

What Is Research?

"I hear and I forget; I see and I remember; I do and I understand."

CONFUCIUS

The best way to *learn* economics is not to hear about it, or to read about it, but to *do* it. Doing economics means performing economic research. As Booth et al. (1995, 2) note, "Doing research can help you understand the material you are studying in a way that no other kind of work can match."

Faculty often view research ability, like writing, as a skill that students either must have learned earlier in their education or can pick up on their own. After all, haven't all undergraduates written term papers? In fact, experts in the field of research and writing have exposed this as a fallacy. Bean (1996), a nationally known scholar of critical thinking, points out that most undergraduates do not really understand how to write a discipline-specific research paper.

This book is intended to remedy this problem. It is designed to guide students through the research process from the conception of the research question to the completed research report. Students often find that research is a difficult process. As they struggle to complete the project they conclude that something is wrong with *them*. What they fail to grasp is that research *is* difficult. It is not a straightforward, mechanical process but one replete with ambiguities, wrong turns, and "wasted" efforts. Progress in the research process often comes in fits and starts rather than evenly. It isn't always or even usually predictable. In contrast to most of the assignments students encounter in their education, with research there may not be a well-defined answer. Every researcher, including experts, feels confused or even overwhelmed at some point during a research project. The difference is that experienced researchers, like marathon runners hitting "the

wall," know that this is normal and that with perseverance one will get through it.¹ In short, this book is designed to make explicit to undergraduate economics students what experienced researchers know implicitly about the research process.

The book is an introduction to research methodology in economics. Methodology is more than a fancy word for methods. Research methods are the tools of economic research: for example, online search skills, critical reading and writing, and statistical methods. Research methodology is how those tools are combined to produce valid and reliable research.

Research Is the Creation of Knowledge

One popularly held view of research is that it means "the search for knowledge." This definition seems to view knowledge as like fruit on a tree in a forest. Thus, all that is necessary in the research process is for the researcher to discover the tree and collect the knowledge, much like a farmer picks fruit.

This idea of knowledge is based on the traditional view of science as entirely objective, where the data, when collected, "speak for themselves." In other words, the data will yield the same conclusions to any researcher.

This view fails to differentiate between knowledge and facts. Knowledge is what is believed to be true about something, what is believed to be a correct understanding of something. Facts are just data. Knowledge, by contrast, is facts with meaning; that is, it is an expert's best interpretation of the facts. You can see this distinction if you compare the results from a chemistry lab (i.e., the data) with the researcher's discussion of the results in a lab report (i.e., the interpretation). Only the latter is the knowledge.

Research, then, is not merely searching for facts. Research is more completely defined as the creation of (valid) knowledge.² Facts are *discovered*; knowledge, as an interpretation, is *created*.³ Instead of a farmer harvesting a fruit tree, a better analogy for research is a detective searching for clues and then developing a case on the basis of those clues or other evidence. Scholars create knowledge by constructing arguments. In a research context, an argument is not primarily a quarrel or controversy. Rather, an argument is a point of view or position on a question. More formally, an argument is an assertion or claim supported by reasons or evidence.⁴ Knowledge in any discipline can be thought of as a conversation or dialog between scholars as they develop competing arguments. One example familiar to students of macroeconomics is the conflicting views between the Monetarists and the Keynesians. Through this dialog, arguments are evaluated, the weaker ones are winnowed out, and the stronger ones are refined and improved.⁵ Thus, over time knowledge in the field advances.

Students and even some faculty believe that it is simply unrealistic to expect undergraduates to be able to perform original research. Cohen and Spencer (1993, 222) cite student comments such as "How can I tell you anything you don't already know?" and "How can you expect an undergraduate to say anything original?"

Part of the reasoning behind such comments stems from the perception that research includes only groundbreaking, paradigm-shifting examples like the theory of evolution or the theory of relativity. There are two problems with this perception. First, the majority of research represents only marginal improvements in our understanding. This is not to say that such improvements are not important, merely that they represent relatively modest advances in our knowledge. Second, even major "breakthroughs" are based on the work that came before. For example, Ethridge (1995) points out that the "discoveries" we associate with such notables as Alfred Marshall and John Maynard Keynes can be traced back to earlier work by lesser-known scholars.

In fact, undergraduates *can* complete serious, legitimate research projects. This is attested to by the growing number of undergraduate economics programs that require senior research projects and the increasing number of journals that publish undergraduate research.⁶ Booth et al. (1995, 7) assert that "it is no exaggeration to say, that done well your [research] will change the world tomorrow."

Ethridge (1995) distinguishes between two types of research: discovery, that is, "formulating, finding, and creating new knowledge or information" and confirmation, that is, "discerning the validity or reliability of knowledge or information." Undergraduate research may be largely confirming, such as running new tests of previously established theories. Such research is still considered "new" in that it adds to our knowledge by, for example, applying the previous theory to new data or new situations, which if successful, broadens its applicability.

How Are Arguments Evaluated?

Earlier, we defined research as the creation of *valid* knowledge, and we described knowledge as a dialog between competing arguments. Arguments "compete" through their validity. What makes knowledge valid? Each discipline has its own approach and language of discourse, but they all boil down to the use of logic and evidence to support a conclusion.⁷

Let's explore this idea in more detail, to find out how arguments are evaluated and either (provisionally) accepted or refuted.

First-year college students tend to think "**dualistically**."⁸ That is, they perceive (nearly) every question to have a unique correct answer, like a problem

in mathematics, for example, $2 + 2 = 4$. Students think in terms of black and white, despite the fact that we live in a gray world. This perception is not their fault; they've been trained for at least twelve years to think that way.

By the time students are sophomores and juniors, their thinking has advanced to "multiplicity." That is, questions have more than one correct answer. For example, in macroeconomics students learn both that "The Great Depression was caused by inappropriate monetary policy" and that "The Great Depression was caused by instability in the private sector." Most students conclude that since multiple points of view exist, knowledge and truth are essentially subjective! Though multiplicity is a more sophisticated form of thinking than dualistic thinking, it's not valid to conclude that knowledge and truth are subjective. In truth, the fact that there are different points of view about an issue or question does *not* imply that all points of view are correct or equal. (I have often said to my students, "There is more than one correct answer to this question, but there are also an infinite number of incorrect answers.") Suppose you are a juror in a criminal trial and both the prosecution and defense bring in experts who contradict each other. There are two points of view, but only one is true: the defendant is either guilty or innocent. How do you decide?

To make a valid decision, you will need to think critically about the testimony.⁹ Critical thinking is one of those concepts (like "liberal education") that college students are familiar with but often find difficult to put into words. Missimer (1995) defines critical thinking as the evaluation of competing arguments on the basis of their evidence. Thus, it involves the ability to recognize and assess an argument and its constituent parts, including the assumptions, logic, and evidence. This will be explained in detail in Chapter 4. For now, we can say that when scholars evaluate different arguments, they ask questions such as:

What are the reasons behind the argument?¹⁰

Does the argument make sense? Why or why not?

Is the logic flawed?

What are the underlying assumptions (explicit and implied)? Are they flawed?

How critical are the assumptions? That is, would different assumptions lead to different conclusions?

What is the empirical evidence? Does it support the conclusion?

In light of the reasons and evidence provided, is the argument persuasive? If so, the conclusion is valid.¹¹

Let's think about how this winnowing process works. Arguments are evaluated to see if they stand up to intellectual scrutiny according to the

criteria just given. If flaws are discovered, the arguments are disproved, after which they may be revised or discarded. For the moment, however, they are removed from consideration. If flaws are not discovered, the arguments are only provisionally accepted, never proved.

That arguments can be disproved but never proved is sometimes difficult for people to grasp. Consider a sports metaphor. Who is the best tennis player in the world? Players compete and as long as they win, they remain in the running for the title. When they lose, they are (at least temporarily) out of contention. But no player can ever be the best forever, only provisionally so, until a better player comes along. It is the same way with arguments.

Think of an argument as a rope across the Grand Canyon. Each test of an argument is like a thread. No one test is strong enough to bear your weight. Over time, however, when multiple tests confirm the argument, the thread becomes a string, the string becomes a rope, and the rope becomes a thick cable. At some point, you become willing to trust it. By contrast, imagine that when a test of the argument fails, the thread is cut. If there are enough failures, the rope is weakened, and ultimately severed in two.

In short, we evaluate the supporting evidence so as to weed out flawed arguments. If we are left with a single point of view, we can conclude that it is correct. Often, however, there is more than one argument left.¹² How do we choose then? When scholars face more than one argument they can choose between them on the basis of disciplinary norms, such as efficiency or equity.¹³ For example, consider the following two positions:

Free international trade is better for a nation than protectionism because under free trade a nation will have more goods and services, that is, a higher GDP.

Tariffs and quotas are necessary to protect workers and businesses because certain sectors of the economy cannot compete internationally under free trade.

Both are arguable: the first on the basis of efficiency and the second on the basis of equity.

SUMMARY

- Research is the search for or creation of valid knowledge.
- Rather than a collection of facts, knowledge is interpretation of the facts.
- The community of learners in any discipline represents a dialog between competing arguments: assertions made about the correct interpretation of the facts.

- How do arguments compete? What makes for valid knowledge?
- Valid research is research that is demonstrable and persuasive to other scholars in the field.
- Research is persuasive when it is done systematically, by design, and where the conclusions are supported by reason and empirical evidence.

NOTES

1. Booth et al. (1995, 23–25) make a similar point.
2. Ethridge (1995) defines research as “the systematic approach to obtaining new and reliable knowledge” (p. 16).
3. Truth is not created, but our understanding, our interpretation, is created.
4. Missimer (1995).
5. See Appendix 1A for a more detailed treatment of how knowledge is created in economics.
6. Chapter 2 provides specific examples of outlets for undergraduate research in economics.
7. Ethridge (1995) defines validity as “demonstrable to others based on reason and evidence.” This is a useful way to think of it. Remenyi et al. (1998, 24) argue similarly that a “researcher has to be able to convince an audience of the value and relevance of his or her research efforts. . . . In addition, the academic researcher needs to explain why his or her research should be considered important and needs to be able to point out precisely what was found and what use the findings are to the community.”
8. This view of thinking, including the labels “Dualistic” and “Multiplicity,” is from Nelson’s (1989) interpretation of Perry (1970).
9. Ethridge (1995) notes that critical thinking is an essential element for research.
10. Missimer (1995) calls assertions that are unsupported by reasons “loose arguments.”
11. Nelson (1989) characterizes this level of thinking as “Contextual Relativism.”
12. This is analogous to the concept of Pareto optimality, as demonstrated, for example, by a production possibilities frontier, where all of the

“points” are Pareto efficient but to choose between them requires some additional criteria for judgment.

13. Nelson (1989) labels this level of thinking as “Contextually Appropriate Decisions.”

SUGGESTIONS FOR FURTHER READING

- Bean (1996)*, especially Chapter 12—Useful guide to teaching research, writing, and critical thinking to undergraduates. Chapter 12 is a rethinking of how to use research papers as an effective tool for undergraduate education. Bean emphasizes the view of research as developing an argument.
- Booth et al. (1995)*—Classic text on college-level research. High-level research text: not concerned with mechanics, but rather research design and argument construction. Focus is on research in the humanities but is very applicable to research in the social sciences as well.
- Blaug (1992)*—Well-known book-length survey of the range of methodologies used by economists. For a similar but shorter survey, see Hausman, 1989.
- Ethridge (1995)*—Readable guide to research methodology in economics at the graduate level. Ethridge teaches agricultural economics; as such, the book is very applied and thus comprehensible to undergraduate researchers. See especially Chapters 1–4 on methodological foundations of economic research.
- Friedman (1968)*—Thoughtful article on research methodology as practiced by economists. For a similar article, with a slightly different point of view, see Machlup (1965).
- Hausman (1989)*—Survey article on economic methodology. For a more detailed survey, see Blaug (1992).
- Machlup (1965)*—Another view on research methodology as practiced by economists. Compare with Friedman (1968).
- Nelson (1989)*—Widely used summary of Perry’s taxonomy of critical thinking.
- Perry (1970)*—Classic study of the levels of critical thinking obtained by U.S. undergraduates.
- Remenyi et al. (1998)*—Guide to research methodology in business administration. Designed for master’s- or doctoral-level research, but as an applied text, it has much to offer undergraduate researchers.