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Opportunities and Entrepreneurship

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This article extends and elaborates the perspective on entrepreneurship articulated by Shane and Venkataraman (2000) and Venkataraman (1997) by explaining in more detail the role of opportunities in the entrepreneurial process. In particular, the article explains the importance of examining entrepreneurship through a disequilibrium framework that focuses on the characteristics and existence of entrepreneurial opportunities. In addition, the article describes several typologies of opportunities and their implications for understanding entrepreneurship. © 2002 Elsevier Science Inc. All rights reserved.

In their efforts to define a distinctive domain for the field of entrepreneurship, researchers have recently shifted attention away from approaches that focus on identifying those people in society who prefer to become entrepreneurs towards understanding the nexus of enterprising individuals and valuable opportunities (Venkataraman, 1997). This new focus has required scholars to explain the role of opportunities in the entrepreneurial process.

Several articles (e.g., Shane & Venkataraman, 2000; Venkataraman, 1997) have previously sought to outline this theoretical perspective. Unfortunately, these articles have generated confusion among scholars about entrepreneurial opportunities and their role in the entrepreneurial process (see, for example, Erikson, 2001; Shane & Venkataraman, 2001; Singh, 2001; Zahra & Dess, 2001). This article provides a deeper discussion of the role of opportunities than that provided in the previous papers. We hope that this effort will clarify the central role that opportunities play in a framework for entrepreneurship.

To accomplish this goal, our paper first discusses the equilibrium orientation that underlies much of the theory and empirical testing in entrepreneurship research today. This is an important issue as several approaches explicitly or implicitly assume equilibrium conditions.

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For example, in the section entitled “Existing Theories of Entrepreneurship,” we point out that a large body of entrepreneurship research either implicitly or explicitly assumes that entrepreneurship is a function of differences across people in stable attributes and therefore can be examined empirically through cross-sectional tests that compare different types of people. In response to this orientation, we provide four arguments for why equilibrium assumptions are problematic in the context of entrepreneurship. The second section of our paper, entitled “Moving Away From Existing Theories of Entrepreneurship” explains why entrepreneurship requires theories based on the existence of opportunities and the actions of agents, and not simply based on the characteristics of agents. We continue by explaining what those opportunities are and why prices do not reflect their existence. In this section, we also discuss how opportunities are discovered and how they are exhausted. The third section of our paper, entitled “Types of Opportunities” looks at three important dimensions of opportunities: the locus of changes that lead to the existence of opportunities, the sources of opportunity, and the initiator of the change that led to the opportunity. The fourth section of our paper, entitled “Implications for Theory Development and Theory Testing” discusses the ramifications of our approach for developing theory about entrepreneurship and for data gathering and empirical analysis. A final section offers conclusions.

Existing Theories of Entrepreneurship

For the past 30 years, the dominant theories in entrepreneurship have sought to explain entrepreneurship as a function of the types of people engaged in entrepreneurial activity and, as a result, have largely overlooked the role of opportunities. First, researchers have tended to take a person-centric perspective, in which entrepreneurship depends on stable, enduring differences among people rather than differences in the information they possess about the presence of opportunities. For example, [Khilstrom and Laffont \(1979\)](#) argue that people with a greater preference for uncertainty prefer to be entrepreneurs while those with a lesser preference for uncertainty prefer to be wage employees. Unfortunately, the person-centric approach has been largely unsuccessful in explaining entrepreneurship ([Gartner, 1990](#)), in part because entrepreneurial activity is episodic, making it unlikely to be explained by factors that influence human action in the same way all of the time ([Carroll & Mosakowski, 1987](#)). Our central point is that the episodic information that people have gathered about particular opportunities also matters to entrepreneurship and is under-investigated.

Second, many researchers have assumed that entrepreneurship is an equilibrium phenomenon, either explicitly, as is the case in economics research on the topic, or implicitly in the management and organizations literature, where scholars use static cross-sectional tests that can only be valid if the phenomenon under investigation is time invariant.

We argue that to successfully explain entrepreneurship requires researchers to assume or allow *disequilibrium*. To show why disequilibrium is necessary for entrepreneurship, below we summarize the basic assumptions of equilibrium theories and explain why these theories fail to capture entrepreneurship adequately.

Equilibrium theories model market economies in a state in which participants have no incentive to change their present actions, as they are satisfied with the current combination of prices and quantities that are bought or sold ([Pearce, 1992](#)). In the parlance of economics,

equilibrium is a pareto-optimal state in which no gains from trade exist (Mas-Colell, Whinston & Green, 1995). This outcome imposes very strict constraints, which are inconsistent with the entrepreneurial process.

First, equilibrium theories conclude that current prices convey all of the relevant information necessary to direct resources. By incorporating the information from all members of society, the price system provides the means to incorporate everyone's information in a way that allows them to accurately coordinate resources (Hayek, 1945). However, for the price system to work as a resource allocator in a given period, all relevant information must be reducible to price bids. Unfortunately, prices do not perfectly convey all of the information necessary to make decisions about resource allocation. For example, prices do not convey information regarding how a new technology would change future demand or future production costs for a good. Nor do current prices transmit information about failed entrepreneurial ventures. Only after entrepreneurs have engaged in organizing activities and market transactions that utilize the new technology successfully can prices incorporate such information.

Second, equilibrium theories assume that all information and expectations of market participants about the future can be reduced to current price bids for resources (Arrow, 1974), thereby enabling long term contracts based on present prices. However, for future information to be reducible to current price information, futures markets must exist for all goods and services. Futures markets do not exist for creative activities because these activities are plagued by information problems. There is no way of separating bad luck from low effort or low quality in activities that are unique. As a result, futures markets for creative acts fail from moral hazard and adverse selection problems. Further, market participants are unable to base decisions on information that is fundamentally unknowable in the present period (Simon, 1955), such as the characteristics of future demand, in markets that do not yet exist.

Third, equilibrium theories assume that all decisions are optimizing decisions. When all of the information necessary to make decisions is incorporated into prices, decision making becomes a mechanical process of applying mathematical rules of optimization (Casson, 1982). However, many important decisions about how to allocate resources are not made by optimizing within given constraints. Rather these decisions involve creative processes, in which the constraints themselves are determined by the entrepreneur.

Fourth, by assuming that prices always accurately direct productive resources, equilibrium theories ignore temporary disruptions in the price system that would allow one to buy or sell resources in response to beliefs about the profit potential of new combinations or in response to conjectures regarding errors in judgment by other economic actors. In an equilibrium system, no one can possess such information because prices automatically shift in response to changes in supply and demand. As Hayek (1945: 527) explains, "the marvel is that in a case like that of a scarcity of one raw material, without an order being issued, without more than perhaps a handful of people knowing the cause, tens of thousands of people . . . are made to use the material or its products more sparingly."

But why are people "made to use" resources in this way? In reality, prices do not shift automatically, but respond to the purchasing decisions of a "handful of people" some of who may know the cause. If this is so, then prices change because a handful of entrepreneurs recognized a disequilibrium situation and purchased resources in response to beliefs about the future profit potential of possessing the resource.

Moving Away from Existing Theories of Entrepreneurship

Given the problems of taking an equilibrium perspective on entrepreneurship, we assume that equilibrium is either never fully realized in market economies (Kirzner, 1985), or is intermittently disrupted by the profit-seeking actions of individuals (Schumpeter, 1934). Thus, in contrast to equilibrium theories, which assume away the existence of entrepreneurial opportunities, we view entrepreneurship as requiring those opportunities (Shane, 2000).

Following Venkataraman (1997), we define entrepreneurship as the discovery, evaluation, and exploitation of future goods and services. This definition suggests that, as a scholarly field, entrepreneurship involves the study of opportunities (Shane & Venkataraman, 2000).¹ To explain the presence of entrepreneurial opportunities, we first define what they are and contrast them with other opportunities for profit. We then explain why prices are incomplete indicators of profitable opportunities. We finish the section with an exploration of the lifecycle of entrepreneurial opportunities.

Entrepreneurial Opportunities Defined

Following Casson (1982) and Shane and Venkataraman (2000), we define entrepreneurial opportunities as situations in which new goods, services, raw materials, markets and organizing methods can be introduced through the formation of new means, ends, or means-ends relationships. These situations do not need to change the terms of economic exchange to be entrepreneurial opportunities, but only need to have the potential to alter the terms of economic exchange. In addition, unlike optimizing or satisficing decisions, in which the ends that the decision maker is trying to achieve and the means that the decision maker will employ are given, entrepreneurial decisions are creative decisions. That is, the entrepreneur constructs the means, the ends, or both.

The creation of new means-ends frameworks in entrepreneurial decision making is a crucial part of the difference between entrepreneurial opportunities and situations in which profit can be generated by optimizing within previously established means-ends frameworks (Kirzner, 1997). Entrepreneurial opportunities cannot be exploited by optimizing because the set of alternatives in introducing new things is unknown, precluding mechanical calculations between all possible alternatives (Baumol, 1993). Thus, while non-entrepreneurial decisions maximize scarce resources across previously developed means and ends, entrepreneurial decisions involve the creation or identification of new ends and means (Gaglio & Katz, 2001) previously undetected or unutilized by market participants.

Why Prices are Incomplete Indicators of Opportunity

The market system is a powerful means of coordinating economic activity because prices simultaneously coordinate the production plans, resource availability, and resource requirements of market participants in a way that limits the cognitive demands on any one individual. By efficiently transmitting information, the invisible hand of the market coordinates the actions of millions of people who never have to interact directly with one another, or even know why or how others produce goods and services (Barney, 1991; Smith, 1776).

As valuable as the price system is to the coordination of economic activity, it has one major weakness: prices do not accurately convey all information necessary to coordinate economic decisions. As a result, prices do not accurately guide the discovery and exploitation of entrepreneurial opportunities.

For entrepreneurial opportunities to exist, people must not agree on the value of resources at a given point in time. For an entrepreneur to exploit an opportunity, he or she must believe that the value of resources, used according to a particular means-ends framework, would be higher than if exploited in their current form. In addition, profits are limited if the belief is universally shared (Casson, 1982). If all of the current resource owners and other potential entrepreneurs shared the entrepreneur's belief in the correctness of the proposed new means-ends framework, then they would hold the same beliefs about the value of resources as the focal entrepreneur. If they based their decisions on these beliefs, this situation would limit the ability for the focal entrepreneur to obtain the resources at a price that would allow profitable use (Shane & Venkataraman, 2000).

But why, in a market economy, should people hold different beliefs regarding the value of resources if the price system provides an efficient means of transmitting information about changes in beliefs between disconnected individuals? The answer is that prices fail to provide all of the necessary information to make all decisions about resources.

First, prices convey only part of the information necessary to direct opportunities to serve existing markets. Producers are unable to make production decisions and allocate resources simply by producing quantities that set prices to marginal cost, as costs are unknowable before goods and services are created. Prices also fail to provide information on how new markets could be served, how a new technology could be used to improve a production process, or how a new way of organizing will generate value. In addition, prices do not contain information about prior failures at that effort, or articulate how one's approach to using resources would stand vis-à-vis the approaches of potential competitors.

Second, prices convey even less information to direct opportunities to serve markets that do not yet exist. While market participants might be satisfied today, a future condition might emerge that would lead them to desire a new good or service. However, as Arrow (1974) explained, there are no contingent prices for future goods and services. In the absence of futures markets for goods and services, there is no way to use current prices to determine if there would be an opportunity to serve a market that is not yet in existence. Similarly, there is no way for current prices to guide the allocation of resources in the current period in anticipation of resource needs of markets that will exist in the future, but that do not currently exist.

Evidence of the latter problem is most prevalent during periods of technological change, which do not appear to be anticipated by markets. For example, in the 19th century, just prior to the invention of steam ships, prices sent incorrect signals to sailboat producers and customers about the production of sail-powered cargo vessels designed to last for several decades (Slaven, 1993).

Given that prices cannot tell people what future demand will be, they provide limited information about forward marginal costs or revenues. Similarly, because markets set prices on known technology, not new methods that may be discovered in the future, prices do not reflect the relative benefits of different innovations if they would be introduced in the future.

However, the appropriateness of resource allocation decisions in the current period, such as investments in durable plant and equipment, are contingent on the characteristics of future markets for goods and services.

Thus, even Hayek's (1945: 526) example of the value of the price system in the tin market shows the limitations of the price system for allocating resources for entrepreneurial opportunities. He wrote, "assume that somewhere in the world a new opportunity for the use of some raw materials, say tin, has arisen, or that one of the sources of supply of tin has been eliminated. It does not matter . . . which of these two causes has made tin more scarce. All that the users of tin need to know is that some of the tin they used to consume is now more profitably employed elsewhere, and that in consequence they must economize tin." To Hayek, producers need only to look at the prevailing price of tin when making production decisions.

However, Hayek's account only describes how prices guide the decision process of tin producers who are selecting what quantity of a standardized good currently under production to produce. Prices provide little information to guide producers who have developed a novel use for tin or even if they should invest resources in developing such novel uses.

To the entrepreneur seeking to profit from this change, which of the two causes of tin scarcity is of fundamental importance. If an entrepreneur believes that the shortage of tin has resulted from the new use of tin, she may conjecture that using tin in the new way would be profitable if she is able to copy this new use of tin. Therefore, purchasing the tin, creating a new product, and then selling it would result in a profit. On the other hand, if the true cause of the tin shortage were an elimination of a source of supply, then she will be unable to profit from the change unless she has access to supplies of tin. The difference between entrepreneurial profit and loss in this case lies not in the information about the shortage of tin indicated by the price change, but in the entrepreneurial conjecture as to the *cause* of that shortage.

Discovery Defined

Given the limits to the price system described above, situations arise in which prices provide insufficient information to allocate resources. In these situations, individuals must make decisions based on information not incorporated in prices, and do so through mechanisms other than optimization. Entrepreneurial discovery is the perception of a new means-ends framework to incorporate information, incompletely or partially neglected by prices, that has the potential to be incorporated in prices and thereby efficiently guide the resource allocation decisions of others.

Entrepreneurs bring new means-ends decision making frameworks into the price system by forming perceptions and beliefs about how to allocate resources better than they are currently allocated or would be allocated in the future on the basis of information not incorporated in prices. By leading entrepreneurs to buy resources, use them for different purposes, and sell the outputs, these perceptions create new markets or update old ones. The prices that are updated or created through this process increase the accuracy of decisions of others who coordinate resources by optimizing within the price-based market system. In Hayek's example, the production plans and use of tin of other producers was updated by the novel use of tin by one individual.

Formulating a profitable conjecture about an opportunity is far from the trivial exercise of optimizing within existing means-ends frameworks because it requires forming expectations about the prices at which goods and services that do not yet exist will sell (Arrow, 1974; Venkataraman, 1997). When these conjectures prove correct, entrepreneurs earn entrepreneurial profit, but when they prove incorrect, entrepreneurs incur entrepreneurial loss (Casson, 1982; Shane & Venkataraman, 2000).

The process of discovery describes how individuals² acting alone, or within firms, perceive of a previously unseen or unknown way to create a new means-ends framework.³ For example, suppose an individual has perceived that she can produce a new item by a previously unknown means. To establish if the opportunity has value in the first case, the individual must conjecture that a positive probability exists that the future price of the item will exceed its costs and that future demand will exist. In the latter case, the individual will need to conjecture that once others are presented with the actual product, they will respond positively to it. In both cases, the individual must attempt to foresee the characteristics of future markets to determine *ex ante* if the opportunity has potential value.

Predicting such things with certainty is not possible, as it requires individuals to possess information that does not yet exist at the time of individual discovery. For example, current customers are unlikely to provide accurate forecasts of their own future demand for new products even when working prototypes exist (Christensen & Bower, 1996). In addition, individuals may be mistaken in their analysis of the characteristics of the usefulness of new items. Therefore, individuals, operating alone or within firms, lack sufficient information to establish if a discovery has been made, when discovery is defined as the recognition of information that can update prices.

In the process of the exploitation of opportunities, individuals acquire resources and engage in activities that change prices and provide information to others. The process of exchange and interaction provides information that increases the mutual awareness among market participants about the characteristics of the opportunity (Arrow, 1974; Jovanovic, 1982; Venkataraman, 1997). This information may either encourage or discourage the individual pursuing the opportunity from continuing.

The only reliable confirmation that a previously unseen or unknown valuable opportunity does in fact exist occurs when a market has been created for the new item. In the absence of market confirmation, the validity of the entrepreneur's perception is unknown; no knowledge is recorded in prices, and therefore the production plans and preferences of individuals are not updated.

The Life Cycle of Opportunities

If an entrepreneur does discover a valuable opportunity, and that opportunity generates entrepreneurial profit, that profit is likely to be transient due to external and internal factors. First, the disequilibrating shocks that initially generated the opportunity are often replaced by other shocks that open up new opportunities and close up the existing ones (Schumpteter, 1934). Second, even when new shocks are not triggered, the opportunities become exhausted by competition. The information asymmetry that creates opportunities in the first place is subsequently reduced by the diffusion of information about the opportunity. When entrepreneurs exploit opportunities, they transfer information to others about what

the opportunity is and how to pursue it. Although this imitation might initially legitimate an opportunity, it also generates competition that exhausts the discrepancy to the point where the incentive to act no longer exists (Schumpeter, 1934; Shane & Venkataraman, 2000). Third, information about the opportunity diffuses to resource owners, who may seek to capture profits by raising the price of their resources in response to information generated by the actions of the entrepreneurs about the new value of their resources (Kirzner, 1997).

However, the opportunity half-life can last longer or shorter depending on a variety of factors. First, mechanisms that limit imitation by other entrepreneurs, such as trade secrecy, patent protection, or monopoly contracts prolong the life of the opportunity (Shane & Venkataraman, 2000). Second, mechanisms that slow the transmission or recognition of information about the opportunity hinder imitation, thereby extending the life of the opportunity. They also include situations in which few parties have the requisite knowledge to copy a way of exploiting an opportunity despite its demonstration (Zucker et al., 1998).

Types of Opportunities

Entrepreneurial opportunities manifest themselves in a variety of different ways. We believe that the prior literature has offered three valuable ways of categorizing opportunities: by the locus of the changes that generate the opportunity; by the source of the opportunities themselves; and by the initiator of the change. In the sections below, we consider these different dimensions.

Locus of Changes

Although most entrepreneurship research implicitly assumes that entrepreneurship involves changes in products or services, entrepreneurial opportunities can, in fact, occur as a result of changes in a variety of parts of the value chain. Schumpeter (1934) suggested five different loci of these changes: those that stem from the creation of new products or services, those that stem from the discovery of new geographical markets, those that emerge from the creation or discovery of new raw materials, those that emerge from new methods of production, and those that are generated from new ways of organizing.

Certainly, the creation of a new good or service can create an opportunity for entrepreneurial profit, as is the case when the development of accounting software or a surgical device makes possible a product or service that can be sold for greater than its cost of production. However, as we have seen from the development of the Internet, new modes of organizing that do not require bricks and mortar locations also generate opportunities for entrepreneurial profit. Similarly, the discovery that seaweed could be sold as a food in the United States as well as Japan generates the opportunity for entrepreneurial activity, as did the discovery that oil provided a better fuel than many other raw materials previously discovered. Finally, new methods of production, such as the assembly line or computer-aided drug discovery, have provided opportunities for entrepreneurial profit.

Sources of Opportunities

Opportunities also vary as to their source. We believe that prior research suggests four important ways of categorizing opportunities by sources. The first involves considering differences between opportunities that result from asymmetries in existing information between market participants and opportunities that result from exogenous shocks of new information. The second comparison lies between supply and demand side opportunities. The third differentiates between productivity-enhancing and rent-seeking opportunities. The fourth lies in identifying the catalysts of change that generate the opportunities.

Information asymmetry vs. exogenous shocks. Kirzner (1973) and Schumpeter (1934) disagreed over whether exogenous shocks of information are the primary catalyst of entrepreneurship. In what Venkataraman (1997) termed the strong form of entrepreneurship, Schumpeter (1934) held that periods of market efficiency are punctuated by periods of upheaval. Changes in technology, regulation, and other factors generate new information about how resources might be used differently. This information changes the price for resources, thereby allowing economic actors who have early access to the new information to purchase resources at low prices, use the information to create products or services and sell them at an entrepreneurial profit (Schumpeter, 1934; Shane & Venkataraman, 2000).

In contrast, Kirzner (1973, 1985, 1997) holds that opportunities exist even in the absence of this new information. In the absence of prices, he argues, people form beliefs in response to information they possess. Because those beliefs are influenced by a wide variety of ceaselessly changing factors, they are never 100% accurate. As a result, market actors make mistakes in their decisions, creating shortages and surpluses of resources (Gaglio & Katz, 2001). People alert to these mistakes can obtain resources and use them to create a profitable new product or service (Shane & Venkataraman, 2000).

The state of research on exogenous shift-based opportunities. Existing research describes several dimensions of opportunities that result from exogenous shifts in information. Perhaps most importantly, we know that several types of exogenous shifts exist, including those spurred by government action, those triggered demographic changes, and those generated by the creation of new knowledge.

The exercise of government power influences the volume, distribution, and types of opportunities available. For example, government actions to manage the macroeconomy, such as efforts to change the money supply or interest rates influence entrepreneurial opportunities. Similarly, regulatory intervention has altered the structure of industries thereby creating opportunities for new entrants. Anti-trust and deregulation of industries by the United States Government has created opportunities in industries such as telecommunications, airlines, trucking, railroads, banking, and natural gas (Winston, 1998). In the electric power industry, for example, government actions have influenced the variety and amount of entrepreneurial opportunities (Sine, Haveman & Tolbert, 2001). In that industry, federal regulation has (1) changed the market structure (Gioia, 1989); (2) created markets through the establishment of purchasing guidelines for alternative power producers (New York Times, 1984; Sine et al., 2001); and (3) regulated returns on capital (Farris & Sampson, 1973).

Shifts in societal demographics also generate and close off opportunities (Drucker, 1985). For example, the aging of the baby boomers generates opportunities for reallocation of resources from products and services to children to products and services for the elderly and the growth of the Hispanic population in some areas of the United States has produced opportunities to start Spanish radio stations.

However, the most researched exogenous shift is that catalyzed by the creation of new knowledge. New knowledge creates the opportunity for entrepreneurs to create new goods, to introduce new methods of production, to utilize new sources of supply, to restructure industries, and to create new markets in new regions (Schumpeter, 1934) by replenishing the pool of opportunities that is drawn upon by entrepreneurs in their pursuit of profit (Klevorick, Levin, Nelson & Winter, 1995).

Malerba and Orsenigo (1997) classify the properties of technology regimes that influence the existence and characteristics of knowledge based opportunities on four dimensions. First, opportunity conditions are the factors that influence the ability to innovate for a given investment in search for opportunities. Second, appropriability conditions describe the ability and methods to prevent the mechanisms of opportunity exploitation from being imitated by others. Third, cumulateness conditions tie past search activities to future possibilities. Fourth, the nature of the knowledge itself influences the type and volume of opportunities.

Opportunity conditions are defined by the amount, variety, and source of feasible solutions. For example, some industries may benefit from advances in basic scientific understanding, such as biotechnology or semiconductors, while others may not (Klevorick et al., 1995). Opportunity conditions are most favorable when for a given investment the likelihood of achieving innovation is high and when it is possible to use a single development for multiple solutions.

Appropriability conditions consider the effectiveness of efforts to imitate a mechanism to exploit an opportunity. In industries where appropriability conditions are strong, effective methods exist that prevent others from imitating investments in innovation. For example, investments in new drugs in the pharmaceutical industry are protected from imitation by effective patents for an extended period. Research indicates that methods of protection vary widely by opportunities. For example, patent effectiveness has been found to be more effective in preventing imitation of product innovations while secrecy appears to be a superior method to protect process innovations (Levin, Klevorick, Nelson & Winter, 1987).

Appropriability conditions may alter the type of opportunities available in an industry, but no clear relationship has been established between the strength of methods to protect innovation and the aggregate level of opportunities. For example, technological regimes under which appropriability mechanisms are weak limit the returns directly earned by innovators. However, in such regimes profitable opportunities may exist to duplicate innovative efforts by others.

Cumulative conditions describe the relationship, if any, between historical and future exploitation of opportunities. Industries with strong cumulative conditions are those where current developments build on prior developments. This is likely to occur when prior knowledge investments constrain future exploitation, when technological and organization capabilities enhance the search for new knowledge, or when feedbacks exist between earlier innovation and the ability to continue to innovate (Malerba & Orsenigo, 1997).

Lastly, the nature of the knowledge itself is likely to influence the volume and type of entrepreneurial opportunities. Knowledge may be either generic or specific to a single application. Moreover, it may be tacit or codifiable, and it may draw on the integration of multiple technological fields and disciplines. Knowledge may also be easily isolated or it may be imbedded in a complex system and therefore not well understood (Malerba & Orsenigo, 1997). In all cases, the knowledge characteristics of industry may help determine the types and volume of opportunities available for discovery and exploitation.

The state of research addressing information asymmetry-based opportunities. Drucker (1985) discusses four sub-sets of opportunities based on information asymmetries. First, incongruities may exist between micro-level behavior and macro-level outcomes. For example, an industry might face macro-level inefficient allocation of resources, such as investments in large-scale production facilities that serve markets with cyclical demand. These cyclical enterprises are frequently accompanied by rising demand and poor performance, are typically profitable only at peak points in the industry cycle, and therefore signal that a superior business model or production plan may be more profitable.

Second, incongruities may exist between realities of an industry and generally accepted assumptions about it. In this case, expected events result in observed surprises. For example, a widespread belief may exist that the key to increasing firm performance is to invest in a specific technology. However, such a relationship may not exist, creating an opportunity for those that recognize that expected performance increases are not materializing. Widespread unprofitable investments in vehicle efficiency instead of improvements in logistical technology in the shipping industry are an example of such an opportunity (Drucker, 1985).

Third, incongruities may exist between the efforts of an industry and the particulars of consumer demand. In this case, firms fail to recognize that latent demand exists for only minor modifications to existing products, or for an overlooked demographic group. As a result, opportunities exist to simply do what other people have failed to do because of the latter's cognitive errors.

Fourth, internal incongruities may exist within the rhythm or the logic of a key industry process. In this case, opportunities exist for improving key steps in industry routines that have been perpetuated without question. For example, advances in distribution capabilities in unrelated industries may antique an organizational process. An opportunity exists if entrepreneurs can transfer the process improvement to the focal industry (Drucker, 1985; Levin et al., 1987).

Supply vs. demand side changes. Opportunities can also be classified on whether the changes that generate them exist on the demand or the supply side. In general, the entrepreneurship literature implicitly focuses on supply side changes. For example, most discussions of opportunity concern changes in inputs, ways of organizing, production processes, or products (Schumpeter, 1934). But changes in demand alone can generate opportunities. Customer preferences influence the allocation of resources because producers need to respond to the preferences and purchasing habits of consumers. Thus, demand changes from exogenous shifts in culture, perception, tastes, or mood can open up opportunities (Kirzner, 1997; Schumpeter, 1934), as in the case of demand for American flags in

response to a terrorist attack. The opportunity is created if the increase in demand outpaces investments in production capacity, generating opportunities to add more capacity, perhaps on more economic terms (Drucker, 1985). In addition, growing markets might create new niches (Christensen & Bower, 1996) as well as the opportunity to specialize (Geroski, 2001).

To the extent that observed entry corresponds with the existence of opportunities, some empirical support exists for the existence of opportunities in growing markets. For example, Acs and Audretsch (1989), Highfield and Smiley (1987), Romanelli (1989), and Shankar, Carpenter and Krishnamurthi (1999), all find a positive correlation between market growth and firm entry. However, the research to date addresses this topic only indirectly, and more studies should explore demand-driven entrepreneurial opportunities.

Productivity-enhancing vs. rent-seeking opportunities. Much of what researchers imply when they discuss entrepreneurship is productive entrepreneurship. In the standard view, the pursuit of entrepreneurial opportunity has productivity-enhancing outcomes, as economies are made more efficient. However, it is also possible to think of entrepreneurial actions as private rent-seeking, which Baumol (1990) has defined as opportunities that generate personal value, but no social value. He points out several types of entrepreneurial opportunities that are not productivity-enhancing, including crime, piracy, and corruption.

Merger activity provides a good example of the potential for both productive and unproductive entrepreneurship. The change in resource use that occurs from a merger or break-up of firms can create productive opportunities as new customer relationships or economies of scale are generated. However, mergers may also generate unproductive opportunities, as would be the case if a merger merely shifts wealth from consumers to producers by reducing competition.

Researchers would provide a valuable contribution to understanding entrepreneurship by examining several facets of this categorization of opportunities. Venkataraman (1997) suggests that researchers investigate the social, legal, and political factors that influence the relative distribution of productive and unproductive opportunities across locations. Baumol (1990) suggests that researchers also examine relative distribution over time, arguing that, in the same location at different points in time, the potential to add value from new combinations of resources might be higher or lower than the potential to shift value from others via new combinations of resources.

Initiator of the change. A final dimension on which opportunities have been classified is by the actor that initiates the change. Different types of entities initiate the changes that result in entrepreneurial opportunities, and the type of initiator is likely to influence the process of discovery as well as the value and duration of the opportunities. Among the different types of actors that researchers have identified are non-commercial entities, such as governments or universities; existing commercial entities in an industry, such as incumbents and their suppliers and customers; and new commercial entities in an industry such as independent entrepreneurs and diversifying entrants (Klevorick et al., 1995).

Although researchers have not often examined the actors that generate opportunities much outside the area of technological opportunities, work in that area is instructive. Researchers have shown that two sets of actors are very important to the creation of technological

opportunities: specialized knowledge creating agencies, such as universities or research laboratories that lie outside the industrial chain, and firms within the industrial chain, including suppliers and customers (Klevorick et al., 1995). The two sets of actors have a different likelihood of generating opportunity-creating changes under different industry knowledge conditions. Researchers have also examined the conditions under which the actors within the industrial chain that generate opportunity-inducing changes are most likely to be users (Von Hippel, 1988), upstream suppliers, or the incumbent firms themselves (Klevorick et al., 1995). Additional research in this area would increase our understanding of the factors that influence the prevalence of economic opportunities in market economies.

Implications for Theory Building and Theory Testing in Entrepreneurship

The arguments that we presented above have several implications for theory building and theory testing in entrepreneurship. First, our arguments suggest that significant progress in theory building may be achieved by a shift away from the “entrepreneurial type” paradigm that is rooted in implicit assumptions about equilibrium differences between entrepreneurs and other types of people to a paradigm of entrepreneurship that is embedded in the concept of disequilibrium and incomplete information about opportunities. As we described earlier, the basic rudiments of this framework hold that the basis for entrepreneurial activity is rooted in an economic system in which information is unevenly distributed across people. It is the possession of idiosyncratic information that leads to the existence and identification of entrepreneurial opportunities—opportunities to obtain and use resources in the search for profit.

Second, an opportunity-based perspective on entrepreneurship provides researchers with the same general framework to explain many parts of the entrepreneurial process. As a result, the framework can be utilized by scholars to move beyond studies that test theories from other fields in “entrepreneurial settings” to studies that test central questions about the discovery, evaluation, and exploitation of opportunities.

For example, research on entrepreneurial finance can be linked to research on opportunity discovery and evaluation in an opportunity-based framework. Efforts to exploit one’s information through the entrepreneurial process leads to important structural characteristics in the search for resources and the organization of opportunity exploitation. Consequently, the link between explanations for how people discover opportunities and how they use social capital and contracting mechanisms to overcome problems of information asymmetry and uncertainty in resource acquisition is much easier to accomplish in an opportunity-based explanation for entrepreneurship than in a human-type explanation for entrepreneurship.

A third implication of the argument presented above is that the field is better served by studies of the entrepreneurial process itself than studies which focus on normative arguments for the performance of individual entrepreneurs. The opportunity-based perspective indicates that much of the entrepreneurial process depends heavily on factors beyond the control of individual entrepreneurs. In particular, the variance in opportunities that entrepreneurs discover seems to be crucial to the process. Rather than explaining, for example, why one new Internet company succeeds and another fails, the opportunity-based perspective suggests significant advances will result from studies that focus on explaining such questions

as why Internet business models might be more valuable in a given industry than “bricks and mortar” businesses.

Moreover, a focus on entrepreneurial opportunities leads researchers to move away from the assumption that the process is done correctly by the majority of entrepreneurs. For example, researchers may predict the factors that lead entrepreneurs to write business plans, raise money, hire people, etc. . . . without the assumption that these activities have any effect whatsoever on the overall performance of the new venture that is undertaken.

A fourth implication of the opportunity-based approach to entrepreneurship is that explaining the emergence and existence of entrepreneurial opportunities is a question of fundamental importance. One topic that warrants further investigation involves explaining how social, political, regulatory, legal, and technological change create and eliminate entrepreneurial opportunities. In addition, advancing our understanding of the potential of particular opportunities, such as the creation of the Internet, the shift of women into the work force, and changes in regulation in post-communist societies (rather than just the potential of individual entrepreneurs pursuing those opportunities), would be of significant value. As a result, the environmental and structural approaches to entrepreneurship that these arguments entail may become a much larger part of the field than is currently the case.

A final implication of an opportunity-based perspective on entrepreneurship is that the methodologies that researchers use to test theories about entrepreneurship will have to change. Because the opportunity-based perspective eschews equilibrium reasoning, it implies that researchers cannot conduct static cross-sectional tests to explain the phenomenon. Rather, researchers will need to use tools that are better suited to examining dynamic processes that occur over time. From a non-statistical perspective, this means that longitudinal process studies, experiments, simulation models, and historical studies will be necessary to properly examine entrepreneurship questions. From a statistical point of view, the opportunity-based view of entrepreneurship suggests that researchers will not simply analyze questions through the use of ordinary least squares regression techniques that assume normal distributions of static data. Rather researchers will likely use event history models, sequence analysis, and panel data sets with random and fixed effects models to partial out unobserved heterogeneity in opportunities and individuals. This latter technique will be driven by the absolute necessity that opportunities be captured in our research, despite the difficulty in measuring them. Heckman selection correction will most certainly be adopted as a standard operating procedure in our statistical analysis, as selection is a major problem in entrepreneurship. Analysis using poisson and negative binomial models will become more common as researchers recognize the nature of the distribution of entrepreneurship data sets.

Conclusion

The purpose of this article was to clarify the role of opportunities in the entrepreneurial process. We explained the weaknesses of the dominant equilibrium approaches to entrepreneurship and demonstrated why entrepreneurship needs to be examined through a disequilibrium framework. We discussed the existence of entrepreneurial opportunities, particularly as they relate to the limits of the price system. The article also reviewed several

typologies of opportunities. For all of these topics, we presented the logical arguments for our approach to entrepreneurship. We also suggested how the perspective on entrepreneurship that we outlined might influence the development of the field. We hope that this article stimulates other scholars to join the effort to refine this framework and gather robust empirical evidence to examine its validity.

Notes

1. Our perspective does not require features common to other theories of entrepreneurship. First, we do not view the creation of new organizations as a defining characteristic of entrepreneurial activity. Second, our perspective does not assume that the same person or firm engages in all parts of the entrepreneurial process. Finally, our perspective does not assume that any consistent relationship exists between the effort or skill at discovery or exploitation, and entrepreneurial profits earned.
2. Because the discovery of an opportunity is a cognitive act, it is also an individual act.
3. Whether in fact this perception is correct is unknowable at the time of initial perception, as it involves the ability to predict factors such as the characteristics of future market demand, or the extent to which individuals can be convinced to commit resources sufficient to sustain the effort to pursue the opportunity.

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