

# Introduction to research methods in economics

EE489: Seminar in Industrial economics

Pornthep Benyaapikul

# Purpose of the course

Get familiar with the research tools in economics such to be able to produce report, scientific article, review, referee.....  
.....and (maybe) a thesis.

# Outline of the course

- What is *research* ?
- First job: literature review
- How to organize a scientific text: the *outlining*
- Built-up an *analytical* framework
- Presenting *evidence*
- Working on *ideas*.....

# Why Do Research?

- Summarizing what is known in a field
- Contributing to knowledge on a topic
- Solving a problem/puzzle
- Weighing in on a debate

# What is research ?

- What is research
- Six steps in the research process
- Developing an effective research question
- Literature search
- Organization of final paper
- Types of senior theses in economics
- Working with an advisor
- Deadlines
- Critical review of each source

# What is research ?

- Research = creation of knowledge
- How to create knowledge
  - Construct an argument
  - Argument must be a position or point of view on a question
  - Argument must be supported by evidence
  - Scholars develop competing arguments
  - Over time, stronger arguments survive

# Six steps in the research process

- Develop an effective research question
- Survey the literature
- Conceptualize the problem
- Test the hypothesis
- Analyze and interpret the results
- Communicate the findings

# Developing an effective research question

- Three questions must be answered
  1. What is the research topic
    - General area (unemployment, pollution, poverty)
  2. What is the research question
    - One-sentence question
  3. What is the research hypothesis
    - Proposed answer to your question

# Developing an effective research question – How to begin

- Choose a general topic
- Start reading the literature
  - What has been done
  - What questions remain
  - Are there contradictions in the literature
- Select a research question from the gaps in the literature

# Developing an effective research question - How to find the gaps in the literature

- Introduction to articles
  - Every article will identify the research question and how it differs from other research in the introduction
- Conclusion of articles
  - Every article should list its weaknesses and areas for further study in the conclusion

# Organization of your final paper

General structure of a paper:

- Introduction
- Literature Review
- Theoretical Framework
- Empirical Analysis
- Conclusions
- Appendix (if any)
- References

# Organization of your final paper

## 1. Introduction

- Define general topic
- What research has been done on this already
- What are gaps in literature
- Define your specific research question
- How will you answer your question (method)
- Order of remaining paper

# Organization of your final paper

## 2. Literature review and hypothesis

- What does previous research say about topic
  - Each paragraph represents one study
  - Each paragraph represents one theme
- Summarize gaps in literature
- What is your own hypothesis

# Organization of your final paper

## 3. Theoretical framework

Describe the theoretical foundations underpinning your empirical analysis.

Refer to the mainstream contributions and, if possible, try to develop your own framework.

# Organization of your final paper

## 4. Empirical Analysis

- Descriptive statistics
- Regression analysis
- Before and after
- Case studies
- Forecasting

# Organization of your final paper

## 5. Conclusions

- Restate the hypothesis or research question
- Summarize your results
- Did you confirm your hypothesis
- Weaknesses of your study
- Areas for further study
- No new citations, tables, or footnotes

# Types of theses in economics

- Propose a new theory
- Evaluate an existing theory with data
- Evaluate existing literature
- Evaluate current or future policies
- Using theory to explain historical situation
- Evaluate historical policies and their consequences in the past
- Predict a future situation based on historical trends

Starting research.....

THE SOURCES.....

# Critical review of each source

- What question is the author asking?
- What answer does the author propose?
- In what ways does the current study improve over previous research?
- How does the proposed answer differ from that provided by previous research?
- What empirical evidence does the author provide or what method does s/he use?

# Primary vs. Secondary Sources

- Secondary sources:
  - Popular summaries of scholarly research
  - Addressed to a general audience
  - A great place to start for ideas
  - Tip: DON'T only use secondary sources!

# Primary vs. Secondary Sources

- Secondary sources: examples
  - BBC News: <http://news.bbc.co.uk>
  - The Economist: <http://www.economist.com>
  - NYTimes: <http://www.nytimes.com>
  - Wall Street Journal: <http://www.wsj.com>
  - LexisNexis: <http://www.lib.uconn.edu/> => “Most Used Databases” => “LexisNexis News”

# Primary vs. Secondary Sources

- Primary sources:
  - Technical studies and scholarly research
  - Addressed to a professional/scholarly audience
  - Examples: Books, book chapters, edited volumes, journal articles, technical reports, working papers
  - Problem: Sometimes too mathematical or too technical!

# Search Strategies

- Browsing:
  - “Browsing means manually examining a document (e.g., a printed bibliography or an online directory) for useful information or references to useful information” (Greenlaw, 2006, p. 33).
- Examples: Reviewing a table of contents of a book/journal; browsing at <http://www.jstor.org> => “Browse”

# Search Strategies

- Keyword searches:
  - “Keyword searches use search engines on the World Wide Web or on specialized databases” (Greenlaw, 2006, p. 35).
  - Tip: Start broad, with a topic, then narrow your search by using more specific words in your search phrases
- Examples: Searching at <http://www.jstor.org> => “Search” => “Advanced Search”; searching at <http://www.sciencedirect.com> => “Search”

# Search Strategies

- Boolean:
  - A tool for focusing searches
  - Three operators: AND, OR, NOT
    - AND: Search will look for anything with all the terms
    - OR: Search will look for anything with any of the terms
    - NOT: Search will omit anything with these terms
- Examples: Searching at <http://www.jstor.org> => “Search” => “Advanced Search”

# Search Strategies

- “Filtering”: Successful searching is all about:
  - Finding some potentially helpful material
  - Evaluating the relevance of the material
  - Throwing out the irrelevant material you find
  - Working with the remaining relevant material
  - Checking the material you are working with for “hints” and “leads” about other possibly valuable sources

# Economics Resources: Info./Texts

- Secondary sources:
  - Wikipedia: <http://www.wikipedia.com>
  - Google: <http://scholar.google.com>
  - Newspapers' websites: e.g., BBC, NYTimes, Wall Street Journal
  - LexisNexis: <http://www.lib.uconn.edu/> => “Most Used Databases” => “LexisNexis News”
  - Resources for Economists: <http://www.rfe.org/>

# Economics Resources: Info./Texts

- Primary sources: Journal articles
  - EconLit: <http://www.lib.uconn.edu/> => “All Databases” => “Databases by Title [E]” => “EconLit through EbscoHOST”
  - JSTOR: <http://www.jstor.org> (great “starter” journals: *Journal of Economic Literature* and *Journal of Economic Perspectives*)

# Economics Resources: Info./Texts

- Primary sources: Journal articles
  - Sciencedirect: <http://www.sciencedirect.com>  
(journals that JSTOR does not have and often up to the present issue)

# Economics Resources: Info./Texts

- Primary sources: Working papers
  - Research Papers in Economics (RePEc):  
<http://ideas.repec.org> (also has links to published journal articles)
  - Social Science Research Network (SSRN):  
<http://papers.ssrn.com>
  - National Bureau of Economic Research (NBER):  
<http://www.nber.org/papers/>

# Economics Resources: Data

- General statistics:
  - US population:
    - Census <http://www.census.gov>
    - Statistical Abstract of the US
  - US government(s):
    - FedStats <http://www.fedstats.gov>
  - European Union:
    - EuroStat <http://epp.eurostat.ec.europa.eu/>
  - SPAIN:
    - INE: <http://www.ine.es/>

# Economics Resources: Data

- Bureau of Economic Analysis (BEA):
  - <http://www.bea.doc.gov>
  - National Income and Product Accounts (NIPA)
- Bureau of Labor Statistics (BLS):
  - <http://www.bls.gov>
  - Consumer Price Index (CPI)
  - Consumer Expenditure Survey (CEX)
  - Current Employment Statistics (CES)
  - Productivity

# Economics Resources: Data

- National Bureau of Economic Research (NBER):
  - <http://www.nber.org>
  - US business cycles
- US Federal Reserve Board of Governors:
  - <http://www.federalreserve.gov/rnd.htm>
  - Financial data (e.g., credit, flows of assets, interest rates, money supply)

# Economics Resources: Data

- Organization for Economic Cooperation and Development (OECD):
  - <http://www.sourceoecd.org> => “Statistics”
  - Development, employment, health, national accounts
- The World Bank:
  - <http://www.worldbank.org/data>
  - World Development Indicators (WDI)
  - Global Development Finance (GDF)

# Economics Resources: Data

- The International Monetary Fund (IMF):
  - <http://www.imf.org> => “Data and Statistics”
  - GDP growth, inflation, unemployment, debt
  - International Financial Statistics (IFS): exchange rates, trade, government accounts, national accounts
- United Nations Development Program (UNDP):
  - <http://www.undp.org> => “Human Development Data”
  - Human Development Index (HDI)
  - Human Poverty Index (HPI)

# Economics Resources: Data

- World Institute for Development Economics Research (WIDER):
  - <http://www.wider.unu.edu/> => “Database”
  - World Income Inequality Database (WIID)
  - Comprehensive database of measures of income inequality (Gini coefficient) across several countries and through time

# Economics Resources: Data

- Integrated Public Use Microdata Series (IPUMS):
  - <http://www.ipums.umn.edu>
  - Vast amount of socioeconomic data
- US Census Current Population Survey (CPS):
  - <http://www.census.gov/cps/>
  - Vast amount of socioeconomic data

# Economics Resources: Data

- National Longitudinal Surveys (NLS):
  - <http://www.bls.gov/nls/home.htm>
  - Vast amount of data on labor market activities
- Panel Study of Income Dynamics (PSID):
  - <http://www.isr.umich.edu/src/psid>
  - Vast amount of data on households' income sources, employment, occupation, poverty status

# Conclusion

- Research is a form of learning
- It is not easy, but the more time and effort you put into it, the better will be your results
- Some aspects of research are experimental and “do-it-yourself”
- Faculty are here to give you some direction

# Resources for Writing in Economics

- Steven A. Greenlaw *Doing Economics: A Guide to Understanding and Carrying Out Economic Research*. Houghton Mifflin Company. New York. 2006.
- <http://college.hmco.com/economics/greenlaw/research/1e/students/index.html>
- Deirdre N. McCloskey *Economical Writing*. Waveland Press, Inc. Prospect Heights. 2000.
- <http://www.waveland.com/Titles/McCloskey.htm>
- Robert H. Neugeboren *The Student's Guide to Writing Economics*. Routledge. New York. 2005.
- [http://www.routledge-ny.com/shopping\\_cart/products/product\\_detail.asp?sku=&isbn=0415701236&parent\\_id=&pc](http://www.routledge-ny.com/shopping_cart/products/product_detail.asp?sku=&isbn=0415701236&parent_id=&pc)

# A new tool: SCOPUS

- SCOPUS is a full compendium database of the most updates research
- The difference between SCOPUS and other databases
- The access:  
From UAB  
or via virtual platform: <https://xpv.uab.cat>

# SCOPUS

An applied example:

<https://xpv.uab.cat/,DanaInfo=.awxyCwhuw21Jn0z+home.url>

- <http://www.uab.cat/bib/>

# WOK (web of knowledge)

- The importance of the WOK
- Differences between WOK and SCOPUS
- What is the JCR ?

An applied example:

Searching in the WOK

[http://cataleg.uab.cat/search\\*cat/X?wok](http://cataleg.uab.cat/search*cat/X?wok)

An extremely important companion  
book.....

William Strunk  
E.B. White:

## **The Elements of Style**

Allyn and Becon Ed.

First Edition (1918).

Available online at : <http://www.bartleby.com/141/>

# What is a Literature Review?

And

# Why is it so important ??????

# Plan:

- What a literature review is and is not
- Purposes of a literature review
- Types of literature reviews in the social sciences
- Starting a literature review
- Organizing sources and notes before writing
- Writing a literature review
- Conclusion

# What a Literature Review is and is Not

- What a literature review is:
  - An overview of research on a given topic and answers to related research questions
  - Features of such an overview:
    - Organizes literature
    - Evaluates literature (<= higher-order critical thinking)
    - Identifies patterns and trends in literature
    - Synthesizes literature (<= higher-order critical thinking)

# What a Literature Review is and is Not

- What a literature review is:
  - An overview of what we know and of what we do not know about a given topic
  - Not necessarily exhaustive, but up-to-date and includes all major work on the topic
  - Intellectual context for your original research
  - Motivation for your original research
    - Structure of review guided by your objectives
    - Continually refers back to your thesis or research questions

# What a Literature Review is and is Not

- What a literature review is not:
  - A “laundry list” of everything written on a topic, where each source gets its summary paragraph
    - Lacks organization guided by thesis or research questions
    - Lacks synthesis of literature
    - Lacks critical evaluation of literature
  - An annotated bibliography
  - A literary or book review

# Purposes of a Literature Review

- Learning about research on a given topic and answers to related research questions (<= read broadly)
- Learning about how a body of research evolved
- Displaying your understanding of research on a given topic
  - Identification of important works
  - Points of agreement, consensus
  - Points of disagreement, controversy
  - Identification of areas for further research
- Providing readers with the intellectual context and some motivation for your original research (<= narrow focus)

# Types of Literature Reviews in the Social Sciences

- “Literature”: Typically primary sources, scholarly works
- Chapter in a thesis or dissertation
- Explicit section in a grant or research proposal
- Explicit section in a research report
- Full-length, stand-alone review article
  - Examples: Articles in *Journal of Economic Literature* and *Journal of Economic Perspectives*

# Starting a Literature Review

- The necessary first step:
  - Select a topic and formulate a few well-defined research questions
  - Examples:
    - Auction theory (far too broad)
    - Research on single-unit auctions (still a bit broad)
    - Empirical research on wholesale electricity auctions in the US (manageable)

# Starting a Literature Review

- Early back-and-forth:
  - Select a topic and formulate a few well-defined research questions
  - Brainstorm a list of search terms related to your topic and then search for sources
    - Keyword searches
    - Text/bibliographic databases
    - Reviewing reference sections
  - Briefly review sources and use what you learn to refine your topic and research questions

# Starting a Literature Review

- Working backwards:
  - Begin with a collection of recent research on a given topic
  - What authors or papers appear in the texts' introductions, literature reviews, or references sections?
- Identifying core literature, the “classics”:
  - What authors or papers do researchers keep citing?
  - What works do researchers identify as “classic,” “landmark,” “pioneering,” or “path-breaking?”
- Search out this preceding literature

# Starting a Literature Review

- Preliminary checklist:
  - Have I formulated a topic and well-defined set of research questions?
  - Have I discussed my topic and research questions with a library staff member that can assist me with searching for sources?
  - Have I carried out some early searching to learn about the topic and to help me narrow my topic and sharpen my questions?
  - Have I talked to a faculty member about my topic, my research questions, and the results of my early searching?
  - Have I identified the core research on the topic, the “classic” works?

# Organizing Before Writing a Literature Review

- First and foremost:
  - “Filter” your set of sources: Review abstracts, introductions, conclusions
  - Determine the scope of your literature review: What you will cover and what you will not cover
- Prioritize among your sources:
  - “Classics” and other studies you identify as more relevant or important warrant closer reading

# Organizing Before Writing a Literature Review

- Key questions to answer in your reading and note-taking:
  1. What is the source's topic, research questions, methodology, and central results? (Summary)
  2. How is this source related to my topic, thesis, and research questions? Does it support or contradict my thesis? (Synthesis and Organization)
  3. What are the strengths and weaknesses of the research in the source? Are there biases or flaws? How important or influential is this source? (Evaluation)

# Organizing Before Writing a Literature Review

- Key questions to answer in your reading and note-taking:
  4. How is the source related to other research on the same topic? Does it employ a different methodology? Does it pertain to a different population, region, time span? Does it work with a different data set? (Synthesis and Organization)
  5. What are the points of agreement or disagreement between the source and other research on the same topic? (Synthesis)

# Organizing Before Writing a Literature Review

- Getting a sense of the big picture:
  - What are the trends and themes in the literature? What are the points of consensus? What are the points of controversy? Which debates are on-going? Where does my research weigh in?
  - Where are the areas on which there is ample research? What are the areas that need further research?
  - Which studies offer support for my thesis? Which studies contradict my thesis?
  - Where does my research fit into the larger literature on the topic?

# Organizing Before Writing a Literature Review

- Checklist for notes on each source:
  - Full citation information
  - What is the author's discipline and credentials?
  - What is the topic? What are the research questions?
  - What is the methodology employed? Theoretical framework? Empirical framework?
  - What are the study's main results? What are the answers to the research questions?
  - What are the strengths and limitations of the study?
  - How is the study related to other research on the same topic?

# Writing a Literature Review

- Elements of the introduction:
  - Statement of thesis and/or research questions
  - Motivation for and importance of the research
  - Statement of scope of literature review: Note your selection criteria for the review
  - Hint of how you will organize the literature and your discussion of it

# Writing a Literature Review

- Potential organizing principles:
  - Methodology: Theoretical perspective, empirical framework
  - Studies that agree with one another
  - Studies that disagree with one another
  - Extent of support for your thesis
  - Regional focus
  - Data range, sample
  - Chronological
- Tip: Organize studies according to “common denominators”

# Writing a Literature Review

- Musts for your writing:
  - Linkage I: Continually link your discussion of the literature back to your thesis and research questions
  - Linkage II: Link studies to one another; stress relatedness of research on your topic
  - Prioritize/Classics: Identify “classic” studies and discuss them accordingly (i.e., with more detail, and with an eye for their influence)

# Writing a Literature Review

- Musts for your writing:
  - Evaluate/Gaps: Identify shortcomings of particular studies and/or the body of research as a whole; be critical!
  - Frontier: Identify areas for further research; where can research on your topic go from here?

# Writing a Literature Review

- Mechanics of writing:
  - Audience:
    - Scholarly, but avoid jargon
    - Wants to know about literature
    - Wants to know what you have to say about the literature
    - Wants to know where your research fits
  - Short paragraphs can help to keep writing crisp
  - Subheadings can help to clarify structure of review (for full-length literature reviews)

# Writing a Literature Review

- Mechanics of writing:
  - Use direct quotations sparingly; paraphrase studies
  - Prioritize studies in the literature:
    - Signal importance by discussing relatively more important studies with more detail
    - Signal importance by noting influence on subsequent studies

# Writing a Literature Review

- Rhetorical moves:
- Similarity: also, again, in addition to, additionally, similar to, similarly, alike, like, agree, agrees with
- Disagreement: contradicts, counter, opposite, differs, debate, at odds, on the other hand, disagree, disagrees with
- Evaluation: classic, pioneering, important, influential, lacks, fails to consider, ignores, overlooks, limited by/to, confined to, restricts attention to

# Writing a Literature Review

- Writing checklist:
  - Did I include a clear statement of my topic's importance, the research questions I am seeking to answer, and my thesis?
  - Did I include a clear statement of the scope of my literature review and what criteria I used for including studies in it?
  - Did I identify the “classic” works on my topic and give them priority in my discussion of the literature?
  - Did I summarize the studies and link them to one another as well as back to my thesis and research questions?
  - Did I critically evaluate the literature, identifying its limitations and areas where further research is needed?

# Literature Review Resources

- Online Writing Lab at Purdue University:
  - <http://owl.english.purdue.edu/workshops/hypertext/apa/interact/lit/index.html>
  - A sample APA-style literature review with comments
- University of Wisconsin-Madison Writing Center:
  - <http://www.wisc.edu/writing/Handbook/ReviewofLiterature.html>
  - An outline of tips on writing a literature review

# Literature Review Resources

- University of Melbourne Information Division:
  - <http://dydo.infodiv.unimelb.edu.au/index.php?view=html;docid=2679;groupid>
  - An outline of tips on writing a literature review in economics; sources for further reading
- University of Toronto Writing Center:
  - <http://www.utoronto.ca/writing/litrev.html>
  - An outline of questions to ask yourself while writing a literature review

# Literature Review Resources

- American University Library:
  - [http://www.library.american.edu/Help/research/lit\\_review/index.html](http://www.library.american.edu/Help/research/lit_review/index.html)
  - A constellation of sites with tips on writing a literature review, a sample literature review, checklists, and sources for further reading
- University of California-Santa Cruz Library:
  - <http://library.ucsc.edu/ref/howto/literaturereview.html>
  - An outline of the definition and purposes of a literature review as well as its key components

# Conclusion

- A literature review is an overview of research on a given topic and answers to related research questions
- Literature reviews are an important part of research and should be treated as such
- A well-written literature review:
  - Organizes literature
  - Evaluates literature
  - Identifies patterns and trends in literature
  - Synthesizes literature

# Outlining, Organization, and Cohesion

.....or the birth of an essay.....

# Working plan:

- Two major organization strategies:
  - Brainstorming
  - Outlining
- Cohesion:
  - What is it?
  - How to achieve it
- More organization strategies
- Conclusion

# On Organization in Scholarly Writing

- The organization of scholarly writing is simply the organization of an argument
  - Logical: Conclusions follow naturally from assumptions and reasoning
  - Hierarchical: Thesis, major reasons, supporting evidence, conclusion

# On Organization in Scholarly Writing

- Since writing is the expression of your thoughts, you must first organize your ideas
  - Organization begins during the research process
  - Determine thesis, find/evaluate/classify sources and supporting evidence

# Two Major Organization Strategies

- **Brainstorming:** Chaos permitted
  - What do I want to achieve in this paper?
  - What is my research question?
  - What do I want to argue?
  - What are the ways I can go about answering my research question?
  - What sources will help me to support my argument?

# Two Major Organization Strategies

- **Outlining:** Evolving organization
  - Helps a writer to determine what to write, and the order in which to write it
  - Helps a writer to reflect on what she has written, and the order in which she wrote it (“reverse outlining”)

# More on Outlining

- When should I be outlining?
  1. Before writing/during research:
    - Settle on a thesis
    - Find support for it
    - Organize evidence in a hierarchical way

# More on Outlining

- When should I be outlining?
2. While writing: An iterative process
- Am I making the points I set out to make?
  - Are there key points that my argument is missing?
  - Are there unnecessary points/evidence that I can omit from the paper?

# More on Outlining

- When should I be outlining?

## 3. After writing/during revisions:

- Does my paper accomplish what I set out to accomplish?
- Did I stay true to my original outline?
- If not, is my actual organization better than the one I proposed?

# Two Types of Outlining

## 1. Point-Based Outlining:

- A series of assertions or claims you plan to make in your paper
- Supporting evidence or reasoning under each claim
- Organizing series from beginning to end as links in a chain (of reasoning)

# Two Types of Outlining

## 2. Paragraph Outlining:

- A series of topic sentences which (will) begin each of the paragraphs in your paper
- Each paragraph's topic sentence should state the main idea of the paragraph
- Examine sequence of points: Can you understand the argument being made without reading the details of the paper?

# Outlining Activity

- Sample paper: “Flawed Paired Testing Still Best Bet in Identifying Racial Segregation in the Housing Market”
- What is the thesis of the paper?
- Paper’s paragraph outline: Does it work?

# Cohesion

- What is cohesion?
  - Cohesion is the way in which writing “sticks together”
  - Organization played out at a micro level: Section by section; paragraph by paragraph; sentence by sentence
    - Does the writing make sense?
    - Are the parts of the written argument clearly linked to one another?

# Cohesion

- “Behind rules on what to avoid lies a rule on what to seek. It’s the Rule of Coherence: make writing hang together. The reader can understand writing that hangs together, from phrases up to entire books. She can’t understand writing filled with irrelevancies” (McCloskey, 2000, p. 50).

# More Organization Strategies

- Determine your thesis and stick to it
  - What problem are you attempting to solve?
  - What are the possible answers to your research question?
  - What answer are you offering?
  - What is your stance on a particular issue?

# More Organization Strategies

- Structure your paper around your argument
  - Communicate your main point immediately
  - Give your reader a sense of where you are going with the paper (especially long papers)
  - Logic and hierarchy:
    - Major reasons for your thesis?
    - Supporting evidence for each reason?

# More Organization Strategies

- Imagine that you are telling a story
  - A story makes no sense if the events are out of order
  - A story makes no sense if its events do not have any supporting detail, or context
  - A story makes no sense if you complicate it with random, irrelevant details

# More Organization Strategies

- One paragraph, one idea
  - Each paragraph should have a point, and only one point
  - Typical structure:
    - Topic sentence: Point of paragraph
    - Elaboration on the point
    - Supporting evidence for the point

# More Organization Strategies

- **Parallelism:** Expressing parallel ideas in parallel form
  - Examples:
    - “The reader can understand writing that hangs together, from phrases up to entire books. She can’t understand writing filled with irrelevancies” (McCloskey, 2000, p. 50).
    - “The regression showed that investment was a very important determinant of a country’s GDP growth rate. The country’s type of government was not an significant predictor of its GDP growth rate.”

# More Organization Strategies

- Repetitions/variations of key words
  - Example:
    - “Recent advances in trade theory highlight the importance of political relationships between trading partners for the volume of trade. These results suggest that a country hoping to increase its volume of trading with its trading partner would do best to focus on the quality of its political relations.”

# More Organization Strategies

- **Nominalization:** Turning verbs into nouns
  - Examples:
    - Link / Linkages
    - Connect / Connection
    - Growing / Growth
    - Increasing / Increases
    - “US GDP was steadily increasing over the post-war period. These increases in GDP led to a growing standard of living.”

# More Organization Strategies

- Use one word to mean one thing
  - Bad ideas: “economic development,” “industrialization,” “growing structural differentiation,” “economic and social development,” “economic growth,” etc. (McCloskey, 2000, p. 56).

# More Organization Strategies

- Keep a modifier near the word it modifies
  - Examples:
    - “The changes in investment spending that caused GDP to increase were rapid.”
    - “The rapid changes in investment spending caused GDP to increase.”
    - “Voter support for the new urban development policy, which the government proposed to implement soon, was ardent.”
    - “Voters ardently supported the new urban development policy that the government proposed to implement soon.”

# Online Resources

- Purdue University's Online Writing Lab:
  - [http://owl.english.purdue.edu/handouts/general/glin\\_outline.html](http://owl.english.purdue.edu/handouts/general/glin_outline.html)
  - Overview of what an outline is and tips on how to organize one
- Harvard University's Writing Center:
  - <http://www.fas.harvard.edu/~wricntr/documents/Outlining.html>
  - Overview of creating an outline in the context of a hypothetical paper topic

# Online Resources

- University of Missouri's Campus Writing Program:
  - [http://cwp.missouri.edu/resources/five\\_minute\\_workshops\\_and\\_teaching\\_resources/Five\\_Minute\\_Workshops/Coherence\\_in\\_Writing.htm](http://cwp.missouri.edu/resources/five_minute_workshops_and_teaching_resources/Five_Minute_Workshops/Coherence_in_Writing.htm)
  - Example paragraphs: One not very cohesive and one very cohesive
  - Overview of tips to increase cohesion in writing

# Conclusion

- Begin the research and writing process early
- Organize your ideas, then your written expression of them
- Trial and error: Be willing to make changes to your organization (and outline) as you go
- Write with an argument in mind

# The Analytical Essay

....or your message....

# Working plan:

- What is an analytical essay?
- Structure of an analytical essay: Macro and micro
- Higher order concerns
- Rhetorical moves
- Conclusion

# What is an Analytical Essay?

- Four components of an analytical essay:
  1. Analysis
  2. Interpretation
  3. Persuasion
  4. Logical argumentation (ties together 1-3)

# What is an Analytical Essay?

- Analysis:
  - Breaking object of study down into parts
  - Highlighting connections between parts
  - Drawing inferences/conclusion from the highlighted connections
  - **Example:** Consumer choice model

# What is an Analytical Essay?

- Interpretation:
  - Creating meaning
  - Reasoned explanation
  - Premium on clarity:
    - Vague and general (No!)
    - Specific and concrete (Yes!)

# What is an Analytical Essay?

- Persuasion:
  - Thesis-centered and argumentative
  - Developing a point of view
  - Getting your audience to *share* that point of view
  - Strategic, selective of evidence

# What is an Analytical Essay?

- Logical argumentation:
  - Central claim
  - Clear assumptions
  - Evidence to support central claim
  - Conclusions follow logically from assumptions and reasoning about evidence
  - **Cheating:** Drawing conclusions *without* supporting evidence!

# What is an Analytical Essay?

- Objects of analysis/interpretation:
  1. Prior literature/research on a topic
  2. A public policy
  3. Data: Casual empiricism, regression equations
  4. Model: Constellation of assumptions and simplifications, “thinking aid”

# The Structure of an Analytical Essay

- An analytical essay is logical and hierarchical
- Your main claim, the thesis, is privileged:
  - Must appear at the outset of the paper
  - Interpretations of “the facts” refer back to the thesis

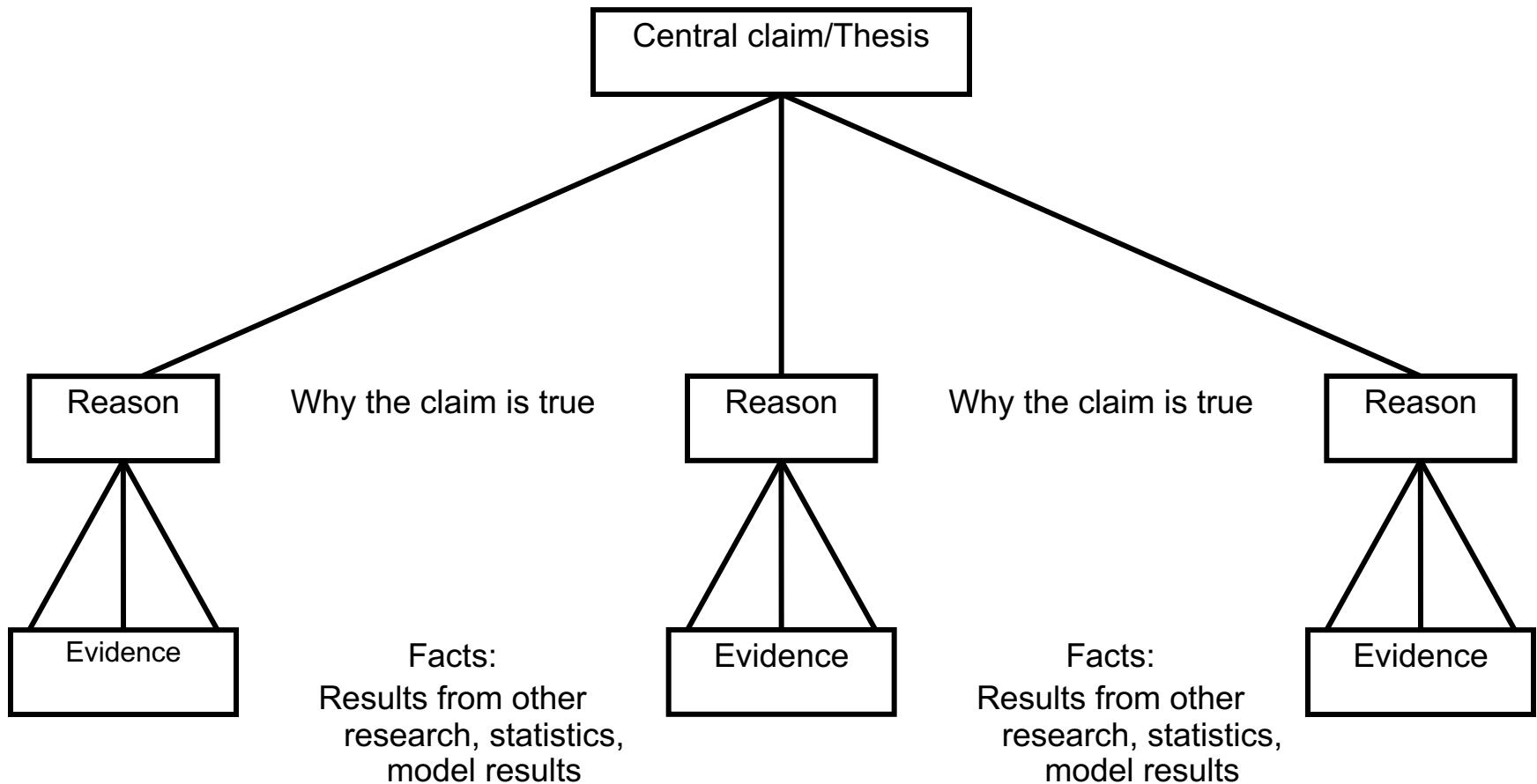
# The Structure of an Analytical Essay

- An analytical essay is logical and hierarchical
- Your main claim, the thesis, is privileged:
  - Purposes of information in the paper:
    - Context for the thesis
    - Support for the thesis
    - Challenges to the thesis
  - Reappears in the conclusion

# The Structure of an Analytical Essay

- An analytical essay is logical and hierarchical:
  - **Logical:** Conclusions follow naturally from assumptions and reasoning
  - **Hierarchical:** Thesis, major reasons, supporting evidence, conclusion
- Suggestive of a general structure for analytical essays, and one that fits a variety of papers common in economics

# Macro Structure of an Analytical Essay



# Macro Structure of an Analytical Essay

- **Example:** Illness and the labor market
- Thesis: The impact of chronic illness on workers' wages is indeterminate...
- Reason: ...*because* firms have lower demands for chronically ill workers and chronically ill workers supply less labor
- Evidence: Demand and supply model, data on chronic illness and productivity, labor demand, and labor supply

# Macro Structure of an Analytical Essay

- The general structure of an analytical essay applies to the most common economics papers:
  1. Literature reviews
  2. Empirical papers
  3. Theory papers

# Macro Structure of an Analytical Essay

- **Literature reviews:**

1. Introduction
2. Subsections of topic/area of research
3. Conclusion

- **Purpose of section:**

1. Introduce topic, scope and organization of review
2. Outlining what we know about a topic
3. Summing up, identifying open questions, areas for future research

# Macro Structure of an Analytical Essay

- **Empirical papers:**

1. Introduction
2. Literature review
3. Methodology
4. Data
5. Results
6. Discussion
7. Conclusion

- **Purpose of section:**

1. Introduce topic, motivation, thesis
2. Context for the research
- 3.-4. Model to be estimated, variables in regression, source of information
- 5.-6. Summary statistics, estimated parameters, hypothesis testing, interpretation
7. Return to thesis

# Macro Structure of an Analytical Essay

- **Theory papers:**

1. Introduction
2. Literature review
3. Model setup
4. Model results/analysis
5. Extensions of model
6. Conclusion

- **Purpose of section:**

1. Introduce topic, motivation, thesis
2. Context for the research
3. Definitions and assumptions
4. Manipulation of the model and interpretation of its implications
5. Relaxing assumptions and deriving new results
6. Return to thesis

# Micro Structure of an Analytical Essay

- Think of a pyramid:
  1. Top: Sharp, focal, catches attention
  2. Middle to bottom: Ever broader, supports everything above it
- Think of an argument:
  1. Top: Central claim, thesis
  2. Middle to bottom: Reasons and supporting evidence

# Micro Structure of an Analytical Essay

- The “macro” structure should repeat itself:
  1. In each section of the paper
  2. In each paragraph
- “Pyramid” principles:
  1. Most important information first
  2. Elaborations and supporting information to follow

# Higher Order Concerns

- Incorporating counterarguments:
  - Do other studies find different results using different data or different models?
  - What are the alternative explanations?
  - What are the competing models?

# Higher Order Concerns

- Refuting counterarguments:
  - Why is your interpretation of “the facts” the most persuasive?
  - What support for your claims do you have that competing explanations do not?
  - Is there something important about the topic that a competing argument ignores and that you do not?

# Higher Order Concerns

- Concession:
  - What are the limitations of your argument?
  - Are your empirical results sensitive to specification, data, or measurement issues?
  - Are your theoretical results sensitive to the assumptions you make?
  - Are any of your assumptions particularly unrealistic?

# Rhetorical Moves in Analytical Essays

- Priority: More important claims, reasons, and supporting information appears earlier
- Order: Claim up front, supporting information to follow
- Support: Build off of “old” information on the way to drawing conclusions
- Specificity: A well-chosen example can get your point across better than being general and vague

# Rhetorical Moves in Analytical Essays

- Words and phrases that signal:
- Motivation: “important,” “worth studying,” “interesting,” “motivated by,” “puzzle”
- Comparison: “agreement,” “disagreement,” “like,” “alike,” “unlike,” “in response to,” “similar to,” “different from”

# Rhetorical Moves in Analytical Essays

- Words and phrases that signal:
- Results: “implies that,” “follows from,” “implication of,” “outcome of,” “we find that”
- Limitations: “ignores,” “fails to consider,” “is limited by,” “constrained to,” “is sensitive to,” “is not supported by,” “fails to explain,” “assumes that,” “is not consistent with”

# Conclusion

- Analytical essays are a blend of analysis, interpretation, and persuasion
- Organization: Logical and hierarchical
- “Pyramid” structure in the large and in the small
- A form of writing for many of the types of papers common in economics

# Presenting Statistical Evidence and Graphical Information in Written Work

....or how to get to the point .....

# Working plan:

- Perspectives on graphical and statistical information in writing
- Discussing information or results of other studies
- Discussing your own information or results:
  - Statistics: Summary statistics, graphs/plots, regression analysis
  - Theory: Equations, graphs/figures
- Conclusion

# Some Perspectives on Good Writing

- An argument is the centerpiece of good writing; good writing is persuasive
- The information in tables, graphs, etc. is part of your argument; you need to tell your reader what the information *says* as well as what it *means*
- Make your discussion of the information such that your reader cannot help but interpret the evidence in the way that you do

# Some Perspectives on Good Writing

- “Tables and graphs are writing, and the usual rules of writing therefore apply...The reader wants statistics given in the simplest form consistent with their use...Tables, graphs, diagrams, and displayed equations should elucidate the argument, not obscure it” (McCloskey, 2000, p. 46-47).

# Some Perspectives on Good Writing

- “The purpose of charts, tables, and other graphics is to summarize and illustrate the argument in the text. Every figure should be designed to be easily understood independently of the text” (Greenlaw, 2006, p. 235).

# Info./Results of Other Studies

- Typically, not much detail is necessary
- Sufficient information: Summary of research question and methods, main findings, and conclusions
- Detail is only necessary if a prior study's results are particularly interesting or important to your research:
  - Did the study find a result that is at odds with the rest of the literature?
  - Does your research confirm or reject this study's results?

# Info./Results of Other Studies

- You may encounter a particularly convenient figure, graph, or piece of statistical information in past research or from a statistical agency
- There is no problem with reproducing a figure, graph, table, or numerical information from a prior study (or statistical agency, etc.)
- If you reproduce a past study's figure, graph, table, or numerical information, be sure to cite the original source

# Info./Results of Other Studies

- Example:

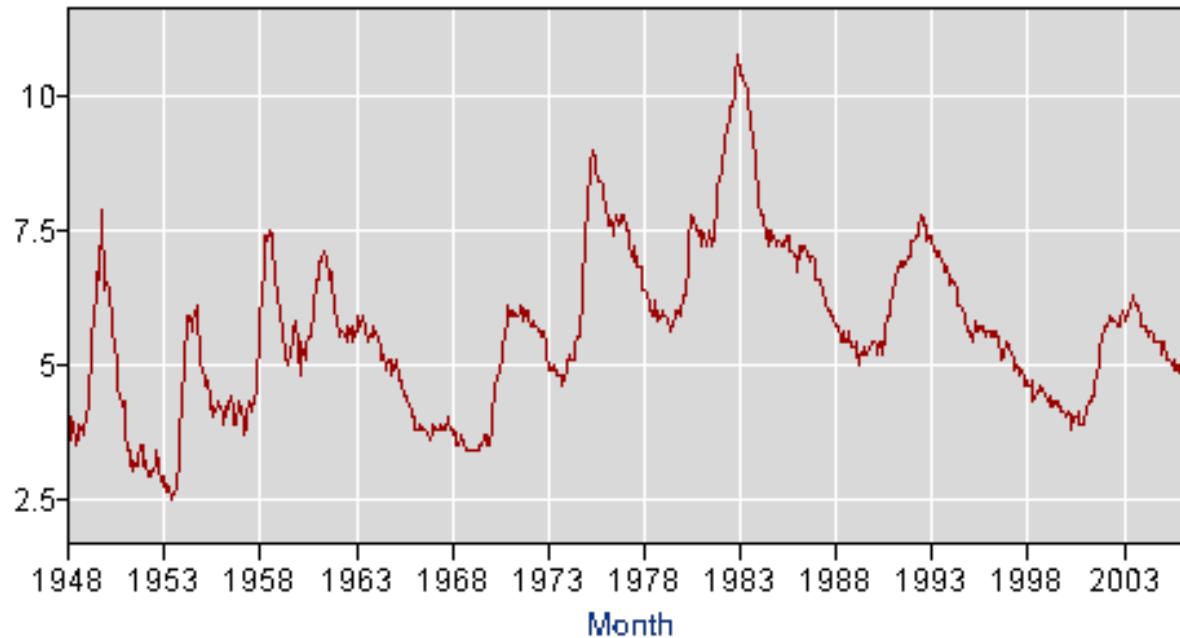


Figure 1: Monthly US Unemployment Rates of Workers Age 16 and Older, 1948-2006 (Source: BLS)

# Info./Results of Your Research

- Why does it matter? It is the most important part of your research!
- You are trying to make an argument: why should your reader believe you?
- Statistical, graphical, and mathematical information provide:
  - Background on your problem
  - Support for your claims
  - Tests of your hypotheses
  - Illustration of your argument

# Info./Results of Your Research

- Information supporting your argument:
  - Statistics from data (tabular and/or graphical)
  - Estimates from a regression model
  - Equations derived from a model
  - Figures to illustrate how a model works
- Tell your reader what the information *says* as well as what it *means* in the context of your economic theory

# Info./Results of Your Research

- General tips:
  - All figures, graphs, and tables need a title
  - Figures/graphs: “Figure [Number]: [Title of figure]”
    - Typically at the bottom of the figure
  - Tables: “Table [Number]: [Title of table]”
    - Typically at the top of the table
  - Help your reader: Titles should be self-explanatory and state the theme of the information

# Info./Results of Your Research

- General tips:
  - Figures and tables with self-explanatory titles are not enough!
  - Reference the figure or table in the body of your text
  - Do not simply refer the reader to your results and then let her do the thinking; draw conclusions!

# Info./Results of Your Research

- General tips:
  - Discuss the contents of the figure or table:
    - Interpret the information for your reader
    - What does the figure or table show?
    - Any interesting information you want your reader to know?
    - How is the information related to your argument?

# Info./Results of Your Research

- General tips:
  - Keep these two slogans in mind while writing:
    1. I need to write about my results
    2. The interpretation of my results is as important as my results

# Info./Results of Your Research

- Statistical information: Summary statistics
  - Two forms: 1. Tables, 2. Graphs
  - Purpose:
    - Background information
    - Illustrates trends (or differences)
    - What trends are there in the data? Changes over time...across countries, firms, etc.?

# Info./Results of Your Research

- Statistical information: Summary statistics
  - Tables: Info. that summarizes your data
  - What to include:
    - Clear, descriptive title of the table and its variables
    - Units of measurement for each variable
    - Measure of central tendency (e.g., average)
    - Measure of variability (e.g., standard deviation)
    - Minimum and maximum values
    - Correlation with other variables

# Info./Results of Your Research

- Statistical information: Summary statistics
  - Tips for tables:
    - Don't let the table stand alone
    - Explain its contents to your reader
    - Think about questions that the data can answer and discuss them in the text of your paper

# Info./Results of Your Research

- Statistical information: Summary statistics
  - Figures/graphs: Visual summaries of your data
  - What to include:
    - Clear, descriptive title of the figure
    - If a graph, clear labels for axes and curves
    - If a graph, a clearly labeled key to distinguish curves
    - Units of measurement for each variable

# Info./Results of Your Research

- Statistical information: Summary statistics
  - Tips for figures:
    - Don't let the figure stand alone
    - Explain its contents to your reader
    - What does the figure show?
    - What are the important trends/differences?
    - How does it relate to the point you want to make?

# Info./Results of Your Research

- Statistical information: Regression analysis
  - Tables: Info. that summarizes your estimation results
  - What to include:
    - Clear, descriptive title of the table and its variables
    - Units of measurement and source for each variable
    - Signs and values of estimated coefficients
    - Indication of each estimate's statistical significance
    - Standard error of each estimate (or  $t$ -statistic)
    - Sample size, measure of goodness-of-fit, and overall statistical significance

# Info./Results of Your Research

- **Statistical information: Regression analysis**
  - Typical format for a table of regression results: What could improve this table?
  - Tips for tables:
    - Discuss estimates on important variables; provide interpretation
    - Are the estimates statistically significant? Economically significant?
    - Do the results confirm your theory? Do they reject it?

# Info./Results of Your Research

- Mathematical information: Equations
  - Treat equations as part of a sentence:
    - If an equation ends a sentence, a period (.) should follow it
    - If an equation is part of a clause, a comma (,) should follow it
    - Major equations deserve numbers, minor ones do not
    - Explain and interpret parts of any displayed equation

# Info./Results of Your Research

- Mathematical information: Figures/graphs
  - Figures should illustrate and simplify your model, not obscure it
  - Figures need clear, descriptive titles
    - “Figure [Number]: [Title of figure]”
    - Typically at the bottom of the figure
  - Figures need labels for anything that is not obvious to the reader
  - You must reference the figure in the body of your text and then discuss its interpretation and meaning

# Online Resources

- Online Writing Lab at Purdue University:
  - <http://owl.english.purdue.edu/workshops/hypertext/apa/parts/tables.html>
  - <http://owl.english.purdue.edu/workshops/hypertext/apa/parts/figures.html>
  - Brief comments on the purpose and use of tables and figures in writing

# Conclusion

- Cost: It takes time to format tables, figures, graphs, and equations
- Benefits (huge):
  - The support for your argument will be stronger, and your argument will be more convincing
  - Readers may (gasp!) enjoy reading your work and it may become influential

# Next step.....

Working on ideas:

Analysis of a path-breaking paper

Dixit–Stiglitz (1977), *AER*