How to Write up a Game Theory Model

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In this section, you describe how you plan to test whether your proposed explanation has any empirical support. There are several steps to writing this section. First, you need to justify why your methodological approach is the appropriate approach for testing your hypothesis and comparing its explanatory strength to that of other explanations. Second, you then need to describe how you intend to implement this approach. Third, you need to present the findings.

Justify your Choice of Methodological Approach There are several basic types of research designs that might be appropriate to test your hypothesis and comparing its explanatory strength to that of other explanations. Examples include Large-n statistical analysis, Qualitative case studies, Game-theoretic models, and experimental studies, among others. In the first step, you should justify *why* a game theoretic model is the most appropriate to test your hypothesis. Briefly discuss the various strengths and weaknesses of alternative methodological approaches, and explain why for your particular topic a game theoretic model is best suited.

Model Type First, identify the general type of model that you implement (Prisoner's dilemma, game of chicken, etc.). Most importantly, justify why this particular type of model is appropriate for analyzing your research question.

Moves Next, describe the overall structure of the game. In particular, make sure you answer the following questions:

- What is the sequence of moves? Are these moves undertaken sequentially or simultaneously?
- Is this a one-stage game, a two-stage game, or are there even more stages?
- Is this a one-shot game or a repeated game?
- Are the rules of the game common knowledge to all players? Are the rules fixed or manipulable?

Players and Assumptions In addition, provide information on the players of the game. Specifically, answer the following questions:

- Who are the players? How many players are there in the game?
- For each player, what are their objectives? Is this a collaborative or a conflictual game?
- For each player, what are the options/actions/moves that they can choose? What are the payoffs of the respective moves? Is this a zero-sum or a non-zero-sum game?

- For each player, what information does the player have? Is information symmestic or asymmetric? What is the degree of uncertainty for each player?

Illustration Illustrate your game graphically. This can be done either with a game tree or a payoff matrix.

Solving the model and presenting the insights Further, detail how you solved the game. In particular,

- What solution concept did you apply (Backwards induction? Nash equilibrium? etc) and what did you find.
- Provide some comparative statics to tease out the implications of your model