The Transition to PhD Research

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Princeton

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Introduction

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  — Tools and techniques to do frontier economic research
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• Now is the time to look forward to your own research
  — This lecture talks about this transition and points the way to some approaches and sources of information
Research Questions Versus Topics

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Research Topic: A general area of interest that is defined narrowly enough to imagine becoming a local expert in it.

- International trade and wage inequality
- Foreign aid and economic development
- The Great Recession and the Financial Crisis
Research Questions Versus Topics

• **Research Question**: A problem that we do not know or understand, which puts some intellectual capital at stake, which has a well-defined answer, and where we have a research design that can convincingly answer the question.

- What was the effect of the construction of the U.S. interstate highway system on urban growth?
- Are there sufficient statistics in terms of empirically observable moments for the welfare gains from trade?
- What is the class of models in which these sufficient statistics hold?
- Can search and matching models account quantitatively for observed levels of wage inequality?
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Finding Research Questions

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- Often you will have many research ideas. Successful research is about selecting the good ideas.
  - Time is finite and has an opportunity cost
  - Choosing what not to do is just as important as choosing what to do

For more discussion, see *The Craft of Research*, by Wayne C. Booth, Gregory G. Colomb and Joseph M. Williams, University of Chicago Press.
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- Handbook chapters and surveys can be useful for getting a sense of the boundaries of the research frontier

But your research should not be driven by the literature. The research question should always come first.

- What are the constraints that these frontier papers are bumping up against?
- How can you relax these constraints and extend the research frontier?
- How will relaxing these constraints change existing results?
- What new results does relaxing these constraints offer?
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• Can you add an extra layer of microfoundations?
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• But do not complicate just for the sake of complication. Models are about making simplifying assumptions to reveal key economic mechanisms
• What are the limitations of these frontier papers? How can you improve on them?
• How do the research questions asked in these papers relate to popular economic discourse about the same issues? What are these papers missing? What research questions are they overlooking?
Research Questions and Techniques

• Successful research is about asking compelling research questions and being able to answer them convincingly.

• Strong technical skills are important in being able to examine new research questions and answer them convincingly.

• But do not focus on technical skills alone.

• There is relatively little job market payoff to applying outstanding technical skills to irrelevant problems that nobody cares about.

• What matters is applying these outstanding technical skills to convincingly answer compelling research questions.
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• What is new relative to existing research? New question, better data, better model, better identification strategy?

Good theory delivers new results that are at first surprising but become intuitive once one understands the model. The whole should therefore be greater than the sum of the parts. Results should not follow too closely from the assumptions.

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- If such an ideal research design is not available to you, how could you try to replicate the essential features of this ideal research design with the empirical data available?
- What sources of empirical variation could identify the mechanism you are interested in?
- What natural experiments could provide such exogenous variation?
- What instruments would satisfy the exclusion restriction of only affecting the outcome of interest through the mechanism in question?
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What is a Compelling Research Question?

- What are your key new findings? What do we now know about the world that we did not know before?
- Why should we care about your findings? (So What?)?
- Can you explain non-technically in two minutes to the person on the Clapham Omnibus (or more importantly to an economist in another field) why they should care about your findings?
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  - Do your findings have implications for policy?
Persistence and Feedback

- Doing research is hard

- Do not give up too easily. Persistence is hugely important—Everyone encounters challenging problems during their research—Successful research is often about working out ways around these problems

- Do not be too stubborn—Research is typically not about working in isolation—Present your work and listen to feedback from your advisers and colleagues—If all your advisors and colleagues are telling you something, you will probably receive the same message on the job market, so listen to what they are saying

- The final product is typically not the initial product—Research often involves many dead ends and the reworking, revising and throwing away of material
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- If you set your sights too low, you will not achieve very much
- At the same time, do not pose a research question that is so challenging that you cannot answer it convincingly
Research Advice

• Keith Head from UBC has useful advice for research on his web page

• Jonathan Dingel from Chicago Booth has useful advice for research on his web page

• Jonathan’s advice for meeting with your adviser is
  – Bring an agenda to meetings
  – 30-minute meetings are sufficient to discuss about three substantive points in meaningful detail
  – Write up a page of notes beforehand to ensure that you discuss those points
  – Follow through after meetings
  – At the beginning of a meeting, tell your adviser what you did to implement or address concrete suggestions that she made at the previous meeting
  – After lunch workshop presentations in your field, follow through in meeting with participants in those workshops to get their more detailed feedback
Productivity Advice

- To make progress on your research
  - Working hard is a necessary condition for success
  - Plenty examples of incredibly intelligent people who are not successful simply because they do not work hard
  - Other faculty members who appear brilliant are indeed brilliant but they also work very hard
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  – No email, facebook or twitter
  – Switching between tasks is cognitively draining
  – You will be more productive if you focus on an important task for a chunk of time (e.g. 25 minutes)
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• The secret to making progress on important tasks is building them into your daily and weekly routine
Productivity Advice

- The widely-acknowledge seminal book on productivity is
  - *Getting Things Done* by David Allen

- For more on the cognitive burden of distraction, see
  - *Deep Work* by Cal Newport

- For an interesting perspective on creativity, see
  - *The Creative Habit: Learn It and Use It for Life* by Twyla Tharp and Mark Reiter

- Productivity Apps
  - Be focused

- For a broader perspective on designing your life
  - *Designing Your Life: How to Build a Well-Lived, Joyful Life* by Bill Burnett and Dave Evans
Job Market Placement Advice

• What can you do to improve your expected job market outcome?
  – Create a brilliant piece of economic research
  – Write a stellar job market paper that effectively communicates this economic research
  – Give a superlative job market presentation that effectively communicates this economic research

• Write more papers
  – Learning by doing is a pervasive characteristic of much human endeavor, so why not also for writing papers?

• Work as research assistants with faculty
  – Learn from seeing how faculty work and how they frame and execute a research project
  – Research assistance can unexpectedly develop into coauthorship through serendipitous idea creation
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Well-being Advice

• Maintain a healthy work-life balance
  – Too much stress and overwork reduces productivity
  – Make sure that you give yourself breaks and take vacation to rest and recuperate
  – Productivity is achieved through consistent and sustainable work habits and steady incremental progress
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- The university has a whole menu of resources available for improving the graduate school experience
  - McGraw Teaching & Learning Center (e.g. writing courses)
  - McCosh Health Center
  - Range of Counseling & Psychological Services (CPS)
For various suggestions on how to approach research, see for example the articles in *Passion and Craft: Economists at Work* (editor Michael Szenberg) by:
- Avinash Dixit
- Claudia Goldin
- Elhanan Helpman
- Hal Varian
- And a number of other illustrious economists
Paul Krugman’s Four Rules

• “Listen to the gentiles”
  – Pay attention to what intelligent people are saying, even if they do not have your customs or speak your analytical language
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• Question the question
  – If people in a field have got bogged down on questions that seem very hard, it is a good idea to ask whether they are really working on the right questions. Often some other question is not only easier to answer but actually more interesting
Paul Krugman’s Four Rules

• Dare to be silly
  – All models are abstractions and involve silly assumptions
  – If a new set of assumptions seems to yield a valuable set of insights then these assumptions may be useful
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• Simplify, simplify
  – Express your ideas in the simplest possible model. The act of stripping down to this minimalist model will force you to get to the essence of what you are trying to say (and will also make obvious those situations in which you actually have nothing to say). And this minimalist model will then be easy to explain to other economists as well
  – Once you understand the mechanisms, you can always enrich the model later, as for example when taking it to the data quantitatively
• See *Code and Data for the Social Sciences: A Practitioner’s Guide*, available on my website throughout the material for trade PhD students link
  – Automation
  – Version Control
  – Directories
  – Keys
  – Abstraction
  – Documentation
  – Management
Rules for Writing
Claudia Goldin and Larry Katz

• Rule 1: Most people do not have a Nobel Prize winning idea.
  – It is always possible to transform a good idea into a great paper and a superb presentation.
  – Even if your idea is Nobel-worthy, you can always make it into a poorly written paper and a lousy presentation.

• Rule 2: The insights of your paper will first be judged by how you present them. If your paper is written in an unprofessional manner, your empirical work, mathematical proofs, and models will be viewed with initial skepticism.

• Rule 3: Your paper is an exercise in persuasion (we mean in positive not normative economics). Your readers are your audience. They have better things to do than read your paper. Make them interested in your thesis and convinced of your argument.
• Rule 4: No great paper – no matter how well constructed, brilliant, and well written – first emerged from the authors printer in that form. It was rewritten at least 10 times. Rewriting is the true art of writing.

• Rule 5: No author – no matter how careful and humble – can see all (or even most) of his or her writing errors. Trade papers with another student. Be tough; there will be some initial pain, but gratitude will follow.

• Rule 6: Most paragraphs have too many sentences and most sentences have too many words. Repetition is boring. We repeat: repetition is boring. Cut, cut, and then cut again.
• Rule 7: The “foot-in-the-door” parts of your written work are the abstract and introduction. Write them clearly and concisely. The abstract is not simply the first paragraph of your paper (or the last paragraph for that matter). Write them so that they are accessible by any intelligent economist, not just those in your field.

• Rule 8: Verbalizing your argument is more difficult than writing it. Giving a presentation will reveal where your argument falls flat and will show you how to redraft the paper. Give many presentations before sending out your paper. Give them to a workshop, friends, a dog or cat, even the wall. The presentation will force you to confront inconsistencies in your argument.
• Rule 9: Be your own worst enemy. If you won’t, someone else will.

• Rule 10: There are many other rules. We cannot cover all of them. Consult good style guides and guides to writing in economics
  - Some recommendations in such style guides are subjective, but at least use them to think carefully about what you are doing
Guides to Writing in Economics

- *The Little Book of Research Writing* by Varanya Chaubey

- *Economical Writing* (2nd edition, Waveland Press) by Deirdre McCloskey (Economics, Rhetoric, Philosophy, University of Illinois, Chicago)
  - Opinionated and subjective but much (though not all) of the advice is very good


Presentation Guides

• *Better Presentations: A Guide for Scholars, Researchers, and Wonks* by Jonathan Schwabish
Style Guides

- *The Elements of Style*, by William Strunk Jr. and E. B. White
  - The classic guide to writing effectively

- *A Manual for Writers of Research Papers, Theses, and Dissertations*, by Kate L. Turabian, University of Chicago Press
Style Reference Books

- *The Chicago Manual of Style*, University of Chicago Press
  - A classic reference point

- *Fowler’s Modern English Usage*, by H. W. Fowler, Oxford University Press
  - Dated and from another era, but the ultimate classic reference book on the English language
Research Suggestions

• For an excellent discussion of the nature of research, see:

• For the suggestions of several illustrious economists on how to approach research, see:

• For a subjective but stimulating discussion of approaches to empirical research, see
  – *Mostly Harmless Econometrics: An Empiricist’s Companion* by Joshua D. Angrist and Jörn-Steffen Pischke

• For a more structural approach, see
  – *The Limits of Inference without Theory*, by Kenneth I. Wolpin