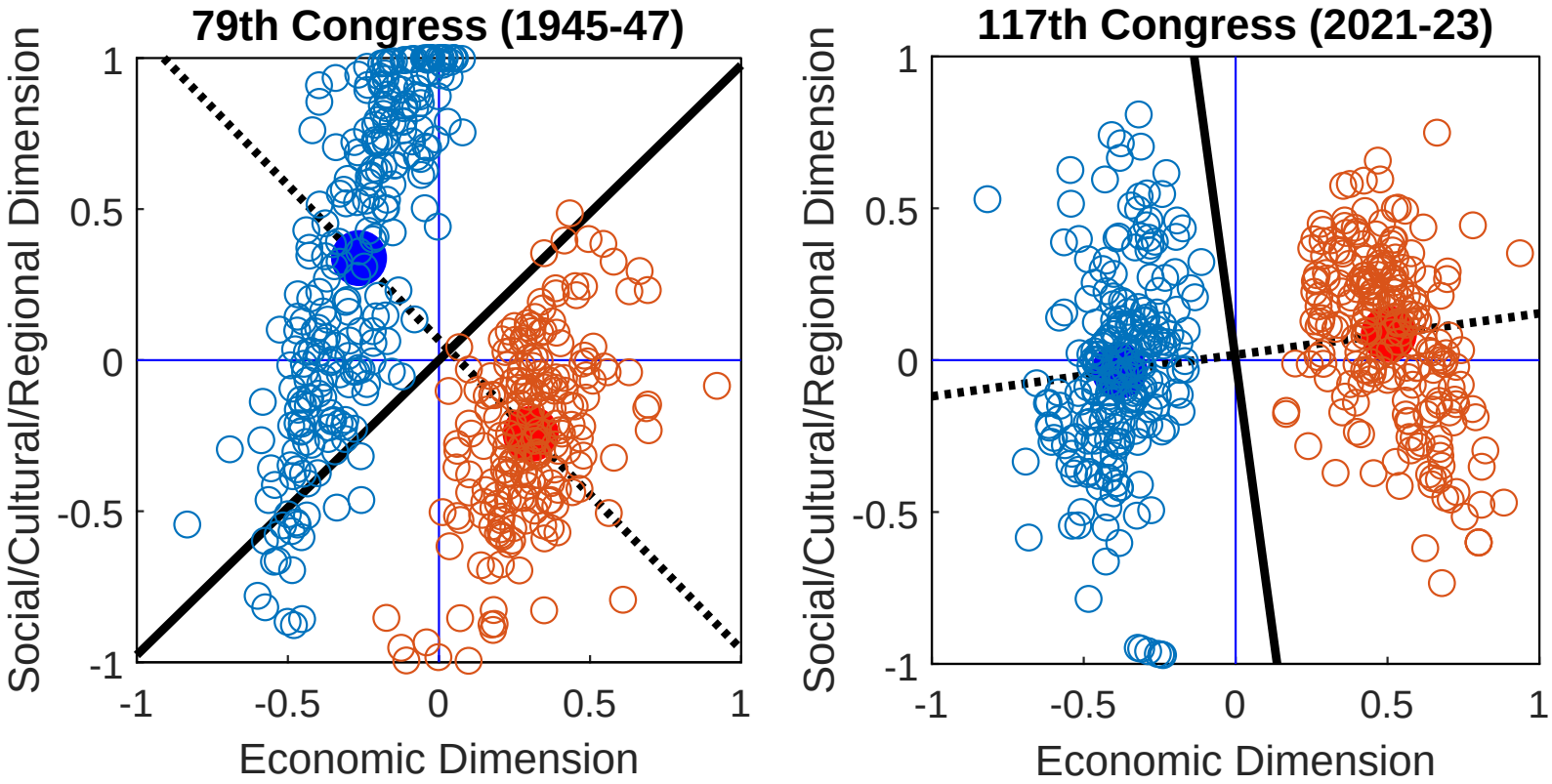
Calibration of α, θ, cont



- The distance from the center of party means are not constant and identical, but the average distance is almost identical: 0.38 and 0.39 for Dems and Reps, respectively
- (α, θ) is picked so that radius of the equilibrium platform circle is $(0.38 + 0.39)/2$

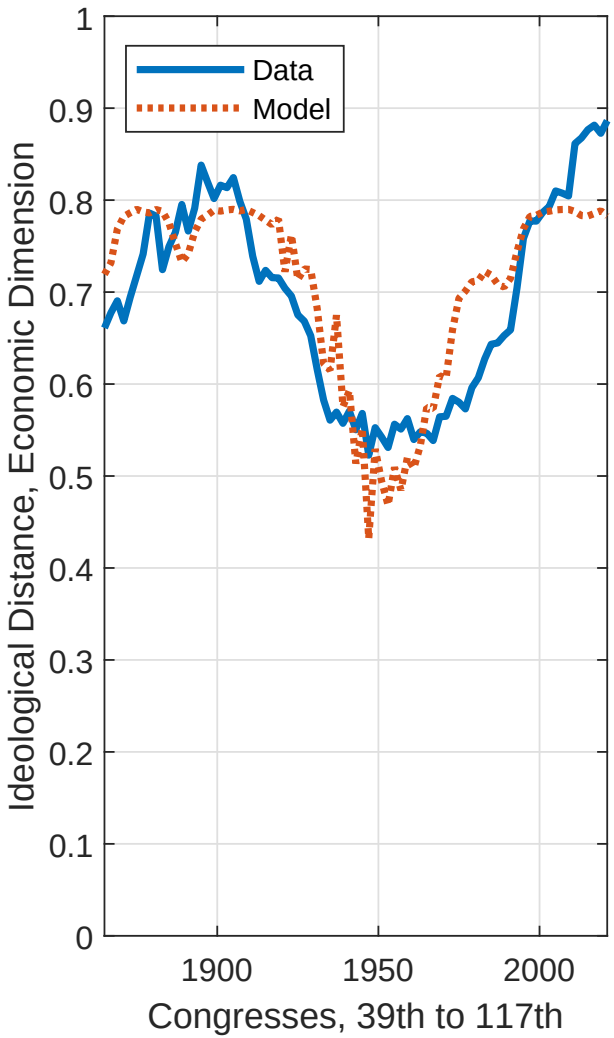
Cutting Lines for Congresses

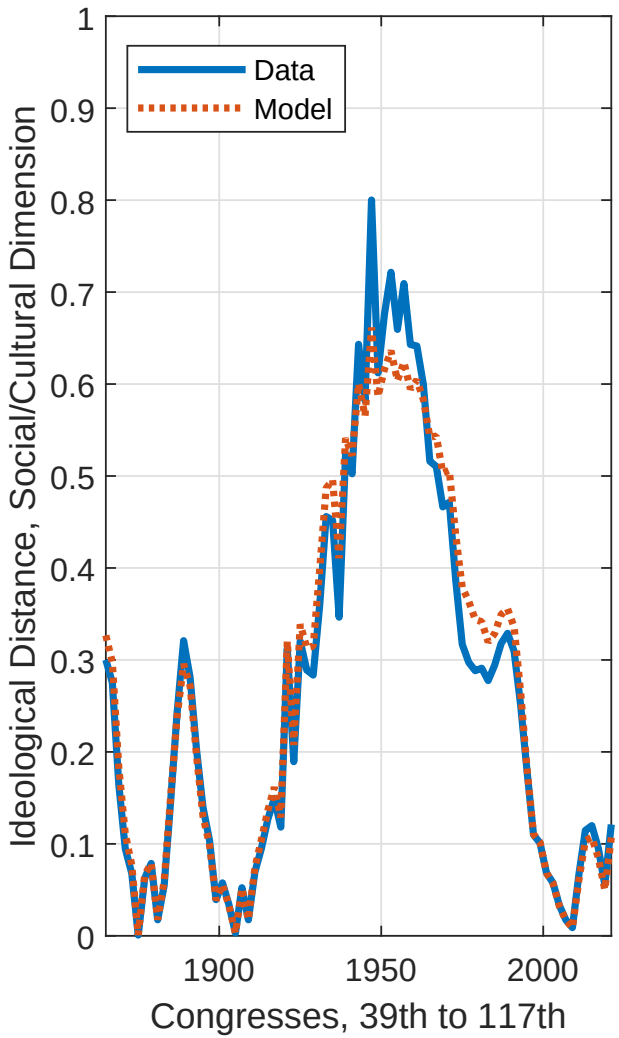
Goes thru the origin and is $\perp$ to the line joining party means



Ideological Distances

Data and Model





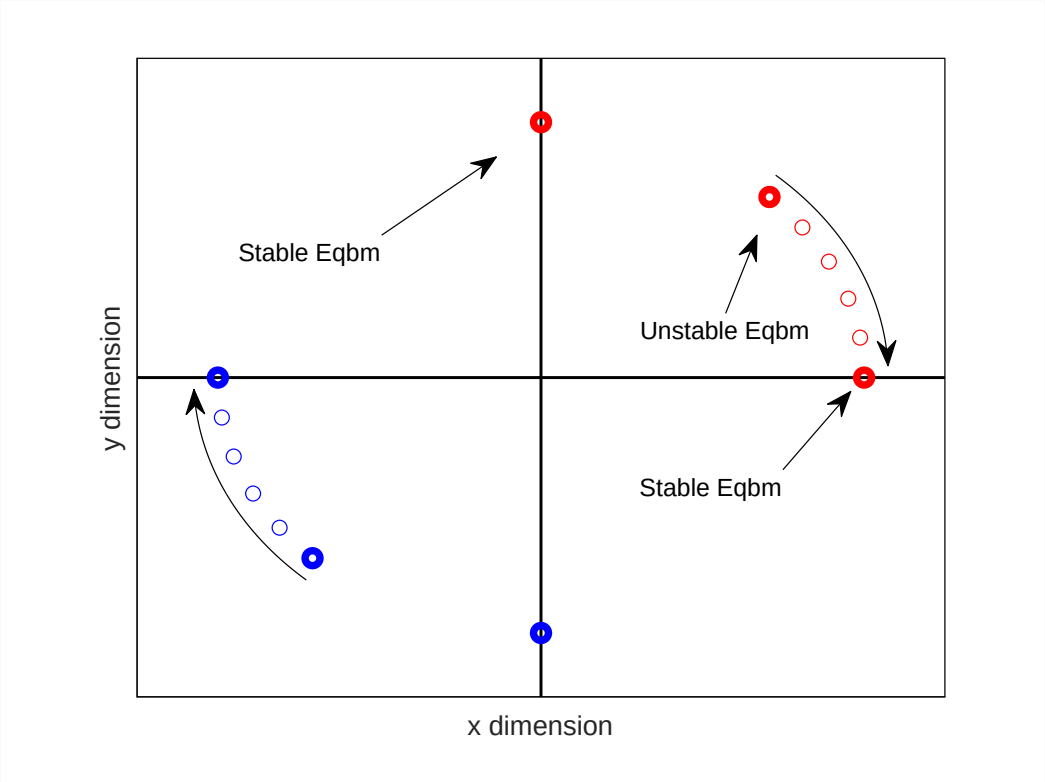
Summary

- Political polarization along economic and social dimensions has moved inversely over a long stretch of US history
- An equilibrium model of party platform formation via primaries can account for the observed inverse association
- Key idea: As parties become more polarized along, say, Dim 2, each attracts voters with diverse views about Dim 1; this forces both parties to move toward the center along Dim 1

Uni Dimensional Polarization

Voters Distributed on a Square

A significant portion of history shows uni-dimensional polarization. Is this a coincidence?

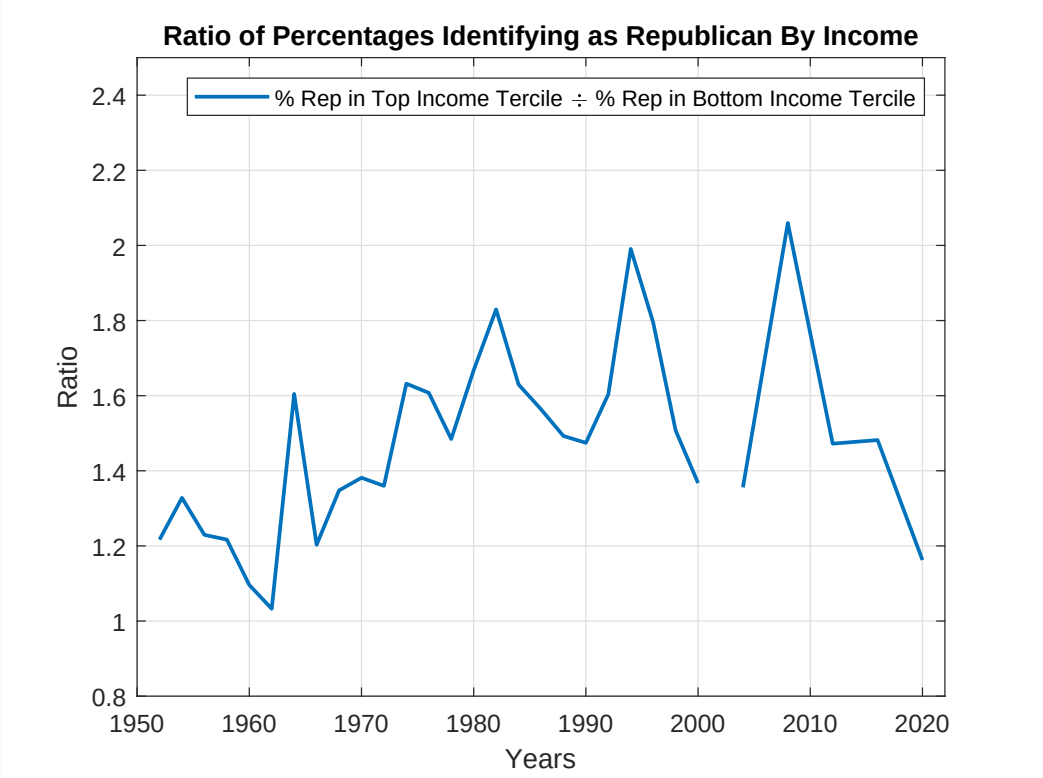


Other Evidence Pointing to Inverse Association

Income Sorting (Source: Am. Nat. Election Study)

Following Civil Rights, income sorting increased: consistent with increasing economic polarization

Following Trump, income sorting fell and economic polarization appears to be falling: Reps backed away from shrinking Medicare and Soc Sec



[] Azzimonti, M., and M. Fernandes (2021): "Social Media, Networks, Fake News and Polarization," NBER Working Paper No. 24462.

[] Dixit, A. K., and J. W. Weibull (2007): "Political Polarization," *Proceedings of the National Academy of Sciences*, 104(18), 7351–7356.

[] Downs, A. (1957): *An Economic Theory of Democracy*. New York: Harper and Row.

[] Drautzburg, T., I. Livshits, and M. L. Wright (2021): "Polarized Contributions but Convergent Agendas," Mimeo.

[] Herrera, H., D. K. Levine, and C. Martinelli (2008): "Policy Platforms, Campaign Spending and Voter Participation," *Journal of Public Economics*, 92, 501–513.

[]Konishi, H., and C.-Y. Pan (2020): "Silent Promotion of Agendas: Campaign Contributions and Ideological Polarization," *Public Choice*, 182, 93–117.

[] Krasa, S., and M. Polborn (2014): "Social Ideology and Taxes in a Differentiated Candidates Framework," *American Economic Review*, 104(1), 308–322.

[] Lindbeck, A., and J. Weibull (1987): "Balanced-Budget Redistribution as the Outcome of Political Competition," *Public Choice*, 52(3), 273–297.

[]McCarty, N., K. T. Poole, and H. Rosenthal (2006): *Polarized America: The Dance of Ideology and Unequal Riches*. Cambridge: MIT Press.

[]Roemer, J. E. (2001): *Political Competition, Theory and Applications*. Harvard University Press.

[]Wittman, D. (1973): "Parties as Utility Maximizers," *American Political Science Review*, 67, 490–498.