

Next Week's Topic

“Income Inequality and Tax Policy”

- ▶ Next week Professor Saez will discuss
 - ▶ Atkinson, Anthony, Thomas Piketty and Emmanuel Saez, “Top Incomes in the Long Run of History,”
 - ▶ Alvaredo, Facundo, Anthony Atkinson, Thomas Piketty and Emmanuel Saez, “The World Top Incomes Database,”
 - ▶ Diamond, Peter and Emmanuel Saez, “The Case for a Progressive Tax: From Basic Research to Policy Recommendations,” and
 - ▶ Piketty, Thomas and Emmanuel Saez, “How Progressive is the U.S. Federal Tax System? A Historical and International Perspective.”
- ▶ This week John and I will
 - ▶ Conduct a tutorial on how to write research papers
 - ▶ Introduce and motivate Saez’s discussion

How to Write a Research Paper

Research Question

- ▶ Coming up with a Research Question
 - ▶ Do the course readings!
 - ▶ Read economic magazines, newspapers, etc
 - ▶ *The Economist, The Financial Times, The New York Times, and others*
 - ▶ Carry a small notebook at “all” times and write down interesting observations
 - ▶ Check out suggestions from some famous researchers on the course website
 - ▶ Come and talk to us in office hours

How to Write a Research Paper

Research Question

- ▶ Your Research Question should be feasible to be answered in 15 pages
 - ▶ Empirical Papers: Must be empirically testable
 - ▶ Theoretical Papers: Must be theoretically tractable (and potentially empirically testable)
 - ▶ Papers may also be a mix of some theory and some empirics

How to Write a Research Paper

Research Question

▶ Tips for Empirical Papers

- ▶ Once you have your question, think of the ideal dataset that would help you answer your question. Then look up datasources for an approximation to your ideal (datasources on course website, library, talk to us, etc.)
- ▶ You may also do this backwards. If you know of a nice dataset, you may try to think of an interesting question that can be answered using that dataset (more on this later).

How to Write a Research Paper

Research Question

- ▶ Examples of Research Questions
 - ▶ Does more education lead to higher earnings?
 - ▶ Does parental unemployment lead to poorer economic outcomes for children?
 - ▶ Is income inequality harmful for economic growth?
 - ▶ Does monetary tightening lead to a decline in output?

How to Write a Research Paper

Research Question

- ▶ The previous questions are about causal inference. But you may also want to document and discuss an economic phenomenon you find interesting. For example,
 - ▶ Do fast growing economies tend to slowdown and what are policy implications? (Eichengreen et al. 2010)
 - ▶ Authors document some provocative findings that are surely to generate lots of research (perhaps in this class) into the precise mechanisms

How to Write a Research Paper

Tackling The Research Question

- ▶ Does monetary tightening (increasing interest rates) lead to a decline in output?
 - ▶ Needed Data
 - ▶ Fed Funds Rate (FFR), GDP, Exogenous changes in the FFR
 - ▶ St. Louis Fred Database has historical US data on FFR and GDP
 - ▶ Economic theory suggests that there may be a relationship of the form

$$\Delta \log Y_t = f(\Delta i_{t-1}) + \epsilon_t$$

with $f'(\Delta i_{t-1}) < 0$ and ϵ_t is an error. Why?

How to Write a Research Paper

Tackling The Research Question

- ▶ A Linear Regression model

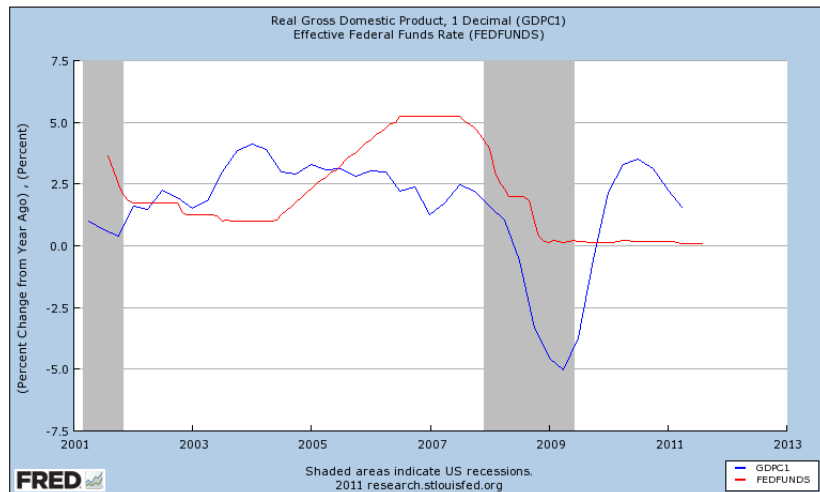
$$\Delta \log Y_t = \alpha + \beta \Delta i_{t-1} + \epsilon_t$$

specifies a linear relationship between the variables of interest

- ▶ One can use OLS to obtain estimates $\hat{\alpha}$ and $\hat{\beta}$ for the coefficients α and β (regress command in Stata)
- ▶ An important assumption for OLS to be valid is $E\{\epsilon | \Delta i_{t-1}\} = 0$
- ▶ Let us look at the data now

How to Write a Research Paper

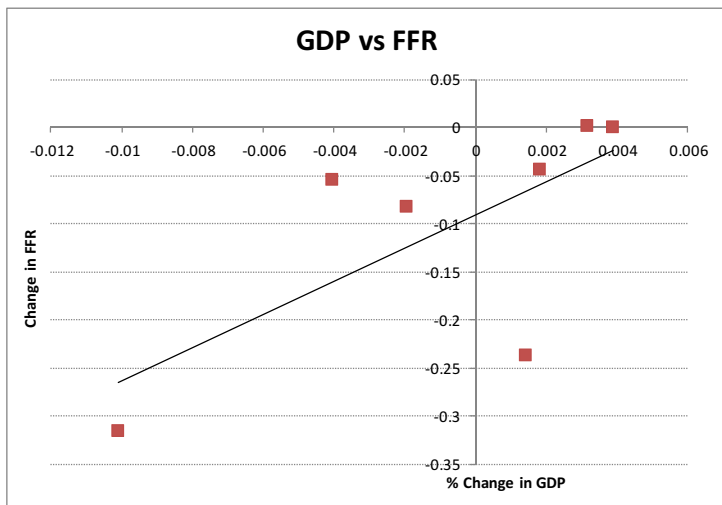
Tackling The Research Question



How to Write a Research Paper

Tackling The Research Question

- ▶ OLS estimates a positive relationship. Why?



How to Write a Research Paper

Tackling The Research Question

- ▶ CB's interest rate policy is a function of expected changes in economic conditions. For example, suppose that

$$\Delta \log(Y_t) = \alpha + \beta \Delta i_{t-1} + \epsilon_t$$

$$= \alpha + \beta \Delta i_{t-1} + (\lambda l_{t-1} + \nu_t)$$

$$\Delta i_{t-1} = \omega l_{t-1} + \gamma_{t-1}$$

$$E\{\gamma_{t-1} | \Delta i_{t-1}\} = E\{\nu_t | \Delta i_{t-1}\} = 0$$

- ▶ Notice that $E\{\epsilon_t | \Delta i_{t-1}\} \neq 0$ and the OLS assumption is violated

How to Write a Research Paper

Tackling The Research Question

- ▶ After some algebra, we get

$$\begin{aligned}\Delta \log(Y_t) &= \alpha + \beta \Delta i_{t-1} + \frac{\lambda}{\omega} (\Delta i_{t-1} - \gamma_{t-1}) + \nu_t \\ &= \alpha + \left(\beta + \frac{\lambda}{\omega} \right) \Delta i_{t-1} + \left(\nu_t - \frac{\lambda}{\omega} \gamma_{t-1} \right) \\ &= \alpha + \beta' \Delta i_{t-1} + \epsilon'_t\end{aligned}$$

with $\beta' = \beta + \frac{\lambda}{\omega}$. OLS will estimate β' but not β , and β' may indeed be positive even if the economic theory is correct.

How to Write a Research Paper

Tackling The Research Question

- ▶ Conclusion: the OLS estimated effect can be positive even if the true causal effect is negative
- ▶ Either need to control for the variables that the CB may take into account (I_{t-1}), or
- ▶ Get a measure of exogenous changes in CB's monetary stance (e.g., Friedman and Schwarz (1963), Romer and Romer (2004))
- ▶ Extensions to other countries?
- ▶ Question: If your hypothesis is that $\beta < 0$ and you found an OLS estimate $\hat{\beta}' < 0$, what can you conclude?

How to Write a Research Paper

Tackling The Research Question

- ▶ Does hosting olympic games have an impact on a country's GDP? (from last year's honors thesis)
 - ▶ Needed Data: historical data on who hosted olympic games and time series for these countries' GDP's
 - ▶ One may therefore suspect that estimating the regression model

$$\Delta \log Y_t = \alpha + \beta \text{Host}_{t-j} + \epsilon_t$$

will give us the causal effect of hosting games on GDP growth

- ▶ Are there any problems with this inference?

How to Write a Research Paper

Tackling The Research Question

- ▶ Regression of GDP growth on olympic host status has problems due to potential reverse causality, since wealthier countries are more likely to host olympic games
- ▶ Potential Solution: Compare hosts to runner-ups and argue that the choice of one of the two countries is exogenous
- ▶ Question: If your hypothesis is that $\beta > 0$ and you found an OLS estimate $\hat{\beta}' > 0$, what can you conclude?

How to Write a Research Paper

Tackling The Research Question

- ▶ Can informational imperfections impede the functioning of markets?
 - ▶ G. Akerlof (1970) used data and some anecdotal evidence to motivate his study of “Market for Lemons”
 - ▶ Modified the assumption of perfect information in a standard economic model of supply and demand
 - ▶ Showed that under plausible assumptions, markets plagued with informational asymmetries may fail to function
 - ▶ Total = 14 pages!
- ▶ Caution: Doing “good” theory is harder than you might at first think. More on this from John.

How to Write a Research Paper

- ▶ Keep in mind the above approaches when you try to test your own hypotheses
- ▶ Remember, that you can either try to creatively extend existing work or come up with your own question
- ▶ John and I will try to give quick tips on empirical methods in the coming weeks, but you need to get ahead and get started on your papers
- ▶ Come talk to us in office hours if you are unsure that your approach is “correct”

How to Write a Research Paper

Paper Organization

- ▶ Suggested Structure of Research Papers
 - ▶ Abstract
 - ▶ Introduction
 - ▶ Literature Review
 - ▶ Body
 - ▶ Conclusions
 - ▶ Bibliography
 - ▶ Appendix

“When Fast Growing Countries Slow Down: International Evidence and Implications for China.”

ABSTRACT

Using international data starting in 1957, we construct a sample of cases where fast-growing economies slow down. The evidence suggests that rapidly growing economies slow down significantly, in the sense that the growth rate downshifts by at least 2 percentage points, when their per capita incomes reach around \$17,000 US in year-2005 constant international prices, a level that China should achieve by or soon after 2015. Among our more provocative findings is that growth slowdowns are more likely in countries that maintain undervalued real exchange rates.

How to Write a Research Paper

Introduction

- ▶ Introduction
 - ▶ Present the Research Question
 - ▶ Discuss why it is important/interesting
 - ▶ Discuss how you will approach answering it
 - ▶ Discuss how your approach is different from existing work
 - ▶ Preview your main findings

“What Determines Our Wage: The Econometric Analysis of Male-Female Wage Gap.”

Introduction

The persistency of differentials by gender in the labor market is one of the key focus points of labor economics. Its importance in policy making is vast due to the necessity for mobility and heterogeneity of labor forces. It is important to know to which extent does gender play a role in determining wages, in order to target specific labor policies in the right direction. In addition, it is important to observe to which extent do other characteristics, such as race, nationality, religion or marital status, differently affect wages between men and women. As I demonstrate further in the paper, these differences indeed exist, and should be taken into consideration when forming future labor policies.

The main purpose of this report is to examine the impact of gender and race in determining the hourly wage in UK. In an attempt to do so, I shall first analyze the literature on the topic, providing a short historical overview of the dynamics of the labor market discrimination. Afterwards, a quick analysis of the data is presented, outlining the main features and peculiarities of the dataset¹. Furthermore, a model is estimated and its strengths and weaknesses are analyzed. Finally, I interpret and discuss the findings and potential policy implications that arise.

How to Write a Research Paper

Literature Review

- ▶ Literature Review - Briefly discuss existing work relevant to your question
 - ▶ Check JEL articles (e.g. Atkinson et al. 2010 on income inequality)
 - ▶ EconLit database
 - ▶ Course Readings
 - ▶ Google Scholar

How to Write a Research Paper

Body - Empirical

- ▶ Body - Empirical Papers
 - ▶ Provide the theory that is behind your empirical study
 - ▶ For example, if you study the relationship between income inequality and growth, you need to explain what you think is the mechanism behind your hypothesis.
 - ▶ Discuss briefly the data you use to test the theory (leave the detailed description of data for the Data Appendix)
 - ▶ Mention the shortcomings of your data (no dataset is perfect)

How to Write a Research Paper

Body - Empirical

- ▶ Body - Empirical
 - ▶ Discuss the methodology you use to answer your research question
 - ▶ Discuss your assumptions and the potential problems that may arise if these assumptions do not hold
 - ▶ Document and explain in detail your findings

How to Write a Research Paper

Conclusion

- ▶ Conclusion
 - ▶ Conclude by summarizing your findings
 - ▶ Suggest avenues for further research
- ▶ Now John will give you some tips on writing theoretical papers