Entrepreneurs are not Experts

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... In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast Map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography.

Suarez Miranda, Viajes de varones prudentes, Libro IV, Cap. XLV, Lerida, 1658

—Jorge Luis Borges

1. Introduction

Expertise is valued today. It is esteemed a good thing to be an expert. Entrepreneurship is also valued, and it is esteemed a good thing to be an entrepreneur. It may therefore seem paradoxical or at least surprising to say that entrepreneurs are not experts. And if they are not, one might suppose, then

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so much the worse for entrepreneurs. As we shall see, however, the sense in which entrepreneurs are not necessarily experts is intimately linked to the claim that we need entrepreneurs and cannot replace them with experts such as bureaucrats, planners, and business professors. If entrepreneurs are not experts, then so much the worse for experts.

2. Entrepreneurs

The claim that the entrepreneurial function in the market process cannot be replaced by an expert, or group of experts, is a characteristically “Austrian” claim about how knowledge is produced and distributed in society. Israel Kirzner has emphasized the epistemic function of entrepreneurs. Entrepreneurial discovery, he showed us, is required to correct errors in the market process and to bring our actions into closer conformity to underlying fundamentals.

The Austrian epistemic vision of the entrepreneurial market process differs radically from the sort of equilibrium theory that dominated Anglo-American economics in 1973 when Kirzner made the first book-length statement of his theory. In the old neoclassical microeconomics, the knowledge guiding economic choice was somehow present at once and freely available to all actors, who never failed to employ such knowledge properly. Kirzner showed that even in the narrow context of static neoclassical equilibrium, a theory of entrepreneurship is required to complete the theory. We cannot account for adjustment to equilibrium without a theory of error discovery and correction. The old equilibrium theory was incoherent because it vaguely assumed that all knowledge is somehow given to all actors who, therefore, never change their plans. And yet the theory included comparative statics, whereby a change in market data induces adjustment to a new equilibrium. There can be no such adjustment if no one learns that his current plans are based on a mistaken view of the underlying fundamentals. Such learning is error discovery and the corresponding plan change is error correction. Thus, Kirzner showed, our theory will be incomplete and incoherent unless we view the market process as an entrepreneurial process of error discovery and error correction.

In the context of a static neoclassical world, Kirznerian entrepreneurship is necessarily equilibrating. Without it, there can be no movement toward equi-

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2 I thank Peter Boettke for many conversations over the past 25 years or so in which he has insisted on the importance of the “neoclassical” context of Kirzner’s 1973 book.
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librium; with it, there can and will be movement toward equilibrium. In this setting, entrepreneurial discovery is error discovery, and entrepreneurial action is error correction. In a static setting, the market process is an error correction process whereby previously disparate and inconsistent actions of different persons are brought into greater harmony and coordination. Outside of the narrow context of a static neoclassical model of market equilibrium, entrepreneurial learning can move us in radically new directions. In the more open-ended context of a dynamic entrepreneurial market process, entrepreneurial discovery is not necessarily equilibrating. We could save the idea that entrepreneurship is necessarily equilibrating by giving the word “equilibrium” a greatly enlarged meaning that would imply a kind of ultimate position in which no further learning or innovation is possible. Kirzner has sometimes taken this route (Kirzner 2009) and sometimes avoided it (Kirzner 1982). Even when he sees innovations as coordinating relative to a “hypothetical world operating with as yet undreamed of technological breakthroughs,” he does so only to help us “to see with clarity that there is a single explanation for all market movements” (Kirzner 2009: 150).

I prefer not to give the word “equilibrium” such a large meaning. It seems likely that the “equilibrium” so defined would not be unique if it could be said to exist at all. Which of the seemingly infinite number of final equilibriums we are headed toward would depend on the particular entrepreneurial discoveries made and the order in which they were made. (Economists often call such dependence “path dependence.”) As far as I can tell, however, nothing of substance depends on whether we like or dislike that particular use of the word “equilibrium.” We seem to have a case in which semantics are “mere” semantics.

Even in the open-ended world of potentially disequilibrating change, it is entrepreneurship that preserves coordination among actions. If an entrepreneurial innovation or other novelty has caused our different plans to become inconsistent, the inconsistency cannot be resolved or mitigated until an alert entrepreneur discovers it. Experience seems to suggest that the coordinative function of entrepreneurship has been good enough to prevent the sort of discoordination we might think of as “chaotic.” If the trains do not always run on time, they are not so chaotic that we give up on trains altogether. This homey example may also help to explain why it is not a sort of cosmic coincidence that entrepreneurial discovery is generally able to preserve a relatively high degree of plan coordination. If passengers cannot coordinate their actions with trains, they will find ways to get along without using trains. If I find myself less able to rely on others to act than I
had expected, I will likely revise my plans in the direction of less dependence on others. If, for example, I am not confident that local vendors will have vegetables for sale at affordable prices, I may plant a garden and do some canning for the winter. More generally, if our plans grow too far apart, each of us will have to rely on the others somewhat less. The overall reduction in interdependence allows each of us to plan more satisfactorily and thereby bring our plans into a greater degree of mutual coordination. Similarly, if I find that I cannot formulate reliable expectations of the future, I will probably reduce my planning horizon. If I can’t be confident that my heirs will be able to keep the property they inherit from me, then I am less likely to provide shade to my grandchildren by planting an oak tree, though I may plant carrots and cabbages to eat later in the season. In a world in which people adjust their plans to what they can reliably expect, their expectations will be more often right than wrong and a rough equilibrium among expectations will prevail. (Butos and Koppl 2001 call this idea the “horizon principle.” See also Koppl 2002: 106-110.)

Israel Kirzner carefully distinguishes the role of the entrepreneur from that of the capitalist and the laborer. He therefore conceived the “pure and penniless” entrepreneur as a distinct economic function. Somewhat inexplicably, this theoretical isolation of the entrepreneur has caused difficulty. Some scholars have challenged the idea and insisted that any entrepreneur is also a capitalist. These same scholars, however, do not seem to object to the economist’s practice of isolating the economic function of the worker from other functions, such as capitalist.

Any real person is, among other things, part capitalist and part worker. Even the poorest worker performing the dreariest physical task is part capitalist. His physical vigor is an asset he protects through several forms of investment, including eating food. At night, our weary worker might wish to enjoy the present consumption of beer, books, or the company of dear friends. He sacrifices such present enjoyment, however, and goes to bed so that he might rise refreshed in the morning and ready to work. He does so because he anticipates a larger future consumption enabled by resting at night than he sacrifices in current carousing, reading, or warm conversation. But sacrificing present consumption for a larger prospective future consumption is the characteristic function of the capitalist, not the worker. In spite of the fact that no real worker can be a worker only, economists isolate the theoretical function of labor from that of capital. And they are right to do so. Similarly, I think, we should follow Kirzner in isolating the theoretical function of the “pure and penniless” entrepreneur from that of all other
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Israel Kirzner distinguishes the entrepreneur from the capitalist. In this paper I draw a similar distinction between entrepreneurs and experts. It may be that a given entrepreneur is, in some sense, an expert. It may even be that every entrepreneur is in part an expert. And yet entrepreneurship is not expertise. To make my case, I need to say what I mean by “expert.”

3. Experts

There is a small literature on the economics of experts, and interest in the topic seems to be growing (Feigenbaum and Levy 1993, 1996; Froeb and Kobayahi 1996; Koppl 2005a, 2005b; Levy 2001; Milgrom and Roberts 1986; Peart & Levy 2005; and Posner 1999a, 1999b.) The definition of “expert” has remained vague in this literature. To discuss “experts” meaningfully, however, we need to distinguish them from others who happen to know something. After all, everyone knows something, but not everyone is an expert. The distinguishing feature of an expert is that he or she is paid to render an opinion. Experts are paid for their opinions. The impoverished worker we earlier imagined is paid for his back, not his opinion. The entrepreneur is paid for his output. The young Steven Jobs, for example, was paid for the Apple Computers he produced, not his opinions on the future of digital technology. This is true even though Jobs would not have co-founded Apple Computers if he had not held prescient opinions on digital technology. Experts are in a different position. They are paid for their opinions themselves.

Because experts are paid for their opinions, they must choose what to say. They must choose what information to share. Scholars have often made the implicit assumption that experts are pure seekers of the truth. Peart & Levy (2005: 87) note cases, however, in which “the presumption that experts seek only the truth was terribly wrong.” Such scholars should probably have known better. In ordinary life we insist on hearing both sides of the story. When the doctor tells us we need surgery, we get a second opinion in part because we worry that his financial interest in performing the surgery may have distorted his judgment about medical options. And so on. Economists do not forget that a car mechanic may recommend unnecessary procedures to the unwary. And yet they forget that their fellow economists are in a similar epistemic position.
The expert is supposed to tell the truth, but what incentive does he have to do so? It is a question of motivation, and there are three key motivational assumptions of information choice theory. First, experts seek to maximize utility. Thus, the information sharing choices of experts are not necessarily truthful. Second, expert cognition is limited and erring. Third, incentives influence the distribution of expert errors.

Experts seek to maximize utility. Their efforts do not always succeed. It can be hard to know what path will produce the best result. Thus, I had better not say that experts “maximize utility,” which might seem to suggest a superhuman ability to achieve intended outcomes. But they try. This motivational assumption is the very same one economists bring to any human action. To say that experts try to maximize utility is just to say that they are humans and act like it.

To say that experts try to maximize utility is not to say that they are “selfish” in any crude or boorish sense. It depends on the expert. No doubt some are selfish by any measure. But others will be driven by motives to which Adam Smith (1759) drew our attention, namely sympathy, approbation, and praiseworthiness. In other words, they may care about others, and the opinions of others, while also wishing to deserve a high opinion from others. Some experts have a conscience, and others do not.

Expert cognition is limited and erring. In other words, experts are dumb. It is probably not surprising that an economist would say experts try to maximize utility. It might be surprising, however, that an economist would call experts “dumb.” Am I not an expert of sorts myself? The point is that all of human cognition, and thus that of experts, is limited and erring. To err is human. Economists often use the term “bounded rationality” instead of “dumb.” And the assumption of bounded rationality is now standard, though not universal, in economics.

Finally, incentives skew errors, including “honest errors.” This point might be traced back at least as far as Julius Caesar, who said, “men freely believe what they will.” In more recent times, however, the point emerges from the literature on “observer effects,” which seems to show that our opinions may serve our inter-

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3 I must admit that my translation is based on other translations and not on knowledge of Latin. I must also admit that it may be a bit too pithy to fit the original, which is “(H)omines fere credunt libertur id quod volunt,” Citing his source as G. Julius Caesar, Caesar’s Commentaries on the Gallic War 155 (51 B.C.E.) (Frederick Holland Dewey ed., Translation Publishing Co. 1918), D. Michael Risinger translates it as “men generally believe quite freely that which they want to be true” and used it in Risinger et al. (2002: 6).
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ests even when we know it not. We are generally more likely to observe, perhaps mistakenly, what we expect than what we do not expect. Errors of observation tend be skewed in the direction of our expectations. Figure 1 illustrates. If the central figure is seen only with the vertical elements, it will be seen as the numeral 13. If it is seen only with the horizontal elements, it will be seen as the letter B. Context creates expectations that influence perception.

Observer effects matter because they show that objectivity is hard to achieve. Masking is the main therapeutic response scholars have suggested to minimize observer effects. The expert should hide from himself potentially biasing information. Such masking is employed in double-blind placebo studies. If the medical researcher knows which patients got the placebo and which ones got the real medicine, it might skew his evaluations of those patients. The researcher might upgrade the health of sickly patients who got the real medicine and downgrade the status of robust patients who got the placebo. The worry is not that the researcher will cheat, although cheating is possible in science as in the rest of life. The worry is that unconscious bias will skew the researcher’s judgment. An extensive literature supports this fear with solid evidence (Risinger et al. 2002: 12-24). The pioneer and leading expert on observer effects Robert Rosenthal has drawn

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4 This figure is something of a classic image, frequently used. Unfortunately, I do not know who first devised it. I first encountered in Risinger et al. (2002).
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I am an advocate of such masking, which has been labeled “sequential unmasking” in the forensic science literature (Krane et al. 2008). I think we may say somewhat loosely, however, that masking is a psychological solution, not an economic solution. Masking attempts to minimize bias by minimizing the role of potentially biasing information. The economic point of view suggests a complementary, but radically different strategy: Let one bias be a check to another. Let us have a system of checks and balances with regard to biases. Again, this strategy conforms to some of our ordinary habits of living. As I noted above, in ordinary life we insist on hearing both sides of the story. As Milgrom and Roberts (1986) have shown in the context of a civil trial, when two experts have opposing interests, they are driven to reveal all information that might be relevant to a neutral decision maker. A piece of information matters if it bolsters the case for the one side and hurts the other side. It will therefore always be in the interest of one side or the other to expose such a bit of information. Thus, when experts go head-to-head, all the relevant information comes out. The competition between experts drives them to reveal more than any one expert acting alone would have chosen to reveal. In the production of truth, then, as in the production of ordinary commodities, monopolists tend to reduce output below the competitive level. In this section I have noted that experts seek to maximize utility, that expert cognition is limited and erring, and that incentive skew errors. For the purpose of distinguishing entrepreneurs and experts, we should probably pay more attention to the second item on our list, the limits of expert cognition.

4. Theory is Hard

As we have seen, the expert is supposed to have expertise about some domain. He is paid as an expert for his opinion in that domain. The forensic scientist is paid for his opinions on fingerprints, not elections. The political consultant is paid for his opinions on elections, not fingerprints. To have such opinions, the expert needs a theory of his domain. This need for a theory creates a set of limits to expertise that do not necessarily bind entrepreneurs.

It may be hard or even impossible for the expert to have a theory of his domain if that domain is sufficiently complex. The mathematical theory of “algorithmic information theory” has shown that complexity may prevent us from
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having the sort of simple description of events that we tend to call “theory.” A
theory allows us to compress the data of some domain by picking out the patterns
in those data. When theory is possible, the picked out patterns can be described
concisely. When no “compression” of this sort is possible, theory is either impos-
sible or, at best, useless. A good theory is like a good map; it occupies less space
than the territory it describes.

Chaitin, da Costa, and Doria (2011: 45) say, “[A] theory must be a compres-
sion of the data, and the greater the compression, the better the theory. Explana-
tions are compressions, comprehension is compression!” To predict, explain, or
even merely identify a sufficiency complex system may require a description so
lengthy that no simplification of the original system is achieved; no compres-
sion is possible. The behavior of a sufficiently complex system (one at the top of
a “Wolfram-Chomsky hierarchy”) cannot be predicted ahead of time (Wolfram
1984, Markose 2005, Koppl 2010). We can do no better than watch it unfold.

Velupillai (2007) has provided striking proof of the limits of theory in a valu-
able paper on “The Impossibility of an Effective Theory of Policy in a Complex
Economy.” He argues that, in the informal summary of Salzano and Colander
(2007), “ultimately there is an undecidability of policy in a complex economy”
(p. xvii). More precisely, he shows that “an effective theory of economic policy
is impossible for such an economy” (p. 273). Velupillai is very careful to give
“effective” a precise mathematical meaning (2007: 273, n.1). Rosser (1939: 56)
expressed the basic idea as meaning, “essentially that an effective method of solv-
ing a certain set of problems exists if one can build a machine which will then
solve any problem of the set with no human intervention beyond inserting the
question and (later) reading the answer.” Thus, Velupillai (2007) has shown that
if the economy is complex, then you cannot program a computer to predict the
specific outcome of a policy.5

Velupillai’s argument seems to have led him to an appreciation of Nobel
laureate F. A. Hayek’s “lifelong skepticism on the scope for policy in economies
that emerge and form spontaneous orders” (Velupillai 2007: 288). Hayek charac-
terized the entrepreneurial market process as a “discovery process.” The economic
problem is not so much how to allocate given resources optimally as how to figure
out what the “givens” really are.

5 He carefully specifies “complex economy” to imply “a dynamical system capable of computation
The economic theory of the Austrian school provides an important example of the failure of theory or compression: socialism. In the old comprehensive socialism, it was imagined that all economic affairs would be coordinated and directed by a central planning board, a panel of experts. To do their job, these experts would need a theory of the economy. They would need, in other words, a description of the economy that would allow them to identify the appropriate use for each bit of social wealth. The experts and not the anarchy of markets would decide what outputs to produce and how to produce and distribute them. The many decisions required to direct the economy in this way require a description of it so detailed as to be, perhaps, genuinely impossible.

The “Austrian” thesis on the impossibility of rational economic planning under socialism has received a mathematical restatement by Tsuji, da Costa, and Doria (1998). They show that it may be mathematically impossible to compute equilibria in finite games. As da Costa and Doria (2005: 38-39) say in their restatement of the argument, the “determination of equilibrium prices in a competitive market” is “formally equivalent” to “determining equilibrium in finite non-cooperative Nash games,” and will sometimes be, therefore, formally impossible. “So, the main argument in favor of a planned economy clearly breaks down.” Yet they report, “the equilibrium point of the market is eventually reached while we cannot in general compute it beforehand.”

Markets may be able to reach non-computable results because markets do not need to know what they are doing ahead of time. A more or less unhampered market economy is not a person or a planning entity of any sort. It is a blind process that unfolds in unpredictable ways. Each participant in the system makes his or her own plans, some of which succeed and some of which fail. But none of them has or needs a theory of the whole, let alone a theory that would reliably predict in detail future states of the system. How different the position of the planner or policy maker! The planner or policy maker must have a theory of the whole system that reliably predicts future states of the system in sufficient detail to justify the policy in the first place. Velupillai (2007) and Tsuji, da Costa, and Doria (1998) have shown that such a theory can be beyond the reach of logic itself.
even if we make the fanciful assumption that planners and policy makers are free of all the usual vices and follies of other humans.\footnote{I am neglecting the theoretical possibility of “hypercomputation,” which one might hope could get us around some of the computability problems I refer to. Opinions differ on whether hypercomputation is even theoretically possible (da Costa and Doria 2009, Cockshott et al. 2008). In any event, it is not a current reality. Moreover, Wolpert (2001) shows that computability problems would arise even in a world with hypercomputers.}

The impossibility of rational economic planning under (comprehensive) socialism is but one example of the difficulties of formulating an expert theory.\footnote{I need to add the qualifier “comprehensive,” because the word “socialism” is so elastic. The “Austrian” argument on socialist calculation applies unambiguously to the sort of comprehensive socialism that would plan economic life in relative detail. I agree with the “Austrian” thesis that the imagined middle ground of “market socialism” is also unlikely to generate the kind of outcomes its advocates have imagined. But in the US today the term “socialism” is sometimes used promiscuously. For example, Representative Michele Bachman has called America’s recently enacted healthcare program (sometimes derided as “Obamacare”) the “crown jewel of socialism” (http://www.cbsnews.com/8301-503544_162-20028978-503544.html). And yet one of the 20th century’s most important enemies of socialism, the Austrian economist F. A. Hayek, said in his most famous anti-socialist work “in the case of sickness and accident,” among others, “the case for the state’s helping to organize a comprehensive system of social insurance is very strong” (1944, locations 3603-3607).} Economics provides other examples. To give but one, our theory of markets allowed us to say that airline deregulation would lower costs and increase the volume of air travel. But it did not let us predict the hub-and-spoke system that emerged because of deregulation (Smith 2003: 472).

5. We Need Entrepreneurs

The mathematical results I discussed in the last section show, I think, just how fragile theory is. Theory is hard. For this very reason we need entrepreneurs. If the entrepreneurial market economy is complex in Velupillai’s sense, then it defies prediction. It cannot be simulated on any computer or bank of computers. We cannot have the results of the process, therefore, without the process.

The economist or management professor who would attempt to predict the economy ahead of time imagines himself in a position like that of Edgar Allen Poe’s detective Dupin, who could read the inner thoughts of his friend based only on powerful logic and a few external clues. In Poe’s “The Murders in the Rue Morgue,” Dupin and the story’s unnamed narrator are strolling together in silent thought one evening. Dupin suddenly says, “He is a very little fellow, that’s true, and would do better for the Théâtre des Variétés.” Dupin’s friend is aston-
ished because he had at that very moment been thinking just what Dupin said. Dupin assures his astonished friend that it was all very logical. Earlier in the evening, Dupin’s friend was almost knocked down by a fruiterer, and twisted his ankle slightly on some paving stones piled up nearby. Thus, when they arrive at a properly paved stretch of road, the friend mutters with satisfaction something about “stereotomy,” the artful stone cutting of the pavement. “I knew that you could not say to yourself ‘stereotomy,’” Dupin explains, “without being brought to think of atomies, and thus of the theories of Epicurus,” which would clearly have led the friend to reflect on Greek theories of cosmogony. These reflections, Dupin continues, would inevitably lead his friend to cast is eyes to the night sky where Orion’s belt was prominently in view. Through several more steps, equally improbable, Dupin is finally led to the conclusion that his friend is reflecting on the modest stature of the aspiring actor Chantilly, who, as anyone would have reflected, would do well to shift his ambitions toward the Théâtre des Variétés.

In Poe’s story, the friend is superfluous. His thoughts are transparent to Dupin and thus redundant. Dupin’s model of his friend is perfect and complete, making his friend’s real thoughts useless to him. When policy makers pretend they can foresee which sectors are best for entrepreneurial ventures or even which ventures should be funded, they imagine themselves to be Dupins for whom their friends the entrepreneurs are useless and redundant. (Koppl 2008 and Parker 2007 provide examples.) College professors sometimes put themselves in a similar position. While the literature on “entrepreneurship policy” is varied, some contributors to it seem to exaggerate the human ability to outguess the market process. They overreach. Why would we need entrepreneurs if we could plan, predict, and control the economy in the way dreamed of by some professors?

Our foray into the mathematics of computability shows, however, that we cannot reliably predict the economy or which entrepreneurial ventures will succeed in the way Dupin could predict the thoughts of his friend. But then entrepreneurs are not redundant. We need entrepreneurs for the entrepreneurial market process. We cannot get the results of the entrepreneurial process by any other means. Even if we could somehow simulate the economy, the simulation would “predict” the state of the economy only after the economy got there (Koppl

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8 Audretsch, Grilo, and Thurik (2007a: 9-10) might be an example of mild overreaching, though notable for the prominence of the scholars involved. Hart (2003) and Audretsch, Grilo and Thurik (2007b) contain clearer examples of such overreaching.
Entrepreneurs are not Experts (Audretsch, Grilo, & Thurik 2002, Wolpert 2001). No guidance is provided by a map as big as the territory.

Entrepreneurs can generate their good results only if they are entrepreneurs and not experts, that is, only if we pay them for their goods and not their opinions. Given the ubiquity of non-computability and the fragility of theory, we need the trial-and-error process of market competition to achieve the sort of outcomes we have observed in economies with a complex division of labor. Each entrepreneur makes his cognitive contribution to the process; no entrepreneur is redundant in the system. That entrepreneurs are not experts is a feature of the market system, not a flaw.

References


