

MICROECONOMICS: PAST, PRESENT, AND FUTURE

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Contents

1. Introduction
 - 1.1. The Big Picture: Mapping Economics via JEL Classification
 - 1.2. First Use of the Term Microeconomics
 - 1.3. Organization
2. Past
 - 2.1. Micro before Microeconomics
 - 2.2. Years of High Theory
 - 2.3. Post-War Developments
 - 2.4. Discussion
3. Present
 - 3.1. The Economic Approach
 - 3.2. Consumer Theory
 - 3.3. Theory of the Firm
 - 3.4. Resource Allocation
 - 3.5. Transaction Cost and Behavioral Economics
 - 3.6. Discussion
4. Future
 - 4.1. Short Run: Neuroeconomics and Complex Systems
 - 4.2. Long Run: Entrepreneurship and Innovation
5. Conclusion
- Glossary
- Bibliography
- Biographical Sketch

Summary

After pointing out the dynamic, changing nature of the discipline of economics, a brief history of microeconomics highlights how the Marginal Revolution shifted the focus from entrepreneurship and economic growth to optimization, comparative statics, mathematics, and decision-making. The present state of microeconomics is seen through a review of Intermediate Microeconomics, with transaction cost and behavioral economics as examples of challengers that have been assimilated. Finally, the future of microeconomics is divided into two parts: in the short run, neuroeconomics and complex systems will continue to gain traction; while the long run may one day yield progress on the fundamental question of exactly how markets generate growth. This

would mark a return to the roots of economics and would provide an answer to what remains the most important open problem in economics.

1. Introduction

1.1. The Big Picture: Mapping Economics via *JEL* Classification

We can do better than the usual, trite definitions of microeconomics as “small,” the study of individual behavior versus macroeconomics as “large,” the study of the economy as a whole. Taking an all-encompassing view of the entire discipline of economics will provide a map of the entire field and make clear a little-known fact: its plates are shifting—the whole discipline is moving over time.

In 1991, the classification system for books and articles in economics was revamped. The *Journal of Economic Literature* (*JEL*), which contains surveys, reviews, and new book listings, and *EconLit*, the American Economic Association’s electronic bibliography database, was newly organized around a larger set of major categories, as shown in Table 1.

A	General Economics and Teaching
B	History of Economic Thought, Methodology, and Heterodox Approaches
C	Mathematical and Quantitative Methods
D	Microeconomics
E	Macroeconomics and Monetary Economics
F	International Economics
G	Financial Economics
H	Public Economics
I	Health, Education, and Welfare
J	Labor and Demographic Economics
K	Law and Economics
L	Industrial Organization
M	Business Administration and Business Economics; Marketing; Accounting
N	Economic History
O	Economic Development, Technological Change, and Growth
P	Economic Systems
Q	Agricultural and Natural Resource Economics; Environmental and Ecological Economics
R	Urban, Rural, and Regional Economics
Y	Miscellaneous Categories
Z	Other Special Topics

Table 1. The Economics Classification System of 2012.

Source: www.aeaweb.org/econlit.

The classification system in Table 1 offers an easy, quick tour of economics at this point in time. The conceptual core of the discipline is in categories D and E, *Microeconomics* and *Macroeconomics and Monetary Economics*, respectively. The other categories represent the various subfields of economics.

The original classification system, developed in the 1960s and whose ten major categories are shown in Table 2, was unable to handle the massive changes and expansion of economics. Roughly 1,500 journals are indexed today, a huge increase from the early 1960s when the precursor to the *JEL*, the *Journal of Economic Abstracts*, was launched with the following rationale: “Even if every economist had the twenty-five or thirty journals available to him, [sic] it is improbable that the great majority of us would have the time to read them.” (Smithies, 1963, p.3). Microeconomics and macroeconomics, formerly subsets of *Theory* in category 000, were brought up a level and highlighted as major categories. This enabled the expansion of subcategories within these two major fields.

In addition to elevating micro and macro to the category level and expanding the number of categories, the new system no longer separates theoretical and empirical work. “This decision was made to accommodate, if not to encourage, articles and books that combine original theoretical work with empirical research” (Pencavel, 1991, p. v). In other words, the move from category 200, *Quantitative economic methods and data*, to C, *Mathematical and Quantitative Methods*, was much more than a semantic renaming. Economics had become so infused with mathematics and statistics that there was no longer an isolated category for data analysis. Econometrics was being used throughout economics so there was no need for a specialized category for applied work. Today, *Mathematical and Quantitative Methods* is used for frontier research in these areas. Work that merely uses quantitative or statistical methods in an applied way is not classified in category C; instead, it is expected that research in every area of economics will utilize data and contain empirical analyses.

000	General economics, Theory; History; Systems
100	Economic growth; Development; Planning; Fluctuations
200	Quantitative economic methods and data
300	Domestic monetary and fiscal theory and institutions
400	International economics
500	Administration; Business finance; Marketing; Accounting
600	Industrial organization; Technological change; Industry studies
700	Agriculture; Natural resources
800	Manpower; Labor; Population
900	Welfare programs; Consumer economics; Urban and regional economics

Table 2. The Economics Classification System of 1990.

Source: *Journal of Economic Literature*, Vol. 28, No. 1 (March 1990).

A third substantial change, and the reverse of the infusion process enjoyed by empirical analysis, was the creation of category B, *History of Economic Thought* (history of ideas), *Methodology* (philosophy), and *Heterodox Approaches* (such as Marxist and institutional economics). These areas were formerly part of the core of economics and were seen throughout the discipline, but they have shrunk in importance as sophisticated quantitative technique has become the hallmark of a modern-day economist.

The terms micro and macroeconomics are a convenient way to communicate that economics can be split into two hemispheres. They do not convey, however, the

intellectual history that produced them nor the shifting landscape that is guaranteed to continue reshaping their meaning. Even in the short time span of fifty years, economics has been radically altered, with econometrics rising and diffusing through the discipline and its more humanistic elements (such as methodology and history of economic thought) fading and being relegated to narrow subfields. As we shall see, when we take an even broader look at the history of microeconomics, it turns out that this process of change has been ongoing since the beginning of the discipline.

1.2. First Use of the Term *Microeconomics*

Of course, the history of economics goes back before the 1960s, when the first classification system was devised. Although we do not have cataloguing systems as a guide, the various stages in the intellectual history of economics are well known. In fact, we can pinpoint by whom and exactly when the now common micro/macro taxonomy first appeared.

Ragnar Frisch (1895 – 1973), a creative genius who shared the first Nobel Prize in Economic Sciences in 1969, coined several terms, including *econometrics*. A 1933 classic paper titled *Propagation Problems and Impulse Problems in Dynamic Economics* describes micro versus macro in a way familiar to every modern economist:

When we approach the study of business cycle with the intention of carrying through an analysis that is truly dynamic and determinate in the above sense, we are naturally led to distinguish between two types of analyses: the micro-dynamic and the macro-dynamic types. The micro-dynamic analysis is an analysis by which we try to explain in some detail the behavior of a certain section of the huge economic mechanismThe essence of this type of analysis is to show the details of the evolution of a given specific market, the behavior of a given type of consumers, and so on. The macro-dynamic analysis, on the other hand, tries to give an account of the fluctuations of the whole economic system taken in its entirety. (1933, p. 2).

This micro-macro nomenclature quickly caught on, but it is not, however, the actual birthplace of microeconomics (nor macroeconomics). We shall see that even further back in the history of economics, important discoveries were made in what would later come to be known as microeconomics.

1.3. Organization

With a global view of the discipline of economics and an understanding that economics has evolved and will continue to change over time, the stage is set for a brief review of microeconomics in three parts: past, present, and future. Part I begins by examining the origins of microeconomics before it was given its name, then focusing on the creation of modern, mainstream microeconomics, and ending with a review of new content developed after WWII. The second part is devoted to the present state of microeconomics. Modern micro (sometimes called *neoclassical microeconomics*) has three main areas: consumer theory, production or theory of the firm, and resource allocation. In addition, transaction cost and behavioral economics, offer examples of

more recent developments. Although economists are poor prognosticators—Nobel Prize winner Robert Lucas quipped that, "As an advice-giving profession, we are in way over our heads" (1980, p. 209)—the final part briefly daydreams about where microeconomics is headed. Advances in medical technology and brain imaging ought to produce breakthroughs in measuring utility, and ever-increasing computing power should lead to advances in computationally intensive applications. Unfortunately, progress on the most important open problem in economics, unlocking the key to the ability of markets to drive economic growth, remains doubtful—at least at this point in time.

2. Past

This section offers a brief history of microeconomics. The goal is to paint the broad outline of how microeconomics got to where it is today. In no way is this intended to be comprehensive. Many important contributors are omitted and those cited are meant as markers along the road, illustrating important developments.

2.1. Micro before Microeconomics

Long before Frisch used the term *micro*, a variety of authors studied markets and how they work. The framework of supply and demand was developed and the focus was on how price was determined and the distribution of revenues (usually wages, rents, and profits). This kind of microeconomics would eventually be known as *price theory* (a term still used today).

The birth of supply and demand analysis and price determination coincided with the rise of the market system and then underwent a substantial change, dubbed the Marginal Revolution, in the 1870s. This section will review important developments in both of these phases which are referred to as classical and neoclassical economics.

Although supply and demand diagrams would not be invented until the second half of the 19th century, discussion of surplus, shortage, and equilibrium was common as the market system began to evolve almost imperceptibly in Europe after the Middle Ages. Heilbroner (1999 [1953]) is an excellent, accessible account of the transformation to capitalism. He highlights a critical fact that is not immediately obvious: money alone does not make a market system. The spread of private property to all resources (including land and, more recently, intellectual property) and the reliance on individual self-interest as the force that drove the self-organizing system emerged only in the last few hundred years. Thus, while humans first appeared 200,000 years ago, it is only in the very recent past that the market system been used to allocate resources. Only after its arrival did we need an explanation for how this brand new system worked. "Although personal riches had their role to play in making the world go round, until the struggle for riches became general, ubiquitous, and patently vital to society, there was no need for a general philosophy of riches" (Heilbroner, 1999 [1953], p. 38).

In 1776, Adam Smith (1723 – 1790), who synthesized a variety of ideas into a coherent whole in the *Wealth of Nations*, offered an extended discussion of how markets work in Book I, Chapter 7, *Of the Natural and Market Price of Commodities*. Deviations from

the natural (i.e., long run equilibrium) price were caused by supply and demand shocks that determined the market price.

A public mourning raises the price of black cloth (with which the market is almost always under-stocked upon such occasions) and augments the profits of the merchants who possess any considerable quantity of it. (1776, s. 1.7.19).

But though the market price of every particular commodity is in this manner continually gravitating, if one may say so, towards the natural price, yet sometimes particular accidents, sometimes natural causes, and sometimes particular regulations of police, may, in many commodities, keep up the market price, for a long time together, a good deal above the natural price. (1776, s. 1.7.20).

As it is still done today, Smith then proceeded to compare competitive and monopolistic market structures and arrived at a familiar conclusion:

The monopolists, by keeping the market constantly under-stocked, by never fully supplying the effectual demand, sell their commodities much above the natural price, and raise their emoluments, whether they consist in wages or profit, greatly above their natural rate. (1776, s. 1.7.26).

The price of monopoly is upon every occasion the highest which can be got. The natural price, or the price of free competition, on the contrary, is the lowest which can be taken, not upon every occasion indeed, but for any considerable time altogether. The one is upon every occasion the highest which can be squeezed out of the buyers, or which, it is supposed, they will consent to give: The other is the lowest which the sellers can commonly afford to take, and at the same time continue their business. (1776, s. 1.7.27).

While it is easy to find precursors of price theory deep in the history of economics, there are two ways in which supply and demand in modern, mainstream microeconomics is markedly different from older discussions: entrepreneurship and optimization. The former has disappeared, while the latter's emergence has become a cornerstone of modern, mainstream micro. These two developments are not independent—optimization killed the entrepreneur.

Richard Cantillon (1680? – 1734) and Jean-Baptiste Say (1767 – 1832) are two examples from a strong French tradition of entrepreneur-centered microeconomics. Cantillon (1730?) is credited with the first scholarly use of the noun form of the verb *entreprendre*, to undertake. His entrepreneur was a speculator, earning profits for taking chances. Say's (1803) entrepreneur combined and managed factors of production. In Germany, Mangoldt's (1855) *unternehmer* was a responsible owner in an uncertain environment. The word *entrepreneur* was not widespread in English-language economics until after the middle of the 19th century. Smith (1776), for example, employed the terms *adventurer*, *projector*, and *undertaker*. It entered the English language when Mill (1848) used the term in his influential *Principles of Political Economy*.

What would be called classical economics, part of which consisted of supply and demand with entrepreneurship, was replaced by neoclassical economics. Apart from a few isolated precursors, the transformation process started in the 1870s and is known as the Marginal Revolution. It would take decades to work itself out, but, in the end, there is no doubt that a new orthodoxy would dominate economics.

The Marginal Revolution was triggered when Leon Walras (1834 – 1910), William Stanley Jevons (1835 – 1882), and Carl Menger (1840 – 1921) roughly simultaneously, yet independently, published books in French, English, and German, respectively, that derived demand curves based on diminishing marginal utility (the additional utility gained from additional consumption, everything else held constant). Likewise, the supply curve was shown to be determined by marginal productivity (the additional output produced from additional use of an input, *ceteris paribus*). Unlike the classicals, who believed that value was determined essentially by cost of production with temporary swings explained by supply and demand shocks, marginalists saw supply (influenced by cost) and demand (driven by subjective preferences in the form of marginal utility) simultaneously establishing value.

Marginalism as a fundamental principle paved the way for the use of mathematics and model building. Consumers and firms were seen as optimizing agents with demand and supply curves derived as the outcomes of comparative statics exercises. The use of the calculus (derivatives and integrals) would become commonplace as a way to model and predict the optimal choices made by *homo economicus*, a caricature of an actual human being that makes perfect decisions.

Two branches of analysis, partial and general equilibrium, were developed. The former studies one market in isolation, while the latter considers all markets as part of a simultaneous system, with feedback loops and interrelated variables. Partial equilibrium is an approximation that can be applied to the real world via the simple mechanics of supply and demand, while general equilibrium is exactly correct, but much more difficult to use, both in terms of application and the requisite mathematics.

On the Continent, Walras (1871) and his successor at the School of Lausanne, Vilfredo Pareto (1848 – 1923), established a tradition of using sophisticated mathematical techniques and made great advances in general equilibrium theory. Pareto (1906) made important contributions to consumer theory. Indifference curves could be based on rankings of bundles, which eliminated the need for cardinal utility. This led to the development of the Paretian vocabulary in welfare economics.

In England, Alfred Marshall (1842 – 1924), although a brilliant mathematician in his own right, eschewed mathematics in his exposition and concentrated on partial equilibrium to emphasize applied, intuitive economics. Although he was not the first to draw demand and supply diagrams, Marshall (1890) is responsible for their widespread use.

Microeconomics before it was so named can be split into two historical eras. Classical economists such as Smith and Mill used supply and demand powered by the entrepreneur (in a variety of roles) in a discipline called political economy. Other

Europeans such as Say and Mangoldt are, broadly speaking, part of this tradition. The focus was on understanding how the market system worked to generate economic growth. Then a radical change occurred and economics moved from the classical to the neoclassical period. After the Marginal Revolution in the 1870s, supply and demand curves were rigorously derived from mathematical models and microeconomics began to take its present shape. Attention turned from economic growth to how markets allocated scarce resources. The Marginal Revolution provided a fundamental organizational and methodological structure. The pieces were all there, the next step was synthesis and refinement.

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Biographical Sketch

Humberto Barreto is the Elizabeth P. Allen Distinguished University Professor at DePauw University. He was born in Camagüey, Cuba, and earned his B.A. from New College of Florida and Ph.D. from the University of North Carolina at Chapel Hill. Bert manages an email list for the History of Economics Society, has written several books on using Microsoft Excel[®] to improve the teaching of economics, and regularly lectures and offers workshops on economics pedagogy.