

# What's "Perfect" About Perfect Competition? A Prosperous Economy Needs Innovators

By William Lazonick

To claim that something is "perfect" is to say that it cannot be done better. With the start of another academic year, hundreds of thousands of college students who take introductory microeconomics courses will learn from their professors that the best possible allocation of society's resources occurs when "perfect competition" characterizes the organization of industry.

It is a well worked out theory that has been around for over a century. Unfortunately, the theory of perfect competition is nonsensical when applied to an economy such as the United States, dominated as it is by large corporations. The theory of perfect competition enables economists to ignore the conditions under which, through innovation, business enterprises grow large and often come to dominate their industries. As a result, these economists lack a theory of how government policy should respond when the top executives of the large corporations upon which we rely for our prosperity fail to invest in innovation and job creation in the United States.

The theory of perfect competition can be found in any conventional economics textbook. In a nutshell, households, who work and consume, maximize "utility" (their satisfaction) in supplying paid labor services and capital (their savings) on input markets as well as in demanding goods and services on output markets. Firms, which buy inputs to produce outputs, maximize profits on the basis of cost structures - combination of technologies and input prices -- available to all firms that want to participate in the industry. "Perfect competition" is achieved when, in a particular industry, all firms have exactly the same cost structures and there are a sufficiently large number of these identical firms so that the output decision of any one firm has no discernible impact on the price at which its product is sold.

The basic problem with the theory of perfect competition is that, as consumers and workers, not to mention as taxpayers, we want some firms in an industry to transform technologies to generate higher quality, lower cost products than their competitors. We do not want firms to maximize profits subject to given technological conditions. Firms that can achieve these technological transformations are enterprises that drive a society's economic growth.

By creating new sources of value (embodied in higher quality, lower cost products), the innovative enterprise makes it possible (but by no means inevitable) that, simultaneously, all participants in the economy can share in the gains of innovation. Employees may get higher pay and better work conditions, creditors more secure paper, shareholders higher dividends and stock prices, governments more tax revenues, and the innovative firm a stronger balance sheet, even as consumers get higher quality, lower

cost products. Indeed, from this perspective, a key issue for economic analysis is the relation between the generation of innovation and the distribution of its gains among participants in the economy.

There are countless examples of innovative enterprise in the history of the U.S. economy. Think of, to mention only a few prominent ones, General Electric's innovations in electrical power systems and light bulbs in the first decades of the 20th century, General Motors' closed car in the 1920s, Du Pont's nylon in the 1930s, Boeing and Douglas in the modern aircraft in the 1930s, RCA in television in the 1940s and 1950s, IBM in computers in the 1950s and 1960s, Intel in microprocessors in the 1970s and 1980s, Cisco Systems in Internet routers in the 1990s, Amazon in electronic retailing in the late 1990s and 2000s, Google in Internet search engines in the 2000s, and Apple in digital devices in the 2000s.

Today, many of these companies remain substantial resource allocators in the U.S. economy. They are innovative enterprises, not "perfect" competitors. To be sure, there are always small firms in the economy, but through innovation the best among them can quickly become very large. For a few well-known examples, Cisco Systems, founded in 1984, grew from 254 employees in 1990 to 34,000 in 2000; Amazon, founded in 1995, had 33,700 employees in 2010; while Google, founded in 1998, had 24,400 employees in 2010.

More generally, large corporations, some dating back to the 19th century, dominate the economy. In 2010 the top 500 U.S. corporations by revenues had combined sales of \$10.8 trillion, profits of \$702 billion, and employment of 24.9 million people worldwide. That's a per company average of \$21.6 billion in sales, \$1.4 billion in profits, and almost 50,000 employees. The operation and performance of these corporations, not "perfect competition", need to be at the center of economic analysis.

That large corporations dominate the US economy is hardly news (except perhaps to the economics professors who write the conventional microeconomics texts). In 1977, business historian, Alfred D. Chandler, Jr., published a Pulitzer Prize-winning book, aptly entitled *The Visible Hand*, in which he documented that already by the beginning of the 1920s, the "managerial revolution in American business" was complete. The innovative investment strategies of these corporations drove the consumer durable boom of the 1920s. At the same time, sectors such as textiles, coalmining, and agriculture that were characterized by large numbers of perpetually small firms were known as "sick industries" precisely because of the inability of a few firms to set themselves apart from the rest through innovation.

Today, in my view, the greatest economic policy challenge is how to keep major business corporations innovative. Once they have become successful, the executives who run these mammoth companies may choose to allocate resources in ways that live off the past rather than invest for the future. Indeed, justified by the free-market ideology of "maximizing shareholder value," in the United States we reward top executives with unindexed stock options that give them strong personal incentives to do massive stock buybacks to jack up their companies' stock prices even as they eschew investments in innovation.

Here's an example that has recently been in the news. Hewlett-Packard (HP), the world's largest information technology company and an icon of U.S. business, announced the personal computer industry, including the rapidly expanding smartphone and tablet segments. HP's top executives deem that the investments required to compete with the likes of Apple pose too great a burden on HP's cash flow. But that's because HP's executives decided to squander \$11 billion on stock buybacks in 2010 and another \$7.3 billion in the first half of 2011. During the same 18 months, HP spent only \$4.6 billion on R&D, just 25 percent of what it forked out to manipulate its stock price through buybacks. Over the past decade, HP has wasted 118 percent of its net income on buybacks. HP was once a great technology company, but in the 2000s it expended only 4.2 percent of sales on R&D, compared with 7.6 percent in the 1990s and 10.5 percent in the 1980s. In 2010, HP's R&D as a percent of sales was a meager 2.3 percent, the lowest in the company's 62-year history.

What determines whether a company invests for the future or lives off the past? Our college students won't find any answers to this crucial question in the conventional economics textbooks. In a world of "perfect competition," there is no room for innovative enterprise. By the same token, the textbooks make the pretense of analyzing "big business" through the theory of monopoly, put forth as the proof of the superiority of perfect competition. The argument is that compared with perfect competition, a firm that has a monopoly restricts output and raises prices to consumers.

To get this result, however, it is assumed that the monopolist firm maximizes profits subject to the same cost functions as perfectly competitive firms. This comparison entails an amazing leap of illogic, ironic for an academic profession that claims to be rigorously scientific: If it is possible for perfectly competitive firms to exist, how did the monopolist get to be a monopolist?

In contrast, in the theory of innovative enterprise, a firm can become dominant by transforming its cost structures, gaining competitive advantage over firms that do not. In the process, the innovating firm generally contributes to an expansion of industry output and a reduction of product prices -- just the opposite of what the textbook theory of monopoly predicts.

That the illogical argument of the superiority of "perfect" competition has been ensconced in the microeconomics textbooks for over six decades attests to the failure of orthodox economists to come to grips with an economy dominated by large corporations. Applied to such an economy -- and the United States has been one for over a century -- perfect competition is perfect nonsense.

What then accounts for the persistence of the theory of perfect competition as a linchpin of economics erudition? In brief, there are two mutually reinforcing explanations for what I have called "the myth of the market economy": the ignorance among economists about how the actual economy functions and the ideology that "free markets" can solve all our economic problems. It is about time that we got rid of both.