



Proposal Status | MAIN ►

Organization: Washington University

Review #2

Proposal Number: 1152472
NSF Program: Political Science
Principal Investigator: Montgomery, Jacob
Proposal Title: Collaborative Research on Ensemble Methods for the Prediction of Political Outcomes
Rating: Very Good

REVIEW:

What is the intellectual merit of the proposed activity?

What are the broader impacts of the proposed activity?

Summary Statement

This project proposes extending ensemble Bayesian model averaging (EBMA) methods used in meteorology and statistics to forecast models employed in political science. The proposal argues that EBMA has been proven to improve predictions in other fields by pooling all available information from multiple forecasting models into a single set of predictions weighting the component forecasts according to their predictive accuracy and precision. To apply EBMA to political science problems, it will be useful to make the method work for new distributions (e.g. binary data). This project will do that, produce software so other scholars can apply the method, and write teaching articles explaining the method. The proposal illustrates the use of the model for predicting insurgencies, presidential elections, and voting on the Supreme Court.

This is a very interesting project. To the extent one is interested in prediction and forecasting, this seems like an extremely valuable research agenda. The approach outlined in the proposal is generally sound and suggests that the PIs are quite sensitive to the common pitfalls of predictive exercises. It is some of the most sophisticated forecasting that I have seen in political science. The additional work that they plan also seems generally useful. The one note of caution that I would add is that they describe moving from an EM algorithm to a MCMC estimation approach. This is fine but I question how clear the benefits are. The statement that MCMC methods eliminate concerns about false convergence to local maxima seems a bit misleading given the potential pitfalls of determining stochastic convergence in MCMC methods. Moreover, when advising the average political science researcher how to implement this method, it may require less expertise to implement the EM estimation approach well. My more general slight hesitation about the project is that I am skeptical about how useful forecasting is as a way to learn about causal relationships. Few, if any, of the component forecasting models in the examples are specified in a way that would generate a credible estimate of a causal effect. No doubt if we had a good causal model it should be a useful input into a forecasting model but I doubt the methods described in this project are going to be particularly useful in learning about causal relationships in political science.

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