

Entrepreneurship: Creative, Unproductive and Destructive

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Entrepreneurship is perhaps a bit like the weather – commentators frequently complain about it (or, rather, about its absence) but no one seems to know anything that can be done about it. This paper offers some modified views on the subject which, it is hoped, will lend themselves to policy design and perhaps contribute something to understanding as well. It will be proposed on the basis of suggestive evidence that can only be summarized here that the entrepreneur provides leadership contributing to growth in productivity and per capita incomes not only through innovative activity but by means of aggressive and imaginative imitation that is a key instrument of international technology transfer. This is important because while the means to teach one how to innovate may still elude us, there would appear to be systematic techniques for the monitoring and adoption of innovative ideas from elsewhere or for the design of substitutes inspired by those ideas.

Second, it will be suggested that whether or not the supply of entrepreneurs does fluctuate, the welfare of society is much more likely to be affected by the directions such activities take than by the number of persons who carry them out. Whether the bulk of entrepreneurial activity will be devoted to innovation and its dissemination or rather to undertakings that yield little benefit to society or even are damaging to its instruments, depends on the nature of the reward incentives offered by current laws and other institutions. The point is that such institutions are far more amenable to modification by deliberate policy than is the supply of individuals with psychological make-up that renders them fit to serve as leader entrepreneurs.

The two key hypotheses of this paper, then, are first, that imitative entrepreneurship deserves a place alongside innovative entrepreneurship in the front rank of those who contribute to an economy's prosperity, and, second, that institutional arrangements are of prime importance in determining whether entrepreneurship will direct itself primarily toward production, or whether it will instead pursue directions that are far less beneficial to the economy.

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On the Role of Imitative Entrepreneurship

In the standard model of the entrepreneur's activities (which I want to build upon and which I have no desire to denigrate) imitators play only a secondary role – that of gradually eroding the rewards of the successful Schumpeterian innovator in order to pass the benefits on to the consumer in the form of lower prices, and also in order to prevent the innovator from resting on his laurels¹. Because of the imitators' success in destroying the innovator's domination of the market for a new product, or a novel productive technique, the latter is forced to innovate again and yet again, in order to prevent the flow of profits from coming to an end.

This story is not incorrect, but it is somewhat misleading. Particularly in an international context and in the long run, imitation demonstrably plays a role far more significant than that. For each economy's welfare depends critically on ideas produced outside its borders and only imitation can have brought those ideas to its own producers. Several observations will confirm that this must be so. First, there is the fact that in about one century a score of nations has been able to increase their labor productivity output (per work hour) by amounts ranging from perhaps 400 to 2500 percent². The fact that so many countries were almost (but not quite) simultaneously able to achieve progress on an order totally unprecedented in human history either constitutes an incredible coincidence or it must mean that at least the bulk of them learned a good deal from the others.

More than that. If one pursues any list of economically significant innovations since the beginning of the industrial revolution one does indeed find some which were more or less simultaneously produced in several countries. But more typically each had a clear country of origin, like the railroad in England. Even where more than one source was involved it was rarely more than two or three. Yet, typically, within a decade or so most such innovations have been disseminated throughout the industrial world. An extreme example is the locomotive. While primitive engines, particularly for use in mines, had been built since a few years into the new (19th) century, *Stephenson's "Rocket"*, generally considered the first passenger locomotive, had its initial run in 1829. That same year Britain exported the first (three) locomotives ever to run in the United States and *the very next year* the first U.S. built engine, with three times the power of the Rocket, made its inaugural journey.

¹ Of course, neither of these need be part of his conscious intention. But as *Adam Smith* felicitously put the matter in his invisible hand passage, "[The individual] generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it . . . By pursuing his own interest he frequently promotes that of the society more effectually than when he really means to promote it."

² Let me be careful to avoid implying that all nations have shared in this astonishing advance or that none have fallen behind after an initial period or promising participation. Such cases urgently call for explanation, but that is not my purpose here.

The fact is that it is difficult to think of any major advance in product or production technique of, say, ten years ago which is not commonplace throughout the society of successful industrial nations today. Are there not 20 or even 30 nations making extensive use of up-to-date semiconductors, computers, digital transmission of sound, optical fibers, “intelligent” telecommunications switches, industrial robots, and most other economically important inventions, say, five to fifteen years old? Diffusion of such ideas, then, must be the order of the day. But if these ideas were disseminated and widely put into use, someone or some groups of persons must have taken the required initiative. By definition, these are the imitating entrepreneurs, so that assuming the truth of the preceding statements, the significance of the role of that sort of entrepreneur is virtually a tautology.

Still more follows from this way of looking at the matter. If, say, twenty countries all participate in the provision of all the latest products and in use of the latest production techniques (even with a minor lag) then in the longer run for an “average country” 19/20th of the innovations it uses must come from elsewhere – and this, too, is basically tautology. That is, in a world such as this in any one country some 5 percent of the technical progress can be ascribed to processes involving the participation of domestic innovative entrepreneurs, while the remaining 95 percent must have involved the agency of entrepreneurial imitators. The figures, of course, are purely imaginary and meant only to illustrate the point – the vital role of the imitator in the growth of prosperity in one of those countries involved in the process of international sharing of new products and productive techniques.

We have another type of evidence pointing in the same direction. Thanks to the painstaking work of *Angus Maddison*³ we have estimates of output per work hour for the period 1870–1979 for 16 industrial countries most of which, in retrospect, have proved to be successful. The experience of such countries has, of course, not been universal, as is illustrated by the case of Argentina, which at the turn of the century promised to emerge among the world’s economic leaders. Nevertheless, the productivity record of the 16 Maddison countries, if interpreted with care, is not without interest. Figure 1 plots the growth rate of GDP per work hour for each of these countries against the 1870 level of GDP per work hour of the same nation. It also shows semi log least squares curve for those data whose equation is:

$$\text{Growth rate (1870-1979)} = 5.25 - 0.75 \ln (\text{GDP per work hour 1870}) \\ (R^2 = 0.88).$$

Now, all sorts of statistical shortcomings beset these regression results (see *Baumol* 1986 pp. 1075–1076, footnotes 4 and 5). But this is not the place to discuss the details. Rather, the point to be noted is something this regression appears to say, but really does not. It seems to tell us that one variable alone, a country’s level of labor

³ The basis for the figures in the text is provided below.

productivity by itself can be used to account, with nearly ninety percent accuracy, for the subsequent growth rate in that country's productivity over the course of the following 110 years. This would seem to imply that virtually all that matters for the determination of such a country's subsequent productivity growth rate is its initial productivity level. Nothing else appears to matter much – its government's economic policies, the cultural heritage of its people, or any other such variable.

Of course, we do not believe this premise. Differences in policy, culture, institutions, education, and other attributes surely do make a difference for an economy's growth performance. But, then, why do such differences not show up more sharply in our graph? Imitative entrepreneurship alone seems to be able to offer a straightforward explanation. Granted that it is true that a country's particularly favorable institutional circumstances do indeed stimulate its innovation performance, as seems extremely likely, assume that imitative entrepreneurs in other countries keep themselves informed of developments in the innovating economy and quickly adopt its advances for themselves. Then, the institutional advantages of the innovating economy do contribute to its own economic welfare. But, with a slight lag, which from a long run point of view may well be negligible, it also contributes almost commensurately to the prosperity of the imitator countries. Such benefits can be mutual and reciprocal – it does not matter to the basic point. The central point, rather, is that without a substantial role for the imitative entrepreneur the preceding statistical observations are, to say at least, difficult to explain⁴.

On the Role of Innovative Entrepreneurship

As has already been said here, in emphasizing the importance of imitating entrepreneurship it was not my purpose to downplay the role of the innovators. On the contrary, these entrepreneurs do play a vital role, for without them there would obviously be nothing for the imitator to replicate.

But we have slightly more direct evidence indicating what the Schumpeterian innovating entrepreneurs have accomplished. This evidence is rooted in the dramatic productivity achievement of the industrial revolution. The spectacular economic growth achieved in the last two centuries is, of course, widely recognized. But most casual observers do not seem to be aware of its astonishing magnitudes. Table 1 (*Maddison* [1982]) shows for 16 free market industrialized economies the percentage increases in output per capita, output per work hour and exports between

⁴ I note again the special character of the sample of countries from which Figure 1 is derived. These are the *ex post* successes of the 20th century. What I am arguing is that there are *some* countries which are succeeding in sharing the other's innovations. How this group selects itself, and what determines whether a country stays in this group are crucial and difficult issues; but I do not pretend to offer any insights into resolution of those issues here.

1870 and 1979 (all measured in 1970 U.S. prices). Using weighted averages (the arithmetic mean of the 1870 and the 1979 value of a pertinent variable), we learn that average per capita income in these countries rose 730 percent, output per work hour rose 1230 percent, and exports rose 96,500 percent over the 110 year period. The incredible multiplication that each of these variables has undergone, while perhaps not astronomical, is, nevertheless, so large as to be beyond easy grasp. A comparison may be illuminating: We see from Table 1 that for the U.S. in 1870, output per capita (the slowest growing of our three magnitudes) was about one eighth of what it had become in 1979. This means (using the carefully worked out international comparisons of *Summers* and *Heston* [1982]) that the 1870 real per capita income in the United States was about the same as that of the Philippines today, and slightly below that of Egypt. Anyone who has visited either country knows what that means.

So far as is known, rates of growth anywhere near those that have just been described had never before occurred, except perhaps in England in the early nineteenth century. Despite the innovations of the late Middle Ages (and those of the Renaissance) neither productivity nor income per capita had increased much, if at all during the hundreds of years between the height of Roman prosperity and the beginning of the Industrial Revolution (thus see, e.g., *Colin Clark* [1957], p. 677, who on the basis of various data suggests that real Roman incomes in the third century A.D. were comparable to those in Britain in 1850, Germany and France in 1870 and Japan in 1955). In other words, the growth in productivity and in living standards which occurred in the nineteenth and twentieth century are quite unprecedented and represent a profound break with the past.

The most obvious remarks in this paper on the role of entrepreneurship are those suggested by the spectacular and unprecedented growth in productivity and per capita output during the nineteenth and twentieth centuries. No doubt, growth in productivity is influenced by a multiplicity of variables, but there seems to be little reason to doubt what is apparently the consensus view, that investment and innovation are the two prime contributory influences.

Now, there is a good deal of evidence indicating that, in at least some time periods, investment rates have played a key role (see, e.g., *Abramovitz* and *David* [1973], *Norsworthy* and *Malmquist* [1985], *Williamson* [1984]). Yet it is hard to believe that the great acceleration of productivity that has taken place since the Industrial Revolution can be accounted for largely by an (unprecedented) rise in propensity to save and invest⁵. Put the other way, it seems impossible to believe that the growth

⁵ As a matter of fact, the first half century of the Industrial Revolution in England apparently involved surprisingly small rates of investment (see, e.g., *Landes* [1969], pp. 64–65, *Feinstein* [1978], pp. 40–41, and *Williamson* [1984], pp. 2–7). But, then in that early period the economy's overall rate of growth of productivity was also quite low, perhaps because so large a share of its initial efforts was confined to the production of textiles which, while far from unimportant, were also far from being the primary component of the country's predominantly agricultural economy.

in output per capita and in productivity would not have been substantially lower had the path of investment been just as it was, but had there been none of the stream of the period's spectacular inventions: the chronometer and the steam engine in the eighteenth century, the new metallurgical processes, the steamship, the telegraph and telephone of the nineteenth, and the automobile, truck, airplane, and computer of the twentieth. A number of econometric studies have suggested similar conclusions, though often, because of the difficulty of measuring innovation, they reach their results by default – showing that the other plausible major contributors to economic growth leave a substantial proportion of that growth unexplained. When all is said and done, one is left with the same argument – the economic history of the period just makes no sense unless innovation played a major role. (For a similar view for the case of the U.S., see *David* [1977].)

Assuming that it is true that innovation was a major component of the growth of the last century, it follows that initiating entrepreneurship *must* have played an important role. Innovation is, by definition, *the* output of initiating entrepreneurship. And if, as has been proposed here, initiating entrepreneurship is to be measured in terms of its output, it follows that this sort of entrepreneurship must indeed have made a major contribution to growth. In other words, there must have been a burst of entrepreneurial activity that was both productive (not rent-seeking) and innovating.

The key conclusion here is that there was indeed a rise in innovating entrepreneurial activity, as demonstrated by the unprecedented stream of profound innovations that has continued throughout the period of remarkable growth in productivity and per capita incomes. It is hardly plausible that this entrepreneurial activity did not contribute significantly to those growth rates, for otherwise no reasonable explanation for their unprecedented magnitude seems to be available^a.

The Payoff Function and Entrepreneurship, Productive and Unproductive

I come, finally, to my second hypothesis: that entrepreneurship may often be exercised in ways that do not contribute to production and that may perhaps even interfere with prosperity; moreover, that whether it takes preponderantly productive or

^a Of course, this period also brought with it the accumulation of enormous amounts of capital, but this phenomenon is surely far from being a completely autonomous manifestation. By increasing national incomes, innovation surely provided the wherewithal – the resources – with which investment could be carried out. And while, as already noted, the earlier innovations, largely affecting textiles, required surprisingly small amounts of investment, later, with the advent of railroads, steamships, motor vehicles, and electrification, amounts of capital previously unheard of began to be called for. Thus, innovation and initiating entrepreneurship no doubt stimulated enormously the demand for capital and simultaneously helped substantially in providing the resources needed to supply it.

unproductive directions at a particular time and place depends on the reward structure there available.

A noted industrialist once, reportedly, commented “my firm is not in the business of making steel. It is in the business of making money.” That is the essence of my point. While the motivation of an entrepreneur is probably very complex and certainly not clearly known, surely the pursuit of wealth and position is a primary element. If so, we can expect in any given set of circumstances that entrepreneurs will generally undertake those types of activities which promise to yield wealth and position, whether or not they happen to contribute to production.

In a society in which industrial activity is disdained, in which its rewards are likely to be expropriated and in which the private payoff to successful military activity is high, we can readily surmise what directions an ambitious entrepreneur is likely to look. The mercenary companies of the hundred years war, the medieval robber barons, and the war lords in China between the two World Wars are all examples of entrepreneurial activities of that sort. Such activities, moreover, can involve all of the attributes usually associated with the exercise of entrepreneurship – innovation (novel military techniques), planning, organization and the like. There is plenty of historical evidence indicating that the private payoffs can be large, but to society such activities are more than a bit likely to be destructive.

Destructive entrepreneurship can take forms other than military. Some of the “robber barons” in post Civil War U.S., according to reports, systematically arranged for deterioration of productive facilities under their control in order to “prepare” the market for successful short sale of the affected financial securities. Similar results may follow when an embattled management adopts innovative measures to fend off a takeover threat by deliberately reducing the value of the firm that is the object of the takeover attempt.

Probably, a much more pressing issue today is the diversion of entrepreneurial talents to rent seeking activities which, except in terms of their high opportunity cost, may neither damage nor contribute to the economy’s output. The invention of more effective methods to compete with other firms in the courts and before the regulatory agencies rather than the market place is a prime example. An enormous industry of suit and countersuit of one firm by another has now arisen in the U.S. economy. Firms deeply engaged in such activities are apt to rely for success more heavily on their lawyers than they do on their engineers, and the amounts at stake in the damage suits that are at the heart of such activities can put into the shade the prospective payoffs to the firm’s R & D activities.

That the rules of the game and the associated payoffs can be critical is readily illustrated by arrangements in Japan. It may be true that one reason for the rarity of private antitrust suits in that country is a cultural aversion to litigation. But such suits, surely, would also be discouraged severely in the U.S. if it were to adopt Japanese rules. There, in order for one company to be allowed to sue another on antitrust

grounds it must first obtain permission from the Japanese Federal Trade Commission. Permission is hardly granted with liberality, and once such a request has been denied there is no avenue for appeal. The rules of the game *do* matter.

Meanwhile in the U.S. less scrupulous entrepreneurs have been tempted by fortunes to be made by “risk arbitrage” through illegal use of inside information, and other related money-making innovations. For innovations are indeed entailed here, but not of a sort that stimulate the nation’s output and its prosperity.

Concluding Comment

I have argued here that entrepreneurship is even more heterogeneous an activity than had previously been recognized. Essentially the same sort of talent and approach as that of productive innovation is involved in imaginative imitation, and this activity also can contribute profoundly to a nation’s economic welfare. On the other hand, the entrepreneur’s activities can be rent seeking and even destructive and this is the sort of entrepreneurial undertaking which only suitable modifications in the rules of the game can discourage. Happily, policy makers and business schools do have means to facilitate the valuable activities of the imitative entrepreneur and society also has ways available to reduce the profitability of unproductive entrepreneurship. This, perhaps, is one of the prime morals the *Wealth of Nations* was intended to bring to our attention.

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Summary

Entrepreneurship: Creative, Unproductive and Destructive

Every economist assumes entrepreneurship is important, beneficial and innovative. Yet he rarely appears in our models. It will be argued that entrepreneurs are neutral as to whether they obtain wealth and position by means that add to production, are neutral or actually destroy assets of society. Examples will be given of rent seeking entrepreneurship, such as use of innovative techniques to induce the courts to enforce monopoly. There will also be illustrations of destructive entrepreneurship such as that of medieval and modern robber barons. The conclusion that will be drawn is that only proper rules of the game can force entrepreneurship into socially beneficial channels, and that this helps to explain why some historical periods have been characterized by far more growth than others.