

Competition: The Hidden Costs of the Invisible Hand

Michael Perelman

It has long been convenient to think of markets as operating in continuous and uninterrupted ways as they find their way to economic efficiency. But this economist is interested in the real-world irregularities that can disrupt markets and, at times, whole economies. Can there simply be too much competition at times? asks the author. In this fresh and provocative piece—one of the few theoretical pieces we publish—the author raises issues that are too often forgotten. Just how inherently stable is our economy?

THE basic idea of a free market is that market forces effectively discipline business to become efficient. While most economists are quick to praise the benefits of the competitive process, relatively few modern economists seem to have given much thought to the concept of competition. They simply assume that the more competition there is, the better the economy will function.

Although insufficient competition may be harmful to an economy, excessively strong competition may be catastrophic.

MICHAEL PERELMAN is a professor of economics at California State University, Chico. His most recent books are *The Invention of Capitalism* (Duke University Press, 2000), *Transcending the Economy* (St. Martin's, 2000), and *The Natural Instability of Markets* (St. Martin's, 2000).

This article proposes looking at depressions as nothing more than an indication of intensified competitive pressures. While this proposition might strike many modern economists as heretical, or even nonsensical, it can be rephrased in the language of modern economics: An economy with high fixed and low marginal costs lacks a core.

If an industry with high fixed costs and low marginal costs should face strong competition, prices would fall below the level where firms could meet fixed cost charges, such as rent and interest payments. In such a setting, unbridled competition will lead to a collapse. Such events are rare only because of factors that limit competition.

What sort of forces limit competition? First, the presence of nonmarket forces, such as regulations, sticky wages, or tradition, may weaken competition. In addition, neglecting to enforce antitrust laws restricts competition. In fact, the great merger wave in the United States during the late nineteenth and early twentieth centuries was an emergency measure to prevent competition from driving much of the industrial infrastructure further into bankruptcy but insufficient to prevent the Great Depression. The threat of "excessive" competition at the time drove the leading economists of the late nineteenth-century United States, such as John Bates Clark and Arthur Hadley, to found the American Economic Association as a vehicle to oppose laissez-faire economics, even while they were laying the analytical foundations for modern neoclassical economics.

This article further proposes that factors that weaken competition go well beyond the normal boundaries of antitrust—that even expansionary monetary and fiscal policies tend to weaken competitive forces. For example, Ford and Chevrolet may compete with each other in selling cars, but while the economy is booming, each company may have plenty of customers. Neither needs to resort to extreme measures in order to

preserve its market. Suppose, however, that the economy turns sour. Household budget constraints become very tight. Now, these companies are competing not just against each other but also against sellers of more basic needs, such as food and shelter, to preserve their markets.

Of course, substitution between goods exists all the time, but during periods of strong competition, such strong cross-product substitution takes on considerably more force. In effect, business can comfortably cruise along for long periods during seemingly normal times. Market share may be constant, but markets are growing. Neither radical structural nor technological change seems to be particularly urgent. Then, every so often, the protective devices that limit the extent of competition fail.

With the advent of strong competition, business and industry emerge from periods of extended quiescence to experience profound transformation. Once hard times arrive, management suddenly feels the need to make dramatic changes to become competitive. In effect, real competition has only begun.

The conventional economic imagery of competition based on the Darwinian concept of survival of the fittest is incapable of capturing the reality of the irregular pulses of competitive pressure. This article will explore the nature of the economy in light of this pattern of fluctuations in the extent of competition. This perspective offers a more realistic vision of the economic process and a more reasonable explanation of the evolution of industries or firms than conventional economic theory can offer. In making this case, it will also show that concepts that otherwise seem to be on the fringes of economic theory, such as x-inefficiency or satisficing, actually belong close to the core. Finally, this perspective suggests that the conventional emphasis on economic equilibrium is misplaced, and that economists would do well to learn from the biologists' concept of punctuated equilib-

rium. A first step in this direction is to introduce the notion of hopeful monsters.

Hopeful Monsters and Entrepreneurial Alertness

Much economic literature draws upon the Darwinian notion of natural selection in referring to the importance of competition. Supposedly, competitive pressures continually weed out the weak and inefficient, allowing the fittest firms to survive and prosper. Harvard paleontologist Stephen Jay Gould's analysis of punctuated equilibrium provides a useful metaphor for my alternative interpretation of competitive pressures.

Gould contends that stasis—a relatively unchanging condition—is common in nature. Of course, some change occurs, but at a very slow pace. During such periods of stasis, most species exhibit no directional change. Species appear in the fossil record looking much the same as when they disappear. Morphological change is therefore usually limited and directionless (Gould 1977a).

Gould speculates that a species does not arise gradually by the steady transformation of its ancestors. Instead, it appears fully formed (1977a). He does not deny that some gradual evolution occurs within a species. Darwin showed quite conclusively that the shape of a bird's beak will certainly evolve over time according to the type of food supply that is available.

Gould is referring to morphological change through which more basic structural changes in the species occur. In other words, our ancestral rodents did not merely evolve gradually until they emerged as bipeds with opposable thumbs. Instead, they bred a slew of "hopeful monsters," most of which expired without much consequence. A select few, however, survived, giving rise to entirely new species. Gould gives the example of a particular snake whose maxillary bone is broken in two with a joint. He says that no small evolutionary stages could explain such an evolutionary out-

come (Gould 1977b). Instead, a freak snake must have been born with a weird feature that gave it an evolutionary advantage.

The difference between Gould's depiction of hopeful monsters and the conventional story of evolution might not seem to be very significant. In both cases, changes occur, and those species that have an evolutionary edge are more likely to survive. However, in the case of traditional evolution, the steps are small, perhaps even imperceptible. Small changes in one species might promote a different set of small changes in other species. As a result, we should expect to see the evolutionary process as gradual.

In contrast, with the emergence of a sequence of hopeful monsters, evolutionary change will become more problematical. Consider the example of a newly discovered species that survives on the lips of one particular type of lobster (Morris 1995). This creature is wholly unrelated to any previously known species. Although this form of evolution is remarkable, it also leaves these creatures vulnerable to even a slight change in the environment. The same specialization that made them so dependent on the success of a relatively small group of lobsters makes them less adaptable to relatively small changes in the global environment. For example, this particular group of lobsters may decline or migrate to a less desirable location, threatening the existence of their tiny lip dwellers.

While the adaptation to the specialized habitat of the lobster's lip might appear as a remarkable confirmation of the process of natural selection, the same degree of specialization puts the creature at risk. Should a new monster lobster displace the existing lobsters, the new lobster's lip might no longer be a suitable abode. In retrospect, we would have to conclude that the evolution of this unfortunate creature has gone in the wrong direction. Thus, evolution could appear to move more chaotically than the traditional story would have us believe.

Even so, according to the theory of punctuated equilibrium,

during normal times the pace of evolution is slow. Presumably, monsters would be rare, and hopeful monsters rarer still. During turbulent times, monsters would still be rare, but the new conditions would increase the probability that a monster might be well adapted to the new conditions.

I tend to think of serendipitous technologies as an analogue of hopeful monsters. In one famous example, 3M researchers were working on an adhesive that was too weak. One of these researchers, Art Fry, was frustrated because his paper bookmarks kept falling out of his church hymnal. He realized that the lack of strength of the adhesive could be put to good use, leading to the development of the ubiquitous Post-It note.

This story illustrates a major difference between biological and economic evolution. Imagine that the Post-It note had been a new biological species, based on a concept entirely different from other types of adhesives, and whose survival depended on its strong gripping power. As a biological entity, the Post-It note would have hopped out of the laboratory on its own. As an economic innovation, it required someone who happened to be alert to its economic viability. Had it not been for Art Fry, the weak adhesive would have been nothing more than another failed attempt to develop a new product.

Indeed, the history of technology is riddled with stories of accidents and even mistakes (the technological equivalent of hopeful monsters) that have proved to be essential in the development of various technologies. Schumpeter stressed that the key to economic development is such entrepreneurial ingenuity—the ability to see possibility where others have overlooked it. The late Nicholas Georgescu-Roegen noted the connection between Schumpeter and Gould's treatment of Goldschmidt's hopeful monsters. In Georgescu-Roegen's words: "To gauge the depth of Schumpeter's vision we should note that the explanation of speciation by successful monsters has recently been re-

vived by one of the greatest minds in contemporary biology, Stephen Jay Gould" (Georgescu-Roegen 1990, 232).

Georgescu-Roegen reminded his readers of Schumpeter's understanding of the crucial role of discontinuity in the process of economic development. To bring his point home, Georgescu-Roegen suggested that "a railway engine is a successful monster in comparison to a mail coach" (1990, 232), alluding to Schumpeter's famous dictum, "Add successively as many mail coaches as you please, you will never get a railway thereby" (Schumpeter 1961, 64 fn; Schumpeter 1935, 4).

Schumpeter's vision of discontinuity is largely forgotten today. Although many economists pay him lip service, his grandiose vision of discontinuity has largely fallen from view. The adherents of the Austrian school of economics continue to follow in Schumpeter's footsteps, insofar as they emphasize the importance of entrepreneurial alertness. But a reading of their works leaves the impression that their understanding of alertness does not refer to the introduction of technologies that can change the entire economic landscape, such as the railroad. Instead, these economists appear to have a much smaller scale of alertness in mind through which entrepreneurs take modest advantage of economies that are already on hand—more like the lip dweller.

I may be giving the Austrians too little credit. It is worth appreciating how the Austrian economists have placed human creativity at the center of our hopes for creating a better world. Even so, the Austrians seem to have a limited vision. They limit their praise of alertness to those who organize the workplace. This effort supposedly explains the high rewards that accrue to employers relative to their employees. In truth, our world would fare far better if we were to arrange society in a less hierarchical fashion, so we could encourage and reward alertness on everybody's part, rather than having a small number of people giving orders to the majority.

The Evolution of the Automobile

Industry seems to develop according to a pattern similar to the model of punctuated equilibrium. An immature industry typically has many different producers and a wide variety of products. Over time, the industry settles on a more or less dominant design, which evolves relatively slowly (Abernathy and Utterback 1978).

Consider the case of automobiles. By 1908, more than five hundred companies had entered the automobile industry (Flink 1975, 42; Kolko 1963, 43). By some accounts well over two thousand firms had entered the industry by 1920 (Klepper and Simons 1997, 387).

During the early years of the automobile, the industry was experimenting with a variety of possible technologies. For example, in 1900, steam and electric vehicles accounted for "about three fourths of the four thousand automobiles estimated to have been produced by fifty-seven American firms" (Freeman and Soete 1982, 71, citing Klein 1977, 91).

At first, the steam engine seemed to have the inside track. Steam is less efficient than gasoline because the combustion is an indirect source of energy. However, steam requires less engineering since it does not use a gearbox. Steam was more popular in the United States than elsewhere, since the United States had fewer skilled mechanics at the time and cheaper energy (Foreman-Peck 1996). One contemporary observer concluded that "unless the objectionable features of the petrol carriage can be removed, it is bound to be driven from the road by its less objectionable rival, the steam-driven vehicle of the day" (Fletcher 1904, cited in Arthur 1989, 126).

A recent historian of the fate of the steam car observed:

The principal factor responsible for the demise of the steam car was neither technical drawbacks nor a conspiracy of hostile interests, but rather the fact that its fate was left in the hands of small manufacturers.

It cannot be argued with confidence that the final adoption of the internal combustion engine as the standard engine for use in private automobiles was solely or even principally the result of its inherent superiority as a form of motive power. More likely it was the result of the fact that these automotive engineers who decided to adopt the internal combustion engine decided also to introduce at the same time a series of radical innovations in production engineering and in distribution. In this case at least the relative success of the rival innovations depended as much upon the managerial abilities of the entrepreneurs responsible as upon the technical merits of the alternative forms of power. (McLaughlin 1967, 271-72)

While the industry was settling on the internal combustion engine as the dominant design, a larger scale of production became possible, allowing for significant economies and foreclosing all alternative paths. For example, the price of a Model T Ford fell from \$850 in 1908 to \$360 in 1916, sales increased by a factor of fifty, and market share increased from 10 percent in 1909 to 60 percent in 1921 (Freeman and Soete 1982, 71). As a result, more and more companies were falling by the wayside. By 1926, only fifty-nine companies remained in the industry (Kcilko 1963, 43).

In a sense, the evolution of the early automobile industry more resembles Gould's history of the Burgess Shale, where paleontologists discovered the proliferation of life forms that rapidly materialized during the so-called Cambrian explosion of 530 million years ago (Gould 1989). Over time, evolution eliminated the vast majority of these experiments, while the surviving species adapted to differing niches.

At the end of the Permian period, 225 million years ago, a spectacular catastrophe wiped out as many as 96 percent of all marine species. During the spurt of evolution that followed this mass extinction, no new phyla and only a few new classes of life emerged. Instead, this period witnessed widespread innovations based on existing life forms (Leakey and Lewin 1995, 28-29). We might compare this sort of variety to the proliferation of choices

of colors or accessories in the automobile market that appeared after the industry had settled on a basic design.

The Penalty for Having Been Thrown into the Lead

In the literature of economics, evolutionary analogies generally shift between the evolution of firms and the evolution of specific products, such as the automobile. In analyzing the nature of instability, we need to pay some attention to the economy as a whole.

In 1915, Thorstein Veblen made the case that something like a post-Permian deceleration of evolution occurred for an entire economy. He proposed that the German economy was able to surpass the English economy because the British built their economy around early technologies. He charged that the British rail gauges were too narrow and that the layout of the old English towns was ill suited to the transportation needs of a modern industrial system (Veblen 1915, 130–31). In addition, later economists noted that high investment in steam and gas inhibited British use of electrification (Levine 1967, 123–24). As a result, the British were “paying the penalty for having been thrown into the lead and so having shown the way” (Veblen 1915, 132).

A decade and a half later, Leon Trotsky returned to the subject of the German economic achievements. For Trotsky, the very backwardness of the economies of Germany and the United States was an advantage that allowed those countries to leapfrog Britain (Trotsky 1932, 3). Again, in the 1960s, in an age when modernization seemed to be within the reach of the colonial regions of Asia, Latin America, and Africa, Alexander Gerschenkron revived Veblen’s theory, suggesting that with the proper institutional framework, backward economies could enjoy a rapid economic development (Gerschenkron 1962). More recently, Alice Amsden suggested that the success of the coun-

tries of East Asia during the 1970s and 1980s was due, in part, to the advantages of late development (1989).

This literature contains two parallel threads. The first one suggests that the backward economies can make rapid progress by imitating the leaders. Veblen's idea that past investment can prove to be handicap was common to the first thread. The second thread is more relevant here. It contends that the leading countries get bogged down by their own past achievements. It often reflects a judgment that the leading countries get "fat and lazy." Over time, the first thread tended to recede behind the second.

The first thread might have more appeal because the idea that previous investment could be an obstacle seems to defy economic logic. If capital goods are not productive, you can discard them or just sell them as scrap. How could the ownership of capital goods be a disadvantage?

Veblen suggested the answer. He referred to the modern industrial system as "a system of interlocking mechanical processes" (1921, 52). Modern economists would be more inclined to use the expression "network effect." A company will not replace old locomotives unless the rails are compatible with the modern models. Companies will resist scrapping their old, narrow-gauge rails so long as most of the trains are designed to run on the existing rails. In effect, economies cannot easily mutate into hopeful monsters.

This problem of having to get many parts of the economy to change all at once casts some light on the rapid recovery of Europe and Japan after the devastation of World War II. When the U. S. balance-of-payments position deteriorated in the face of exports from these areas, people commonly explained that these regions had a more modern capital stock than the United States did. A Japanese economist made a similar point: "Japan is an example of a fantastically creative response to defeat. . . . The

defeat in the last war brought about, of course, a far greater scale of devastation in the economy of Japan, necessitating a fresh renovating start in almost every aspect" (Tsuru 1993, 67).

In effect, the war acted like a mass extinction that allowed for a new spurt of industrial evolution. It cleared away economic blockages in a way that market competition could not.

The Life Cycle of Economic Organizations

To continue with the discussion of the evolution of entire economies, I will drop the evolutionary analogy for the moment and turn to the metaphor of baseball. Economies seem to fit the baseball metaphor better than industries do.

Business practices develop a degree of uniformity. Like a competitive baseball team, businesses tend to adopt basic designs of organization—"a way of doing business." Instead of elaborating strategies and techniques for scoring runs while preventing one's opponent from doing the same, firms attempt to emulate their most successful competitors (Nelson and Winter 1982, 11). As a result, a particular style of management becomes the norm.

Along with the prevailing management style, economies develop a legal structure, a system of labor organizations, and a host of other arrangements. David Gordon, Richard Edwards, and Michael Reich refer to this entire complex as the "social structure of accumulation" (1982). Of course, the social structure of accumulation is nearly not as well defined as the rules of a sport. In addition, some industries will adopt the new management style before others do so. Furthermore, although the way of doing business is never entirely the same from year to year, this evolution does not proceed smoothly. In some periods, little change is apparent. In others, change is extraordinarily rapid.

A particular business might adapt quite well to a particular social structure of accumulation, only to be unable to compete

once conditions change. In effect, the very characteristics that make it prosper at one time may spell its downfall at a later time. Just as the lip dweller may thrive only so long as its host is successful, changes in the conditions for which a firm is too well adapted can be its doom.

For example, Henry Ford's personality, which led him to offer to sell cars in any color so long as they were black, was well suited for his time. Later, as the market for automobiles evolved, General Motors racked up huge profits by marketing a wide array of styles, while Ford's unchanging attitude almost drove the company to bankruptcy. In the words of Alfred Sloan, president of General Motors between 1921 and 1954: "Mr. Ford, who had so many brilliant insights in earlier years, seemed never to understand how completely the market had changed. . . . Mr. Ford in the 1920s . . . stayed too long with his old and once dominantly successful concept of the business" (Sloan 1964, 163 and 437).

Ironically, in an even later period, General Motors lost considerable profits to Japanese companies, which economized, in part, by narrowing their product choices.

Competition and Economic Catastrophes

According to Gordon et al. (1982), each social structure of accumulation seems to have a lifetime of about a half century. Severe depressions appear to trigger the demise of these social structures of accumulation and pave the way for the creation of new ones. The rise and fall of these social structures of accumulation creates a scenario similar to the story of punctuated equilibrium.

Few economists have absorbed the theory of punctuated equilibrium, however. Instead, they stubbornly adhere to their traditional imagery of competition as somehow driving a steady evolution of economic progress, all the while guaranteeing the fitness of the survivors.

Perhaps, on one level, this resistance is rational. Yes, catastrophes of mass extinction occur in the natural world, but only on a scale of geological time. A meteor might crash into the earth tomorrow, but the probability of that event is so remote that we might be foolish to take it into account. Besides, the scale of such an event would be so great that nothing we do could have much effect in protecting us. So, why should we bother to concern ourselves with the possibilities of such an event? What could the lip dweller do to ensure the safety of the lobster host?

After all, we cannot very well guide our evolution to adapt to the unknown effects of an uncertain catastrophe. Thousands or even millions of years might pass before the next great upheaval. Besides, we do not even know the direction of that event. For example, would it make the world hotter or colder? We cannot know with certainty. In that sense, we might reasonably put our concerns about the next global catastrophe on a level only slightly higher than our worry about the realization that the sun is running out of power.

But, then, what do such matters have to do with economics? After all, economics is not biology. Dismissing the theory of punctuated equilibrium out of hand would probably not be difficult for most economists, now that the profession is brimming with cheery overconfidence, celebrating the success with which capitalism has avoided a major worldwide depression since 1929. Economists typically presume that a massive depression is virtually impossible at this stage in our history. Why, then, should they bother with the theory of punctuated equilibrium?

Indeed, economists have good reason to find the theory of punctuated equilibrium uncongenial. We have already noted that economists often have biological metaphors in mind when they speak about competition. Their simplistic understanding of competition certainly does not fit in well with the theory of punctuated equilibrium. In fact, the metaphor of punctuated equilibrium

is incompatible with the central thesis of laissez-faire theory, which holds that competition will necessarily lead to the best of all possible worlds.

While economic theory holds to the view that economies easily adjust to an equilibrium position, history indicates otherwise. Despite our recent run of good luck, economies do have a tendency to experience relatively frequent catastrophes. The regularity of these massive crises has led some economists, such as Gordon et al. (1982), to conclude that crises almost inevitably recur about every fifty years. Whether or not crises occur with such regularity, it is worth repeating that, by taking a longer view of history, the tranquil conditions conducive to gradual evolutionary progress seem to be the exception rather than the rule. In fact, the majority of the past hundred years have been spent either in wars, recessions, or depressions.

Like mass extinctions, depressions and recessions wipe out substantial portions of the economy. Just as the mass extinctions were associated with climatic shifts, depressions and recessions often reflect changing economic conditions. On another level, this article will argue later that these depressions and recessions, which we typically regard as anomalies of the economic system, represent nothing so much as an intensification of the much admired competitive process, which supposedly lies at the heart of the capitalist system. Once one of these periods begins, complaints about excess competition become common.

This last point should be underscored. In the biological theory of punctuated equilibrium, outside forces produce catastrophes from time to time. In contrast, in economics competition itself produces the catastrophes. In fact, catastrophes are the likely outcome of a truly competitive economy. Putting this difference aside for the moment, the application of the theory of punctuated equilibrium in economics raises some serious questions.

We can begin with one of the most important questions,

aside from those concerning equity: How can we be sure that the competitive process is not snuffing out the makings of future economic progress?

What follows will indicate why this perspective contends that we often have no way of knowing whether any particular firm that fails or person who falls by the economic wayside is any less fit than the survivors.

Survival of the Fittest

The metaphor of the survival of the fittest is so ingrained that few economists give much thought to their tightly held assumption that competition somehow automatically manages to winnow out the inefficient. I cannot find much justification for this blind faith in the universality of the efficiency-enhancing properties of the competitive process.

How can we square this misperception of the competitive process with three widely accepted ideas about small firms? First, small firms form the seedbed for many, if not most, important innovations, in part because large firms are generally unreceptive to new ideas (Beesley and Hamilton 1984). Even previously innovative small firms often become blinded to good ideas once they mature. Xerox represents a classic example:

Chester Carlsson started Xerox after Kodak rejected his new idea to produce a copy machine, telling him that his copy machine would not earn very much money, and in any case, Kodak was in a different line of business. . . . Steven Jobs started Apple Computer after this same Xerox turned Jobs away, telling him that they did not think a personal computer could earn very much money, and in any case, they were in a different business. (Audretsch and Acs 1994, 174; see also Audretsch 1995, 54)

Later, Apple, in turn, became relatively stodgy and stumbled because it failed to introduce exciting products for a relatively

long time, at least relative to the speed with which the computer industry evolves.

The second widely accepted belief concerns the effect of tight credit. When financial stringency sweeps across the economy, it annihilates the most vulnerable firms. Finally, the third belief holds that small firms are far more vulnerable to economic crises than their larger counterparts, especially because of their disadvantages in obtaining credit (see Gertler and Gilchrist 1994).

The implication of these three ideas is that depressions are likely to destroy some of the very firms that are, in a sense, best suited to survive. Of course, this does not mean that depressions perversely single out the most efficient firms while letting the inefficient prosper. On the contrary, many firms that fall by the wayside are indeed inefficient by any objective standard. The point here is merely that the destructive gale of a depression does not necessarily single out those firms that are unfit.

Instead, all firms that are vulnerable at the moment are at risk of failure, regardless of their potential contribution to the economy. A single idea that might have originated in a promising seedbed firm might save far more resources than would be consumed in sustaining hundred of admittedly inefficient firms. Unfortunately, the sort of broad-based liquidations that occur during crises do not discriminate between such seedbed firms and the dross.

Stephen Jay Gould once compared natural selection to a hecatomb. His words also apply to a strongly competitive economy: "A hecatomb is, literally, a massive sacrifice involving the slaughter of one hundred oxen—a reference to ancient Greek and Roman practices. By extension, a hecatomb is any large slaughter perpetrated for a consequent benefit. Natural selection is a long sequence of hecatombs" (Gould 1993, 146).

In the course of an economic hecatomb, we have no reason to believe that competition necessarily serves to enhance efficiency

by enforcing a regime of the survival of the fittest. True, many weak firms will succumb to competition, but as I noted above, the selection process is also likely to destroy many of the firms with the greatest productive potential for the future.

To make matters worse, depressions can actually strengthen the so-called dinosaur firms, which we might expect natural selection to target. How, you might ask, could depressions aid those firms that would seem to be least fit to survive? The answer is the flip side of the story of the destruction of the promising small firms.

One of the few facts on which economists agree is that depressions cause the financial system to allocate a greater share of credit to larger firms than it does during more prosperous times. Although large firms may wobble a bit under the crush of a depression, by eliminating potential competitors, large firms' position will be strengthened once the crisis has passed.

The purely economic damage caused by depressions goes far beyond the snuffing out of the seedbed firms. More and more, economists are coming to recognize the importance of long-term relationships in allowing firms to operate efficiently. Firms may have long-term relations with workers, suppliers, customers, and creditors. These relations may involve information about the participants, including an estimate of the other's trustworthiness, predictability, or other characteristics. A depression changes the economic terrain, wiping out much of the value of this accumulated information.

Ben Bernanke, an economist from Princeton University, has made a great deal of this phenomenon, emphasizing the breakdown in the information between banks and their customers as an explanation of how the Great Depression became so severe (1983). Bernanke's understanding is not very different from Schumpeter's earlier-cited observation about the disruption associated with the Great Depression, although Schumpeter did not elaborate on this idea.

Similarly, some economists have pointed to the dissolution of long-term contractual relations as the main reason that the gross domestic product of the former Soviet Union has fallen so drastically with that region's turn from socialism (Blanchard and Kremer 1997). These economies fell an estimated 35 percent between 1989 and 1994, comparable to what market economies experienced during the Great Depression (Blanchard and Kremer 1997, 1091).

Punctuated Economic Equilibrium

In a sense, the theory of punctuated equilibrium presents a curious paradox for economic theory. Obviously, if competition does not create intense catastrophes, then the theory of punctuated equilibrium would be less relevant for economists. However, *laissez-faire* ideology would also be inapplicable. An explanation follows.

As previously noted, we may see a depression as nothing more than an intensification of competitive pressures. Without strong competitive pressures, the entire rationale for *laissez-faire* disappears. After all, the basic idea of a free market is that market forces effectively discipline business to become efficient.

This discipline of competition is anything but steady. The relationship between the extent of turnover among the top tier of the corporate structure provides a crude index of the degree of competition. Of course, we cannot disentangle how much of this stability represents the ongoing efficiency of the corporate leaders rather than a lack of competitive pressure.

When competition becomes less intense, management slackens off, becoming fat and lazy instead of lean and mean. Hence, during such periods, we would expect to find a high level of stability, such as the period following World War II. Indeed, David Audretsch reported that two decades passed before a third of the Fortune 500 was replaced, between 1950 and 1970. As competition from imports heated up, stability declined. For example,

one decade was enough for the replacement of a third of the firms between 1970 and 1980. The process continued to accelerate during the next decade, between 1980 and 1990, when a third of the firms were falling from the list every five years (Audretsch 1995, 7). Of course, firms can disappear through mergers and acquisitions, as well as through outright failure.

This "hardening of the industrial arteries and decreased competitiveness" of industry in the United States (Caves 1977, 40; 1980, 514) began well before the postwar boom. One study compared the rate at which firms fell from the top one hundred firms in the period 1903–1919 with the years 1919–1969. The rate of failures per one hundred firms per year was at least three times as great in the earlier period. The author concluded: "The evidence reviewed above indicates that corporate capitalists had achieved a quite widespread and enduring consolidation of their positions by 1919" (Edwards 1975, 442). Another study found that turnover among the largest firms had already declined over 1909–1929, just as we should expect after a period of corporate consolidation (Stonebraker 1979).

Unfortunately, beyond warning against business collusion or government intervention, conventional economics tells us nothing about why the variability of competitive pressure might allow a large number of businesses to become inefficient at one moment and then suddenly subject these same businesses to the rigors of competition. This variability of the process seems to have more in common with the theory of punctuated equilibrium than the ideology of *laissez-faire*.

In contrast to the story of the variability of competition in the previous paragraph, conventional economic theory maintains that firms are always and everywhere optimizing their profits. Yes, some firms might not be operating quite at maximal efficiency, but economic theory predicts that they will soon mend their ways or fall by the wayside. A few mainstream economists

have questioned this perspective. Herbert Simon, for one, even won the Nobel Prize for economics (see Simon 1996, esp. 28–29), although this aspect of his work probably did little to improve his standing within the profession.

Suddenly, with the onset of a depression, competition intensifies. For example, between 1929 and 1933, one-third of manufacturing establishments in the United States closed. In the motor vehicle industry, which was more concentrated than the typical industry, the figure was one-half (Bresnahan and Raff 1991, 317). If competition were a steady influence, we would not see a spike in plant shutdowns during depressions.

The dissident economists, Gordon et al., seemed to be attempting to address this variability in the strength of competition with their theory of the social structure of accumulation (1982). They even provide an overview of the history of the U.S. economy in terms of the evolution of the social structures of accumulation. Their social structures of accumulation include the whole gamut of forces that shape the business environment.

Gordon et al. explain how social structures of accumulation go through a life cycle, tentatively emerging, taking shape, then hardening, and finally collapsing. Although the authors go into enormous detail about the particulars of each social structure of accumulation, they never get around to offering a full explanation of the underlying dynamics of the social structure of accumulation. Instead, crises that inexplicably arise around every half century drive their version of history. We never discover why these crises recur any more than Gould tells us why the earth experiences mass extinctions every so often.

We should expect the life cycle of the social structure of accumulation to differ from mass extinctions in one respect: As already noted, all of the previous mass extinctions were due to forces beyond the power of any creatures on the face of this planet. All these earlier mass extinctions also predate hu-

mankind. In the case of the crises that annihilate the social structures of accumulation, human activity lies at the heart of them.

Unfortunately, while crises affect the social structure of accumulation, Gordon et al. do little to explore the effect that the social structures of accumulation might have on the formation of crises. So, their work can explain a diminution of competitive pressures, but we are left in the dark about the underlying process whereby a social structure of accumulation eventually unleashes a new wave of competition.

I do not pretend to have a thorough analysis of what determines the ebb and flow of competitive forces, but I do have a suspicion: Normally, business leaders prefer to take a live-and-let-live approach to the market. We see indications of this tendency in the perennial impulse to bureaucratize and routinize business practices. In this regard, we can also take note of the zeal with which management takes on both staff and perks during good times.

"Satisficing" or Optimizing

In the words of Herbert Simon, managers *satisfice* rather than *optimize*. The existence of "satisficing" reflects a twofold limitation of economic theory. To begin with, firms could not really optimize, even if managers attempted to do so. As Simon insists: "Because real-world optimization, with or without computers, is impossible, the real economic actor is in fact a satisficer, a person who accepts 'good enough' alternatives, not because less is preferred to more but because there is no choice" (Simon 1996, 28–29).

He continues: "Many economists, Milton Friedman being perhaps the most vocal, have argued that the gap between satisfactory and best is of no great importance, hence the unrealism of

the assumption that the actors optimize does not matter; others, including myself, believe that it does matter, and matters a great deal" (Simon 1996, 29).

Furthermore, satisficing has a second dimension. Even if management had the technical capacity to optimize, they would be unlikely to do so. After all, automatic calculating devices do not run firms; flesh and blood people do. These people have preferences that may not coincide with the abstract ideals of economic efficiency.

The idea of satisficing, therefore, suggests the idiosyncratic choices of people rather than an automatic playing out of economic forces. While Simon's distinction earned him a Nobel Prize for economics, his appeal to satisficing rather than optimizing distanced him from the profession. In the end, he retreated to the psychology department of his university, while his colleagues from Carnegie-Mellon University went on to found a now-discredited school of economics based on the extreme hypothesis that the market could foresee the future (Sent 1997).

Yet Simon was far more in touch with reality than the rest of the profession. Many business leaders take advantage of the many opportunities for free choice that lax economic pressures provide. For example, economists are well aware that management often chooses policies to increase the growth of their firms rather than maximize profit (see Marris 1964; Jensen 1993).

A study of the history of the economy of the United States indicates that except for a few, relatively short periods, business and government have conspired to keep these competitive forces in check. The leaders of business and government had good reason to fear that heavy competition is the natural outcome of unrestrained market processes. Despite their preference for a more restrained form of competition, competitive forces eventually tend to develop a momentum of their own. As mentioned before, these periods of intense economic pressure seem to break

out around every half century. With each outbreak of intense competition, the economy falls into a depression, bringing ruin in its wake.

Admittedly, the understanding of competition behind this article runs counter to the prevailing ideas about this subject. When economists look at modern economies, they presume that competitive forces are always dominant, except in some specific cases in which government or unions interfere with the process. Recall Milton Friedman's confident claim that government is inevitably the cause of recessions and depressions. In addition, they treat the degree of competitive pressure as being relatively constant. Finally, the dominant attitude regards competition as being relatively benign in the sense that vigorous competition, along with economic growth, is considered to be the normal state of affairs.

According to this conception of the economy, which the popular media reflect today, competition does not appear to be particularly threatening. Within to this perspective, the market gets credit for all that is good and efficient in the economy, while governments (and perhaps unions) shoulder the blame for all the evils.

In contrast, I would argue that the government, business, as well as certain institutional arrangements combine to hold competitive forces in check. True, these restraining forces cannot work indefinitely. Yet without these institutional restrictions, the economy could fall into a situation in which depressions would be the norm rather than the exception.

Harvey Leibenstein's X-Efficiency

Not all economists accepted the idea that competitive forces somehow automatically keep the economy operating at near optimal levels of performance. A number of economists observed

that the real economy hardly resembled the abstraction of a perfectly competitive economy. Even the untrained observer could see that, in many sectors, a few giant corporations dominate an entire industry.

Arnold Harberger, a University of Chicago economics professor who later became the president of the American Economic Association, developed the most influential effort to refute this critique of the competitive nature of the economy. He estimated that the welfare loss from the existence of monopoly in the United States was virtually nonexistent—a mere 0.07 percent (Harberger 1954). Thus, according to Harberger, the allocative efficiency—the extent to which the market allocates resources in such a way that maximizes economic efficiency—was quite high.

Harberger's estimates seemed to vindicate conventional economics. His numbers implied that even though the structure of the economy did not look like perfect competition, the outcome was virtually the same as if perfect competition had prevailed. Some economists challenged Harberger's estimates. For example, in the first edition of his influential textbook on industrial organization, Frederick Scherer estimated that monopoly has imposed social costs equivalent to about 6 percent of the gross national product. In the 1990 edition, Scherer and his co-author declined to revise the estimate because people carelessly bandied the figure about without taking the caveats into account (Scherer and Ross 1990, 678).

A number of subsequent articles did concur with Harberger's findings. In fact, probably most economists at the time accepted Harberger's estimates as proof that something like perfect competition was at work in the economy—without the sort of reservations that Scherer offered.

A decade later, Harvey Leibenstein responded to the Harberger literature on allocative efficiency with his famous article about

x-efficiency. Leibenstein coined the strange term "x-efficiency" to contrast with the notion of allocative efficiency. In addition, the "x" was to signify that something unmeasurable was at work—an unknown x factor (Leibenstein 1966).

What did Leibenstein find wrong with Harberger's approach? He pointed out that Harberger based his estimates on aggregate measures. In other words, Harberger lumped many thousands of firms together to form measures for huge industrial sectors. Leibenstein contended that these aggregates masked a great deal of inefficiency that Harberger's analysis could not possibly capture. As Schumpeter insisted: "[Aggregation] keeps the analysis on the surface of things and prevents it from penetrating into the industrial processes below, which are what really matters. It invites a mechanistic and formalistic treatment of a few isolated contour lines and attributes to aggregates a life of their own and a causal significance that they do not possess" (Schumpeter 1939, 44).

Suppose that Leibenstein were correct, that within the aggregates a great deal of x-inefficiency existed? How could inefficient plants survive if firms were engaged in a life-and-death struggle in which only the fittest would survive? Leibenstein's response to that question consisted of a number of examples to show that inefficiency was rampant. For example, he pointed to wide productivity differentials in nearby plants using similar technology.

In effect, then, Leibenstein insisted that economists realize that force of competition was relatively modest, that it did not require business to operate with anything like optimal efficiency. Instead, the economy allowed firms to enjoy considerable "organizational slack" (Simon 1979, 509).

In other words, Leibenstein was saying that competition was not particularly effective in keeping the economy at peak efficiency. One author later referred to the respective losses from allocational inefficiencies, unemployment, and x-inefficiencies

as "fleas, rabbits and elephants" (Vanek 1989, 93, cited in Schweickart 1996, 81).

The timing of Leibenstein's article is important. Writing in 1966, Leibenstein was working from the vantage point of the final years of the postwar boom. For more than two decades, a buoyant economy had weakened the force of competitive pressures. Many "dinosaur" firms enjoyed a comfortable existence despite their well-known inefficiencies.

Within a couple of years, the postwar boom would begin to unravel. Foreign competitors would soon become strong enough to challenge the great behemoths of U.S. manufacturing. Eventually, many of these firms would experience severe downsizings. Deindustrialization would become a common feature of the U.S. economic landscape.

Intangibles

Unlike business, sports are highly competitive. In baseball, intense competition weeds out all but the most capable players. For example, major league baseball employs few players who consistently bat below .200. Teams casually release yesterday's hero as soon as they sense that his abilities are dropping off. Shouldn't we expect that the economy would liquidate the poor performers as efficiently as the owners of major league baseball do?

Business and the game of baseball are two very different phenomena. In baseball, once a game ends, a win is a win. Everybody knows who won and who lost. Of course, the differences between the business of baseball and business in general are not nearly as great, but I am referring to the game of baseball. We know that the business of baseball discriminated against blacks for economic reasons, even though such policies removed many capable athletes from the potential pool of players. From a busi-

ness point of view, discrimination made sense because integration hurt attendance (Hanssen 1998, 617–22).

Let us concentrate on the game of baseball rather than the business of baseball. In the game of baseball, winning and winning alone is what counts. Some time ago, I heard the story of Leo Durocher, famed manager of major league baseball teams, explaining why Eddie Stankey was his favorite player. Durocher told a reporter, “He can’t hit; he can’t run; he can’t field; he can’t throw. He can’t do a goddamn thing, Frank—but beat you” (Durocher 1975, 13).

The story stayed with me because it is so exceptional. Sports-casters speak of players with intangibles, athletes who, like Stankey, supposedly have something that gives them a value that does not appear in the statistics and that the untrained eye cannot perceive. Intangibles are the exception rather than the rule. Most fans with even a passing knowledge of the game can see what each player contributes to the team. Economists have even been fairly successful in developing statistical formulas that give a rough approximation of the contribution of each player to a team’s success.

Business is far less transparent. True, at the end of each business quarter, firms report profits or losses based on complex accounting procedures. Very few people are able to interpret exactly what transpired based on such records. In addition, tax considerations distort accounting records.

To make matters even more complicated, what helps or hurts profits today might have the opposite effect over the long run. If a firm cuts research and development funds today, this quarter’s profits might improve, but the long-run prospects of the firm might deteriorate.

Finally, business leaders employ skilled public relations operations, both within and outside of the firm, to tout their achievements to the public. How often do we read a torrent of stories

about the magnificent accomplishments of some business leader, only to learn later he had left a company in ruins? Even after the leader has departed, we may still find differing interpretations of his role in the fiasco.

So the business world is populated by numerous would-be Edcie Stankeys; that is, people whose contributions far exceed what they appear to be. In this environment, the forces of natural selection cannot work with precision. This environment allows for a far greater dispersion of abilities and accomplishments than the world of professional sports would ever permit.

Leibenstein's Challenge

Leibenstein's article carried a twofold challenge. In the first place, strong competitive forces were not weeding out inefficiencies, or at least they were not doing so in a timely fashion. In addition, Leibenstein's article posed some serious questions for the way that economists go about understanding the economy.

If Leibenstein was correct, the abstract models of conventional economics would seem to have little relevance. Not surprisingly, for the most part, conventional economics was hardly sympathetic to the notion of x-inefficiency. Leibenstein's obituary recalled that "between 1969 and 1980, the article was the third most frequently cited in the Social Science Citation Index. However the second remarkable aspect is that much of this citation derived from attempts to explain X-efficiency theory away: it was under almost constant attack from much of the mainstream of the profession over that same dozen years. How to reconcile this tension between the profession's admission and denial of its shortcomings?" (Dean and Perlman 1998, 141).

The most famous attack came from George Stigler, self-ap-

pointed “enforcer” of economic orthodoxy (Freedman 1998). Stigler caustically entitled his article “The Xistence of X-Efficiency” (Stigler 1976). Given his typically vehement attacks on those who dared to question the conventional economic model—one admiring student likened Stigler’s style to a “Demolition Derby” (Sowell 1993, 787)—the substance of Stigler’s response to Leibenstein was comparatively mild. Stigler acknowledged that Leibenstein’s article was “influential” (Stigler 1976, 213). He further admitted: “Waste can . . . arise . . . if the economic agent is not engaged in maximizing behavior” (216). Rather than attacking Leibenstein head-on, Stigler turned the tables on him, contending that “unless one is prepared to take the mighty methodological leap into the unknown that a nonmaximizing theory requires, waste is not a useful economic concept. Waste is error within the framework of modern economic analysis, and it will not become a useful concept until we have a theory of error” (216).

In other words, Stigler was demanding that Leibenstein or anybody else who follows him be prepared to develop a rigorous theory of error or, equivalently, a theory of intangibles—an impossible task by any stretch of the imagination. According to Stigler, if economists are not prepared for this impossible task, then they would have to abandon their entire “framework of modern economic analysis.”

This prospect is terrifying to a person who has gone through the difficulties of mastering the arcane mathematical theorems of economic theory. Economic theory may be simplistic, but as graduate programs in economics teach it, it is certainly not simple. All the hard work in learning this theory would be for naught.

Economists could not easily make mathematical models or perform statistical tests on Leibenstein’s unseen x-factor. Rather than coasting along by assuming that everybody operates at

maximum efficiency, economists would have to begin from the beginning in order to learn why people do *not* maximize. Few economists needed George Stigler to tell them what was at stake. Leibenstein continued to promote the notion of x-efficiency, but it never took hold among many economists. Aside from the articles dismissing Leibenstein's work, economists more or less conveniently forgot what he had to say.

In retrospect, we see that Leibenstein did have one option open to him. He could have responded to Stigler by noting that the degree of waste is a reflection of the extent of competitive pressures. Moreover, the fluctuations in economic pressure are of crucial importance in understanding economic performance.

Unfortunately, Leibenstein never acknowledged that the extent of x-efficiency might fluctuate. In fact, as mentioned before, he was probably writing at a high point of x-inefficiency, just before downsizings became common.

Leibenstein's work on x-efficiency should have put him in a position to recognize what was about to happen. Had he been able to communicate that point, economists might have been better prepared for the wrenching adjustments that began within a decade after Stigler challenged the relevance of the concept of waste.

The Recantation of Arnold Harberger?

While an upswell in competitive pressures certainly evened out some of the differences in x-efficiencies, they did not entirely extinguish them. To make this point, we can turn to Arnold Harberger's presidential address to the American Economic Association in January 1998. Harberger never mentioned the name of Harvey Leibenstein at the time. Nonetheless, he delivered a fascinating talk that vindicated Leibenstein in many respects. To begin with, Harberger offered specific examples of

innovations that indicated the sort of wide dispersion of productivity differentials that were at the heart of Leibenstein's work:

I recall going through a clothing plant in Central America, where the owner informed me of a 20-percent reduction in real costs, following upon his installation of background music that played as the seamstresses worked. And then there is the story of two Chilean refrigerator firms that ended up as parts of a single conglomerate at one point. The new management reduced the number of models from something like 24 to two, making agreements to import other models while exporting these two. The end result was that output more than doubled, while the labor force was cut to less than half, and even the capital stock (at replacement cost) was significantly reduced. This sounds like (and is really) economies of scale, but they would not be detected by our usual measures, as both labor force and capital stock went down. (Harberger 1998, 3)

Note that we also have in this single paragraph an implicit recognition of the diversity of production methods, as well as an acknowledgement that traditional measures would fail to pick up the essence of the situation. Again, Harberger's message seems to be at one with that of Leibenstein. In addition, Harberger's comparisons were almost identical to those that Leibenstein used three decades earlier.

Harberger used an extraordinary analogy, that of yeast versus mushrooms, to highlight his insights about the diversity of production methods. He used the image of yeast, which causes bread to expand very evenly, like a balloon being filled with air, to suggest the traditional image of new production technologies permeating the economy evenly. In contrast, mushrooms have the habit of popping up, almost overnight, in a fashion that is not easy to predict (Harberger 1998, 4). Harberger declared himself on the side of the mushrooms, seemingly aligning himself with Leibenstein, who also found surprising differences in productivity between seemingly similar firms.

At first, Harberger seemed to veer onto a different track than Leibenstein. He reported that the top 10 percent of industries

(measured by initial value added) accounted for 30 percent of total real cost reduction (RCR) in the United States for the period 1958–1967; the top 22 percent of industries accounted for more than half of total RCR (Harberger 1998, 5). In 1970–1975 the cumulative RCR of just 25 percent of manufacturing industries (measured by initial value added) was equal to the total RCR (real cost reduction) for manufacturing as a whole. Other industries producing another 40 percent of the total had gains, but their contribution was offset by the other 35 percent of industries with negative RCR during the period (1998, 6). Harberger reported similar results for later five-year intervals.

Of course, Leibenstein was concerned with differences within industries rather than between industries. However, Harberger also looked at the dispersion of productivity growth within industries. Here again, he found support for Leibenstein's position. Harberger explicitly confessed, "until quite recently . . . the image that I had in mind was one of yeast within each industry and mushrooms between industries" (1998, 10). Then Harberger declared that he had come around to Leibenstein's point of view. He admitted, "I think the result is quite clear already; namely, the 'mushrooms' story prevails just as much among firms within an industry as it does among industries within a sector or broader aggregate" (1998, 11).

As evidence, Harberger reported on a wide dispersion of productivity gains within Mexican industries, as well as the oil industry of the United States. In the latter case, he found that the cost reduction of three firms more than equaled the reduction for the entire industry (1998, 16ff.). The productivity gains and losses for the other nine firms canceled out each other.

It would be surprising if Harberger drew the same moral from his tale as I do. In truth, Harberger never responded to Leibenstein, even though Leibenstein directed his challenge at Harberger's earlier work on allocative efficiency. Recall that in

that initial article, Harberger was at pains to show that the market works and that antitrust was ineffectual.

Leibenstein was not attempting to disprove either of Harberger's points about markets working well or about antitrust. Leibenstein merely wanted to show that Harberger's method from the early article could not pick up the enormous disparity of efficiencies between firms. Stigler, however, saw that Leibenstein's article did in fact undermine the theories that such people as Stigler and Harberger cherished. If x-efficiency was a major factor in the economy, then economists would have to confront new factors for which they were ill prepared.

So, in truth, Harberger never entered the debate at all. He gave no indication that disparities in x-efficiencies undermined the case for markets at all. In fact, he concluded his presidential address by suggesting that his evidence somehow indicated that markets work and that governments mess things up. In short, he gave his audience no reason to find any difference in his two works, despite his conversion from a believer in yeast-like processes to an acceptance of mushroom-like phenomena.

Rather than mentioning the possibility that x-efficiencies were at work, Harberger blamed the deficiency of the lagging firms on poor government policies that lead to inflation, bad regulation, and protectionism (1998, 22-23). Harberger did little to explain why these government policies should create differing effects among firms. Yes, inflation, by interfering with price signals, might make for greater variance among firms, but he never indicated how protectionism or bad regulation might have such an effect.

I draw a different lesson from the story of x-inefficiencies than either Leibenstein or Harberger. Competitive forces generally remain too weak to force firms to launch an all-out effort to wring all the x-inefficiencies out of their operations. Here are two further additions to this claim: first, that com-

petitive pressures fluctuate over time; second, when competitive forces build up enough momentum to reduce x-inefficiencies significantly, they threaten to collapse the entire economy into a depression.

Summing Up

Punctuated equilibrium is only a metaphor, albeit a useful one because it provides a counterweight to the gradualist vision of conventional economic theory. The underlying sense of gradualism that pervades most economic theories creates a false sense of complacency. If nothing untoward changed today, it is not likely to happen tomorrow either.

The metaphor of punctuated equilibrium introduces an element of realism by reminding us that the foundation of our economy is far more fragile than it may appear to be. If Gould's vision of punctuated equilibrium is correct, then we could imagine that just before the outbreak of a mass extinction, the world might have seemed to have been more stable than it had appeared for a long time.

An economy, of course, is different from a natural system, especially since people associate stability with misfortune and even label stability as stagnation. People consider economic growth to be normal, and just before depressions, abnormal growth is taken to be the norm.

Admittedly, in making our case for punctuated equilibrium, we have been inconsistent in our use of the metaphor of natural selection. We have described natural selection as operating on individual firms, technologies, and maybe even industries. Metaphors, such as natural selection, carry us so far and then they inevitably fall apart.

Most economists have a far more uncritical acceptance of the theory of natural selection than I do. Recall how Harvey

Leibenstein infuriated George Stigler and, no doubt, many upholders of conventional economic dogma by indicating that natural selection in the form of competition might not be working its magic nearly as thoroughly as the textbooks would have us believe.

How would an economy appear prior to an outbreak of intense competition? Leibenstein's article implied considerable variation in performance between firms within the same industry during a period of lax competition, far more than would be consistent with an effective process of natural selection. Our discussion of the social structure of accumulation leads us to expect that while performance might vary a great deal, management forms might become relatively uniform.

Our discussion of the evolution of product variety suggests that we might find little innovation of product form during such periods. Instead, we would expect to find products differentiating themselves through a proliferation of minor details rather than by virtue of some significant breakthrough in product design.

Of course, the presence of these symptoms does not prove that economic disaster is imminent. Nor will the absence of any of these elements ensure that the economy is absolutely free from danger.

Can Policy Help?

If capitalism is inherently unstable, what sort of policy might be appropriate? While most economists advocate policies that increase the flexibility of the economy, such measures will also accentuate the instability of the system. In fact, policies that create frictions can help to stabilize the system. Keynes's analysis of sticky wages illustrates this point.

The options for creating inertia or friction are limited. Certainly, oversight of the financial system could aid in promoting

stability. Perhaps restrictions on the ease of firing workers could be useful.

Does my interpretation of the competitive process suggest any policies that might represent a new departure? Well, if markets are fundamentally deflationary, then society would be well served by measures that would promote competition without reinforcing the deflationary bias. Unleashing competition might make sense within the context of conventional economic theory, but such a policy could set off a depression unless some preventive measures accompany that policy.

According to this logic, policies that put pressures on firms by increasing factor prices rather than exerting downward pressures on product prices would make sense, at least as an adjunct to promoting competition. For example, increasing the level of wages can force firms to innovate without causing deflation pressures. True, in the long run, the resulting technical changes can more than offset the cost of wages, but in the meantime more wage expansion can prevent the collapse of prices.

Similarly, increasingly stricter environmental regulations can put pressure on factor prices without engendering a collapse in the price level. As in the case of wage increases, firms would have to innovate in order to maintain the same level of profitability.

A program of promoting high wages and strong environmental protection could stimulate innovation, while minimizing the threat of a deflationary crisis. However, rather than innovating, firms could just pass on the costs of more expensive factors of production to their customers. In the face of strong international competition, they would not have that option. If foreign competition is not forthcoming, then measures to promote domestic competition would be appropriate.

I do not believe for a moment that such policies represent a panacea that can eliminate the dangers posed by economic in-

stability. The market mechanism is too flawed for any simple policy to correct the imbalances that frequently break out. Instead, I propose measures to increase factor prices merely as a means of cushioning instability. I know of little more that can be done.

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