# Research strategies for PhD students

## or: "Things I wish I had been told at the start of my PhD"

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November 2024
(first version: 20 April 2016)

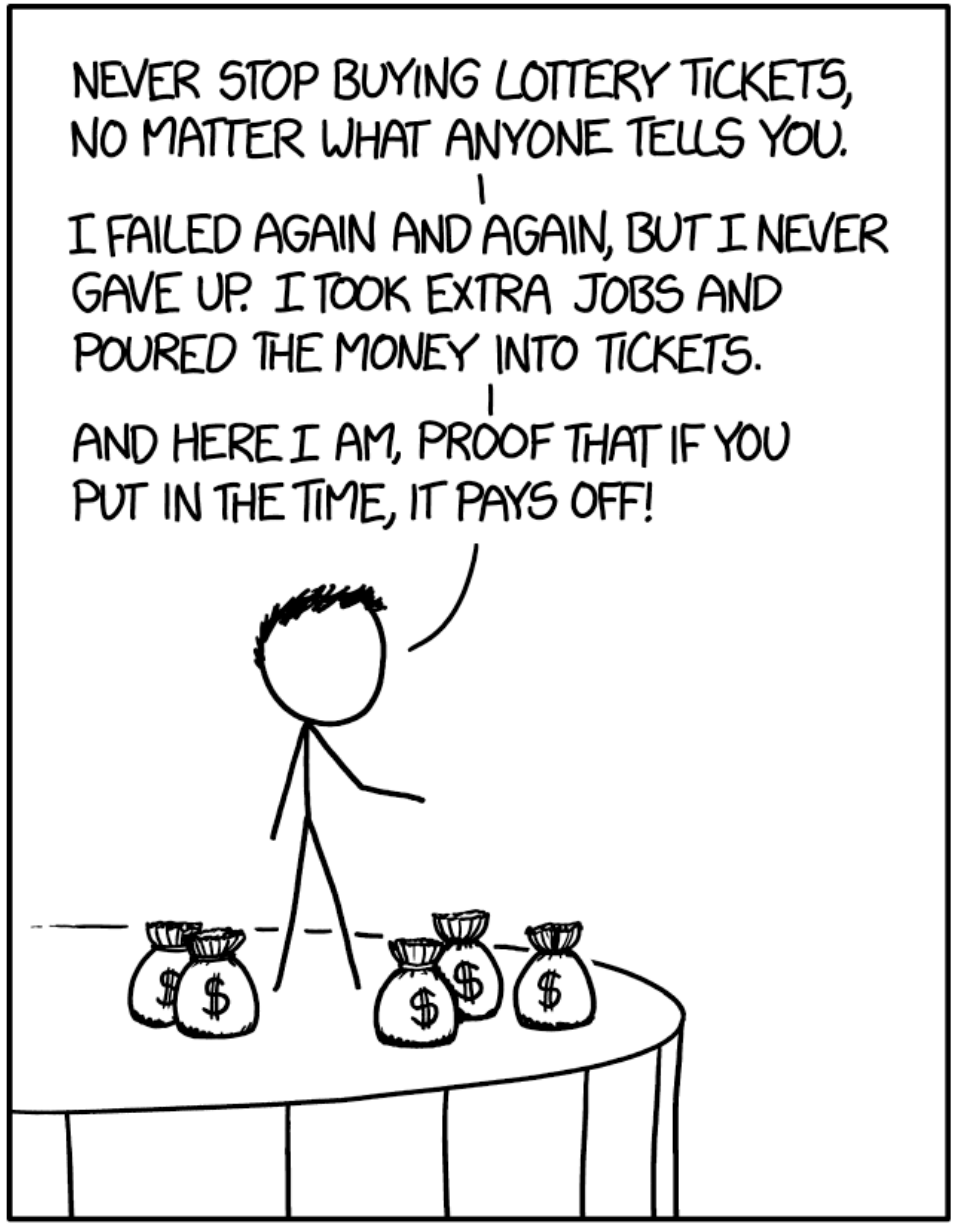
# PhD: The Good, the Bad, and the Ugly

- **Good:** You can spend a few years thinking about whatever you like, and you might even get paid for it
- **Bad:** You will need to get a job afterwards, so you might need to be strategic and work really hard

Outline of the talk:

- Strategic considerations (i.e. how to approach the PhD)
  - Medium term (i.e. next 4-5 years)
  - Long term (beyond the PhD)
- Practical Aspects of doing the PhD
  - Finding/executing research projects
  - Seminar Presentations

Caveat emptor: all this is subjective, and other people may have different views.




EVERY INSPIRATIONAL SPEECH BY SOMEONE SUCCESSFUL SHOULD HAVE TO START WITH A DISCLAIMER ABOUT SURVIVORSHIP BIAS.

# Being strategic

You should think about what you want to do afterwards, and this should determine how you do your PhD

- **Academia**: You need to work (a) very hard, (b) with the right people, (c) on topics that you can sell to an academic audience
- **Policy institutions/Governments**: You need to (a) work on relevant topics, (b) tool up on research/management/presentation skills, (c) make the right connections
- **Private sector**: for most private sector jobs doing a PhD is a bad idea, because econ research not highly valued in private sector. Exceptions: economic consulting, data science jobs (quant marketing). Get the right skills.

# Academia vs Policy institutions: some considerations

- Transition from academia to policy world is easier than vice versa
- Advantages of academia: more intellectual freedom, more flexible working hours
- Disadvantages of academia: on average lower pay, higher working hours, in the end you're on your own

Disadvantages of academia are particularly severe early on (PhD, tenure-track).

But: researchers in policy institutions often hit a glass ceiling after a while. Either quit research, or quit the institution.

# Academia: the facts

- Most academic jobs are filled on what is known as "The Job Market" ▸ Job Market
  - Job Market Paper (usually single-authored), 3 reference letters
  - Interviews at ASSA/AEA conference (now often via Zoom)
  - Flyouts/offers
- In general you're being assessed based on your job market paper. Both paper and letters are crucial: "letters get you interviews, paper gets you the job"
- Co-authored papers are discounted, particularly with faculty

- Policy jobs (and private sector jobs) are also announced on the job market, but priorities are different

# Strategic considerations: medium and long term

Suppose you want to go into academia. Your professional objectives should be:

- **in the medium term:** graduate from the PhD with a good JMP that allows you to get a job where you have the right resources to be a productive researcher
- **in the long term:** produce research that expands the frontier of human knowledge
  - ... and be a good teacher/colleague, good human being, etc

# Medium-Term Strategic Considerations: Advisor choice

- Tradeoff: Seniors (i.e. associate/full professors) have more weight in the reference letters, but juniors have more time
- Ideally, talk to a senior and to a junior
- Look at research track record & past placements of students
- Keep agency problems in mind:
  - Consider your advisors' incentives and constraints
  - Advisors' costs of providing effort (and returns to effort) depend on how close your research area is to theirs

# Medium-Term Strategic Considerations: Research topic

- Work on something that *you* are interested in. Don't let your supervisor give you a topic.
- Be ambitious.
- Ask: "what is the subject where the (social/private) return to working on it for 4 years is the highest?"
- In the beginning, come up with many ideas, and let your advisors destroy them
  - Your advisor's job is to help you answer the above question
- Don't ask "how can I change assumption X in paper Y so that it becomes a separate paper?". Instead:
  - When you read papers, ask yourself: "do I believe that this is how the world works?"
  - When you read the newspapers/watch TV, ask yourself: "is this how economists think the world works?"
  - When you find discrepancies between us & the world, ask: "is this discrepancy important? for what is it important?"

# Medium-Term Strategic Considerations: Collaboration

Collaborating with fellow students:

- Often a very good idea. You learn from each other, you have someone to discuss with. It's often more fun than working alone.
- Job Market does not discount work with fellow PhDs.
- But: keep incentives in mind. Ideal collaboration is when incentives are compatible. If one uses paper as JMP, discuss as early as possible.

Collaborating with faculty/advisors:

- Benefits: (i) you learn how to write a paper; (ii) there's usually a clear roadmap; (iii) it's easier to motivate your advisor. Cost: it takes time.
- Can be very valuable, but make sure you don't neglect your own research.

# Medium-Term Strategic Considerations: Other

- Work hard. But keep an eye on your (mental) health.
- Don't teach too much (it costs time), but do teach at least once ($\rightarrow$ presentation skills, CV, teaching references)
- Nurture your presentation skills and writing skills. Both can be learned. ▸ Writing
- Talk to a lot of people, attend conferences, present often, give feedback, be active. Nurture your academic network, even if you don't like doing that. It's important, particularly at the beginning of the research career.
- It may be a good idea to do something slightly more technical for the JMP. Good ideas come and go, but skills stay.
- You should be able to do both empirics and theory. Don't limit yourself methodologically.
- Don't be afraid. If we knew what we're doing, it would not be called research. (Einstein) ▸ On feeling stupid

# Long-Term Strategic Considerations (beyond the JM)

Ok, so let's assume that you're in for the academic game for the long term.

- Approach your research career as a dynamic optimization problem: how to spend your time, where to work etc
- The PhD is the time when it's easiest to learn new skills (field courses, plenty of time, a young brain...). Hence: use the PhD to build skills
  - In some fields, skills are more important: macro, trade, IO, dev, ...
- After the PhD, it gets harder and harder to learn new skills. But can stay on top of literature though teaching / refereeing / conferences / editing.
- *Where* to work? In the beginning, a place where you have time for research is most important (=low teaching/admin).

# Research projects

# Research projects: the basics

- While you work on the paper, keep asking the three most important questions:
  - **What is the question of the paper?**
  - **What is the contibution of the paper?**
  - **Why should we care?**
- It's completely normal that your answers to these questions change several times during your PhD. You need to find the "right" answers.
- The answers to these questions should be your first slides in a presentation (first motivation, then question, then contribution). Likewise, in the introduction of your paper.
- When you read papers, always look for how authors incorporate these three points in the introduction. Think about why they answered them in the way they did.
- Sometimes it's natural to start a project with the question. Sometimes not.

# My mental model of a research paper

Note: this is particularly subjective!

# Finding research ideas

- If your natural inclination is to come up with a "story" (i.e. "here's how the world works"), ask: how can I find evidence for or against that story?
- If your natural inclination is to look at data, ask: "what does it mean? what do I learn from this? What *can* I learn from this?"
- Yes, you need to know the literature: but don't read too much. You're more likely to forget what you've read, than what you've done.
- If you realize you're working on something that has been done already, take it as a compliment: you're on the right track
- If you're more of an empiricist, read theory. If you're more of a theorist, read empirics.

# Some examples of promising starting points

1. "The consensus view in literature XYZ says that we should expect [empirical pattern X]. Here is data from [source Y] that shows that this pattern does not hold. [graph goes here]"

2. "A lot of policymakers are interested in [set of policies XYZ]. The impact and usefulness of such policies depend a lot on [mechanism A]. We don't know whether these mechanisms are really at play, or how strong they are. In this paper, I provide evidence. This evidence helps inform policy."

3. "I show evidence for market failure X, and estimate how large the impact of this market failure is. Therefore we should do policy Y."

# Some not so promising starting points

1. "There is [famous model X]. In this model [blah] is exogenous. I provide a model where it's endogenous."
   - Why should I care whether it's exogenous or endogenous? Do you have evidence for your mechanism?

2. "I present a model of X with friction Y. According to that model, we should do policy Z."
   - Any evidence that what you're modeling is happening in reality?

3. "What is the impact of X on Y? I estimate the causal impact of X on Y using data from Z."
   - Do we have reason to believe that the impact of X on Y is always the same? Can we actually affect X with policy? Are you estimating (a) a technology, (b) a behavioral response, (c) both? *Should* we then do X?

# Seminar Presentations

# Presentations

- Present as often as possible. If early-stage presentation, be clear about what you want to have feedback on.
- Develop your (academic) presentation skills. Structure, clarity, how you respond to questions, time management, slides
- Stop your research at least three days before the presentation. Spend 2 full days on the slides (1 day for 30min talk). Practice your talk at least 5 times (in front of friends, family, a camera).
- Get the introduction right. After the intro everyone has to know
  - what the research question is
  - what your answer is
  - how you get to that answer
- Note down questions (or ask your friend to take notes).
- After the presentation, talk to attendees to get feedback

# Structure of a seminar talk

Introduction (by far the most important):

- **First slide: Motivation.** Why should the audience care about the topic that you're talking about?
- **First or second slide: Research question.** What are you trying to answer? If your motivation was successful, the "why" is already answered.
- **Then: what you're doing in this paper.** Here you give an overview of what you're doing, e.g. "present data from XYZ, present a model that is calibrated/estimated, simulate counterfactuals etc."
- **Then: what you find.** Here you give a short overview of what you find, and/or insights we obtain from your analysis. Can also contain policy implications.
- **Finally: literature slide.** Ideally, a small number of the most closely related papers, and how you depart/differ from them.

The intro should take max 15 min (30 min) in a 1h (1h30) talk.
After the intro comes the meat of the paper, details etc.

# Handling Seminar Questions

- Questions come in two forms: clarification questions, and substantive questions. Substantive questions are also comments, criticisms, concerns, etc. It doesn't matter whether they're asked as a question or not.
- Outside of job talks it's fine to say "thanks for your question, I need to think more about it". Then write it down and think:
  1. Why am I getting this question? If it's a stupid/misleading/irrelevant question, you can often avoid the question by structuring the presentation better: be clear about the research question etc.
  2. What's the best answer to the question/concern?

# Bad Answers: some examples

- "Other people do it too"
  - Perhaps what they do is suitable to answer their question, but not suitable to answer your question.
  - Perhaps it wasn't suitable for them either.
  - We're discussing your paper, not their paper.
- "It's the best thing I can do" / "there is no data to address your concern" / "maybe, but it would make the model/computation intractable"
  - That may be the truth, but you're effectively acknowledging that you have trouble answering the question that you set out to answer

# Good Answers: some examples

- (clicks on button) "Great point! Here is a set of regressions that tries to see whether that's confounding mechanism..."
- (clicks on button) "Great point! In Appendix F we have a model extension that models this mechanism. We calibrate the strength of this force by matching XYZ and find that the results are virtually unchanged..."
- That's an interesting point, but it's orthogonal to the question that we're trying to answer, because...

# Q&A?

# Backup slides

# Writing

- Particularly important for the JM paper and after the PhD.
- Read: Strunk and White, "The Elements of Style". Then re-read it, and re-read it, etc.
- Other books I found useful: McCloskey: "Economical Writing", Zinsser: "On Writing Well"
- Re-write your drafts several times, applying the rules of S&W, Zinsser, and McCloskey
- Abstract and introduction are by far the most important parts.

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# On feeling stupid

- One thing that many people (myself included) struggle with, is feeling stupid all the time
  - Related to impostor syndrome (but not the same)
- In principle this is completely expected given that we work on stuff that's at the frontier of human knowledge.
- But it's still tough.
- You have to come to terms with it. It's okay. Each of us feels stupid every day.
- See it as an opportunity to learn something!

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# The Job Market: The Rules of the Game

- Job Market = the centralized worldwide hiring process for Econ PhDs
- Demand side: Universities, Intl. Org., Governments, Central Banks, NGOs, Private-sector firms
- Very specific process and timeline

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# Process

- October: if you "go on the market", you prepare your JM package: JM paper (single-authored), CV, Research statement, Teaching statement, 3–5 references. Dept lists you on the website as "JM candidate"
- August – November: Demand side posts vacancies on "Job Openings for Economists" (AEA website) and Econjobmarket.org. Most deadlines around 15 Nov. You apply online by uploading your package
- Nov/Dec: Demand side calls/emails you to arrange interviews
- First days of January: interviews take place in hotel rooms at the AEA/ASSA conference in the US. 30 mins each, where you describe your work
- If you did well, employers call you for "fly-outs" (campus visits, Jan–Apr). You spend a day on campus, meet faculty, and present your JMP in the seminar (= war zone)
- If you did well, you get job offers. Then you bargain over salary, teaching load, research money etc.

# Strategies

Hence:

- Decide early whether you will go on the market (ideally one year ahead).
- Talk to your advisors about whether they think you're ready, and what they think you could get
- Have the content of your paper finished in September, then just polish the paper and presentation (internal presentation is important for letters)
- Apply widely to maximize your chances. I applied to 180 places, had 32 interviews, 15 flyouts (did 9) and got four offers.
- Practice interviews for ASSA (at least 20x)
- Make your JM talk presentation as easy as possible to understand

Despite all that, a lot of people (including me) say that they found the job market exciting and fun

# Other things to perhaps talk about

- European job market: Spanish meeting, RES meeting
- AEA signals
- Postdocs
- Interview format
- Flyout format
- Bargaining
- IMF, World Bank, OECD
- The view from the demand side
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