Research and Analysis for Public Policy and Management: Principles and Practices from Active Learning

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Research & Analysis for MPAs

- Masters in Public Administration (MPA)
  - Masters in Public Policy (MPP)
  - Other professional masters programs
- All require some form of R&A:
  - Statistics, research methods for PA, quantitative methods, data analysis…
  - Large variation, not just in name
  - Always 1, Usually 2, Rarely 3 courses
- My teaching:
  - One semester, each: Statistics, Research Methods & Analysis

Composite MPA Students

- Alice
  - Hated math, avoided quant in undergrad
  - Ethnic studies major
  - Community organizer with small non-profit
- Brenda
  - Math major
  - Does data management & some supervised analysis for national non-profit headquarters
  - Wants to be an analyst
- Carlos
  - History major
  - Human resources manager in Federal government

MPA Student Challenges

- *Very* diverse quantitative backgrounds!
- Very diverse motivations for R&A
  - Sometimes think course is not relevant
- Career stage variation
  - Career experience useful but can be challenging too
- Classes can be at end of workday
- Very limited time
- Most MPAs do not become researchers or analysts!

MPA Learning Goals

- Critically consume research & analysis
  - Spot weak or invalid conclusions
  - Extract & apply relevant, valid conclusions
- Perform basic R&A in policy/practice capacities
- Effective with quantitative aspects of career: Quantitative literacy
  - But qualitative research too

- Much variation in goals among programs

Goals for *all* MPAs in *context*

- Needed for us to determine what to teach
- Needed to motivate students
- Example: Organization implemented program, has before and after "results" & wants to if and how well it worked
- Any MPA should be:
  - Able to graph averages over time, calculate differences
  - Aware of statistical significance: might be a fluke
  - Aware of causal conclusions problem & strategies to assess
  - Aware of outcome measurement problems
- Useful & motivating for Alice, Brenda & Carlos
- May mean cutting or altering standard content!

Principles for MPA R&A courses

- Students write and speak in words, interpreting results and studies
- Applications relevant to public policy & management
  - When possible, let students pick applications
- Use active learning
- Analyze actual data with software
- Rule of Four: words, numbers (data), graphs, equations (sometimes)
- Many different applications
  - Increasing role in framing and abstracting

Short Writes or Problems

- Ask a question and tell all students to write their answer down
- Ask for volunteers or cold call
- Confirm answers yourself
- Better than oral call-out
  - But more time-consuming
- What to do about variability in student skills?
  - Even for a short answer, have extra tasks
  - How to give extra task without disruption
  - Variation enormous

Example short exercises

- Describe the population sampled in a poll
  - Extra: think about coverage problems & and directions of resulting biases
- Interpret in words an entry in descriptive statistics table
  - Extra: Make as understandable to policymaker or journalist as possible
- Determine if a result is statistically significant in a table
  - Extra task: practically significant?

Example short writes (cont.)

- Some too short for extra tasks—or I have not found a good one

- Identify independent & dependent variables
- State null and alternative hypotheses
- Determine if study is descriptive or causal
- Determine if (causal) study is experimental or observational

Short writes that motivate

- Describe a relationship between two categorical variables relevant to your work (or interests)
  - Can continue to use that examples when discussing cross-tabs
- Think of a measure used in your work place. How valid do you think the measure is?
- Particularly good for those with career experience

Think-Pair-Share

- Students think alone for a minute or so and then share their thoughts/efforts
- Reflect as a class
- Similar to individual exercises but more time consuming
- Examples:
  - Write a good survey question asking respondents how safe feel in their neighborhood
  - Discuss questions on study read
- I do not use for technical problems

In-class Group Exercises

- Significant time cost
  - ➔ Reserve for skills that are both hard (requiring multiple tries) and important
- Deal with variation in student ability
  - Core and extra tasks
  - Mix backgrounds ➔ peer teaching
- Circulate!
  - Cut-off misunderstandings
- Allow students to pick application, if possible

Examples of In-class group exercises

- FiveThirtyEight Blog excerpt with questions
  - Scatterplots, correlation, regression
- Income distribution histogram
- Conceptualize, operationalize and assess validity and reliability of a measure of interest to group or whole class
- Excerpts of government evaluation report and questions
- Interpret in words regression coefficients and other statistical package output
  - But I do not have students do own calculations in class

Examples of In-class group exercises

- Predict the direction of non-response bias in a survey
- Evaluate the generalizability and quality of causal evidence for a particular quasi-experimental study
- Create a logic model of a program to show mechanisms
- Find alternative causal explanations for a correlation (reverse causation, common cause)

Question type also used in exam or assignment

Example:

A research article reports that looking across schools, there is a correlation between mean test score and whether or not the school library has a qualified librarian. The Association of School Librarians picks up on the study and says that it shows that better librarians result in better student learning and test scores and therefore funding for qualified librarians should be increased.

(a) According to the librarians, what is the dependent variable and what is the independent variable? What is the unit of analysis in the study?

(b) Describe a theory that is consistent with the librarians' view of what causes what. Use both words (a few sentences at most) and a path diagram. Make sure to include some intervening variables (i.e., a mechanism)—at least a start at convincing a foundation to give money to support qualified librarians.

(c) Describe an alternative theory that *both* contradicts the librarian's position *and* explains the correlation in the study. Use a path diagram and words (a few sentences at most).

If time…

(d) What is the relevant counterfactual question?

(e) Explain in a few sentences what all of this has to do with the idea of endogeneity.

Discussions of studies

- Many forms of studies
  - From journal articles that are a real stretch through government & think tank reports to media articles
- Read before class with prepared questions for discussion
  - How much scaffolding to give?
- Practice interpreting tables of results
  - Individual numbers
  - Whole picture

Problem of time

- After variation in student quant skills, biggest barrier is time
- Active learning takes more time
- Cover less but learn more
  - Yes, but…
- Cover lower priority and/or easier material through reading, out-of-class approaches
- Use in-class, active learning for more important and hardest to learn material

Out of Class Assignments

- Writing, synthesizing, applying
- If possible, students choose application
  - Can apply in their own workplaces often
- Data analysis assignments
- Rubrics
- Case against one big assignment

My methods for this paper/talk

- Trial and error
  - Teaching R&A Baruch SPA
  - Writing textbook with Van Ryzin
- Literature
  - Active learning
  - Quantitative literacy
- Would like to take to the next level
  - Use approaches I teach my practitioner students to do!

Conclusions

- Have optional/extra tasks to deal with variation in quant skills
- Students write (and speak) in words about numbers and research
- Learning objectives and applications that are relevant
  - State course objectives in meaningful context
- Students pick own applications when possible
  - in-class and out-of-class exercises