CAPABILITY RATIOS PREDICT NOTHING

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WHAT WE WANT TO KNOW

In a hypothetical dispute between two states, how likely is each side to win?

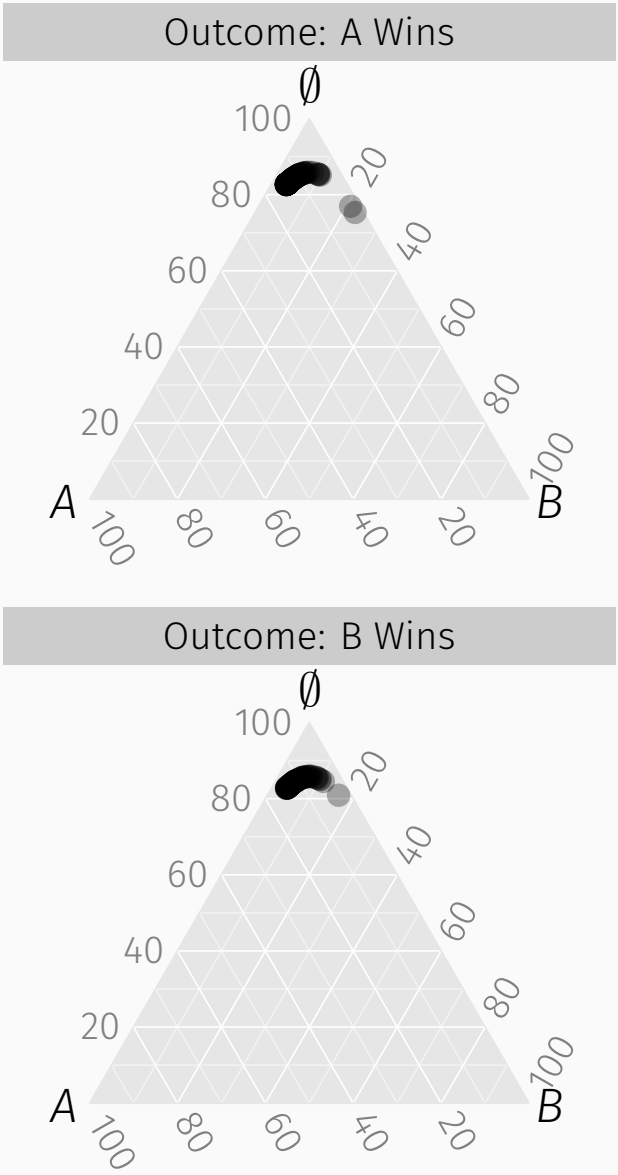
OUR APPROACH

1. Establish **predictive power** as the criterion
2. Show that the **capability ratio** fails
3. Use **machine learning** to make a new measure:
   the Dispute Outcome Expectations score
4. Confirm its superiority in **replications** of conflict studies

EVALUATING THE CAPABILITY RATIO

- Run ordered logit of MID outcomes on capability ratios
- Compare predicted probabilities to actual outcomes
- Cross-validate so predictions are out-of-sample

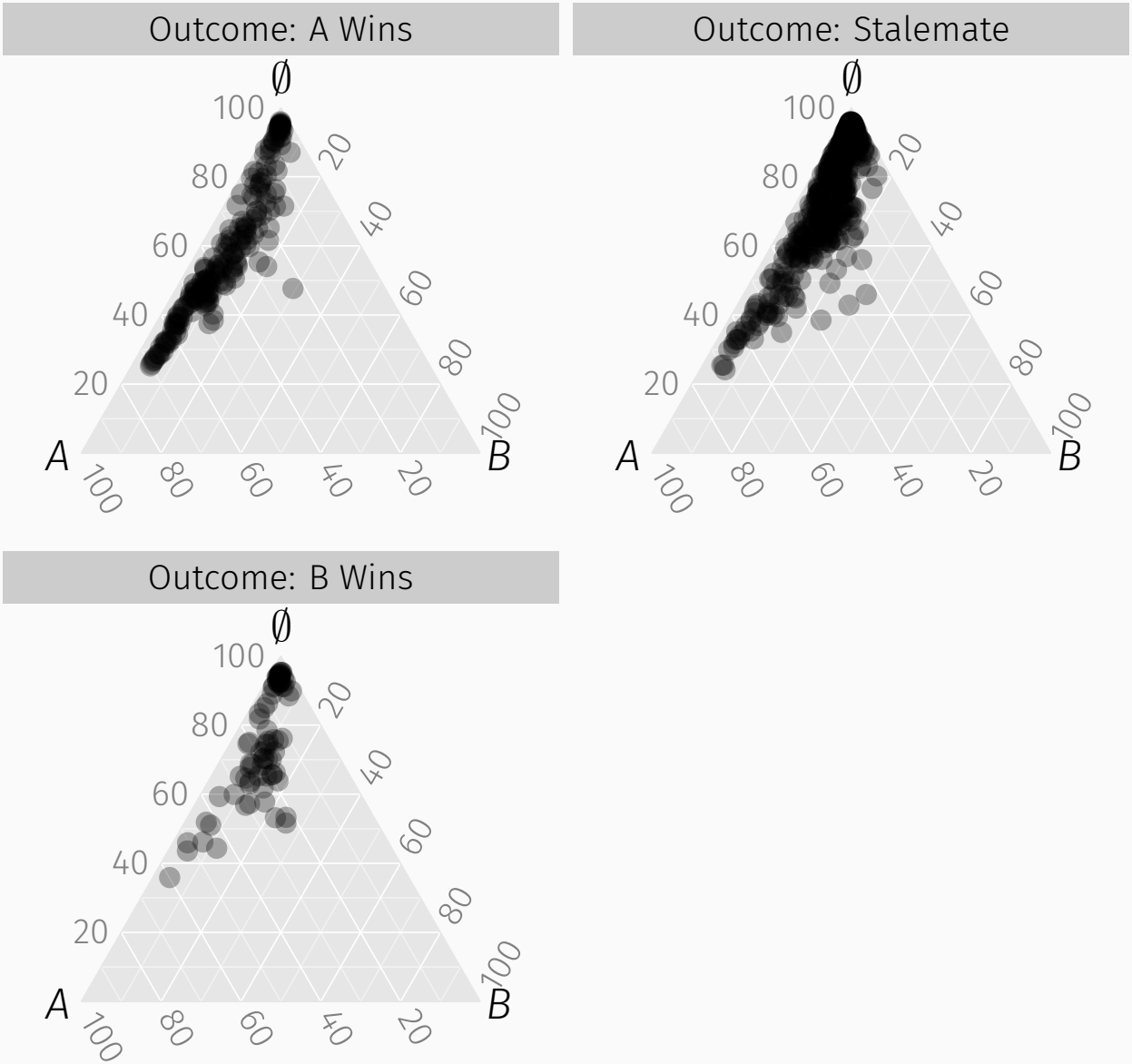
EVALUATING THE CAPABILITY RATIO



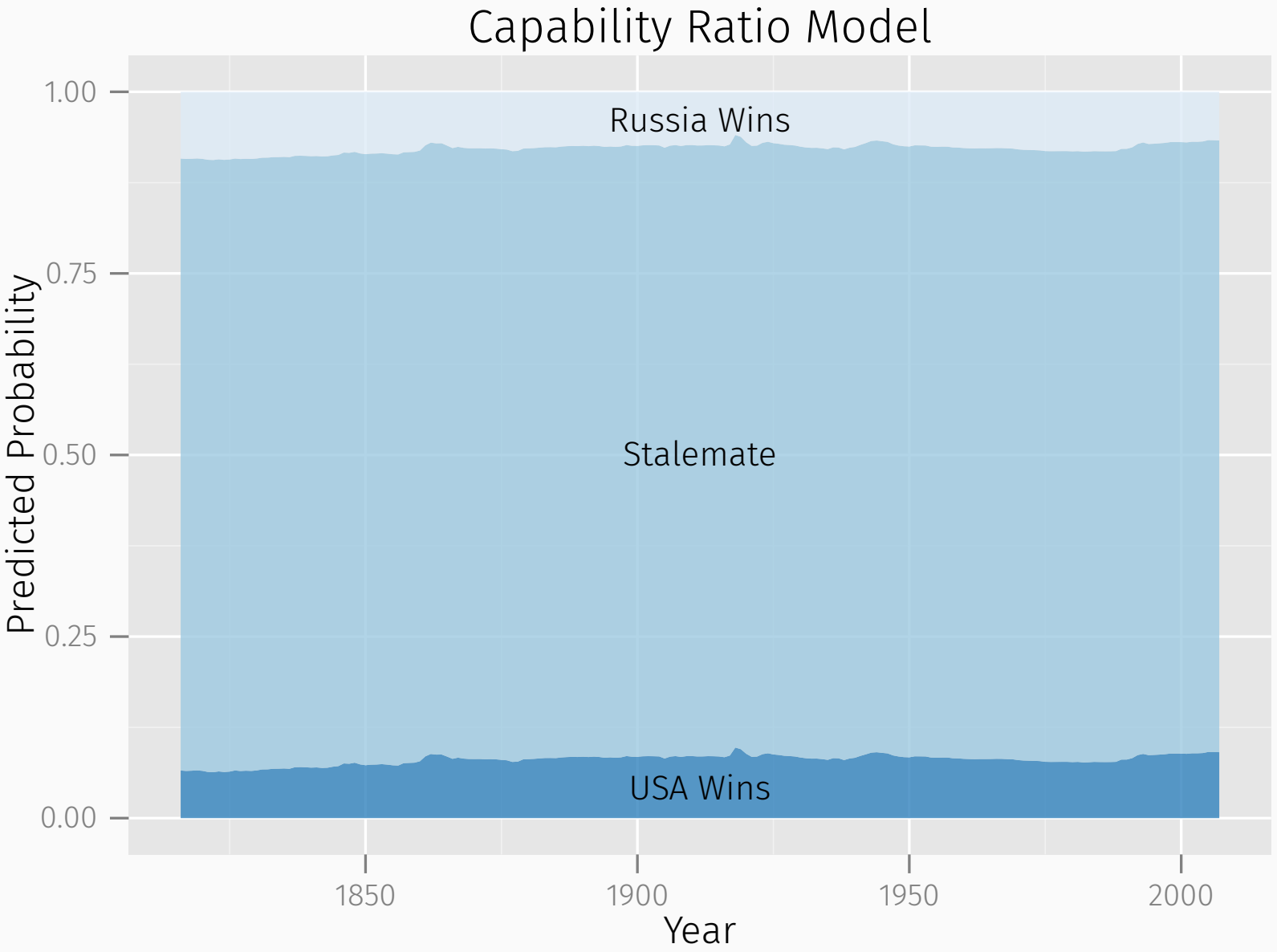
BUILDING A BETTER MEASURE

- Make CINC data more granular
  - Individual components
  - Annual shares of components
  - Allow variation over time
- Use machine learning to model MID outcomes flexibly
  - Super Learner (van der Laan et al. 2007)
  - Predictively optimal weighted average of lots of models
- Calculate predicted probabilities for every dyad–year: Dispute Outcome Expectations score

EVALUATING THE NEW MEASURE



EXPECTED DISPUTE OUTCOMES: USA VS. RUSSIA



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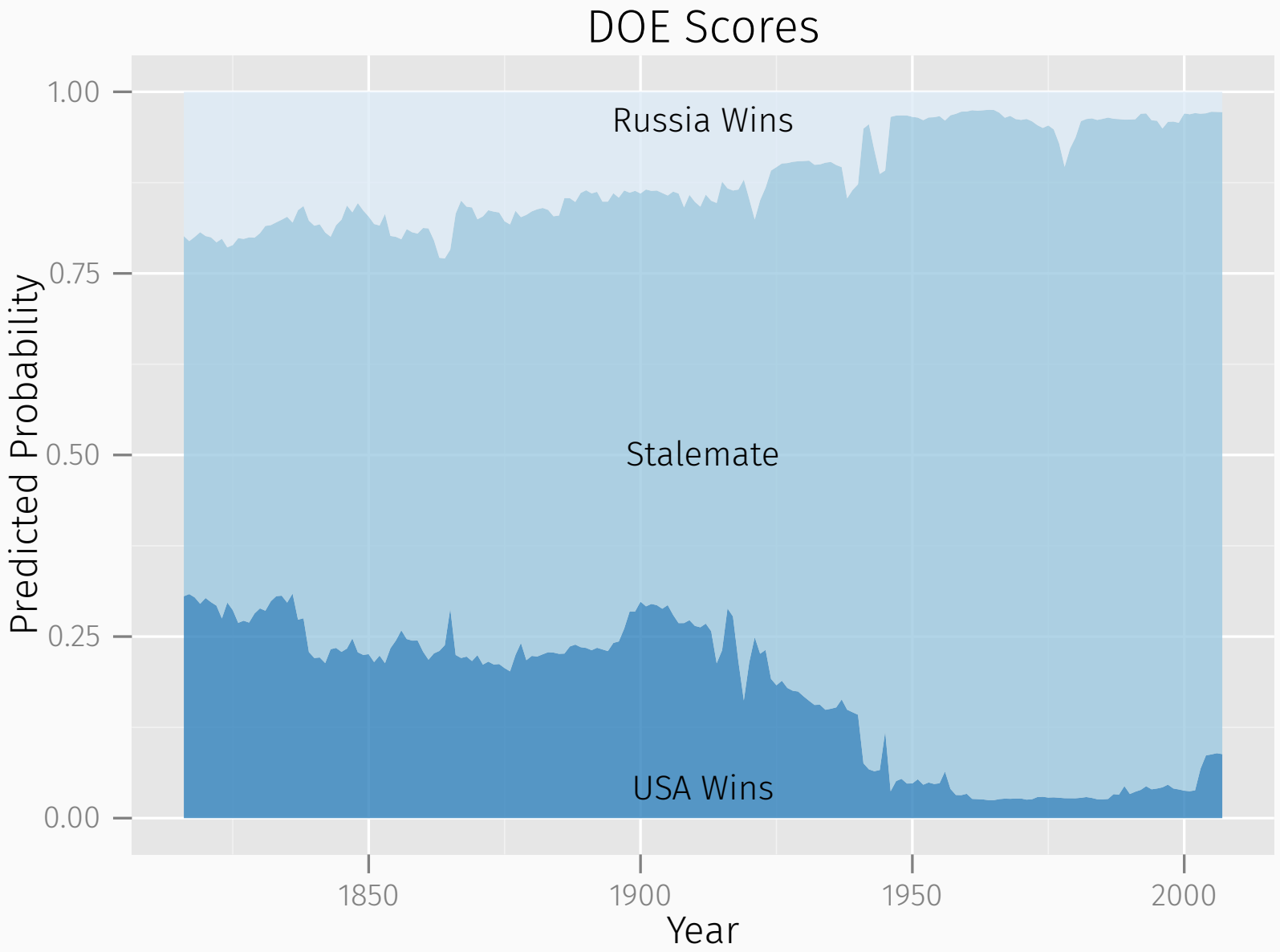
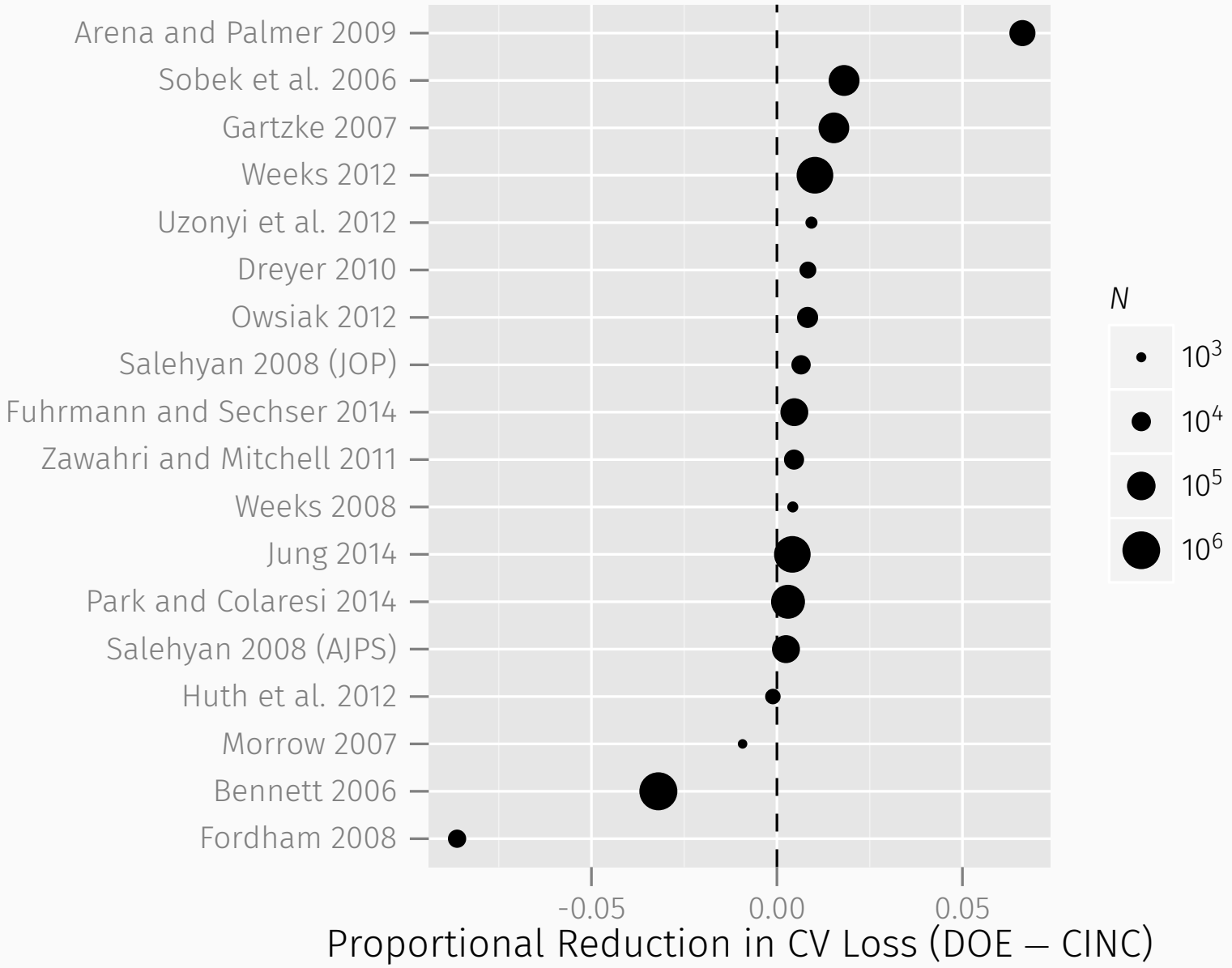


REPLICATIONS

- Collect recent studies that control for capability ratio
  - 18 papers total
  - Excludes those with MID outcome as dependent variable
- Substitute DOE scores for capability ratio
- See if models fit better

REPLICATIONS



SUMMARY

- Focus on out-of-sample prediction
- Capability ratios predict (almost) nothing
- Superiority of DOE scores:
  - As a predictor of dispute outcomes
  - As a control in conflict regressions

WHAT'S NEXT

- Stricter forecasting
- Additional variables
    - Distance and contiguity
    - Nuclear weapons
- Your suggestions!

THANK YOU!

doe-scores.com