



### General Advice and Key Characteristics

#### An Economic Approach to Knowledge

Economists take a unique approach to thinking and writing about their topics: by subjecting phenomena to economic analysis, economists write to describe how a particular part of the economy works or how people, individual agents, or organizations make decisions. UM economics majors have focused their senior thesis projects on a broad range of topics such as Mexican migrants, the music industry, climate change, and health care. When performing an economic analysis, a writer in economics might make one or more of the following assumptions:

#### *Assumption: Problem of scarcity*

Working under the assumption that resources are limited, economics is preoccupied with the problem of scarcity. **How do individuals make choices when these decision makers are working under constrained resources?**

For example:

- When deciding how to allocate your time during a given day, you are making choices under the constraint of scarcity since you have a limited number of hours in the day.
- When a government makes efforts to meet its population's needs, decision makers must consider how to allocate scarce resources.

#### *Assumption: Rationality*

In approaching the problem of scarcity, traditional economics assumes that individuals behave rationally. This assumption is a cornerstone of economic thinking. "Economics can be distinguished from other social sciences by the belief that most (all?) behavior can be explained by assuming that agents have stable, well defined preferences and make rational choices consistent with those preferences."<sup>2</sup>

#### *Assumption: Theory of incentives*

Economics assumes that when economic agents make decisions, they compare costs and benefits. In the context of this comparison, economics assumes incentives influence behavior.

#### *Assumption: Ceteris paribus ("other things being equal")*

Economics attempts to isolate causal connections, "other things being equal." This allows economists to make precise observations about hypothetical relationships. For example, an economist might ask, *other things being equal*:

- How do weather patterns influence visitation at ski resorts in Montana?
- How does pine beetle infestation impact housing prices in the western United States?

### Common Writing Tasks

No paper in economics starts from scratch. As a cumulative enterprise, research and writing in economics responds to what has been done before. As a writer, you may work to improve an existing model, use different or richer data, or ask a slightly different question. Economics and your writing in the field represent a growing body of knowledge.

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<sup>1</sup>Handout Sources:

Dudenhefer, Paul. "A Guide to Writing in Economics." Duke University's Department of Economics, December 2009.

Jacobson, Mireille and Neugeboren, Robert. "Writing Economics." The President and Fellows of Harvard University, 2001.

<sup>2</sup> Camerer, Colin F. and Thaler, Richard H. "Ultimatums, Dictators and Manners." *Journal of Economic Perspectives*, Spring 1995, 9 (2), pp.209–20.

### Empirical Paper (testing a model)

Most UM senior thesis projects in economics take the form of an empirical paper. In this type of paper, the writer demonstrates how she has used already collected data to test a particular hypothesis and assesses how well the hypothesis or model represents reality. In drafting and revising, the writer will:

- Contextualize the topic in the field of economics by identifying theories, models, and findings that inform and lead to the writer's current work.
- Identify a question/problem worth investigating.
- Use an economic model to generate a hypothesis. For example, the writer might hypothesize that a high unemployment rate is related to increased enrollment at four-year universities.
- Use a data set to test the hypothesis.
- Describe and interpret the results.

These papers generally include the following sections:

1. Abstract
2. Introduction
3. Literature review (sometimes combined with the Introduction)
4. Economic model (a theory, usually mathematical, to describe a relationship between variables)
5. Empirical methodology (known as econometrics or economic methods for testing a hypothesis)
6. Empirical analysis (results and techniques)
7. Conclusions (answers the research question based on analysis)

### Theoretical Paper (proposing a model)

The theoretical paper criticizes a currently used model and proposes a better one with the intention of improving the conceptual foundations of economic analysis. The writer's task is to argue for a model's ability to predict that an economic agent will make a particular choice. The empirical paper would later test the model with data. Theoretical papers include a significant amount of math with proofs in an appendix.

These papers generally include the following sections:

1. Abstract
2. Introduction
3. Literature review (sometimes combined with the introduction)
4. Basic model (a theory, usually mathematical, to describe a relationship between variables)
5. Various scenarios as model is extended

### Public Policy Analysis Paper

Public policy analysis papers use techniques for critically evaluating the effectiveness of public policy. By understanding the outcomes of these policies, economists can inform future decision making.

These papers generally include the following sections:

1. The Issue: Clearly define the issue that public policy is addressing.
2. Institutional Background: Describe the setting and institutional framework.
3. Economic Principles: Describe the economic principle that applies and explain how it applies.
4. Analysis: Analyze the policy or proposed policy, describing potential costs and benefits.
5. Conclusion

### Literature Survey Paper

While a literature review is included in both empirical and theoretical papers, a survey of literature also can stand alone. In this type of paper, the writer reveals the common patterns, trends, weaknesses, and strengths in a particular area of research. For example, the writer might reveal a current debate or a problem not yet solved.

## Common Moves

### Narrow your focus to a feasible topic

Narrowing the scope of your topic is a critical step in economic thinking and writing. Make note of the topics covered in other senior theses and published papers, and commit yourself to finding a topic that will sustain your interest. Once you settle on a broad topic, begin to narrow your scope by time period, demographic group, or geographic region. For example:

- *Broad topic:* national park visitation rates
- *Narrowed topic:* Glacier National Park visitation rates
- *Further narrowed topic:* Glacier National Park visitation rates and media coverage of climate change

### Identify a question or problem and formulate a meaningful hypothesis

A key step in writing in economics is identifying a question or problem worth investigating. You cannot identify methods or data appropriate for answering the question/solving the problem if you do not have a clear understanding of the problem in the first place. To do this, use an economic model to formulate a hypothesis you will test. As you identify your variables and an appropriate data set, you also will make a move to tentatively answer your question. For example, a writer might ask:

- What is the relationship between residential property values and pine beetle infestation in Montana?

### Provide appropriate evidence

Most papers in economics require that you use purposefully presented evidence to form an argument.

Types of evidence:

- *Assumptions, concepts, theories:* Describe what others have said.
- *Quantitative data:* Measure subjects' or objects' behaviors or characteristics that differ in quantity. Quantitative data are expressed numerically, e.g. quantities, income level, prices. Most likely, you will not be compiling your own empirical data but rather will access existing data.
- *Economic modeling:* Use models to organize data and generate hypotheses. Models, usually mathematical in nature, are theories represented in precise terms to describe relationship between variables. Apply accepted models to new evidence or compare models and decide which better explains the data.
- *Econometrics (methods of hypothesis testing):* Reduce complexity to simpler parts through statistical analysis to show correlation, e.g. regression analysis.

### Use subject librarians throughout the research process

Librarians at the Mansfield Library can help you identify and evaluate source materials, narrow your focus, and refine your ideas. Effective research strategies are a key part of a successful writing process.

### Use tables, graphs, figures, and displayed equations purposefully

Make purposeful decisions about which information needs to be presented visually, then present precisely and in a simplified form. Be clear. Be brief. Don't force a reader to work too hard to understand your visual. Also, describe these visuals in the text, explaining the main point and significance of the information presented.

### Document sources accurately and ethically

Writers in economics generally use citations to document a source's author and date of publication. While there is no standard style of documentation in economics, a good style to use is the one outlined in the Chicago Manual of Style or in the *The American Economic Review*, an influential economic journal.

Using proper citation allows you to:

- Join a community of writers and readers who share certain values and a common citation system.
- Build credibility as a writer and researcher in the field of economics.
- Provide readers access to your sources.

Make clear where your ideas end and another's begin. Whether you are quoting, summarizing, or paraphrasing in your own words, you *must* cite your sources. Even if you do not intend to plagiarize, if you do not properly cite your sources, you have plagiarized.

## Some Tips

### Questions to Ask of Your Draft

As you write and receive feedback on your papers, consider asking the following questions (not all questions are applicable to all types of assignments):

- Does my paper reflect an economic approach? Is it informed by the field's assumptions?
- Do I make clear what problem or question I am exploring?
- Is my paper clear and to the point, avoiding unnecessary information and showy phrasing?
- In solving the problem or answering the question, do I use evidence that is grounded in the reading, in collected data, in an appropriate economic model, and in sound econometrics?
- Do I distinguish my ideas from those of the authors/theories/articles I discuss? Do I make clear where others' ideas end and where my ideas begin?
- Do I waste space on excessive summary of sources? Do I make purposeful choices about when to summarize, paraphrase, and quote primary and secondary sources?
- If I am writing an empirical or theoretical paper, does my paper follow a proper ordering of sections?
- Do I use subject headers in longer papers to help my reader organize the argument?
- Do I use proper formatting for my paper and in documenting sources?

### Common Pitfalls to Avoid

When writing a paper for an economics course, take care to avoid the following common pitfalls:

- *Lack of an adequately complex thesis or clear hypothesis:* A good thesis moves your reader beyond a simple observation. It asserts an arguable perspective that requires some work on your part to demonstrate its validity. A clear hypothesis grows out of an appropriate economic model and should signal to your reader what relationship you will test.
- *Lack of adequate support:* A well-crafted thesis requires substantiation in the form of acceptable evidence. Take care to develop a thesis that will require purposeful use of evidence.
- *Lack of data:* For empirical papers, take care to ask questions for which there is data available to formulate an answer.
- *Type III errors:* A Type III error occurs when you provide the right answer to the wrong question or problem. This can happen when there is a significant gap between your data and modeling exercise on the one hand, and the policy situation on the other.
- *Improper use of a theory or model:* If you are applying or testing a particular theory or model, be sure you have a good understanding of this theory or model.
- *Excessive summarizing/lack of analysis:* Your task is to move beyond mere summary to help a reader understand your evaluation and analysis of the texts or data.
- *Plagiarism:* Plagiarism is the use of someone else's work or ideas, in any form, without proper acknowledgement. Whether you are quoting, summarizing, or paraphrasing in your own words, you *must* cite your sources.
- *Use of unreliable electronic sources:* Take care to rigorously evaluate your sources, particularly ones from the Internet. Ask who authored the information, who published or sponsored the information, how well the information reflects the author's knowledge of the field, and whether the information is accurate and timely.
- *Use of personal opinion or anecdotes:* Personal opinions or anecdotes generally do not qualify as rigorous and appropriate economic evidence. Your opinion does not qualify as data.
- *Excessive quoting:* When quoting a source in order to provide evidence, use only the relevant part of the quotation. When you establish a claim/assertion and provide textual support, be sure to explain the relationship between the quotation and the assertion. Your reader can't read your mind.
- *Shifting verb tense:* Take care to shift verb tense only when necessary. Science's strong sense of timing requires that you accurately reflect that research was performed in the past and that certain knowledge is current.
- *Passive voice:* Use active voice as often as possible. Active voice generally is more concise and lively than passive voice.