Computational Modeling in Practice: From Model to Finished Product

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Now What

- Simulations
- Parameter sweeps
- Data collection
- Presenting and interpreting results
- Web appendix
- Replication materials
- Finished Product(s)

Simulations

- Need to do numerous simulations
- How many probably depends on computing power and the complexity of the model

Parameter Sweeps

- Which parameters to vary? Usually related to key mechanisms.
- How many combinations? Need to at least show results are robust to changing main assumptions.
- Identify outcome pattern of interest and think of each parameter as an independent variable

Data Collection

- Most analysis done in other software (Stata, R, etc.)
- Two types: diagnostic and descriptive
- Collect diagnostic data to check for errors
- Collect descriptive data in order to examine patterns and describe results
- Inspect data carefully

Presenting and Interpreting Results

- What to present?
- How to present? Tables and/or figures
- Interpreting results can be difficult and becomes more difficult as complexity of model increases

Web Appendix

- Should contain all diagnostics, pseudo code, additional results
- Gartzke & Weisiger web appendix is a good example

Replication

- Should provide replication materials

Finished Product(s)

- Do you want/need to justify using agent-based modeling?
- Use illustrative runs (at least in the web appendix)
- Think about how to present results: tabular, graphical
- Empirical evaluation?: case study, statistical analysis, simulated case studies
- Show pseudo code and additional results in web appendix
- Provide replication materials