

Entrepreneurs and Creative Destruction

By Peter G. Klein

Entrepreneurship research, teaching, and consulting activities have exploded in recent years. Academic organizations such as the American Economic Association and the Academy of Management now recognize entrepreneurship as a separate research field. Research and policy organizations such as the World Bank, the U.S. Federal Reserve System, the European Commission, the United Nations' Food and Agriculture Organization, the Organisation for Economic Co-operation and Development, agencies involved in agricultural and rural development, and others show a growing interest in studying and encouraging entrepreneurship. The Kauffman Foundation has substantially increased its funding for data collection, academic research, and education on entrepreneurship, and the Bush Institute has made entrepreneurship one of its core areas in research and policy activities aimed at increasing U.S. economic growth.

Entrepreneurship is also becoming one of the most popular subjects at colleges and universities. Entrepreneurship courses, programs, and activities are emerging not only in schools of business, but throughout the curriculum. Stories about entrepreneurs, about new companies, and about innovation are no longer confined to specialty magazines and trade publications, but appear in the major news outlets, the financial press, and countless blogs and Twitter streams. The death of Apple Computer cofounder and CEO Steve Jobs was one of the biggest news stories of 2011. Policymakers talk about entrepreneurship as a way of improving economic conditions in developing countries the way they used to talk about roads, dams, bridges, and other infrastructure proj-

ects. Even the Nobel Committee has recognized the potential impact of entrepreneurship, giving the 2008 Nobel Peace Prize to economist Muhammad Yunus, founder of Bangladesh's Grameen Bank, which specializes in microlending and the encouragement of small enterprise among the world's most desperately poor.

But what exactly is entrepreneurship? Is it simply self-employment or new-venture formation—a set of outcomes that can be measured, analyzed, and perhaps stimulated using the usual sorts of economic policy instruments—or a way of thinking or acting?

I see entrepreneurship not as a phenomenon, but as a behavior, what I call *judgmental decision making under uncertainty*. I have been developing the judgment-based approach to entrepreneurship and economic growth in a series of recent books and papers, and it is summarized in my book with Nicolai J. Foss, *Organizing Entrepreneurial Judgment: A New Approach to the Firm*.¹

Unfortunately, economists have not, by and large, figured out how to incorporate entrepreneurial judgment into their models. Entrepreneurship was once central to theories of economic growth—one of the classic contributions, Joseph Schumpeter's 1911 *Theory of Economic Development*, makes the entrepreneur the central agent of economic change.² Ludwig von Mises, in his great work *Human Action*, published in 1949, called the entrepreneur “the driving force of the market.”³ But in the middle of the 20th century, economists turned increasingly to formal mathematical models of markets, and highly aggregate, Keynesian treatments of the economy, and they forgot about the entrepreneur. Economies grow through capital accumulation and through technological innovation, but these were treated either as exogenous, automatic trends, or as variables controlled by government planners as they “fine-tuned” the economy.

However, entrepreneurship is not subject to government control. Nor is it limited to start-up companies. Instead, I want to suggest, following the classic contributions to the economic theory of entrepreneurship, that entrepreneurship is a fundamental aspect of human behavior, and the central part of a dynamic, vibrant, successful market economy. While new-firm formation and the growth of high-tech start-ups is critically important for economic growth, as Bob Litan argues in

the next chapter, entrepreneurship is much larger, much broader, and more fundamental to economic performance.

THE ENTREPRENEURIAL FUNCTION

How should we think about entrepreneurship? The academic and practitioner literatures offer a bewildering array of definitions, perspectives, and units of analysis.⁴ I find it useful to distinguish among “occupational,” “structural,” and “functional” perspectives. *Occupational* theories study entrepreneurship in the sense of self-employment and treat the individual as the unit of analysis. They focus on describing the characteristics of individuals (age, education, income, personality) who start their own businesses, and they focus on explaining the choice between employment and self-employment. *Structural* approaches treat the firm or industry as the unit of analysis, defining the “entrepreneurial firm” as a new or small firm. Research on industry dynamics, firm growth, clusters, and networks usually works with a structural concept of entrepreneurship. Indeed, the idea that one firm, industry, or economy can be more “entrepreneurial” than another suggests that entrepreneurship is associated with a particular market structure (that is, lots of small or young firms).

By contrast, the classic contributions to the economic theory of entrepreneurship from Schumpeter, Mises, Frank H. Knight, Israel M. Kirzner, and others model entrepreneurship as a *function*, activity, or process, not an employment category or market structure. This function has been characterized in various ways such as uncertainty-bearing, innovation, alertness to opportunities, coordination, and leadership. Importantly, these functions do not map neatly into occupational and structural categories. The entrepreneurial function can be manifested in large and small firms, in old and new firms, by individuals or teams, across a variety of occupational categories, and so on. By focusing too narrowly on self-employment and start-up companies, contemporary research and policy on entrepreneurship may be understating its role in the economy and in generating economic growth.

For Schumpeter, for example, the entrepreneur was a disruptive innovator, whose function is “creative destruction”—overturning the

existing ways resources are configured by introducing new products, opening new markets, installing new production methods, or otherwise shaking up the existing ways of doing business. The result of such creative destruction is dramatic leaps forward in efficiency and growth. By Schumpeter's time, the automobile had virtually wiped out the horse breeding and buggy-whip industries, to no one's regret but the former members of these obsolete industries. In our time, we've seen the personal computer dislodge the mainframe, and the rise of smartphones and "cloud computing" threatens to push the PC industry into oblivion. The AT&T Bell system employed four hundred thousand switchboard operators in 1970; today more than 99% of those jobs have disappeared, thanks to "disruptive" technologies.⁵

Kirzner takes a different approach, describing the entrepreneurial function as "alertness" to profit opportunities. His landmark 1973 book, *Competition and Entrepreneurship*, remains extremely influential in entrepreneurship research.⁶ The simplest case of alertness is that of the arbitrageur, who discovers a discrepancy in present prices that can be exploited for financial gain. In a more typical case, the entrepreneur is alert to a new product or a superior production process and steps in to fill this market gap before others. Sergey Brin and Larry Page's creation of the Google search engine represents not only a technological improvement over previous search technology, but the recognition and exploitation of an opportunity to raise funds by selling search-query-specific advertisements, an opportunity previous software engineers had missed.

My own work builds on the American economist Frank Knight and the Austrian economist Ludwig von Mises to conceive entrepreneurship as judgmental decision making under conditions of uncertainty. Judgment refers primarily to business decision making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight, in his classic 1921 book, *Risk, Uncertainty, and Profit*, terms uncertainty, rather than probabilistic risk).⁷ As former defense secretary Donald Rumsfeld famously put it, "the truth is, there are things we know, and we know we know them—the known knowns. There are things we know that we don't know—the known unknowns. And there are unknown unknowns;

the things we do not yet know that we do not know.” In Knight’s view, the entrepreneur’s primary role in society is to deal with the unknown unknowns.

In the most general sense, then, all human behavior is entrepreneurial, as we are surrounded by Knightian uncertainty. For analyzing economic growth, however, it is useful to focus on a narrower conception of entrepreneurship, that of the businessperson who invests financial and physical resources in hopes of earning monetary profits and avoiding monetary losses. An entrepreneur has a vision, or imagination, of a business opportunity, but cannot encapsulate the details of this imagined opportunity in formulas, cash flow productions, reliable charts and figures, and other techniques for dealing with known unknowns. To exploit this imagined opportunity, the entrepreneur must acquire and invest productive resources—putting skin in the game. The set of possible resource combinations is huge, so this is no easy task. As Ludwig M. Lachmann put it: “We are living in a world of unexpected change; hence capital combinations . . . will be ever changing, will be dissolved and reformed. In this activity, we find the real function of the entrepreneur.”⁸

JUDGMENT AND RESOURCE OWNERSHIP

The entrepreneur’s critical function, in the judgment-based perspective, is *ownership*. To exercise the entrepreneurial function, the entrepreneur acquires and deploys resources. Entrepreneurs prosper as they, and the subordinates they employ, put these resources to their highest-valued uses. Private property and the profit-and-loss system give entrepreneurs incentives to make use of local knowledge, to experiment, and to learn from their mistakes as they seek to make the best use of resources, and to expand the capital under their control, in the face of an unknown future.

The entrepreneur’s primary decision-making tool is what Mises called *economic calculation*, the use of present prices and anticipated future prices to compare present costs with expected future benefits.⁹ In this way, the entrepreneur decides what goods and services should be produced, and what methods of production should be used to produce

them. “The business of the entrepreneur is not merely to experiment with new technological methods, but to select from the multitude of technologically feasible methods those which are best fit to supply the public in the cheapest way with the things they are asking for most urgently.”¹⁰

To make this selection, the entrepreneur must be able to weigh the costs and expected benefits of various courses of action—hence the importance of free markets for inputs and outputs.¹¹ Without private ownership of resources and market-price system, there is no way for entrepreneurs to calculate the most effective ways of producing and innovating. This is the rationale for Mises’s famous argument, in 1920, that Soviet-style central planners could not allocate resources rationally—an argument that was ridiculed at the time by socialist intellectuals (and many economists), and, of course, was proven right by the collapse of the centrally planned economies at the end of the Cold War.

Government actors, more generally, lack the incentives and resources available to private entrepreneurs. While government officials also command resources, at least nominally, and seek opportunities for gain (both public and private), they acquire some resources by coercion, not consent; they don’t own the resources they control, and don’t ultimately bear the gains and losses they create; their objectives are complex and hard to specify; and there is no mechanism for rewarding success and punishing failure akin to the market’s competitive selection process among entrepreneurs.¹² Suffering from what Wilhelm Roepke called the “hubris of the intellectual,” they try to replace entrepreneurial initiative with bureaucratic control.¹³ But, in a world of Knightian uncertainty, such control can never be effective. It is only entrepreneurs, who bear the gains and losses from their own attempts to deal with an uncertain future, who can make an economy grow.

ENTREPRENEURIAL JUDGMENT, PUBLIC POLICY, AND ECONOMIC GROWTH

What, then, should government do to foster innovation, alertness, and judgment? Can entrepreneurship be stimulated, guided, or directed from above, or is it necessarily a bottom-up, market-driven phenomenon?

The answer, of course, is that entrepreneurship emerges from the initiative, creativity, and passion of individuals, not the guiding hand of the state. The best that government policy can do to encourage entrepreneurship is to allow an environment that encourages entrepreneurship to flourish—stable money, the rule of law, and free and open competition. Government cannot create entrepreneurs or tell entrepreneurs what to do. Government needs to get out of the way. Consider a few examples of what government should avoid:

Don't create and exacerbate business cycles. Government policy should not interfere with entrepreneurial planning, forecasting, and investing through bad monetary policy: creating asset bubbles by aggressive monetary expansion, trying to keep prices and wages artificially high through macroeconomic stimulus programs, and creating uncertainty that discourages investment through ever-changing monetary and fiscal policy. As described above, entrepreneurs rely on market prices to perform what Mises called “economic calculation”—forming judgments about what to produce, and how to produce it, based on today's prices for resources and beliefs about future product prices. Bubbles, for instance, hinder economic calculation—leading to overinvestment in Internet companies in the 1990s and in real estate and mortgage-backed securities in the 2000s. Stimulus and forms of activist policy create “regime uncertainty”¹⁴ that makes entrepreneurs favor short-term over long-term, growth-creating investments.

These arguments are central to the “Austrian” theory of business cycles, which has surged in popularity following the financial crisis and the obvious failure of the Obama administration's massive stimulus program. This theory, outlined by Mises and Hayek in the early 20th century, sees economic crises as the result of government policy errors.¹⁵ Easy-money policies lower the interest rate below its “natural rate,” leading to overinvestment in capital-intensive industries (what economists call “lengthening the period of production”). The result is an artificial boom, one that inevitably turns into a bust as market participants come to realize that there are not enough savings to complete all the new projects. Moreover, monetary expansion not only increases price levels, but also increases the variability of relative prices, making economic calculation particularly difficult.¹⁶

Even knowing that an artificial boom is under way, the entrepreneur must exercise judgment regarding its magnitude, duration, and effects on the entrepreneur's own markets, judgments that are particularly difficult to make under periods of rapid monetary expansion. Once a recession hits, programs to stimulate the economy, restructure industries, or allocate resources to politically favored firms and sectors make a bad situation worse, discouraging entrepreneurs from liquidating bad investments and directing resources to their proper, higher-valued uses.

Don't bail out failing enterprises. Schumpeter's creative destruction takes place as entrepreneurs experiment with different combinations of inputs and outputs, trying to find those that make the best use of the economy's scarce resources. For this, market feedback is essential. If a business cannot produce goods and services that consumers want to buy, it should be liquidated and its assets made available to other entrepreneurs to try again.

Indeed, a key function of competition—in product, factor, and capital markets—is to select not only for efficient combinations of different types of resources, but also for entrepreneurial skill. “What makes profit emerge” wrote Mises, “is the fact that the entrepreneur who judges the future prices of the products more correctly than other people do buys some or all of the factors of production at prices which, seen from the point of view of the future state of the market, are too low. . . . This difference is entrepreneurial profit.”¹⁷ Accumulation of profits and losses over time determines which individuals are best suited to own and control particular resource combinations. For this reason, bailouts, subsidies, and other forms of special privilege for particular entrepreneurs hinder the market process of directing productive resources to their highest-valued uses.¹⁸

Besides explicit bailouts, implicit subsidies from “too-big-to-fail” guarantees stymie the entrepreneurial selection process, not only by protecting unsuccessful entrepreneurs and entrepreneurial ventures, but also by rewarding lobbying and other forms of rent seeking, directing investment toward subsidized activities (at the expense of consumer preferences), and discouraging entry by nascent entrepreneurs who lack political connections.

Industrial planning, which attempts to substitute bureaucratic di-

rectives for market control of resources, further stymies entrepreneurial initiative. Consider, for example, the U.S. government's actions in rescuing General Motors from bankruptcy and engineering an alliance between Chrysler and Fiat.¹⁹ The GM rescue proceeded under the assumption that the resources controlled by GM's current owners, and operated by its current management team, were more valuable in their current use than in alternative uses, owned and controlled by other entrepreneurs—an assumption clearly violated by the fact of bankruptcy. The Fiat-Chrysler merger was defended on the usual grounds of creating “synergies,” despite a wealth of management research suggesting that such synergies rarely materialize. And if they would in this case, then it's likely market forces would have driven Fiat and Chrysler together without government help.

Focus on individuals, not aggregates. Recent discussion among academics and policy makers about the financial crisis has proceeded largely in Keynesian language, focusing on aggregates and downplaying the wide variety of firms, consumers, industries, and sectors of our economy. Despite the widely publicized failures of particular financial institutions, such as AIG, Lehman Brothers, Freddie Mac, and Fannie Mae, government officials spoke in terms of “the banking system,” “the financial system,” and the economy as a whole. The discussion of “frozen credit markets” concentrated on high-level indicators, with the focus on total lending, not the composition of lending among individuals, firms, and industries. But a decline in average home prices, reductions in total lending, and volatility in asset price indexes does not reveal much about the prices of particular homes, the cost of capital for specific borrowers, and the prices of individual assets.

In analyzing the credit crisis, the critical question is which loans are not being made, to whom, and why? Focusing on total lending, total liquidity, average equity prices, and the like obscures the key questions about how resources are being allocated across sectors, firms, and individuals, whether bad investments are being liquidated, and so on. Such aggregate notions homogenize—and in doing so, suppress critical information about relative prices. The main function of capital markets, after all, is not to moderate the total amount of financial capi-

tal, but to allocate capital across activities or, more accurately, across entrepreneurs—to allocate capital in specific and individual cases.

Don't try to plan clusters of entrepreneurship and innovation. The remarkable success of America's information technology industry, centered in California's Silicon Valley, along with other technology clusters in places like Boston, San Diego, Austin, and St. Louis, has tempted policy makers to think they can engineer the next Silicon Valley through targeted subsidies, tax breaks, other instruments. But technology clusters emerge from the bottom up, not the top down. Clusters often rely on powerful "anchor entities" such as universities, incumbent firms, research institutions, and the like, but these anchors cannot be planted for the specific purpose of creating a cluster. We don't know where the next cluster will emerge, what products it will produce, what new industries and markets will result—which is part of the beauty of capitalism.

As Mises pointed out, "the outcome of action is always uncertain. Action is always speculation."²⁰ Consequently, "the real entrepreneur is a speculator, a man eager to utilize his opinion about the future structure of the market for business operations promising profits. This specific anticipative understanding of the conditions of the uncertain future defies any rules and systematization"²¹ This defiance of rules and systematization means that value-creating, growth-inducing entrepreneurship lies beyond the grasp of government planners, and can only come about through the dynamic interactions of free and responsible individuals.

INSTITUTIONS, POLICIES, AND ECONOMIC GROWTH

What government can do is support institutions—sound money, protection for private property, respect for the rule of law—that encourage capital formation, reward entrepreneurial initiative, and allow market competition to sort resources among actual and potential entrepreneurs. Tax policy is important. For example, the private-equity sector is subject to a 15% federal income tax rate. That's substantially less than the 35% that must be paid on "ordinary" income. And it's one reason

why there is a healthy and growing private-equity sector in our economy. Private-equity firms put pressure on incumbent entrepreneurs to use their resources wisely and provide opportunities for newcomers to acquire and redeploy existing corporate assets.²² More generally, there is a wealth of evidence that sound, market-encouraging institutions foster entrepreneurship and economic growth.²³

To increase economic growth, we need not only high-tech start-ups, but also policies that encourage effective entrepreneurial judgment throughout all sectors and stages of the economy. We must allow profit-seeking individuals who command productive resources, and those who wish to command them, to create new goods and services, seek out new markets, find the best ways to produce existing products and serve existing markets, and exercise sound judgment about the best use of productive assets in an uncertain world. Figuring out how to best use our resources and grow our economy is not a job for Washington bureaucrats. In fact, it's a job bureaucrats cannot perform, precisely because they are insulated from the price signals and incentives of the marketplace. Rather, it is up to entrepreneurs at all stages, in all industries, in all places, to figure out how best to use our limited resources. If we allow the entrepreneurial function to flourish, we can be confident that the U.S. economy will thrive and grow in ways we cannot today imagine.