

Political Science 501, Baumgartner
Short paper topics/discussion points
Week 13: Empirical Tests of Formal Models

Readings: Morton, *Methods and Models*

Morton raises a number of issues in her book. We'll go in order:

She goes through the example of the literature on campaign spending, noting how successive scholars have added a series of additional complications to answer what first appeared as a significant puzzle: The more money an incumbent spends, the fewer votes she gets. From her description of it, has this literature progressed? Which is more badly needed, better theory or better measures? If we had a full theory, could we collect the data needed to test it? Critique her critique of the literature. Where is she on the money and where might she overlook things?

Morton gives a historical review of the rise of behavioralism in political science, noting the non-formal and inductive nature of the theory-building. Summarize her argument about why the *formality* of a theory is so important. What is formality, exactly (see her definition, p. 36)? Does it have to be mathematical? Does it have to be rational? Does it have to be testable? Does it have to assume full information or anything else in particular?

Review her discussion of assumptions. Is it valuable to critique a model by saying the assumptions don't hold? What's the value? Why do modelers consider this to be: 1) a low blow; and 2) a sign of ignorance? Are assumptions related to internal validity issues or external ones? How can one tell if an assumption or its relaxation would affect the predictions of a model? Why do modelers start with the simplest model with the most restrictive assumptions and add complexities from there?

Review her figure on p. 60 and the discussion around it. Does formal modeling play a central role in the development of a literature, in her view? Would a single research project display all the characteristics that she lays out there? Do all bodies of literature display it? Consider some political science literatures that you know well. Can you find literatures where there is a full set of competing findings, approaches, and scholars all of whom are relating to each other as in this stylized picture of the process? Are there other literatures where this is not occurring? What are the reasons for this? Too few approaches to the question at hand, too many approaches being used by camps of scholars not speaking to each other, or what? What makes a healthy literature? Come to class prepared to answer this question. It's a draft of a comprehensive exam question in any field.

In the discussion of testing models, she makes considerable reference to the Data Generation Process (DGP). What is that, exactly? Review her discussion of random error (aka stochastic processes), control variables, *ceteris paribus*, and how to interpret empirical tests of formal models. For example, one widely accepted formal model says that it is irrational to vote. Yet millions of people vote, apparently rendering the model obviously false. Is this "point prediction" approach a useful way to test (or invalidate) a formal model? (See chapter 6.) What if the assumptions are known, as they always are, to be inapplicable to most situations? How does she propose that one test the model? (Note: This is not a leading question; take it seriously.)

Morton is very high on experiments in political science. Why? Moving from the last question, consider the value of experiments in testing formal models v. real-world observations. There are some clear advantages to the experimental method. Does this mean that experiments will become more prominent?

What is the "folk theorem"? Review Table 6.3 and discuss its application. Would the folk theorem apply in a real-world case? How does the researcher know if a situation is one-shot or iterated? Would you get your car repaired out of state? In business, note the importance of brand names, chain stores, and the disadvantages of small businesses in competing for commerce when all customers are not local. Do national franchises allow their operators to rip-off out-of-state customers? Do they fight against this by creating multiple iterations or by altering the pay-off structure? Does this dynamic validate, invalidate, or demonstrate the importance and broad applicability of the folk theorem? What is harder in applying a game-theoretic model, establishing the pay-offs, or figuring out if the game is one-shot or iterated?

Note: Save the last chapter for the week of December 4 when we discuss alternative approaches. Morton gives some strong views on the future of the discipline. Review those and save your thoughts for next week.