Tips on Doing Research

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Finding a research topic is the most difficult

The problem must be

- interesting to you, otherwise you can't work passionately
- interesting to a subset ($\neq \emptyset$) of economists, otherwise you can't get a job and hard to publish papers
- new, unresolved, or under-explored

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- nobody cares about
- is primarily about existence of equilibrium, equity premium puzzle, etc.

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Unfortunately, if you find an interesting problem, there is a good chance that the problem is already studied.

Review articles can help

Review articles are written by experts in the field, so you can get a sense of what questions are interesting to others or unresolved

1. Chapters in Handbook of XXX Economics
2. Journal of Economic Literature
3. Journal of Economic Perspective
4. Annual Review of Economics

Techniques can help

- Study a dynamic version of an existing static model
- Study a continuous-time version of an existing discrete-time model (and vice versa)
- Generalize an existing single-agent model to a two-agent model
- Generalize i.i.d. to Markov
- Apply a "standard" technique in one field to another

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- Distinguish goods by time, location, and uncertainty, abstract general equilibrium becomes macro, trade, and finance.
- Solving a single agent model with utility

$$\alpha_1 \log x_1 + \alpha_2 \log x_2$$

  is boring, but setting $\alpha_1 = 1$, $\alpha_2 = \beta$, and interpreting goods as consumption across time, suddenly you have a theory of interest rate
- Risk-free rate is

$$\frac{1}{R_f} = \beta \frac{e_1}{e_2} \iff R_f = \frac{1}{\beta} \frac{e_2}{e_1},$$

  so impatience and economic growth leads to high interest rate

How simple/complex should a model be?

- Depends on your question:
  1. "For all parameter values, such and such is true" (e.g., existence of equilibrium)
  2. "There exist parameter values such that X takes value x" (e.g., explain equity premium)
- Rule of thumb: the harder it is to obtain your claim, the better the model is
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       (which is why I hate big complex macro models with 20 parameters and all bells and whistles like adjustment cost, habit formation, etc.)

The more theorems you can prove, the better

- Begin with a simple model, because it's hard to prove theorems in complex models
- After proving for simple models, try to generalize
- Become familiar with convenient utility functions (CRRA for multiplicative shocks, CARA for additive shocks, quasi-linear for partial equilibrium, etc.)
- Become familiar with numerical methods: sometimes you can come up with conjectures by looking at numerical results
- Think about comparative statics: how does the outcome depend on each parameter?

Write up results

- Start writing (the body of paper) early. You can clarify your thoughts.
- Don't be ashamed of small results. Properly written, small results can be turned into stand-alone papers (though be careful not to waste too much time on small stuffs).
- See separate writing tips for more details.