

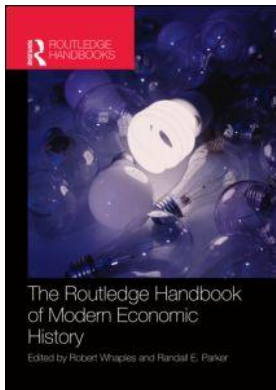
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7

ECONOMIC HISTORY AND ENTREPRENEURSHIP

Robert Whaples

Entrepreneurs have played a profound role in shaping and reshaping the economy and society – both historically and in the present. When *USA Today* celebrated its twenty-fifth anniversary in 2007 by compiling a list of the 25 most influential people of the past quarter century, at the top of the list was an entrepreneur (Microsoft’s Bill Gates) and not far behind were six more well-known entrepreneurs (Oprah Winfrey, Google’s Sergey Brin and Larry Page, Starbucks’ Howard Schultz, Wal-Mart’s Sam Walton, and hip-hop impresario Russell Simmons). Likewise, since 1990, *Time* magazine has selected five entrepreneurs as Person of the Year – media magnate Ted Turner, Intel’s Andy Grove, Amazon.com’s Jeff Bezos, Bill Gates, and Facebook’s Mark Zuckerberg. Despite this public acclaim, however, entrepreneurs are virtually absent from textbooks written by both economists and economic historians.

This chapter begins by defining entrepreneurship, examining the roles entrepreneurs play in the economy, and discussing why entrepreneurship is difficult to analyze using the standard approach of economics. It closes by examining recent research on the historical roles and impact of entrepreneurship and the actions of individual entrepreneurs.

What is entrepreneurship?

What is an entrepreneur? Unfortunately, there is much less consensus among economists about how to define this term than for other inputs to production, such as labor, capital, and natural resources. While the French roots of the term “*entreprendre*” clearly denote someone who “undertakes” a business project,¹ Hébert and Link (2009: 100–1) summarize over two centuries of economic thought by identifying 12 roles attributed to entrepreneurs: the entrepreneur is (1) a person who assumes the risk associated with uncertainty, (2) a person who supplies financial capital, (3) an innovator, (4) a decision maker, (5) an industrial leader, (6) a manager or superintendent, (7) an organizer and coordinator of economic resources, (8) the owner of an enterprise, (9) an employer of factors of production, (10) a contractor, (11) an arbitrageur, and/or (12) an allocator of resources among alternative uses. Concisely combining these roles, Sobel (2008) defines an entrepreneur as someone who “organizes, manages and assumes the risks of a business or other enterprise.”

Almost all modern theories of entrepreneurship take their origin from Joseph Schumpeter (Hébert and Link 2009), who placed the innovative entrepreneur at the center of his theory of

economic development.² In Schumpeter's view, someone "is an entrepreneur only when he actually 'carries out new combinations'" and "he loses this function when he has built up his business, when he settles down to running it as other people run their businesses." "The carrying out of new combinations we call 'enterprise'; the individuals whose function it is to carry them out we call 'entrepreneurs'" (Schumpeter 1934: 78, 74). Schumpeter identified five important types of innovations that these entrepreneurial "Carusos" introduce into the economy. These new combinations include the following:

- 1) The introduction of a new good – that is one with which consumers are not yet familiar – or of a new quality of a good.
- 2) The introduction of a new method of production, that is, one not yet tested by experience ... which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially.
- 3) The opening of a new market ...
- 4) The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created.
- 5) The carrying out of the new organization of any industry, like the creation of a monopoly position ... or the breaking up a monopoly position. (Schumpeter 1934: 66)

Many businessmen or women do one or more of these activities occasionally, but entrepreneurs specialize in them.

Although, from Schumpeter's point of view, innovation is the key to understanding entrepreneurship's impact, it must be realized that entrepreneurs also copy the successful ideas of their competitors and it is often hard to separate innovation from replication. So, despite Schumpeter's emphasis, in common parlance the term "entrepreneur" has been applied not just to innovators but also to virtually anyone who owns and runs a business. Marshall (1920: 597) distinguished between "active" entrepreneurs – "those who open out new and improved methods of business" – and passive entrepreneurs, who "follow beaten tracks." In this view, history is full of entrepreneurs along a sliding scale from those active entrepreneurs who concentrate on innovation to the mostly passive entrepreneurs who mainly copy what others are doing but occasionally show a wisp of novelty amid their other insights.

Why studying entrepreneurship is so difficult

Despite considerable attention from Schumpeter, Marshall, Walras and other leading economists, modern economists have tended to avoid the topic of entrepreneurs and entrepreneurship because of difficulties they have dealing with entrepreneurship on both an empirical and a theoretical level. On the empirical side, it is virtually impossible to measure entrepreneurship in a meaningful way in order to quantitatively assess differences in entrepreneurship across time and space and to econometrically estimate the impact that it has had on economic structure, performance, and growth. As Hébert and Link (2009: xix) point out, "some views" of economists on the roles of entrepreneurs "are competing; some are complementary. The entrepreneur ... is a difficult person to pin down; entrepreneurship ... is a difficult activity or mindset to pin down." A growing empirical literature equates entrepreneurship with self-employment, but this can be unhelpful in at least two important ways. First, self-employed workers in many fields – landscapers, plumbers, truck drivers, accountants, day-care operators, and hair stylists, for example – rarely make economically meaningful innovations. More importantly, the most economically important entrepreneurs aren't self-employed, but rather build and manage corporations with thousands of employees.

On the theoretical side, economics arrives at fundamentally important insights by wrestling with abstract forces like “supply,” “demand,” and “general equilibrium,” but hiding behind the shifts and movements in the black box of this system are the actions of entrepreneurs. Economists generally take markets as a given and analyze how impersonal forces like “entry” almost automatically play out. Entrepreneurs are often these entrants, but they also *create* new markets – and the sources of these creative insights and actions, which are the heart and soul of entrepreneurship, is something economic theory has a hard time handling (Casson 2010). Economics tends to focus on systems moving toward equilibrium but entrepreneurs dis-equilibrate the economy. Economics is about maximizing given a set of constraints, but entrepreneurship is also about changing the constraints that are faced – changing them in unpredictable ways that cannot easily be modeled. Neoclassic economic models often assume costless information and perfect markets. This first assumption trivializes entrepreneurial decision making and the second makes the entrepreneur superfluous – since markets anonymously coordinate everything. In standard microeconomic theory, the person (or people) running a firm:

becomes a passive calculator that reacts mechanically to changes imposed ... by fortuitous external developments over which it does not attempt to exert any influence. One encounters no clever ruses, ingenious schemes, brilliant innovations, charisma, or any of the other stuff of which outstanding entrepreneurship is made (Baumol 2010: 14)

and that’s the problem.

A well-known joke about the mind-set of economists captures this point. Two economists are walking down the street. One spots a \$100 bill lying on the sidewalk and remarks, “Wow! There’s a \$100 bill.” The other assures him, “That can’t be a \$100 bill. If it was, somebody would have already picked it up.” The point is that economists tend to assume that profit opportunities will be obvious to everyone and, therefore, quickly seized and eliminated. Entrepreneurs, in contrast, are constantly on the lookout for opportunities, so they are the ones who recognize that something that looks like a piece of trash to everyone else may actually be a \$100 bill. They search for \$100 bills in places others wouldn’t look – down in the storm drain, rather than on the sidewalk – and then try to figure out ways to pick up the hard-to-get bills. They don’t simply *find* hundred dollar bills, they painstakingly, insightfully *make* them – and get others to collaborate with them in making them. And they often fail in these attempts, “wasting” resources when others beat them in the race to get the \$100 bill or when it turns out that what others thought was a piece of trash was indeed rubbish.

An economy moves up along the supply of entrepreneurship curve when the expected payoff to entrepreneurship rises, but research suggests that deeper forces are the key to differences in the supply over time and across space. The forces that shift the supply curve are largely “non-economic,” but rather are tied to social psychology, social arrangements, and cultural developments that encourage or discourage individuals from taking on entrepreneurial roles. The richest source of professional baseball players today is San Pedro de Macoris in the Dominican Republic. There is no indication that natives of San Pedro are naturally better athletes than the rest of the world’s population. The key appears to be a cultural system in which success at baseball is nurtured literally from the cradle (Ruck 1991). As with baseball, so with entrepreneurship. Some societies actively encourage and foster entrepreneurship – and these are the ones in which entrepreneurship flourishes, whose supply is the greatest for a given rate of return.

Traits of successful entrepreneurs

Successful entrepreneurship involves honing a set of scarce talents and aspirations. It requires some combination of vision, good judgment, creativity, ingenuity, problem-solving abilities, hard work, persistence, leadership skills, networking abilities, courage – a willingness to take risks – and almost always the ability to *enjoy* putting these talents together in running an enterprise. These are hard to model, especially the sheer *drive* – the desire to do battle in the marketplace – that animates them all. Some have argued that entrepreneurial success is a bit like winning the lottery – it takes a lot of luck to be in the right place at the right time and head up the right path, and potentially brilliant entrepreneurial strategies may fail due to unforeseen changes in the economy and the competitive playing field (Nye 1991).

What makes entrepreneurs entrepreneurial? After interviewing 30 entrepreneurs who founded companies with market values exceeding \$200 million and asking them to work their way through a 17-page problem relating to starting a new enterprise, Sarasvathy (2004) concludes that entrepreneurs are generally good causal reasoners – capable of figuring out the optimal solution to a pre-determined goal when faced with a given set of means – but that they must also be good effectual reasoners. Effectual reasoning begins with a set of means and allows the goals to emerge. Effectual reasoners begin with 1) who they are – their traits, tastes, and abilities, 2) what they know through their education and experience, and 3) who they know – then jump into action in uncharted territory knowing that plans must be made and remade as surprises emerge. The ability to deal with risks that can't be calculated (Knightian risk) is key. Predictable markets go to smart people with deep pockets who take over from entrepreneurs after the market becomes more predictable.

The history of entrepreneurship: the pre-modern era

As Baumol and Strom (2010) argue, far more than other topics in economics, the study of entrepreneurship must turn to *nonstatistical* history for the bulk of its evidence. *The Invention of Enterprise: Entrepreneurship from Ancient Mesopotamia to Modern Times* (Landes et al. 2010) adeptly surveys much research by economic historians on the history of entrepreneurship. In the opening chapter, Hudson argues that the typical attitude in low-surplus communities living near subsistence levels throughout much of history is that self-seeking tends to achieve gains at the expense of others. Traditional social values therefore impose sanctions against the accumulation of personal wealth and “archaic political correctness dictated” that surpluses “should be consumed, typically by public display and gift exchange, provisioning feasts at major rites of passage ... or burial of the dead. Status under such conditions is gained by giving away one's wealth” and not by entrepreneurially reinvesting it. “Profit-seeking ‘economic’ exchange was so great a leap that initially it seems to have been conducted mainly in association with public institutions, at least nominally. The first documented ‘households’ to be economically managed were those of Mesopotamia's temples” (Hudson 2010: 10–11). Thus, early entrepreneurs were faced with far different constraints than modern ones. The modern distinction between the public and private sectors was not applicable and these entrepreneurs saw no conflict of interest between their position in the temple or palace bureaucracy and the family business – but the individual payoff from entrepreneurship could be very low since gains were expected to be shared.

In contrast to this nascent positive-sum entrepreneurship of ancient Mesopotamia, Hudson argues that greatest fortunes in ancient times went to predatory entrepreneurs and were made by conquering or administering foreign lands and collecting taxes from defeated populations.

Likewise, Baumol (1990: 897) points out that if “entrepreneurs are defined, simply, to be persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige,” then entrepreneurship can be productive, but also *unproductive* and *destructive*. Entrepreneurship is likely to be unproductive – a zero-sum game – when the economy gives incentives to rent-seeking. Entrepreneurship turns to destructive activities when big payoffs come from conquest, enslavement, and the extraction of tribute – and Baumol holds up ancient Rome, Medieval China, and the early Middle Ages as eras with rampant destructive entrepreneurship.³ Thus, in pre-modern times those with entrepreneurial talents haven’t been drawn toward the business world: the “dirty work of running an innovative enterprise has seemed mean and unglamorous by comparison” with heroic military action, status-enhancing friendship and rent-seeking with the rulers (Baumol and Strom 2010: 532).

One explanation of the achievement of modern economic growth is that societies finally began channeling the talents of entrepreneurs away from negative- and zero-sum activities that benefited themselves at the expense of others toward economic activities that benefited society at large. North *et al.* (2009) compare “closed access” societies – the norm throughout most of history – to modern, democratic “open access” societies, which clear away the barriers to productive entrepreneurship. They argue that, because powerful individuals always have the option of competing for resources or status through violence, these “violence specialists” stop fighting only when they perceive that it is in others’ interests not to fight, an expectation that specialists must share about each other. Thus, throughout most of history, elites agree to respect each other’s privileges only when they know that violence will reduce their own wealth and power. Prospering from these privileges, in turn, requires help from nonmilitary specialists in other activities. Nonmilitary elites are cemented into the ruling coalition through privileged access to vital state-supported functions like religion, justice, production, or trade. The incentives embedded in these organizations produce a “double balance” – a correspondence between the distribution of military and political power on the one hand and the distribution of economic power on the other. In “closed access” societies, access to political power, economic power, and entrepreneurship is limited because rents will be dissipated if the elite coalition gets too big. Thus the activities of many budding entrepreneurs are thwarted because they may weaken the political and economic power of the entrenched elites. In societies like this, economic growth and positive-sum entrepreneurship are stymied by the insecurity of property rights, confiscation of property, and the inability to enforce contracts because courts are not independent and many in the elite remain above the law.

The history of entrepreneurship: the modern era

As the legal infrastructure supporting entrepreneurship was built up in the modern era, other impediments remained, however. Commercial codes and laws allowing general incorporation allowed entrepreneurs to reduce risk and tap into wider financial networks, but cultural norms often diverted entrepreneurial talent. Hau, for example, argues that among the barriers to the diffusion of entrepreneurship in France in the 1800s were the attraction of gentry status and high public office for the elite, and the disdain and radical protests of intellectual and artistic elites who often despised businessmen. “A part of the entrepreneurial elite conceived enterprise as a way to gain a fortune, to buy land, and to enter into the gentry,” as in the case of Auguste-Thomas Pouyer-Quertier who developed a large cotton-spinning factory, but was then elected deputy to the French parliament and eventually Minister of Finance. He began to neglect his firm, which declined – and married his daughters to noblemen (Hau 2010: 307). Factors like these, along with traditional religious beliefs, often held back the supply of entrepreneurship – which may explain

why individuals from outsider groups and minority sects appear to have been disproportionately overrepresented among the ranks of entrepreneurs in many places.

Mokyr argues that one impetus to Britain's Industrial Revolution was the coupling of individuals with technical skill and entrepreneurs with commercial acumen – exemplified by the case of inventor James Watt and entrepreneur Matthew Bolton:

The complementarity was symmetric: those with technical ability . . . needed people who could run a business, understood markets, knew about the recruitment and management of workers and foremen, had access to credit and other technical consultants, and above all, were ready to accept the uncertainties of innovation. (Mokyr 2010: 187)

Mokyr identifies a culture of “gentlemen-entrepreneur” that developed in Britain, where access to credit, suppliers, partners, and opportunities was tied to a Christian code of conduct that emphasized consistency, integrity, and the fulfillment of obligations to signal that a person was a trustworthy business contact. “It was, above all, important not to come across as greedy and rapacious” (Mokyr 2010: 189). These networks allowed for risk-reducing diversification.

Casson and Godley (2010) argue that the British economy in the 1800s and early 1900s was marked by a project-based entrepreneurship in the form of thousands of free-standing companies created to invest in and develop a specific activity – often international in scope such as tin mining in Malaya, hardwood cultivation in Burma, or electric power plants in Latin America. These risky projects took considerable time to develop, their outcomes were uncertain, resources had to be irreversibly committed to them, and they often had to be undertaken on a large scale, thus requiring teams of entrepreneurs to work together.

Countering the idea of the entrepreneur as individualist, historically much entrepreneurship has occurred within family businesses. Chan's research on China suggests that many successful entrepreneurial firms started with teams of two brothers who complemented each other in talent and personalities: “one brother excelled in vision, innovation and risk-taking, while the other provided organization, systemized the books and other operations, and nurtured the staff and networked with a wide circle of associates” (Chan 2010: 482). This pattern is not unique to Asia; indeed many of the most successful entrepreneurs in American history had lesser-known brothers playing key roles in their businesses. Organizer Roy Disney complemented innovator Walt. Andrew Carnegie's brother Tom took care of many day-to-day concerns. Andrew Mellon took over and grew his successful father's business and his virtually unflinching business judgments were complemented by those of his brother, Dick. The Mellon brothers – who built up a sprawling financial and industrial empire that included Alcoa and Gulf Oil – unflinchingly worked as a team (Cannadine 2008). On the other hand, when Cornelius Vanderbilt was disappointed by the business abilities of his sons, he turned to his sons-in-law to supply the complementary day-to-day organizational and management abilities to help implement his entrepreneurial innovations (Stiles 2009).

Entrepreneurship in the United States

Because it is difficult to measure entrepreneurship, it is hard to precisely pinpoint periods and places in which it has flourished and in which it has atrophied. Despite these difficulties, virtually all contemporary observers and historians have characterized the American economy as uniquely entrepreneurial. The general consensus is that the period from the end of the Civil War up to about 1920 was a “golden age” for the entrepreneur (Lamoreaux 2010, quoting Schumpeter 1942 and Hughes 1989) in which:

Americans knew the names and avidly followed the exploits of the period's 'captains of industry,' ... devoured the rags-to-riches novels of Horatio Alger, poured over P.T. Barnum's *The Art of Making Money* and other success manuals ... There was no higher goal for a young American male to pursue during this period than to become a 'self-made man' – to make a great deal of money through dint of his own hard work and 'pluck' (Lamoureaux 2010: 368–9).

McCormick and Folsom (2003) surveyed business historians to construct a list of the 25 greatest entrepreneurs in U.S. history. Seven of the 25 were born between 1835 and 1847 and, therefore, were active in business during the golden age in the decades after the Civil War.⁴

However, the rise of big business during this golden age of entrepreneurship eventually succeeded in choking off the demand for entrepreneurship, as the need for increasing amounts of capital in the railroad, petroleum, and other industries eventually left less room for the individual entrepreneur or group of partners who built, managed, and controlled their own business. Thus an entrepreneurial age matured and gave way to an era of big business, merger, and consolidation, as "organization men" began to displace entrepreneurs in driving the economy – and public attitudes began to sour toward business, especially with the onset of the Great Depression, the rise of labor unions, and regulations that hemmed in traditional entrepreneurial prerogatives and strategies. After the shared sacrifice of the Second World War, individual power and wealth – as exemplified by successful entrepreneurs – became suspect to many. However, in the last decades of the twentieth century, the tables were turned; encouragement and celebration of entrepreneurship rose again with entrepreneurial success in newer industries, especially in computers, biotech, and information technology. New technologies reduced the efficiency advantages of the largest firms and provided space for entrepreneurs to flourish (Graham 2010). Deregulation allowed the entry of new firms. The employment share of the nation's 500 largest firms fell from 20 per cent in 1970 to 8.5 per cent in 1996 – and the decline in self-employment bottomed out and began to rise (Carree and Thurik 2003). The reemergence of venture capitalists – private banks and wealthy individuals who provided investment money for start-up ventures – spurred this transition. Reestablishing a pattern of entrepreneurial firms spinning off from established firms, Silicon Valley replicated the early auto industry (Klepper 2007).

Lessons from the lives of individual entrepreneurs

Textbook economic models are a useful starting place but the complexity and dynamics of real-world economies can be grasped more clearly by examining the lives and careers of individual entrepreneurs in light of these economic models. Fortunately, there is growing stock of insightful biographies on American entrepreneurs to draw upon, including Klein (1986) on Jay Gould; Chernow (1998) on John Rockefeller; Bundles (2001) on Madam C.J. Walker, African-American beauty care products pioneer; Weightman (2003) on Frederic Tudor; Watts (2005) on Henry Ford; Nasaw (2006) on Andrew Carnegie; Stiles (2009) on Cornelius Vanderbilt; Martello (2010) on Paul Revere; Dalzell (2010) on Frank Sprague, developer of the first successful electric street car system; and Isaacson (2011) on Steve Jobs. Tedlow (2001) insightfully analyzes the careers of Andrew Carnegie, George Eastman, Henry Ford, Thomas J. Watson, Sr., Charles Revson, Sam Walton, and Robert Noyce. In addition, Klein draws a collective portrait of 26 American entrepreneurs.⁵ He emphasizes their creativity and concludes that, because entrepreneurs occupy a "place on a broad spectrum of creativity that includes artists, scientists, political figures, and mathematicians, among others ... riches alone seldom if ever fulfill the inner need that drives them" (Klein 2003: xii–xiii).

A little-known entrepreneur, Frederic Tudor, exemplifies and embodies many of the themes of this chapter. Tudor ultimately introduced a new good, brought it to new markets, developed new methods of production and conquered new sources of supply – innovating in almost all of the classic Schumpeterian manners. Tudor’s brilliant idea was to bring ice from the frozen ponds of New England to people sweltering in hot climates. He closely guarded his initial plans, but needn’t have bothered because no one else seemed to think this was a \$100 bill waiting to be picked up.

The idea was considered so utterly absurd by the sober minded merchants as to be the vagary of a disordered brain, and few men would have been willing to stand the scoffs and sneers from those whose assistance it was necessary to obtain and aid [Tudor] in his enterprise ... Merchants were not willing to charter their vessels to carry ice. The offices declined to insure and sailors were afraid to trust themselves with such a cargo. (Weightman 2003: 27)

Tudor was forced to buy his own ship to transport the ice but, as predicted, lost money on his first venture (in 1806) – not because the ice damaged the ship but because he had no effective way to market the ice in the Caribbean. Initially he knew virtually nothing about the demand for his product, how to market it, how to cut, transport and distribute it efficiently, and how to run a business. He battled predatory government officials, disease, bad weather, Jefferson’s trade embargo, and disruptions due to war. He persisted as his family’s wealth dwindled and he systematically discovered more efficient ways to harvest, transport, and store ice. In 1813 he was thrown into a debtors’ prison but recalled:

I smiled to think that any one should believe I was beaten, or in the slightest degree daunted in the steady purpose I had formed of accomplishing the payment of every dollar of debt and lifting myself to lord it or, if I chose, my humble creditors and his instrument. I never doubted I should accomplish what I have accomplished. (Weightman 2003: 56)

Ultimately, he built a profitable business that sold ice in the U.S. South, the Caribbean, and India. Inevitably, his success bred competition, but his understanding of the industry earned him above-normal profits and, when he fell into debt due to ill-advised speculation in the coffee market, his creditors elected not to seize his business but to allow him to run it as a surer way to assure that the debts were repaid.

Examining John Rockefeller’s path from bookkeeper to Titan of the oil industry demonstrates the impact that an individual entrepreneur can have on the economy. Rockefeller’s track record as a trustworthy, competent businessman made him a magnet for investors seeking to profit from the discovery of oil in Western Pennsylvania. Unlike other investors, he was in it for the long haul and so worked relentlessly and systematically to reduce refining costs, to pour his profits back into the industry, and to organize his competitors to stabilize the market. As his firm grew larger, it was in a position to negotiate rebates from railroads and build its own pipelines, magnifying its cost advantages and allowing it to purchase and merge with rivals as Standard Oil became a feared monopoly. Once this position was achieved, he and his colleagues pioneered industrial warfare techniques – including predatory price cutting, legislatively created barriers to entry, and cost-cutting innovations – to block potential entrants. Rockefeller took great personal risks, trusting that God’s providence and his own intelligent business decisions would make him successful. In 1885 a vast new oil field was discovered near Lima, Ohio, but

the oil's sulfur content was so high that it wasn't economically useful. Rockefeller concluded, "It seemed ... impossible that this great product had come to the surface to be wasted and thrown away," and he "imported a distinguished, German-born chemist named Herman Frasch and gave him simple marching orders: Banish the odor from Lima crude and turn it into a marketable commodity." His strategy was to buy up vast quantities of this oil at rock-bottom prices and assume that Frasch would be successful. The majority of Standard's board objected, whereupon Rockefeller stunned them by pledging to fund the project with his own money. "[I]f it is a success the company can reimburse me. If it is a failure, I will take the loss" (Chernow 1998: 285). This convinced the rest of his partners to fund the project, which reaped immense profits and strengthened Standard's monopoly position. Yet, no one has a monopoly on entrepreneurial abilities, and eventually entrants found ways to crack the petroleum market, even before the Supreme Court broke up Standard Oil in 1911.

Entrepreneurs and economic growth

Historical comparisons strongly suggest that nations with more entrepreneurial cultures and stronger encouragement for entrepreneurs have higher rates of economic growth, but showing causation rather than only correlation is nearly impossible, as is quantifying the magnitude of the relationship. This correlation has been demonstrated by Acs and Szerb (2009), who find the strongest correlation between per capita income and measures of cultural support for entrepreneurship, lack of fear of the consequences of businesses failure, and networking. The countries ranking highest on Acs and Szerb's index of entrepreneurship (Denmark, Sweden, New Zealand, the U.S., Australia, and Canada) are economic leaders, while those at the bottom (Uganda, Ecuador, Bolivia, Iran, the Philippines, and Venezuela) are much less developed. Acs *et al.* (2005) attempt to explain the recent "European paradox" – European economic growth rates have lagged behind the U.S. despite high levels of investment in human capital and research. They argue that entrepreneurship is the key, that countries with stronger entrepreneurship turn these investments in knowledge into higher rates of growth. Their empirical estimates, using data on 18 countries from 1981 to 1998, suggest a positive and statistically significant impact of entrepreneurship on economic growth. Unfortunately, however, they are compelled to measure entrepreneurship via self-employment rates.

Acs *et al.* (2007) argue that a unique feature of American capitalism is that successful American entrepreneurs often become philanthropists who create foundations that, in turn, contribute to economic prosperity through knowledge creation. One prominent example is Andrew Carnegie, who argued in his essay *The Gospel of Wealth* (1889) that "the man who dies rich dies disgraced," because the wealthy man should "consider all surplus revenues which come to him simply as trust funds, which he is called upon to administer." Excess wealth should be distributed by the man who created it, because of his superior wisdom, experience, and ability to administer, according to Carnegie. With these talents, he could do more to elevate the populace than they or the state could ever do. Carnegie emphasized that wealth should not be given to "charity," but that it should go to libraries, schools, museums and other projects that helped those who would help themselves. By the time of his death in 1919, he had overseen the distribution of nearly \$350 million (about \$4.5 billion in 2011 dollars). John Rockefeller followed a similar path, focusing on education and medical research in his philanthropic giving. Among his foundation's achievements was a project that virtually eliminated hookworm around the world – thereby increasing the productivity of millions of poor people. The largest foundations in the U.S. were founded by some of the most successful entrepreneurs of the twentieth century including Bill Gates, Henry Ford, J. Paul Getty, Robert Wood Johnson's family

(Johnson & Johnson), W.K. Kellogg, William Hewlett, David Packard, John D. MacArthur, Gordon Moore, and the Lilly family.

Despite this additional channel of economic growth, it's hard to argue with Baumol's (2010) conclusion that the biggest gains from entrepreneurship come from the huge positive spillovers brought about by the innovations they unleash, or John Rockefeller's conclusion that his most important service wasn't through his philanthropies but passing along cost savings to the millions of customers who bought his company's products.

Notes

- 1 Originally the term referred to battlefield commanders and only gradually was the meaning transferred to the business world.
- 2 See McCraw's (2007) fascinating, Pulitzer-Prize-winning biography of Schumpeter.
- 3 This characterization of ancient Rome has been criticized by Temin and others.
- 4 Here are the ranking and birth years of these entrepreneurs: 1) Henry Ford (1863), 2) Bill Gates (1955), 3) John Rockefeller (1839), 4) Andrew Carnegie (1835), 5) Thomas Edison (1847), 6) Sam Walton (1918), 7) J.P. Morgan (1837), 8) Alfred Sloan (1875), 9) Walt Disney (1901), 10) Ray Kroc (1902), 11) Thomas Watson, Sr. (1874), 12) Alexander Graham Bell (1847), 13) Eli Whitney (1765), 14) James J. Hill (1838), 15) Jack Welch (1935), 16) Cyrus McCormick (1809), 17–18) David Packard (1912) and William Hewlett (1913), 19) Cornelius Vanderbilt (1794), 20) George Westinghouse (1846), 21) Pierre DuPont (1870), 22) Steve Jobs (1955), 23) Michael Dell (1965), 24) Thomas Watson, Jr. (1914), and 25) John Jacob Astor (1763).
- 5 Klein's entrepreneurs are Warren Buffett, Andrew Carnegie, Pierre DuPont, James B. Duke, William Durant, George Eastman, Thomas Edison, Henry Ford, Bill Gates, Jay Gould, Edward H. Harriman, Samuel Insull, Ray Kroc, Edwin Land, Cyrus McCormick, Robert Noyce, John Patterson, J.C. Penney, John Rockefeller, Theodore Vail, Cornelius Vanderbilt, Sam Walton, John Wanamaker, Thomas Watson, George Westinghouse, and Frank Woolworth.

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