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ECONOMIC METHODOLOGY

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Undergraduate students are often introduced to economic concepts using graphical expressions, and the expressions become the defining method of explaining and exploring the economic realm. The graphs become what the students perceive as “economics,” and this is what is meant as “methodology.” If you ask the students, “How do you do economics?” the answer would be based on the graphical examples offered in the classes. Methodology is a complicated way of saying, “These are the tools economists use to explain the economy.” Beginning students are offered very simple tools to explain the concepts of supply, demand, and equilibrium, but the ideas, as well as the graphs, are all part of the methodology.

In most undergraduate economics classes, theory is offered to the student as a body of cohesive ideas set within a structure that seems internally consistent and mutually reinforcing. Such a monolithic view of theory may offer simplicity to a student who is just learning the basics, but this monolithic vision of methodology offers a false level of certainty based on an oversimplified version of ideas. Methodology used by economists today is very different from what was used 30 years ago, and what was used 30 years ago was very different from the methodology used by such great economists as Adam Smith and David Ricardo. The economic methodology that is taught in undergraduate courses today is the result of centuries of intellectual debate, and the origin of this body has been filled with differing thinkers often in violent disagreement with each other. It is in this history of methodology that the origins of undergraduate theory can be found, and an exploration of this history is both exciting and illuminating.

There are generally two standard bodies of theory that are offered in undergraduate economics classes. The microbody of theory offers a vision based on the individual behavior of consumers and firms. These actors operate under a theory of rational self-interest that leads to stable social outcomes referred to as equilibriums. The second body of theory is the macroexploration of economic activity. In this body, the economy as a whole is examined, and differing reasons are offered to explain why certain events occur the way they do. Undergraduate classes suggest that the microeconomy is ruled by the prevailing forces of supply and demand, and the macroeconomy is explained by aggregate supply and aggregate demand. This chapter’s focus will be to explore where these theories and this methodology arose from.

Present State of Economic Methodology

Trying to describe what is the present state of methodology in economics is a lot like trying to summarize modern culture. Whatever statements are made are going to be overgeneralizations with respect to differing groups. The methodology of undergraduate economics and that of professional economists is very different. The undergraduate will often learn about economic theory using graphs and some math, and even a little econometrics may be thrown in. This type of methodology was the prevailing form done by professional economists perhaps 30 years ago, but it is vastly different from what is done by professional economists today.

Professional economics is in a state of transition with respect to the methodology being used. The methodology

taught in undergraduate classes, however, does offer a reasonable, though simplified, vision of methodology that was used by most professional economists throughout the majority of the twentieth century. In the past, there were four major components to professional economic methodology. First was that economists agreed that the study of economics was based on the study of the individual, not of groups. Basing the study on the individual is known as methodological individualism, as opposed to methodological collectivism, in which individuals are studied within the context of the groups to which they belong. Second, economists held a mechanistic vision of the economy where economic laws were like physical laws seen in Newtonian physics. Equilibrium was the ultimate outcome that the economy would eventually revert back to. Third, mathematical rigor and deductive reasoning were used in place of empirical observations because there is an inability to conduct controlled economic experiments. Finally, internal consistency of theory was more important than empirical evidence, and evidence contradicting consistency was not highly valued.

As this chapter is being written, professional economists are questioning the appropriateness of all four methodologies. First, many within economics are now calling into question the appropriateness of studying economics based on solely individual action. Some economists, such as behavioral economists, are exploring how individuals behave within group economic settings, and the research is becoming popular. Readers interested in an introduction to this type of economics should read *Predictably Irrational* by Dan Ariely (2008). Second, the mechanistic concept of an economy headed toward an ultimate equilibrium is also being called into question, and this can be seen in books such as *The Origin of Wealth* by Eric D. Beinhocker (2006). Third, economists are not abandoning math, but deductive reasoning is giving way to more inductive methods. Under deductive reasoning, economists would state certain assumptions they believed to be true; by deductive logic, if the assumptions were true, then the conclusions would have to be true. Modern methodology is becoming much more inductive in that economists are testing theories using econometric techniques. This inductive method essentially starts by observing what is going on in the world and then hypothesizing why it is going on. The biggest unwritten rule in modern professional economics is that theory should be explored using data sets and econometric techniques, and this is far more inductive than methodology from even 30 years ago. Finally, the idea that internal consistency is more important than empirical verification is clearly falling by the wayside. The goal of many new economic studies is to use econometric techniques and data to either prove or disprove certain aspects of theory. For information on this issue, see Colander (2000, 2005, 2009); Colander, Holt, and Rosser (2007–2008); and Davis (2007). Modern methodology is in a state of flux, so this chapter will explore the origins of the methodology that was predominant 30 years

ago and is still taught as “economics” in undergraduate classes today.

It should be noted that not everybody agrees with the above interpretation of the current state of methodology. Some historians of economic thought would disagree with this description of modern methodology and would disagree about the openness of economics to differing theories. In fact, many economists call themselves heterodox economists who would argue that the changes listed above are superficial at best. Readers interested in examining some materials from these heterodox thinkers can find many online resources at www.heterodoxnews.com. The truth is that it is difficult to determine who is correct because gradual change is much harder to recognize than is radical change. Often, paradigm changes in a discipline are radical in nature, and two periods in time are readily identifiable. Thomas Kuhn (1970) advanced this idea in *The Structure of Scientific Revolutions*, and the idea has been readily adopted by many who study the history of economic thought. The changes occurring in the methodology of economics today seem transformative of the discipline, but they have not come as an abrupt disjuncture from the previous methods. With that note, the chapter now turns to the origins of modern economics starting more than 200 years ago.

The Classical Paradigm

In 1776, Adam Smith wrote *An Inquiry Into the Nature and Causes of the Wealth of Nations*, and economics as a modern intellectual discipline began. Most of what Adam Smith wrote in *Wealth of Nations* had been written about previously, but Smith brought all of the disparate ideas together into one work. With the unification of these ideas into a single work, a new and unique way of analyzing economic activity had been created. Yet what Adam Smith wrote in 1776 and what students are taught in undergraduate classes today are very different. In fact, Smith created a new methodology for exploring economic topics, but that methodology is not the methodology used today. This section will first explain the accomplishments of Smith and then talk about the methodology known as classical economics.

Smith's Work

Smith's major contribution was to summarize a large body of thought into a single work, but Smith also explained how an economic system could work when there was no central control to direct the system. Smith argued that an economic system could operate without any form of central guidance, and society could be very well off allowing such a system to operate. Smith recognized that wealth was based on the ownership, use, and construction of goods and services rather than the possession of money. Smith showed how an economic system

based on people acting in their own rational best interests could lead to a socially desirable outcome. Anyone taking a modern introductory economics class can recognize these ideas in modern theory.

Adam Smith wrote *Wealth of Nations* to refute some of the mercantilist ideas that were prevalent at the time. Mercantilist policies emphasized the accumulation of gold to sustain military strength. Smith recognized that the end goal was the production of the materials needed to support the military. It was not the gold that supported the military; rather, it was the ability to produce food, ships, guns, and other items that ultimately allowed for maintained military strength. Modern economists are still far more interested in the exploration of the production of real goods and services than they are interested in the issues of money. The exploration of money in the realm of modern economics is almost always associated with how money affects the production of goods and services.

This materialist vision of economics was a breakthrough, but the idea that an economy could operate without centralized control was an even bigger revolution. As far back as the ancient Greeks, there was a negative connotation to people operating in an economic sphere with the sole purpose of gain. Aristotle and Aquinas, as well as most other previous thinkers, suggested that trade for profit was somehow unnatural. Smith confronted this paradigm, and his arguments shifted social thought in a completely new direction. Smith argued that individuals took the actions they did because they were pursuing their own self-interest. The baker makes loaves of bread for others to use in sandwiches but not out of generosity. She bakes so that she can sell the bread and use that money to buy the objects she wants. It is true that the baker serves the sandwich eater, but she does not do so out of charity; rather, she does so in pursuing her own self-interest.

Smith (1776/1965) argued that self-interest would direct most people's activities toward ends that would benefit society as a whole. He argued that an individual working in pursuit of his own self-interest "intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention" (p. 423). The pursuit of self-interest alone could lead to outcomes that would benefit society in general. This was unprecedented in previous economic thinking, and this idea would become a cornerstone of economic methodology from this point forward.

Ricardo and Malthus

Smith's (1776/1965) work became a watershed moment in economic thinking. By offering a system of thought that demonstrated how a decentralized economy worked, he allowed others to explore some of the components of such an economy. There were many important thinkers involved in the classical period, but the two who take on the greatest significance with respect to shaping future methodology are Thomas Malthus and David Ricardo. It is interesting to

note that these two thinkers were in dramatic disagreement about many of the important classical ideas.

Thomas Malthus was an Anglican curate who began his exploration of economic topics to demonstrate the futility of utopian experiments to improve the lives of the poor. Malthus is most famous for his population doctrine that stated food production increased at an arithmetic rate, whereas human population increased geometrically. Given these differing rates, human populations would be forced to subsistence living. Malthus believed that as food grew scarce, relative to population, only two options were available: Either human population had to control birth rates, or nature would increase death rates. Malthus did not discuss issues such as birth control, so the only method of population control was human abstinence, and he had little hope that human self-control would win out. The thinking behind this population doctrine still is influencing modern discussions and also influenced thinkers outside economics, including Charles Darwin.

Related to this population theory was a concept that became known as the wage fund doctrine. In this theory, Malthus proposed that the ability of capitalists to fund projects was based on the available food in the system controlled by the capitalist. In the end, the workers had to be paid enough so that they could feed themselves and perpetuate the next generation. Malthus argued that the behavior of workers was such that increasing the wages of the workers would lead to increased procreation. Increased procreation would lower the pay of workers in future generations. In the end, the only stable outcome was one in which the wages paid the workers were at a subsistence level. The overall outcome in any economy might show temporary improvements in the material condition of the population, but in the long run, the condition would revert to a steady-state subsistence level.

David Ricardo was born into a merchant family and was able to earn substantial wealth as a stock broker before writing on economics. In 1817, and republished in several editions, Ricardo published *The Principles of Political Economy and Taxation*, which replaced Smith's *Wealth of Nations* as the primary reference for economic thinking. In *Principles*, Ricardo moved away from the Smithian methodology of deductive reasoning with inductive analogies to demonstrate the ideas. Ricardo moved into a very formal method of economics that was strictly deductive in manner. In this method, referred to as deductive reductionism, abstractions became a cornerstone of theory, and simplifications allowed for the creation of a model from which generalizations could be drawn. Ricardo very rarely started out with observations in the real world; instead, he began with his theories and proscribed advice for real-world situations based on how the model predicted the real world would react.

Ricardo created these models because he was interested in exploring why income distributions changed in the manner they did. To explain how incomes were determined required an explanation of why certain items traded

for higher prices than others. Inevitably, any such exploration will eventually call into question what is the source of value in a system, and answering that question is much harder than it may seem. Ricardo offered up a theory of value that took into account rents going to landowners, profits going to capital owners, and wages going to workers. However, Ricardo's theory of value really emphasized the absolute importance of labor in the whole process. Most historians of thought agree that Ricardo's theory of value was very much based on labor's role in the productive process, and thus it became known as a labor theory of value. An example to explain this idea is simple. In a primitive society where it takes 4 hours to capture a deer and 2 hours to capture a beaver, two beavers will trade for one deer.

Ricardo and Malthus were contemporaries and were in correspondence with each other for an extended period of time. They influenced one another's work, and in some cases, they were also very much in opposition to each other's ideas and methods. One of the greatest conflicts between these two thinkers involved the work of French economist J. B. Say. Say argued that a decentralized economy, as described by Smith, would by its very nature always use the whole of the resources available. This idea has come to be known as Say's law and has been abbreviated to read "supply creates its own demand." Suppose a baker sells a cake for \$30; the baker immediately has created \$30 worth of purchasing power. The process of creating a product immediately creates the purchasing power in the system to buy goods of equal value. If the baker does not spend the purchasing power herself, then she will lend the money to someone who will. On an economy-wide basis, this suggests that although there might be an overabundance in one good, there cannot be a general overabundance (known as a recession).

Malthus and Ricardo found themselves on differing sides of this issue. Ricardo was a backer of Say's law, whereas Malthus argued that the law was flawed. Ricardo believed that the Say's law was deductively true and therefore should be believed, whereas Malthus simply pointed to the history of continuing recessions. Ricardo believed that any general underconsumption (i.e., recession) could only be temporary and therefore dismissed it as a topic. Malthus believed underconsumption could occur for an extended time period and thought that looking at the issues involved was important. In the end, Ricardo's views became dominant until the arrival of Keynes, who will be discussed below.

J. S. Mill and the Decline of the Classical Paradigm

The classical paradigm started in 1776 with *Wealth of Nations* and came to an end somewhere in the late 1800s. Although a precise final date cannot be given, a final great thinker of the movement can. John Stuart Mill was the son of James Mill, who was also a classical economist.

J. S. Mill had a rigorous childhood education, and it is probable that he was one of the finest minds of his time. He was able to bring together all of the pieces of the classical paradigm and polish them in a way that established the high watermark of that school of thought.

Mill both explained the classical school's thoughts and had within his works the seeds of the economic thinking that would come to replace the classical paradigm. Mill was a firm believer in Say's law and a follower of the Ricardian tradition of deductive reductionism as a substitute for the inability to perform experiments in economics. Mill was a proponent of the separation of positive economics from normative economics, and he argued that economists could separate explanations of how the economy works (positive economics) from the moral validity of the economic outcomes (normative economics). This positive–normative distinction is still highly influential in economic circles today. Most economic theory tries to explain the economy from a positive perspective, and most economists will try to make their normative opinions known. However, other economists, such as Joseph Schumpeter, have suggested that the normative and positive aspects of economic theory are not so easily separable. Mill believed by concentrating on positive economics, the discipline could become more scientific in method and economic understanding could be improved.

Probably the most important aspect of Mill's contribution was his ability to summarize and defend the classical position against the onslaught of opposing social thought at the time. The mid-1800s was a time of great social upheaval, and there was a large reactionary movement against the social changes imposed by the rise of industrialization. Because the classical paradigm was seen by many as a defense of the capitalist system, Mill's ability to maintain the school's prominence was noteworthy. He was able to do this partially because he sympathized with the beliefs of the system's critics. Mill was able to refine the classical theory of economic growth and argued that the stationary state, which was a major prediction of classical theory, was not necessarily a bad outcome. Mill believed that the arrival of the new stationary level of economic activity could be achieved within a context of a more just social distribution of income. Mill thought differently than Malthus, who argued the future stationary system would condemn the multitudes to subsistence. Mill disagreed with Ricardo, who argued that the wage fund was an unchangeable fact that demonstrated that any attempt to raise workers' wages was doomed to failure. Instead, Mill argued that a level of social justice was possible within any future stationary system.

In defending the classical system, Mill laid the foundations of many ideas that were to come to dominate postclassical economics. Within Mill's work can be found the seeds of a supply-and-demand explanation of value as a replacement for the labor theory of value. Mill had nascent discussions on general equilibrium economics in his writings. His separation of positive from normative explanations came to

play a major role in future economic thinking, as did his separation of production from distribution. In the end, Mill was the greatest classical thinker, but he also was the economist who began the end of the classical paradigm when he refuted the belief in the wage fund doctrine. In Mill's writings, the highest point of classical theory can be found. In these same works are the seeds of thought that would come to replace the classical school with a new paradigm known as the neoclassical school.

Objections to Classical Thought

The history of economic methodology is a history of competing ideas. Although the classical school has been offered as the economic methodology of the period, it should be noted that there were competing thinkers who disagreed with the methodology of the classical school. It is important to mention some of the competing thinkers before moving on to the neoclassical paradigm.

Non-British Thought

The classical theory of economics was heavily influenced by the work of British thinkers, and it should be noted that British philosophical tradition is very different from other traditions. The British tradition emphasizes the importance of individualism as the foundation of social organization, whereas thinkers on the European mainland had a far more social bent in their ideological perspective. In part, it is this difference in the importance of individualism that is a defining difference in methodology between the classicals and their detractors.

Some of the first intellectual criticisms of the classical perspective came from a group of thinkers who have been labeled utopian socialists. Utopian socialist thought differed greatly from the socialist thought of Karl Marx, who will be discussed below. The utopian socialists included individuals such as Claude Henri de Saint-Simon, Robert Owens, Charles Fourier, and many others. The works of these thinkers all emphasized the need for a more social view with respect to economic methodology. The classical perspective emphasized the importance of individual self-interest as a central component to an optimal organization within an economic system. The utopian socialists argued that the capitalist system created great disharmony between differing classes, and neglecting to recognize social disharmony was a major flaw in classical methodology. In their works, the utopians emphasized the importance of planned activities in the economic sphere.

A second group severely critical of the classical methodology was the historical school. The historical school argued that one of the primary premises of classical methodology, separating theory from social context, was flawed. Remember that it was Ricardo who first emphasized that economics could be put into a form of pure theory and then used to abstract out the essential relationships. The historical school argued that it was impossible to

understand how any real economy worked outside of the context of the society in which it is situated. The historical methodology emphasized exploring the actual shape of the economy and explaining how that shape came to be.

Karl Marx

Marx's writings were to have a major impact on the twentieth century. Most people associate Marx with the concepts of socialism and communism, but in fact these ideas take up very little space in Marx's work. Instead, Marx spent most of his energy in describing and explaining the system of capitalism. What many are not aware of is that Marx based his descriptions of the capitalist system on the best economics of the time. Marx used the classical system as described by Ricardo as his basis of analysis. Marx took the labor theory of value and showed how the capitalist system was inherently unstable. The mechanics Marx used were not his own but rather taken from classical methodology. Needless to say, his works became very well known.

The Marginal/Marshalian Methodology and the Rise of the Neoclassical

One of the major predictions of the classical economists was the eventual rise of a "stationary state" within the economic system. Malthus, Ricardo, and Mill all argued this would happen. Malthus and Ricardo both predicted that labor conditions would revert to subsistence. By the late 1800s, classical predictions were not materializing, labor conditions were improving, and there was no sign of an imminent end to economic growth. These failures in prediction led to rising criticisms of the classical paradigm, and new ideas began to appear. Some of the new thinkers were dissatisfied with the explanation of value arising out of the classical labor theory of value. Others wanted to explore more fully the nature of a self-directing economy. Whatever the differing reasons, several thinkers began to form the heart of a new methodology based on marginal thinking.

The Beginnings of Marginal Thinking

The arrival of the marginal methodology was revolutionary, but the economists writing during the period were not aware of the revolutionary nature of the changes. Mark Blaug (1996), who is recognized as an expert on the history of economic thought, argued that the revolutionary nature of these changes was not really recognized until the next generation of economists. Yet what were the changes that happened, and who wrote about them?

Marginal thinking was a great breakthrough in economic theory. Simply described, marginal thinking suggests decisions are made on each consecutive choice rather than on whole groups of choices. Adam Smith posed a

puzzle called the water–diamond paradox that clarifies marginal thinking well. If someone were to offer you the choice of a bag of diamonds or a bottle of water, you would probably choose the diamonds. However, if you were in a hot desert and had not had water for several days, you would clearly choose the water. Why? In the first case, you are comparing the value of perhaps the first unit of diamonds to perhaps the thousandth unit of water. In the desert case, you are comparing the first unit of water with the first unit of diamonds. Marginal thinking suggests that decision makers decide to compare the extra units, not the total units. When comparing the first unit of diamonds to the thousandth unit of water, the diamonds are clearly more valuable. However, comparing the first unit of water to the first unit of diamonds quickly shows the value of water. Put in this manner, most people can see how they make decisions on the margin all the time, but clarifying this idea was revolutionary for the economic discipline.

Three major names are associated with the rise of marginal theory: Carl Menger, William Stanley Jevons, and Leon Walras. These three thinkers each operated independently in differing parts of Europe with amazingly different influences. However, even though they had little influence on each other and had few common influences on their own thinking, they simultaneously published major works elaborating on the ideas that were to become the marginal method.

Several major alterations in economic methodology arose during this period. The founders of the marginal methodology placed greater emphasis on demand versus the classical emphasis on supply. Such an emphasis on demand given the marginal perspective described above made sense. Why would someone choose the water over the diamonds? This is a demand question and is very different from what was being asked under the classical paradigm. The marginal movement argued that the value of an object was not constant as it was under the classical labor theory of value; rather, the marginal movement began using a subjective theory of valuation. One person may value the water more than the diamonds or vice versa, and who is to say one valuation is more accurate than the other? Marginal thinkers, particularly Walras, also emphasized a general equilibrium nature of the economy wherein all markets and decisions would balance out in a market system. Under a general equilibrium system, a small change in one area could affect all areas of the economy, but the flexible nature of the economy would sort out all of these changes automatically. Finally, the marginal founders also emphasized the process of rational maximizing behavior as the cornerstone of individual economic activity. Many of today's introductory economics students lose sleep over the ideas that originated at this time.

Such an emphasis on maximizing decisions based on subjective valuation led some to look more toward math to explore these differing individual choices. To some, math became a prevalent part of economic methodology, yet there was disagreement about the appropriateness of math

as a tool for modeling the behavior of individuals. Menger, who is considered a founder of the Austrian school of economics, was strongly against the use of math. This anti-mathematical tendency is still prevalent in the Austrian school and its adherents. Jevons and Walras, on the other hand, used math as a tool to help explain their ideas. In the end, the work of Jevons, Menger, and Walras was incomplete. Their emphasis on the demand side of value was as flawed as the classical's emphasis solely on supply. The two sides would finally be brought together by economist Alfred Marshall.

The Marshallian Scissors and the Neoclassical Method

Alfred Marshall was able to synthesize the works of many previous economists into a consolidated piece titled *Principles of Economics*, which was first published in 1890. The limited space of this chapter does not allow a detailed overview of the many contributors to neoclassical theory, but there were many. Each contributed to the ideas that were formulated into a single schema under Marshall.

Marshall was a great thinker, and his most important accomplishment was to bring together the newer works of the marginals and combine them with the important ideas from the classical school. Marshall took what was accomplished under the classical school and was able to build a partial theory of value based on costs. Marshall added the role of marginal decision making to firm profit maximization and explained a theory of supply. Marshall also took the theories of utility-maximizing consumers from the marginals and derived a theory of economic demand. Marshall then combined supply and demand into a single theory of market-driven price where both supply and demand work to determine price much like both blades of the scissors cut paper. Marshall's theory of markets has sometimes been referred to as the Marshallian scissors and is still a big part of what is learned in economics classes today.

With the works of Marshall, the foundations of neoclassical methodology were complete and contained the four components that would be major parts of economic methodology up until the 1990s. The first component was a vision of the economy as a great self-correcting machine similar to the Newtonian vision of physics common at the time. The second component was an emphasis on methodological individualism. The third was the use of deductive reasoning as a replacement for the experiments that were impossible to conduct, and the final component was an emphasis on internal consistency rather than external evidence. As described in the first section of the chapter, these were the major tools of methodology used by economists throughout the twentieth century.

Objections to Neoclassical Economics

The rise of neoclassical economics was paralleled by a rise in thinkers critical of the methodology being used in

neoclassical economics. In economics, the methodology that is used by the majority of economics is often called the orthodox method, whereas the methodologies used by minority groups (usually critical of the majority) are called heterodox economics. Throughout the twentieth century, there were many heterodox critics of orthodox neoclassical methodology.

The historical school of thought was a heterodox group that was critical of the classical methodology and also actively criticized the neoclassical methodology for many of the same reasons. A controversy arose between the historical school and advocates of free market thinking. Part of the conflict revolved around the ability of a nation to plan an economy. Individuals arguing that such centralized planning could never work included Menger, whereas the historical school was led by a thinker named Gustav von Schmoller. The conflict between these differing groups was called the *Methodenstreit*, which is German for the “battle of the methods.”

Another group of critics of neoclassical methodology were called the institutionalists. Thorstein Veblen, John R. Commons, and Wesley Mitchell were three founding institutionalists. Like the historical school, the institutionalists believed that economies had to be studied within a social context. The institutionalists also believed that the deductive method based on limited observations was flawed and that other methods were needed. Institutionalists criticized the neoclassical emphasis on the individual as the basis of study and argued in favor of a more socially driven vision of the economy. Institutionalists based their methodology on an evolutionary vision of the economy rather than a mechanistic view and argued that the theory of value created by the neoclassical methodology was rather simply a theory of price.

The Austrians were a third major group of critics of the neoclassical methodology. As mentioned above, Menger is considered both a founder of the Austrians and a major discoverer of marginal economics. Although the Austrian school is now considered a separate heterodox school, it has been considered only since the latter half of the twentieth century. Prior to the 1950s, the differences between the Austrians and neoclassical economics were small enough that a separating distinction was too minor to create a sub-classification. The Austrian school moved away from the neoclassical school on a couple of points of methodology. The Austrians could agree with the neoclassical ideas that the individual should be the basic unit of economic study, and they could also agree that deduction was the best tool of reasoning available. The Austrians, however, began to diverge dramatically from the neoclassical perspective with respect to the usefulness of math in modeling individual behavior. As formal mathematical modeling of economics became more prevalent, so did the Austrian objections.

Although differing groups objected to neoclassical theory, this does not mean the differing groups agreed with each other. In fact, the founders of the Austrian school were some of the loudest critics of the historical school

during the *Methodenstreit*. The Austrians and the institutionalists have also had sharp arguments over methodology. These differing schools still have proponents writing today and have influenced political policy in the past and present. The institutional school had substantial political influence from the beginning of the twentieth century until World War II. The Austrian school had a much greater influence during the second half of the twentieth century. In particular, Austrians such as Friedrich A. Hayek were highly influential on important political leaders such as Margaret Thatcher and Ronald Reagan.

Keynes, the Neoclassical Synthesis, and Monetarism

The arrival of the Great Depression served as a major disruption to the neoclassical methodology. Neoclassical thinking took on a greater level of formality during the first three decades of the twentieth century, but little discussion was given about macroeconomic issues. Leon Walras had offered a partial explanation of a neoclassical vision of the macroeconomy in his theory of a general equilibrium model, yet a solid description of the model had never been given, and general equilibrium theories had been left unexplored until the 1930s. The Great Depression made this omission very clear and gave rise to the works of John Maynard Keynes and then eventually led to the inclusion of Keynes's ideas into a new version of the neoclassical methodology that used Keynes's insights and combined them in a Walrasian general equilibrium model. The 1970s saw a collapse of support for the neoclassical/Keynesian synthesis and a rise in the popularity of the monetarists.

John Maynard Keynes

John Maynard Keynes was the son of John Neville Keynes, who was himself a well-known economist. Keynes was well trained in neoclassical methodology, and his works in macroeconomic theory were timely. Keynes looked back on the classical thinkers who spent most of their energy discussing the economy as a whole rather than economic activity on the individual level. Keynes had a daunting task to perform because he had to explain how a prolonged downturn in the economy could happen when most of neoclassical theory suggested that the economy would self-adjust. Keynes emphasized aggregate measures of economic activity to make a general theory of the macroeconomy. He began by analyzing how the goods created in the economy would be dedicated to different uses. They could be consumed, used for investment, used by the government, or traded to foreign nations.

With these expenditures explained, Keynes assumed that production in the system would follow what was desired by the differing groups who were acquiring the output. If the expenditures were maintained by the differing groups at a high level, then the economy would be

prosperous. However, there was nothing in Keynes's models to suggest that a high level of expenditures would automatically occur. In fact, Keynes envisioned situations wherein low levels of expenditures could remain for prolonged periods. In particular, Keynes suggested that during a crisis, firms would desire to invest significantly less, and because investment was a major part of expenditures, this could exacerbate the economic downturn. Simply put, a recession would cause firms to lower investment, which would further lower expenditures, which could lead to a bigger downturn. Keynes argued that this downward spiral could be stopped through government actions that increased government spending.

The Neoclassical Synthesis

What Keynes wrote did not fit in nicely with the methodology of neoclassical economics. Keynes's work was not based in individual behavior as was neoclassical economics, did not emphasize a self-correcting mechanical nature to the economy, and lacked a mathematical formalism that was being strived for in neoclassical economics. However, the followers of the neoclassical methodology recognized the failure of their theory to reflect what was happening during the Great Depression, and the incorporation of the Keynesian vision into a neoclassical structure was quick.

The beginning of the synthesis occurred in 1937, when John Hicks wrote "Mr. Keynes and the 'Classics': A Suggested Interpretation," published in the journal *Econometrica*. The work was the beginning of a formalization of Keynesian ideas. The ideas were more formalized by other thinkers in the 1940s. The result of these works was a series of theories backed up with mathematical equations that were purported to represent the ideas presented in Keynes's work. The synthesis worked to place the ideas of Keynes within the context of the general equilibrium model first suggested by Walras. The resulting theories fit well within a neoclassical methodology, and Paul Samuelson (1948) popularized this method when he published it in his textbook that became one of the most popular economics texts available. During the 1950s and 1960s, economic analysis, as well as economic policy, was dominated by this neoclassical synthesis.

In Samuelson's text, much of the general information currently taught in undergraduate courses took form. The macroeconomy, based in large part on Keynesian expenditure analysis, formed the heart of the macroportions, and the market-based analysis of neoclassical economics formed the microportions. The formalization and apparent certainty of the neoclassical synthesis led to policy advice that seemed simple and useful. However, beginning in the 1970s, this certainty broke down under new economic circumstances. It should be noted that the models created in this synthesis failed to demonstrate how a continued period of economic downturn could happen, which was the main point of Keynes's work. There are some economists who

have taken the Keynesian perspective in a very different direction. This group has created a fairly detailed description of a market system wherein continuing economic instability is explained, something that is missing in synthesis analysis. This group is called the post-Keynesians, and some of the better known economists from this group were Hyman Minsky and Joan Robinson.

Monetarism

In the 1950s and 1960s, economic theory seemed so formalized that many began to think that governmental actions to correct economic imperfections were simple and easily accomplished. During the 1970s, the economy suffered a period of extended unemployment and inflation, which was something that could not be explained by the neoclassical synthesis models. This gave room in economic theory for a new group of thinkers led by Milton Friedman. Friedman and the monetarists argued that economic cycles were caused by changes in the levels of money in the economic system.

To the monetarists, all economic fluctuations were caused by changes in the monetary system. Friedman went so far as to try to demonstrate that the Great Depression was the result of misguided monetary policy and not the Keynesian explanation of dropping investment. With the decreasing popularity of the Keynesian position in the 1970s, the monetarists began to call into question the assumptions of the Keynesian positions writ large. The monetarists began to argue that the causes of the business cycles were changes in governmental policy and that if left alone the capitalist system was generally stable. The best way to maintain economic stability was to get the government out of the economy.

The monetarist ideas were different from the ideas of the neoclassical synthesis; however, the general methods still remained relatively the same. Starting with the foundations of the neoclassical school, there have been consistently four major components to economic method. The economy is seen as a mechanistic system with general equilibrium being the outcome. The basic unit of economic analysis is the individual, not groups. Deductive reasoning based on only limited observations is the best way to create economic theories, and internal consistency is to be valued over external evidence. Although new ideas and theories were to arise and fall, these basic tenets of methodology remained in economics for most of the twentieth century. This methodology is still dominant in undergraduate classes; however, the methods themselves are changing in the economics profession as a whole.

Conclusion

Modern economic methodology is in a state of flux and is diverging from some of the main components of methodology that have been used for the past century.

Those previous components were first laid down during the neoclassical period of economics. However, modern economics seems to be moving away from them. Few modern economists use deductive reasoning as the basis for their work; instead, a much greater role has arisen for empirically testing theory using econometric tools. The rational individual as a cornerstone of theory is being replaced by a much more nuanced vision of the individual situated within society. External evidence that contradicts theories is given much more weight than ever, even if the evidence suggests that economic models may not be consistent. The mechanistic vision of markets always adjusting to equilibrium is also being questioned. Why all of this is happening now is difficult to answer. Perhaps the arrival of cheap and powerful computers is changing how economics is done. Perhaps it is the influence of critics of neoclassical methodology, or perhaps it is something else.

What is clear, however, is that the general concepts being taught in most undergraduate economics classes are the result of centuries of research and conflict. The origins of the micro- and macrodivisions of economics can be seen by looking back to the history of economic thought, and in that history you can find why methodology is taught as it is. This methodology is the result of an evolutionary process where differing ideas compete for acceptance. Whereas the undergraduate is taught economic methodology as a set of tools, the profession is always striving to alter and refine these tools to better understand the economy. In this process, the tools themselves change and methodology evolves. Adam Smith began asking questions important to his society at the time, and the tools he used fit those questions. Those tools have been altered by great thinkers such as Ricardo, Mill, and Marshall. Those tools have been shaped by important economists such as Malthus and Keynes. The methodology we receive today exists because of the works of these people, and the methodology our descendants receive will be altered by the economists writing today. Economics is a living discipline, and continued exploration will inevitably result in the metamorphosis of method. This chapter is intended as an introduction to the process; much more remains to be explored.

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