

Reconsidering Crucial Concepts in Micro Principles

By KARL E. CASE*

The core paradigm of modern microeconomics has now been around for a long time. A casual glance at the first edition of Alfred Marshall's (1890) *Principles of Economics* produces a remarkable list of the core principles taught today (e.g., supply and demand, equilibrium, opportunity cost, efficiency, consumer surplus, utility maximization, diminishing returns, internal and external economies of scale, monopoly power, and rent).

Within the paradigm, Kuhnian "normal science" progresses as follows (Thomas Kuhn, 1970 p. 20):

[T]he creative scientist can begin his research where [previous research] leaves off and thus concentrate on the subtlest and most esoteric aspects of the natural phenomena that concerns his group. ... they will appear in brief articles addressed only to professional colleagues

Over a thousand Ph.D. dissertations in economics are accepted annually in the United States alone, and hundreds of articles are published monthly. Technique has been refined, theory is increasingly taking advantage of higher levels of mathematics, and the content of graduate education in economics has expanded dramatically.

Somewhat paradoxically, the Principles course is moving in exactly the opposite direction. If there is one theme that resonates in all the papers presented here it is that we need to streamline and simplify. It is the Principles course that connects the discipline to the world and establishes its relevance. We all know that most of our students will never take another economics course, and that many of them have very limited analytical abilities. We also know that the Principles course can be an effective hook to catch majors. Thus, having a watered-down course for nonmajors can be costly.

What most of us do is a compromise. We teach a full semester of microeconomics, we focus a good deal of attention on core concepts, and we try to provide a degree of rigor for those with analytical ability. Frankly, I am not sure that we have much choice. But compromise means setting priorities and using the time that we have effectively. The purpose of this paper is to suggest a list of important goals and some new topics, and to offer some approaches to teaching them.

I. The Bare Minimum: The Structure of the Economy

If a student can explain the concepts embedded in the simple circular flow of economic activity (Fig. 1) she does not leave empty-handed. It has always seemed to me that spending several sessions looking at the circular flow and defining the concepts and trade-offs embedded in it using no graphs can be a very effective use of time.

If nothing else, students begin to see order in chaos. Everything in the classroom, every building in a city, every product or service used in a given day was produced by people motivated by economic rewards. We connect with the economic system when we buy things, when we work for a wage, and when we save.

Consider the following list of concepts or vocabulary that can be developed on the structure of the circular flow:

- stocks and flows,
- opportunity costs,
- trade-off between work and leisure (and other nonmarket uses of time),
- trade-off between present and future consumption (consumption vs. saving),
- opportunity cost of leisure,
- opportunity cost of present consumption,
- capital and investment,
- periodic saving versus accumulated savings,
- saving versus investment,
- derived demand,

* Department of Economics, Wellesley College, 106 Central Street, Wellesley, MA 02481, and Federal Reserve Bank of Boston.

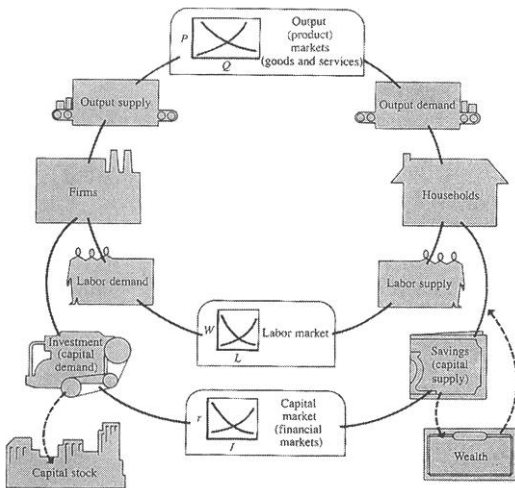


FIGURE 1. THE CIRCULAR FLOW OF ECONOMIC ACTIVITY

income from ownership versus labor,
 economic profit,
 revenues versus cost,
 the determinants of the distribution of
 income,
 how markets determine the allocation of re-
 sources.

Spending more time on the circular flow also allows us to teach some concepts that we sometimes forget to teach. One of the major sources of confusion that I have encountered over the years is that students confuse stock measures and flow measures. Demand and supply are, of course, flows in most of the markets that we use as examples. Highlighting the x -axis with “quantity *per time period*” or “cups *per day*” or “phone calls *per week*” is essential as is actually teaching the bathtub example.

Not unrelated to the stock/flow confusion is the fact that many senior majors in economics cannot define capital. Not that the formal meaning of capital is simple or uncontroversial, but students must have “goods that are produced” in mind at bare minimum. They must understand that investment is the flow of capital goods that increases the capital stock and that depreciation is the obsolescence of capital goods. There is always a great deal of confusion about saving being the supply of capital. All of this can be

cleared up by spending a couple of days on the circular flow, starting with product markets and turning to the labor market (which is straightforward) and finally to capital markets (which are not).

II. The Role of Government

I think there is a general consensus about the concepts that can be described using the circular flow with no government sector. But Principles of Economics should also prepare students to participate in the ongoing important debate about the role of government in what is essentially a free market economy. Here, economists do not agree. Some, like James M. Buchanan, see government as predator. Others following Richard A. Musgrave see a positive and affirmative role for government in the areas of allocation, stabilization, and redistribution. Whether we like it or not, taxes consume about a third of national income.

One approach has been to take a strong position on one side or the other of the debate. Many Principles teachers teach the course from the standpoint of social choice. Here, government bureaucrats are like any other agents acting in their own self-interest. Others teach the course from an interventionist point of view. It has always seemed to me that the best approach is to present strong arguments on both sides of the issue as forcefully as possible. Over the years, I have been quite proud of the fact that most students cannot tell from my classroom lectures or my book whether I am a Republican or Democrat, a liberal or a conservative.

I am convinced that the way to approach this issue is first to teach a simple version of a complete competitive economy including input and output markets, stressing the relationships between them, such as labor demand being a derived demand. The second step is to teach some version of the fundamental theorem of welfare economics: that perfect competition is Pareto optimal. The second step is the hardest, as evidenced by the fact that many of our senior majors cannot define efficiency. However, the key idea that the market produces an efficient allocation, mix, and distribution can be made intuitive even to those at the bottom of the analytical-ability distribution. It does not have

to be formal, but some sense that the market system, if left to its own devices, would produce “what people want at least cost” is an essential building block. The third step is to begin to identify sources of market failure such as imperfect market structure, externalities, and information asymmetries. In each case, the potential role for government must be balanced with the view that government may not solve the problem.

Three parts of the debate over the potential role for government should be given higher priority than they traditionally have received in the Principles course: (i) the problem of public goods, (ii) the provision of institutional infrastructure that “enables” markets, and (iii) the redistribution of income.

The ability to exclude for nonpayment is what forces preference revelation and allows the private market to function effectively. I do not get a Big Mac unless I reveal that it is worth more (or at least as much) to me as all the other things that \$2.89 can buy. Public goods present the private sector with a dilemma. Nonexcludability leads to the “free-rider problem” and the “drop-in-the-bucket problem.” Without coercion or mandatory taxation, agents have no incentive to reveal their preferences or to contribute to the production of public goods, and private provision fails. Much of what we ask the government to do falls under the heading of providing public goods: establishing a system of police protection and justice, providing for the national defense, and so forth.

In part, it is the nature of public goods that contributes to our general dissatisfaction with government. With private goods we can each choose what we like within the limits of our budget. With public goods, the government must choose one and only one level of provision. If they get it right, half of us think it is too much, and half of us think it is too little.

I have always thought that the above concept was much more powerful than the time and emphasis that we give it in the Principles course. What makes public goods increasingly important today as a topic for Principles students to understand is the coming of the “new economy.” An increasing number of the things we want can be reproduced and distributed with near zero marginal cost. Exclusion has been made virtually impossible. Napster is perhaps

the best example. While Napster itself has been shut down, 10 others just like it have already begun to operate.

While we are trying to enforce intellectual property rights and we have passed copyright and patent laws to provide creators of information and entertainment with incentives, they are increasingly hard to enforce in an open global economy. Also with the AIDS epidemic in Africa, there is a moral imperative for not exercising exclusion. These are big topics that belong in the Principles course.

The collapse of the Soviet Union and the subsequent failure of rapid privatization and liberalization has led to an awareness of the importance of institutional infrastructure designed to facilitate the efficient operation of markets. Nowhere in the Principles course do we discuss contract law, liability law, securities regulations, transparency, insurance, and other things that we take for granted in the United States.

I also believe that students should be able to participate in the discussion of redistributive issues, such as welfare reform, at a level above the “social Darwinist” versus the “bleeding-heart liberal.” We should spend a day or two discussing several points of view including but not limited to the utilitarian logic, Milton Friedman’s views, and John Rawls.

III. Teaching Some Old Concepts Better

One of the key tasks of simple microeconomics is to explain why demand curves have a negative slope and supply curves have a positive slope. For both input and output markets, in the short run the elasticities depend upon diminishing returns (on the firm side) and income/substitution effects (on the household side). There is no real consensus on how these two concepts are best taught.

I am not convinced that indifference curves contribute a great deal to Principles students. They take a good deal of exposition and add only marginally to students’ understanding. The only generalization that we really derive from the Slutsky equation or from the standard indifference-curve diagram is that substitution effects are negative. I am quite convinced that all the important insights of consumer theory, including a fairly complete understanding of

income/substitution effects can be conveyed without indifference curves.

First of all, budget constraints contain a great deal of information. Gary S. Becker (1976) shows that even irrational or random behavior will lead to downward-sloping demand curves. When the price of a good falls, swiveling the budget constraint shows that households have more choices (they are better off), that the new opportunities favor the good with the new lower price, and that opportunity costs have changed (substitution effect).

I also think that the best way to teach income/substitution effects is with stories. I fly home to visit my mother four times a year. Each ticket costs \$400. This year I spent \$1,600. I discovered today that ticket prices had been slashed by 50 percent. I can now fly home four times for a total of \$800. Thus, because I am better off (income effect), I may choose to fly home more frequently. But now suppose that at the same moment I discovered that \$800 dollars had been stolen from my house, negating the income effect. I may still decide to fly more frequently because the opportunity cost of a ticket is now only \$200 worth of other goods and services (substitution effect).

Similar stories work well in explaining income/substitution effects in the labor market where they work against each other.

Diminishing returns is another important topic that seems to be the subject of much debate. Most treatments at the Principles level begin by assuming a constant capital stock and adding variable amounts of labor. That has always struck me as silly; one can get a new computer up and running in an hour. Similarly some attack the whole notion on the grounds that there are constant marginal costs even in the short run (see Richard Miller, 2001).

I am convinced that the important concept is that firms at any point in time face some capacity constraint. The easiest way to describe it is to assume *some* fixed factor of production. For a farmer it may be a limited amount of land; for an independent accountant it may be her limited individual capacity to produce in a give time period; for restaurant it may be the seating capacity of its current location. In each case, the capacity can be stretched, but the result is increasing marginal cost. That is all that

is needed to yield quasi-rents (positive and negative) and set up entry and exit in the long run, which is the key point of all the cost-curve stuff.

IV. Analytical Tools?

Often the Principles course is referred to as a “tools course.” Some Principles courses consist of an introduction to theory and technique. MIT, for example, teaches what to most colleges would be an intermediate course as its Introduction to Microeconomics. They use a book which requires calculus and are doing LaGrangian multipliers on the second day of consumer theory. Clearly, their students are better prepared for what is to come in more advanced economics, but do they really learn economics?

I strongly agree with Kenneth Elzinga that we really are teaching “concepts” in the Principles course. In his recent essay in the *Southern Economic Journal*, Elzinga (2001 p. 254) admonishes us to “Teach words. New words.” It is not just definitions; it is concepts. Try to write a definition of “substitution effect.” What I think we want is for our students to be able to describe the potential behavior of households when a price or the wage rate changes.

On the other hand, it is not all words. There are some tools that are essential building blocks for the concepts that we teach. There is no substitute for supply and demand curves. In addition to spending at least a couple of sessions on the circular flow diagram, I think we need to spend more time on supply, demand, and equilibrium. I try to go over at least five different examples of market adjustment using supply and demand diagrams at the beginning of the course. One of the most effective is to discuss a recent popular sporting or entertainment event, checking the scalping price on the Internet.

While I do not believe in teaching indifference curves in the Principles course, I do think that cost curves are important. The concepts of economic profit and loss, long- and short-run adjustment, diminishing returns, economies and diseconomies of scale, and entry and exit are, I think, easier to understand graphically.

V. Space

Microeconomics deals with many dimensions of both household and firm behavior. We

spend time thinking about product differentiation, quantity of output in both the short and long run, the technology of production, demand for capital and labor, and so forth. For households we explore product demand, labor supply, and savings behavior. What is completely left out of most treatments of microeconomics is where firms and households locate.

If the ultimate purpose of the course is to teach "the way the world works," it seems to me difficult to leave out the determinants of the spatial structure of economic activity. For those of us who live in and around urban areas, the environment is the built environment. The core of a large urban area is made up of brick and concrete. Investment in structures is highly durable, and for most practical purposes it is immovable. Locational choices by their nature generate externalities. Real-estate markets have been shown to be volatile and cyclical.

At least pointing out that the profit-maximizing equation for a firm is made up of variables with location subscripts seems to me to be important. Why do service-sector firms locate in downtown high-rise office buildings while manufacturing has retreated farther and farther from the centers of our major cities? The answer to

this question can be explained with Principles concepts: it is easy for service-sector firms to substitute capital for land, while this is difficult for manufacturing firms.

Clearly, I am biased. My recent work has focused on real-estate markets and cycles. Nonetheless, I do believe that there is room in the Principles course for a few more real-world topics if we cut down on some of the detailed analytical material.

REFERENCES

- Becker, Gary S.** *The economic approach to human behavior*. Chicago: University of Chicago Press, 1976.
- Elzinga, Kenneth G.** "Fifteen Theses on Classroom Teaching." *Southern Economic Journal*. October 2001, 68(2), pp. 249–57.
- Kuhn, Thomas.** *The structure of scientific revolutions*, 2nd Ed. Chicago: University of Chicago Press, 1970, p. 20.
- Marshall, Alfred.** *Principles of economics*. London: Macmillan, 1890.
- Miller, Richard.** "Firms' Cost Functions: A Reconstruction." *Review of Industrial Organization*, March 2001, 18(2), pp. 183–200.