

**Nondestructive Creation:**

**Entrepreneurship and Management Research in the Study of Growth**

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It's an amazing sight to stand up here and behold a national convention of economists and finance specialists. I think Bourbon Street had no idea there were quite so many of us . . .

I think it was George Bernard Shaw who said that if all the economists in the world were laid end to end, they still wouldn't reach a conclusion . . . He was so right about that. What even he didn't understand is that we would all manage to point in different directions . . .

That is certainly true with politics. Economists are advising one or another of the more than ten presidential candidates in this primary season, from Ron Paul to Dennis Kucinich. All but one of these candidates will lose, which will leave nine out of ten of us to wonder if most *economists* are the slaves of some defunct *politician* . . .

But, seriously, there are times when I wonder how well our profession is understood. A couple of years ago, I participated in a *Newsweek* editorial board luncheon on the outlook for economic growth and social cohesion in the United States. Being the only economist at the table made me realize that *Newsweek*, at least, thought economic growth was too important a subject to be left to economists.

One speaker before me was Jack Welch. As the interlocutor noted that I had written a book entitled *Money, the Financial System, and the Economy*, while Jack had written a book called *Winning*, I suddenly had reason to wonder if I might not have the edge with the crowd!

But it was the speaker just before me who caught my attention — Susan Hockfield, a distinguished neuroscientist and current president of MIT. She spoke eloquently of science and university contributions to science, as the key driver of recent U.S. economic growth.

I was less sure. Perhaps it was my business-school dean turf instinct kicking in, or because I had just written a *Principles* textbook to win converts to economics. But I argued, as I will today, that business practices may be as much or more important. And economics and finance research on those practices—on entrepreneurship and management—may be a vital part of universities' basic research toward understanding growth.

## **THE RIDDLE OF AMERICAN GROWTH**

Recent suggestions by the Federal Reserve that productivity growth is slowing have renewed interest in explaining growth fluctuations. Economists have had much to say here, and, I will argue, potentially much more to say.

Let me begin by asking a “macro” question about the United States, where productivity is growing about a full percentage point faster than it did a decade ago. This increase is the reason that, despite all contrary or negative economic indicators, corporate performance and living standards continue to improve. At the moment, this performance continues even in the face of the subprime crisis closely followed by the news media.

On that note, let me offer just a little advice to all who should happen to visit the French Quarter tonight. If you hear someone say “laissez les bon ton roulette,” please don’t take that as an invitation to calculate the odds of a recession . . .

Getting back to my point, it is important to recognize that this improvement is *not* the result of more labor or capital. It simply reflects the ability of American enterprise to produce more output per unit of input each year than it did the year before. Moreover, the rate of productivity growth rose noticeably during the 1990s in the United States and stayed high through the difficult early 2000s, even when productivity growth in many other major economies headed in the opposite direction.

Why? American productivity growth is often attributed to the effect of information technology. But those who chalk it all up to technology have spent too little time in Tokyo, Seoul, and Berlin. Technology is more sophisticated in many other countries than it is in the United States. Cell phones and PDAs do things in Europe and Asia that American mobile devices cannot; they pay for goods and display far more information. Broadband, both wireless and fixed, is also faster and more ubiquitous.

So there must be something more –and it has been and is the business of the AEA and the AFA.

## **ECONOMICS AND FINANCE – AND BUSINESS**

Robert Lucas famously wrote that, once one starts to think about economic growth, it is hard to think about anything else. In other words, even slight increases in growth rates, when accumulated over time, have an overwhelming impact on quality of life. Not just corporate profits, but the livability and prosperity of nations and regions depend on economic growth. (Willie Sutton, of course, who famously robbed banks because “that’s where the money is,” beat Bob to the punch in his analysis of the subject of ‘money and banking.’) Moreover, economic growth and the enterprise-level performance that underlies it are not givens, but can be shaped.

From roughly the period of the Roman Empire until the end of the eighteenth century, the average standard of living of most human beings failed to increase significantly. In short, a peasant toiling on a farm in East Anglia in 1300 was not much better off than his Druid ancestors. Conditions did not change for the human race until an Industrial Revolution was sparked in England in 1750.

Why did the Industrial Revolution begin there and then, and not, say, 1650? And why England and not in China, or the Roman Empire, states brimming with technical genius? Abraham Lincoln furthered this thought in his famous historical recapitulation:

The advantageous use of steam-power is, unquestionably, a modern discovery. And yet, as much as two thousand years ago the power of steam was not only observed, but an ingenious toy was actually made and put in motion by it, at Alexandria in Egypt.

What appears strange is, that neither the inventor of the toy, nor anyone else, for so long a time afterwards, should perceive that steam would move useful machinery, as well as a toy. (Abraham Lincoln, 1858, "Lectures on Discoveries and Inventions," in Roy P. Basler, ed., *Collected Works of Abraham Lincoln*; available at

<http://showcase.netins.net/web/creative/lincoln/speeches/discoveries.htm>)

Returning to President Lincoln's inquiry, why did the contemporaries of Hero of Alexandria not use steam engines to power instruments of production, instead of using them to wow Roman tourists with magical toys?

Research by economists proffers the first step toward an answer: These things finally happened in England, in 1750, because of *economic institutions*.

As a consequence of the Glorious Revolution of 1688, the British government was able to credibly commit to upholding private property rights, protecting wealth, and eliminating arbitrary increases in taxes. These institutional changes gave entrepreneurs the incentives to make investments necessary to make the most out of technological inventions—the spinning jenny and the water frame. China, though a sophisticated economy at the same time, lacked the institutions to allow entrepreneurship to flourish.

What accounts for this extraordinary change? As economists, we observe that sources of technological change include increases in human capital, to be sure, but also better means of organizing and managing production. But it is also possible to put it more crisply: It appears to have arisen largely from the application of sustained *management* attention to everyday enterprise. In a word, *business*.

Business has certainly transformed society through economic growth. At the end of the twentieth century, management thinker Peter Drucker looked back and wrote that underneath all the wars and horrors of that century were important social transformations linked to business. Business not only spurred these transformations through innovation, it also created the material basis for social change. It created wealth that allowed society to adjust to the civil rights revolution of the 1960s, as it had during the 1760s and the 1860s.

Let me turn from this social observation back to the riddle of growth.

If America's great companies did not become more effective simply by buying faster computers or networking their operations, what then is the answer to the productivity riddle? Some of us, as students of *economic institutions*, might answer that America is the lucky heir of Britain's Glorious Revolution.

But *another* answer is obvious: There were enough U.S. companies in which entrepreneurs and managers knew how to integrate these investments with new business models to raise their effectiveness.

## **NONDESTRUCTIVE CREATION AND ENTREPRENEURSHIP MATTER**

Economists' focus on institutions, while important, can obscure the role of this other important factor—individual entrepreneurs and the process of entrepreneurship. The prevailing view of entrepreneurship in economics (which continues to shape prevailing public policies) centers on Joseph Schumpeter's famous concept of "creative destruction." Schumpeter described entrepreneurship as an uncoordinated activity — one conducted without central direction or planning, in which the entrepreneur was less a rational economic calculator than a relatively unfettered and unpredictable force.

Because of this uncontrollable quality, the entrepreneur's contribution to society is sometimes seen as a kind of unavoidable pain. Like a forest fire that sweeps out old underbrush and ultimately makes room for hardier new foliage, an entrepreneur competes with established (and often moribund) businesses, undermining their business models in favor of newer, more effective, and more resilient technologies, products, and services. Even with that valuable net result, the Schumpeterian view has led many people to regard capitalism as a turbulent milieu in which no one — neither haves nor have-nots — ever gets to enjoy stability.

In the context of episodes of sustained high levels of economic growth, as in the recent American experience, I want to focus on a different feature of entrepreneurship. In addition to "creative destruction," innovation leads to "nondestructive creation," in which the uncoordinated contest of ideas and search for new applications of existing ideas generates growth. And this nondestructive creation should be analyzed and can be fostered.

Such views have not gone unnoticed among economists: My Columbia colleague Ned Phelps, the 2006 winner of the Nobel Prize in Economics, turned the spotlight on entrepreneurs as central actors in economic growth. This spotlight represents a shift in emphasis, if not interest. Over the past twenty years, there have been 37 Nobel Laureates in economics. Twenty-eight of them made no use of the terms "entrepreneur" or "entrepreneurship" in their prize lectures. The seventeen references that Ned Phelps made in *his* Nobel Prize acceptance lecture exceeded by two the sum of all the other references made in the previous nineteen years.

And the way in which he described entrepreneurs (or, as he called, them, *Hayekian* entrepreneurs), was also significant. Like Friedrich von Hayek, this view sees entrepreneurs as seekers and experimenters — in Phelps’ words “continually striving to expand their knowledge into some areas where knowledge is scarce or nonexistent in order to see whether they might develop something commercially saleable that no one else has conceived before . . . This is creativity — acquiring ideas that no one else has, or likely will have without doing the necessary exploration.” The long wave of exactly this sort of experimentation, from the mid-nineteenth through the mid-twentieth century— followed by technological innovation in the past few decades—has led to unparalleled booms in investment and cumulative economic growth and change.

This economic approach to analyzing the entrepreneur as many economic models do — as a “black box,” a human calculator who evaluates all available information to process optimal choices — is not what I mean. Rather, this concept I mean, harkens back to the more classical entrepreneurs that Hayek and Frank Knight described. Such entrepreneurs play a role over a range of activities, involving *judgment*. They take on risk, with only their own judgment as protection against failure; and while some do indeed fail as individuals, together the entrepreneurs diminish the economic risk for society as a whole.

Knight also focused on what one might think of as *owner’s judgment*, inseparable from ownership, to be exercised by entrepreneur-owners — even those delegating most decisions to management.

And entrepreneurs do not perform these activities in a vacuum. The modern capitalist economy includes both entrepreneurs and large organizations in its process of innovation and economic growth (in contrast to the pre-capitalist economy, which grew more slowly because it depended on farmers and small-scale merchants). As many economists have noted, institutional arrangements undergirding property rights, company law, and financial institutions made possible the advances of substantial large-scale innovations by entrepreneurs.

In his Nobel lecture, Phelps summed this up by listing the people required to make an innovation take hold — not just entrepreneurs but managers to evaluate whether it will succeed in the market, consumers to figure out how to bring it home, and financiers “who can do better than choose randomly” in deciding where to invest their money. “In sum,” Phelps concluded, “it takes a whole village for an innovation to be developed, launched, and adopted.” This will be my only adaptation of Hillary Clinton in these remarks!

But, “nondestructive creation” as a catchword for entrepreneurship again calls to mind *judgment* about new possibilities or *alertness* to existing possibilities. The idea that judgment is central to entrepreneurship and management finds its origins in Frank Knight’s work on entrepreneurship. And it is the shaping and extending of this judgment that offers a promising link between entrepreneurship and economic growth. Knight emphasized that entrepreneurial judgment is costly to trade, leading the entrepreneur to hire labor and own assets. The entrepreneur’s role is to arrange or organize the human and capital assets under his or her control.

## MANAGEMENT MATTERS, TOO

To truly understand economic aspects of the growth riddle, we need to look beyond institutions and entrepreneurs per se, to inquire why some firms — new or old — gain in productivity consistently, while others do not. For many years, economists have tried to attribute differences among companies' performance to workers' skills, information technology investment, or even the quality of available capital. But even after controlling for these factors, important and unexplained differences in productivity performance remain.

As far back as the early 1960s, we economists have identified these differences, collectively called “fixed effects,” but initially attributed them to variations in managerial quality, without exploring the effects of any specific management practices on firm performance. It remained for business schools to identify the sources and examples of high-quality management practices, and for consulting firms to conduct *de facto* “on the ground” experiments implementing particular management innovations. And it was only a small group of economic historians, such as Alfred D. Chandler Jr. and David Landes, who stressed professional management as a key factor in the rise of U.S. industry, relative to that in France or the United Kingdom, in the early twentieth century.

Through our lens — the lens of economics — *management* is, at heart, a *choice* made by each firm. To alter that choice is costly; when a firm changes management, it requires additional personnel, time, attention, and other resources. The decision-makers who lead the firm must trade off these costs against the benefits they expect. That is why, all else being equal, the new management practices most likely to be adopted are those that promise the greatest new ideas or cost reduction. In capital-intensive companies, these tend to be practices that improve the efficiency of plant and equipment. In companies where highly skilled workers are integral to a firm's financial performance, practices related to incentives and human capital will probably be perceived as more beneficial.

If this description is correct, then in today's knowledge-intensive economy, firms with better practices for process techniques, goal setting, performance evaluation, and human resource management should be found, to exhibit generally better performance. And indeed that correlation was found in recent research by Nick Bloom of Stanford University and John Van Reenen of the London School of Economics.

Bloom and Van Reenen studied management practices at more than 700 manufacturing firms in the United States, the United Kingdom, France, and Germany. The study found that higher management scores were indeed associated with higher productivity, return on equity, and market capitalization relative to book value. The researchers also found that low measures (all else being equal) correlated with the likelihood that the company in question had failed. Intriguingly, this research shed light on international differences in firms' performance. Companies in the United States and Germany had persistently higher management scores than their counterparts in the same industries in other countries. The authors concluded that this strength derived principally from U.S. and German practices related to targets and incentives (practices that boosted flexibility and motivation, for example).

*And interactions with economic institutions are significant.* For example, according to Bloom and Van Reenen, there is a link back to institutions — the competitive conditions in the business environment. When times get tough — when the setting gets more competitive — firms with bad management earn comparatively lower profits and grow more slowly, or even exit the scene. Under the same circumstances, the comparative value of good general management rises. Thus, the superior estimated productivity performance of U.S. firms relative to their non-U.S. counterparts may be traced in no small part to the disciplinary effect of the United States’ more competitive product markets.

Managerial choice (*people*) and competitive markets (*institutions*) are not mutually exclusive. In fact, they tend to reinforce each other. Companies that face competition and stay in the game gain the ability to make better choices. And companies that make better choices about management practices, as they expand their scale and scope, are more likely to face the constraints of competition. In the end, in facing either factor, the flexibility and quality of management matter.

Variation in management quality likely “explains” much of the differences in firm-level productivity. Such a striking correlation between management quality and productivity raises questions about the development of management practices, the choices that managers make about practices, and the value of managerial talent in executing these practices. It also suggests that the connections among competitive conditions, management, and performance are highly significant indicators of which companies will succeed and which will fail, *with implications for economic growth.*

## **TOWARD A GROWTH AGENDA IN RESEARCH ON ENTREPRENEURSHIP AND MANAGEMENT**

These observations, in my view, suggest the fruitfulness of more serious economic research on entrepreneurship and management. In the Knightian approach, managers might be thought of as exercising *delegated judgment* on behalf of entrepreneurs. *How* this delegation is limited is, of course, the subject of a substantial body of research in microeconomics and corporate finance.

And in the Knightian approach, corporate governance can be thought of as a hierarchy of judgment from owner’s judgment to delegated judgment. Alternatively, in the classic terminology of Eugene Fama and Michael Jensen, owners have *decision control* while delegating *decision management* to others.

This work has stressed *destructive* entrepreneurship among managers, with moral hazard and the ability to create hold-up for value extraction. There remains, though, the possibility of *productive* entrepreneurship among managers to which I referred earlier — in the form of creating or discovering new attributes that augment value creation. And this productive entrepreneurship figures in the empirical work linking management practices and productivity growth.



As is well recognized, ownership of assets plays a central role in facilitating entrepreneurship. As in the work of Ronald Coase and Oliver Williamson, ownership facilitates the use of owners' judgment. And ownership confers the power to set constraints in delegation. The question is *how* entrepreneurs delegate decision rights to managers and how boundaries are best set around managers' delegated judgment.

Of course, our research over the past two decades reminds us that as the manager is given more discretion, there is a greater probability that he or she will discover new ways of destroying value. But a consideration of judgment also suggests a greater probability that he or she will discover more beneficial attributes of productive assets under his or her management.

That there are benefits as well as costs associated with relaxing constraints in delegation suggests that there will be an optimum, nonzero level of "incompleteness." Regulating the trade-off can take place through limits on budgets (Michael Jensen and William Meckling), the scope of permissible activities (Bengt Holmstrom), or others with whom they can work (Bengt Holmstrom and Paul Milgrom). As a simplification, the extent of incompleteness can be thought of as the extent to which the manager carries out "research," by which I mean activities not specified by the owner.

Much of our intuition here in economics and finance comes from principal-agent models, with a bias toward more complete contracts. But growth- and value-enhancing activities benefit from a level of incompleteness not simply because of costs of contracting, but because complete contracts forestall experimental *productive* as well as destructive entrepreneurship. Complementing agency theory's emphasis on the link between current performance and internal organization, how delegated judgment is exercised over time is important. And complementing the new property rights approach, ownership affects not only *ex ante* relationship-specific investments, but how the firm performs over time as judgment rights are allocated.

One potentially fruitful area of study here, it seems to me, is the role played by *private equity firms* in shaping the boundaries between owners' and delegated judgment and in fostering growth-enhancing management practices. To the extent that such organizations raise value through "operational engineering" (and not just "financial engineering"), private equity firms and transactions offer an interesting laboratory for research on both entrepreneurship and management. And, of course, institutions matter, too—private equity's relatively larger footprint in the United States is related not just to people (though Columbia Business School is proud of its output here!), but to institutions in capital markets.

## **GROWTH OFFERS LESSONS FOR ECONOMIC POLICY**

What can economic policy learn from these observations on the sources of entrepreneurship and the connections between entrepreneurship and growth?

Concerns over consequences of technological advance and globalization in modern economic growth have stimulated political discussion of social safety nets here in the United States and in much of the industrial world. But the entrepreneurial perspective suggests a first step of recognizing and even embracing the uncertainty and ambiguity inherent in a vibrant and dynamic economy. As observed by Nobel laureates Phelps and Edward Prescott, governments that try to protect their citizens from uncertainty by fiat, like many “social welfare”-prone governments, may succeed primarily in slowing down their own economic growth.

Returning to my opening comments about *economists*, *businesspeople*, not scientists and technicians, are actually the conceivers of much of the “clinical research” or experimentation that comprises the bulk of contemporary innovation. And as scholars in *finance* have stressed, financial institutions play a significant role in enabling these entrepreneurs to capture opportunity, and this research over many years has emphasized the role of educated managers in evaluating innovations.

Such insights offer possible changes in our models that had given short shrift to *people* (entrepreneurs and managers) and *concepts* (uncertainty and uncoordinated seeking of opportunity).

Regarding the former, *general knowledge* — of business, technology, and the economic environment in general — is an important enabler of the virtuous cycle of creativity, innovation, and growth. In an article on entrepreneurship, Edward Lazear, studying data on the career paths of Stanford MBA students, finds that students with more varied backgrounds and an interest in general curriculum while in business school are more likely to become entrepreneurs. And knowledgeable managers are better able to evaluate innovation and have the confidence to pursue it. “The manager of a vineyard confronting a new insecticide,” said Phelps in his Nobel speech, “might have no idea what the expected value of the benefit and cost would be, or what the probability of successful practice with it would be if adopted—if he lacked an education in basic science and humanities.” This point is consistent with recent empirical evidence linking general management talent and productivity growth. And having multiple skills may facilitate the ability to innovate when the whole picture can be seen.

Finally, what is the output whose growth we are measuring? Might entrepreneurial activity be associated with satisfaction as well as growth? Such a question cries out for testing. As an example, when job satisfaction and general satisfaction were scored by the Human Beliefs and Values survey, satisfaction scores were higher in dynamic economies. These economies have high levels of research and development spending, high levels of labor force participation, and higher levels of economic growth. If such correlations prove causal, the emphasis in public policy in many countries might shift from cushioning losses from change to reforms of financial, labor, and product markets in a way that enables both creative destruction and nondestructive creation.

## **CONCLUSION**

It is, thus, worth returning to Bob Lucas' observation that when one contemplates the impact that even slight increases in economic growth can have when cumulated over time, it is hard to think of anything else.

Perhaps...

But the power of growth yields fertile conversations about the role of economic ideas in society. Experience — with institutions, entrepreneurs, and managers taking a central role in the economy and economics and finance research on entrepreneurship and management taking a more central role in the university's contributions to growth — suggests that we have much to think about — and much to do.

And let's hope those politicians — defunct and knocking on doors in New Hampshire — are listening.

Thank you.

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