

A subjectivist theory of entrepreneurship

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A Subjectivist Theory of Entrepreneurship

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Introduction

One Sunday morning in 1972, Bill Bowerman's wife went to church. While she was at church, Bowerman's thoughts turned to his perpetual work-related preoccupation: how to help his team's athletic runners gain better foot traction. Bowerman was the head track coach at the University of Oregon, and his coaching career aspiration was to win more track and field events. Bowerman noticed his wife's waffle iron out on top of the kitchen counter, and he noticed the waffle tread design on the griddle. He poured liquid rubber onto the hot waffle iron. From this inspiration, he began to produce soles of athletic shoes with a waffle tread, sewing the soles onto other shoes. He soon discovered that the deeper indentation and the more detailed pattern allowed his runners better foot traction. Eventually, the outcome of his experimentations emerged as Nike's first shoes (Strasser and Becklund, 1993; Yoffie, 1998).

College of Business students who are business administration majors typically have little difficulty relating to this business story concerning entrepreneurship. University students who are economics majors, however, while typically finding this business story intrinsically interesting are often puzzled. Nothing in their formalized disciplinary economics training guides these students to understand more fully how this entrepreneurial activity occurred. Scanning the table of contents of the typical microeconomics textbook yields multiple references to concepts such as consumer surplus, cost functions, demand functions, economic rents, elasticity, equilibrium, externalities, game theory, oligopoly, production functions, social welfare, supply curves, transaction costs, utility maximization, and so forth. One searches in vain, however, for entrepreneurial topics on entrepreneurial discovery, entrepreneurial vision, experimentation, and "exploratory learning" (see e.g., McGrath, 2001). In short, equilibrium theory neglects market processes. In fact, in standard neoclassical equilibrium theory there is simply nothing for the

entrepreneur to do. Returning to our earlier business example, to maintain, as neoclassical microeconomics theory does, that Bowerman was acting in ways that maximized his own utility function is no doubt true, but such an obviously tautological argument does not take us very far. For one thing, this knowledge claim fails to explain why Bowerman's utility function was not maximized sooner. Why didn't Bowerman search for the waffle iron when he came home from work on Friday night?

In this research paper, we argue that a subjectivist theory of entrepreneurship is required in order to deal constructively with the knowledge creation process. O'Driscoll and Rizzo state that: "On the most general level, subjectivism refers to the presupposition that the contents of the human mind, and hence decision making, are not rigidly determined by external events. Subjectivism makes room for the creativity and autonomy of individual choice" (1985: 1). We seek to ground an economic theory of entrepreneurship in subjectivism, because we argue in the current paper that an entrepreneurial theory that dismisses the very idea of entrepreneurial discovery and creativity misses much of entrepreneurship in action.

The paper proceeds as follows. First we offer a brief criticism of traditional neoclassical microeconomic theory and we note how the entrepreneur and entrepreneurial activity have vanished within this formalized neoclassical framework (Baumol, 1968). Second, we review key elements of a potential subjectivist theory of entrepreneurship that is grounded in economic logic (Vaughn, 1994). Third, we identify a potential source for such new theory building contained in the thought of Edith Penrose (1959), and we analyze the contributions of this resource-based approach in developing a subjectivist theory of entrepreneurship. Conclusions and suggested directions for future research then follow.

Traditional Economic Theory

The entrepreneur and entrepreneurial activity have vanished from traditional neoclassical microeconomic theory. Baumol states that: “The theoretical firm is entrepreneur-less—the Prince of Denmark has been expunged from the discussion of Hamlet” (1968: 66). Formalized, neoclassical economic models simply do not take account of the entrepreneur and entrepreneurial activity. Baumol elaborates further by noting that: “There is no room for enterprise or initiative. The management group becomes a passive calculator that reacts mechanically to changes imposed on it by fortuitous external developments over which it does not exert, and does not even attempt to exert, any influence” (1968: 67). Over thirty-five years later, this fundamental criticism still applies.

In contrast, the concept of the entrepreneur has not been neglected in the history of economic thought. In fact, Richard Cantillon (1755) introduced the very idea of the “entrepreneur” in a work of economic theory twenty-one years before Adam Smith’s (1776) publication of the *Wealth of Nations*, which is generally taken to be one of the great books in the history of social science and, more specifically the beginning of economics as a more formal social science. Moreover, Cantillon (1755) discussed entrepreneurs as bearing risk through trade and organizing production in the face of uncertain future demand and prices, an entrepreneurial function that has not changed for almost 250 years subsequently. So what developments lead to the decline in emphasis on entrepreneurship in economic theory?

Barreto (1989) comprehensively documents the disappearance of the entrepreneur in modern economic theory. According to Barreto’s (1989) historical account, the modern and most important research project in the discipline of economics in the 20th century was to determine under what circumstances (if at all), decentralized economic decision-making could

duplicate the economic outcome of an omniscient allocator of goods and services. Such an economic problem was more than a theoretical abstraction. The collectivist economies of the Soviet Union argued that planning by a central authority would, in fact, do better in allocating resources than chaotic decentralized economies. The Great Depression of the 1930's gave political bite to such criticism of decentralized market-based economies. Both for practical and theoretical reasons, questions concerning the efficiency of decentralized economies were placed in the foreground of the economics discipline.

Economic research succeeded in answering such challenging questions in the affirmative: under certain economic circumstances, the actions of decentralized decision-makers could lead to the same (Pareto optimal) outcome that an omniscient planner could achieve. The theoretical models that were provided for the purpose of answering these key economic questions are typically known as the two fundamental welfare theorems derived from general equilibrium theory (Arrow and Hahn, 1971; Debreu, 1959). However, in the process of meeting these intellectual challenges, the assumptions necessary for solution of the general equilibrium problem eliminated the role of the entrepreneur.

A crucial assumption in this general equilibrium model is that of perfect information. In this reconstructed economic world of perfect information, uncertainty does not exist. Therefore, this assumption, by definition, eliminates the entrepreneur as one who bears the burdens of decision-making under uncertainty. Furthermore, the perfect information assumption rules out price differences, and thus eliminates the entrepreneur as engaged in arbitrage, which has historically been of central interest in Austrian economics (Kirzner, 1973). In such a neoclassical economics framework the firm was represented as a production function and there was no place for a business organizer, the entrepreneur. Finally, with known production

functions and perfect information, there was no room for Schumpeterian innovation (Schumpeter, 1934). General equilibrium theory provided a static conceptualization of economic competition, with no room for change and entrepreneurial adaptation. As a result, the entrepreneur has disappeared and the firm of neoclassical microeconomic theory has become a strange and bloodless creature, unchanging and dehumanized.

Admittedly, it is not quite fair to criticize a theoretical framework for failing to answer a research question it did not ask. Nonetheless, the elimination of the entrepreneur has persisted in almost all of modern neoclassical economic theory. Research in theory typically begins with a formal mathematical setup of interaction among one, two, or many agents. Yet these mathematical models often contain assumptions that by their very nature limit or even eliminate a role for entrepreneurship.

Consider, for example, the typical mathematical principal-agent model, where a principal seeks to monitor agent(s)' behavior. Typically, such formal (mathematical) models include a specification of the information structure of the model, in essence who knows what and when. The intellectual merit of such a research approach is clear: such a research framework allows for a solution to a precisely formulated economic problem. But, with respect to entrepreneurship, searching for information is the entrepreneurial activity par excellence. Assuming in advance precisely what people know rules out the exercise of entrepreneurship at the individual level of analysis. In short, the questions of "who knows what and when" are really at the heart of entrepreneurship and, in some sense, neoclassical economic theory assumes away the very economic problem that needs to be explained and that students in a business school environment find intrinsically interesting and pragmatically worthwhile exploring. It is to these important questions that we now turn.

Elements of a Subjectivist Theory of Entrepreneurship

Maintaining a subjectivist theory of entrepreneurship, the future is not merely unknown, but *unknowable*. Indeed, subjectivism and action under genuine (ineradicable) uncertainty (Knight, 1921) are inseparable ideas. Choices in historical (or real) time are rarely made with complete knowledge (either deterministic or stochastic) of their consequences. The recognition of both unbounded possibility sets (O'Driscoll and Rizzo, 1985: 4) and of bounded rationality (Simon, 1947) is the source of rule-following behaviors (e.g., routines and standard operating procedures) (Cyert and March, 1963; Nelson and Winter, 1982), which serve to produce stable patterns of interaction.

The subjectivist view of entrepreneurship that we maintain in the current paper shares much in common with Nelson and Winter's (1982) classic work on the evolutionary theory of economic change. More specifically, Nelson and Winter (1982) developed a non-deterministic evolutionary theory of the capabilities and behaviors of business firms. In Nelson and Winter's evolutionary economics framework: "firms are modeled as simply having, at any time, certain capabilities and decision rules. Over time these capabilities and rules are modified as a result of both deliberate problem solving efforts and random events. And over time, the economic analogue of natural selection operates as the market determines which firms are profitable and which are unprofitable, and tends to winnow out the latter" (1982: 4). Nelson and Winter's (1982) evolutionary process is not deterministic. Search outcomes, in particular, are partly stochastic. In this sense, Nelson and Winter (1982) provide a neo-Austrian evolutionary theory of economic change. Indeed, Kirzner maintains that: "The notion of discovery, midway

between that of the deliberately produced information in standard search theory, and that of sheer windfall gain generated by pure chance, is central to the Austrian approach” (1997: 72).

A subjectivist theory of entrepreneurship would surely involve a broader definition of rationality than is customary in orthodox neoclassical microeconomic theory, moving beyond simple maximization within a given means-end framework towards identifying new means-ends frameworks. Schumpeter (1934) emphasizes that to assume perfect economic rationality acting on well-defined choice sets is a less than useful fiction when studying the phenomena of entrepreneurship. Schumpeter argues that to cling to the assumption of perfect economic rationality “as the traditional theory does, is to hide an essential thing and to ignore a fact which, in contrast with other deviations of our assumptions from reality, is theoretically important and the source of the explanation of phenomena which would not exist without it” (1934: 80).

Such rationality would include creativity, entrepreneurial discovery, surprise, and learning. Indeed, the detection and correction of error (i.e., learning) is an essential element in the market process, and “entrepreneurial discovery” is anticipated (Kirzner, 1973). “Surprise” is thus integral in the business life of the entrepreneur. In the current paper, we emphasize that from a subjectivist perspective not only can there be entrepreneurial discovery of existing opportunities, but also entrepreneurial *creativity*, whereby entrepreneurs through their (inter)actions create their economic profit opportunities.

Entrepreneurial discovery and entrepreneurial creativity serve a coordination role and, as Barnard (1938: 256) observes, coordination is a creative act. In aggregate, the attempts by entrepreneurs to create new business models lead to interactions (and unintended consequences of action) that constitute the market process. Subjectivist theory suggests that the actions that entrepreneurs need to take to exploit market frictions are not knowable, a priori, and must be

determined over time. Interactions that comprise competitive processes effectively discover facts about customers, technologies, and firms, forming a discovery procedure (Hayek, 1978). The market test then determines which of the entrepreneurial interpretive frameworks are workable in the business world of experience. That is, market activity is a kind of trial-and-error process in which the more competent and knowledgeable participants tend to succeed.

A subjectivist theory of entrepreneurship would not just involve individuals and their knowledge. A subjectivist theory of entrepreneurship would also consider how entrepreneurs add to their learning from the actions and activities of market processes. Competition, Hayek (1948: 94) argues “is essentially a process of the formation of opinion ... a process which involves a continuous change in the data and whose significance must therefore be completely missed by any theory which treats these data as constant.” And, as Hayek explained thirty years later: “Competition is valuable *only* because, and so far as, its results are unpredictable and on the whole different from those which anyone has, or could have, deliberately arrived at” (1978: 180).

The history of technological entrepreneurship and innovation is full of such business examples. For the typical new product, a dominant design emerges as a set of product features, functionalities, and interfaces become standardized. The dominant design is what the product “should” look like. Dominant designs are determined not only by technical criteria, but also by the dynamic process of competition as a discovery procedure. Competition acquaints users with possibilities (Hayek, 1948; Shane, 2000; Von Hippel, 1988), and users choose among those entrepreneurial suppliers that adapt rapidly and are consequently the ones who succeed.

For example, the first typewriters were introduced in 1875, yet the dominant design (the Underwood Model 5) was not introduced until 1899 (Utterback, 1994). Although there were

many desirable attributes of the dominant design, the ability to read one's own typewriting, as one typed, was paramount. Earlier typewriter designs did not allow the typewriting to be viewed until after several line-feeds. Utterback noted that: "The visible writing of the Model 5 allowed the typist to see what he or she had actually typed as the keys struck the page. It was the first to have a tabulator—making columnar presentations much simpler—and it was able to cut stencils and make good copies. These were economically valued features in the marketplace and won Underwood a large share of the commercial office market. And, as more people learned to use the Model 5, it formed their expectations of what a typewriter should be. From that point on, the essential features of the typewriter were set in the Underwood machine" (1994: 33).

Rumelt, building on the concept of entrepreneurial discovery, notes that: "The two basic kinds of entrepreneurial discovery concern the value of resource combinations and the pattern of demand" (1987: 144.) Rumelt (1987) explores the concept of Schumpeterian (entrepreneurial) economic rents from this Kirznerian perspective. In an important sense, Schumpeter's (1934) theory of entrepreneurship is consistent with the subjectivist perspective of the current paper. Indeed, for Schumpeter entrepreneurial success depends on "intuition, the capacity of seeing things in a way which afterwards proves to be true, even though it cannot be established at the moment and of grasping the essential fact, discarding the unessential, even though one can give no account of the principles by which this is done" (1934: 85). Such creative insight is logically prior to an optimizing calculus of decision.

An increased focus on the knowledge and knowing activities of the entrepreneur is necessary and warranted. Examining different categories and characteristics of knowledge may generate new insights that enable entrepreneurs to adapt effectively and to respond rapidly to changing environmental conditions. For example, during the entrepreneurial process,

entrepreneurs acquire non-theoretical “knowledge of the particular circumstances of time and place” (Hayek, 1945: 521). As a second example, some of the knowledge that entrepreneurs apprehend is tacit (Polanyi, 1962).¹ Such tacit knowledge can then be a fundamental source of sustainable competitive advantage for the entrepreneur due to, among other things, uncertain imitability (Rumelt, 1987).

North (1990: 77) maintains that entrepreneurial tasks are to devise and discover markets, and to evaluate accurately product markets and product techniques. North (1990) points out that discovering markets and evaluating product markets and product techniques accurately do not occur in a vacuum. These entrepreneurial capabilities entail the development of tacit knowledge (Polanyi, 1966) to unravel social complexities. Furthermore, North suggests that: “The (political or economic) entrepreneurs may devote their talents or tacit knowledge to ferreting out profitable margins, estimating the likelihood of success, and risking the organization’s resources to capture potential gains. Obviously, the efficiency of organizations depends on perceiving and realizing these opportunities” (1990: 87).

It is not only in knowledge itself, but also in the combination of knowledge that leads to entrepreneurial activities. For Schumpeter the entrepreneur carries out *new combinations* of economic value creation activities: “This concept covers the following five cases: (1) The introduction of a new good ... or a new quality of good. (2) The introduction of a new method of production ... (3) The opening of a new market ... (4) The conquest of a new source of supply of raw materials ... [and] (5) The carrying out of the new organization of any industry ...”

¹ Polanyi reconsiders “human knowledge by starting from the fact that *we can know more than we can tell*”(1966: 4). Polanyi (1966: 61) concludes that: “the transmission of knowledge from one generation to the other must be predominately tacit.”

(1934: 66). Schumpeter (1934) regarded the creative act of coming up with these new combinations of economic value creating activities as fundamentally different from following standard operating procedures. Schumpeter states that: “Carrying out a new plan and acting according to a customary plan are things as different as making a road and walking along it” (1934: 85). Imagining new combinations of economic value creation activities is often described as entrepreneurial creativity. Resonating with this Schumpeterian perspective on entrepreneurial creativity, the former managing partner of McKinsey and Company, Fredrick Gluck, defined the creative person in the following way: “There are only two things that really distinguish the creative person: the possession of a tremendous store of raw information and the ability to combine, order, or connect this information in a novel and better way” (1989: 38.)

Moreover, as Boulding noted: “We are not simply acquiring knowledge about a static system which stays put, but acquiring knowledge about a whole dynamic process in which the acquisition of knowledge is itself part of the process [of discovery]” (1966: 9). Boulding (1966) here anticipates the Kirznerian theory of entrepreneurial discovery. Indeed, Kirzner emphasizes that: “human action involves a *posture of alertness* toward the discovery of as yet *unperceived* opportunities and their exploitation” (Kirzner, 1979: 109).

In summary, this section maintains that a dynamic knowledge creation process is a foundational building block for advancing any useful theory of entrepreneurship, including a subjectivist theory of entrepreneurship that we champion here. In turning to the next section, we argue that Penrose (1959) can be a major source of inspiration for advancing a dynamic (subjective) resource/knowledge-based theory of entrepreneurship and the knowledge creation process.

Penrose's "Resource-Based" Contribution to a Subjectivist Theory of Entrepreneurship

Where, then, to turn to develop a dynamic subjectivist theory of entrepreneurship that is based in economics but valuable to strategic management research? One could turn to Austrian economics as the centerpiece, yet much of contemporary economics views Austrian economics as, at best, an interesting addendum to neoclassical economics (Vaughn, 1994). However, we believe that a more natural starting point can be found in Penrose (1959) and the contributions of this work are covered in nine distinct (albeit inter-related) areas, as listed below. Thus, in the current paper, we highlight the contributions of Penrose (1959) in moving us closer to a useful subjectivist theory of entrepreneurship. In this section we discuss the following concepts:

- The (entrepreneurial) services of resources
- A definition of the term "entrepreneur"
- Entrepreneurial versatility
- Fund-raising ingenuity
- Entrepreneurial judgment
- Subjective production opportunity set
- Entrepreneurial perception and the direction of growth
- Entrepreneurial expectations about demand
- Resources and entrepreneurship

The (Entrepreneurial) Services of Resources. Penrose notes that: "Strictly speaking, it is never *resources* themselves that are the 'inputs' in the production process, but only the *services* that the resources can render. ... {R}esources consist of a bundle of potential services and can, for the most part, be defined independently of their use, while services cannot be so defined, the very word 'service' implying a function, and activity. ... [I]t is largely in this distinction that we find the source of the uniqueness of each individual firm" (1959: 25). In this conceptual distinction between resources and the services of resources a crucial theoretical point is established. The services of resources cannot be defined without reference to their use.

The linkage between resources and the services of resources is subjective; that is to say, this linkage occurs because of the creative insights of the entrepreneur. In a subjectivist theory of entrepreneurship, knowledge is viewed as subjective. Knowledge needs to be discovered and different people may discover different things or put different interpretations on what they discover. Moreover, different persons may, operating with the same resources, generate entirely different services of these resources. The multiple uses of any given resource plus the potential multiple combination of resources form a set of firm-level possibilities. Penrose states that: “The productive activities of such a firm are governed by what we shall call its ‘productive opportunity’, which comprises all of the productive possibilities that its ‘entrepreneurs’ see and can take advantage of” (1959: 31). Such potentially perceived production possibilities are extensive in number and collectively are difficult to enumerate. The difficulty should not obscure the conclusion that, because resources and the services of these resources differ for each individual in a subjective manner, each individual’s productive opportunity differs from others.

Definition of the Term “Entrepreneur.” Penrose maintains that: “The term ‘entrepreneur’ throughout this study [her 1959 book] is used in a functional sense to refer to individuals or groups within the firm providing entrepreneurial services, whatever their position or occupational classification may be. Entrepreneurial services are those contributions to the operations of a firm which relate to the introduction and acceptance on behalf of the firm of new ideas, particularly with respect to products, location, and significant changes in technology, to the acquisition of new managerial personnel, to fundamental changes in the administrative organization of the firm, to the raising of capital, and to the making of plans for expansion, including the choice of method of expansion” (1959: 31). Penrose (1959), like Schumpeter (1934), contains an exhaustive definition of entrepreneurship, one far broader than the popular

press or even much of published entrepreneurial scholarship. The focus in much of the published literature is on novelty, and in particular novel products. But Penrose (1959) points out that entrepreneurship can involve novelty in product or process, organizational design, organizational leadership, financial innovations, and so forth. It is the totality of entrepreneurship, with its effects in product markets, labor markets, and financial markets, which is pragmatically relevant.

We hasten to point out, however, that there are some key conceptual differences between Penrose (1959) and Schumpeter (1934) on the “entrepreneur.” In particular, Penrose notes that: “The Schumpeterian ‘entrepreneur’, though more colourful and identifiable, is too dramatic a person for our purposes. Schumpeter [1934] was interested in economic development and his entrepreneur was an innovator from the point of view of the economy as a whole; we are interested in the growth of firms, and here the entrepreneur is an innovator from the point of view of the firm, not necessarily from the point of view of the economy as a whole” (1959: 36). By defining the appropriate point of reference, Penrose (1959) expands the scope of the concept of entrepreneurship while also capturing its pragmatic utility.

As Hayek (1948) noted, an economy is made up of a myriad of facts in time and in space. Something can only be new to the world once, but it can be new to a distinct firm (or customer, for that matter) and still create utility for one or both parties. Potentially, bringing a chain restaurant such as McDonald’s to different geographic locations is --- subjectively speaking --- an entrepreneurial act at each location, and creates utility and economic wealth at each location. Along with Penrose (1959), we judge it to be far too restrictive to insist that the standard criterion of entrepreneurship be that the innovation must be new to the world. Indeed, that standard of entrepreneurship would result in there being a very small range of entrepreneurial

acts, by definition, and such a restrictive standard would be less than useful because we would then miss much of the drama of entrepreneurial discovery (from the subjectivist perspective).

As Foss (1998) argues, Penrose (1959) largely anticipated Kirzner's (1973) theory of entrepreneurship. Penrose notes that: "the decision to search for opportunities is an enterprising decision requiring entrepreneurial intuition and imagination and must precede the 'economic' decision to go ahead with the examination of opportunities for expansion (1959: 34). Again, the conceptual distinction is made between optimization on the one hand, and search procedures, heuristics and business intuitions based on tacit knowledge and experience, on the other hand.

Entrepreneurial Versatility. Penrose notes that: "A versatile type of [entrepreneurial] service is needed if expansion requires major efforts on the part of the firm to develop new markets or entails branching out into new lines of production. Here the imaginative effort, the sense of timing, the instinctive recognition of what will catch on or how to make it catch on become of overwhelming importance. These [entrepreneurial] services are not likely to be equally available to all firms" (1959: 37). The concept of entrepreneurial versatility helps to explain the persistence of firm-level heterogeneity based on unique entrepreneurial services.

Fund-Raising Ingenuity. Penrose argues that: "[M]any small firms without adequate initial financial resources do succeed, do raise capital, do grow into large firms. And they do this, for the most part, by virtue of special entrepreneurial ability. There are many examples testifying to the ingenuity of the superior businessmen in obtaining the funds he needs, and only if the requisite entrepreneurial ability is lacking can one safely say that a firm cannot attract the required capital" (1959: 37-38). There are numerous examples of entrepreneurs finding novel ways to finance businesses that create economic wealth, even in not-so-novel product markets. Franchising offers an excellent example (Michael, 1996). Restaurants and hotels are among the

oldest businesses in existence. Most franchisors did not, and do not, offer a significant improvement or novelty in those business areas. But, by allowing scope for individuals to participate in the chain as franchisees, a novel fundraising mechanism was created that allowed chain restaurants and hotels to be formed.

Entrepreneurial Judgment. The entrepreneur in Penrose's (1959) resource-based approach is far more than a static (and passive) maximizer, an automaton applying a decision calculus to a clearly defined optimization problem. Penrose submits that: "[T]he problem of entrepreneurial judgment involves more than a combination of imagination, 'good sense,' self-confidence, and other personal qualities. It is closely related to the organization of information-gathering and consulting facilities within a firm, and it leads into the whole question of the effects of uncertainty on, and the role of expectations in, the growth of firms" (1959: 41). Again, the role of subjective personal knowledge and experience come to the foreground of the theory.

Subjective Production Opportunity Set. Penrose suggests that: "If we can discover what determines entrepreneurial ideas about what the firm can and cannot do, that is, what determines the nature and the extent of the 'subjective' productive opportunity of the firm, we can at least know where to look if we want to explain or to predict the actions of particular firms" (Penrose, 1959: 42). A primary shaper of the productive opportunity is likely to be driven by the human and social capital of the entrepreneurs. An economic advantage of the entrepreneurial firm is its capability to add or subtract members to the founding team who may provide the ability to change the productive opportunity of the team. Moreover, Foss (1998) argues that Penrose (1959) emphasizes, among other things: flexibility in an uncertain world, organizational learning as an evolutionary discovery process (Hayek, 1948), the vision of the management team, and entrepreneurship.

Entrepreneurial Perception and the Direction of Growth. Once initial opportunity has been identified, the future growth of the fledgling firm follows the same dominant logic. Unused productive services of resources “shape the scope and direction of the search for knowledge” Penrose (1959: 77). As Mahoney and Pandian (1992: 365) note, the services of resources will depend upon the dominant logic of the top management team, but the development of the dominant logic of the top management team is partly shaped by the resources that the top management team deals with over time. Here in the current research paper, our emphasis is slightly different: the services of resources will depend upon the dominant logic of entrepreneurial vision, but the development of entrepreneurial vision is partly shaped by the resources that these entrepreneurs deal with over time.

The resources that the firm possesses influence the entrepreneur’s “image” (Boulding, 1956). This entrepreneurial image gives rise to the subjective opportunity set of the firm and is a further driver of firm heterogeneity and differential absorptive capacity (Cohen and Levinthal, 1990; Kor and Mahoney, 2000, 2004; Wiklund and Shepherd, 2003). Indeed, at all times there exist within every firm a pool of unused productive services of resources, and these, together with the ever-changing vision of entrepreneurs, create unique (subjective) productive opportunities for each firm. A firm’s current resources serve as cognitive drivers of future strategy via “resource learning” (Mahoney, 1995).

Entrepreneurial Expectations about Demand. The traditional assumption in orthodox neoclassical microeconomics is that demand is exogenous, completely given from the outside, as a force of nature. By contrast, Penrose observes that: “The really enterprising entrepreneur has not often, as far as we can see, taken demand as ‘given’ but as something he ought to be able to do something about” (1959: 80). In fact, Penrose submits that: “There is a close relation

between the various kinds of resources with which a firm works and the development of the ideas, experience, and knowledge of its managers, and entrepreneurs, and we have seen how changing experience and knowledge affect not only the productive services available from resources, but also ‘demand’ as seen by the firm” (1959: 85).

As discussed above, the perception of entrepreneurial opportunity is closely linked to the perception of demand. In addition, however, the entrepreneur typically assumes an ability to influence demand through advertising, selling, personal charisma, and so forth. Put differently, entrepreneurs typically believe in the power of persuasion. Nowhere is this key assertion better illustrated than in the career of Richard Sears, the founder of Sears, Roebuck. Historians Boris Emmet and John Jeuck describe Richard Sears’ entrepreneurial venture in the early days as follows: “The company’s success was due to far more than merely the environment. It may have been true that rural folk needed a system of distribution like Sears’s; but making them realize that they need it was something else. ...Sears the man was perfectly equipped for the job. His spellbinding advertisements exerted a telling effect on farm readers. His compelling messages pulled the reader into his copy and kept that reader’s attention to the end. That end was usually the dispatching of an order to Richard Sears for merchandise.” (1950: 39).

Resources and Perceptions of Entrepreneurs. Penrose’s “resources approach” (1959: 217) focuses on the relationship “not only between the ‘inherited’ resources of a firm and the ability of the firm to take advantage of the opportunities perceived by its entrepreneurs, but also between these resources and the perceptions of the entrepreneurs” (Penrose, 1959: 216). Entrepreneurs, however, typically go beyond the resources they control in order to create a business (Stevenson and Gumpert, 1985). Frequently these entrepreneurs identify an opportunity and a vision, and then seek resources in order to develop this opportunity. Entrepreneurs appear

to take risk only because they sometimes attempt to utilize an opportunity with fewer resources than others (non-entrepreneurs) find adequate. One can view entrepreneurs as those possessing visions and who must assemble resources to make their entrepreneurial visions business reality. In this sense, the entrepreneur perceiving an opportunity who seeks resources to start a firm can be viewed as the “dual” of a firm with resources seeking to identify an opportunity.

A Research-Based Approach to Entrepreneurship. The resource-based approach has proven to be quite fruitful in examining questions of economic performance differences among established firms. Can a resource-based approach to entrepreneurship offer theoretical insight into economic performance differences among entrepreneurs? The analysis of Penrose (1959) suggests that the answer to this research question is yes. The resources under consideration are, of necessity, different from those associated with established firms. The key elements of such an approach include creativity, information, judgment, and perceived possibilities. As the previous section made clear, the theoretical linkages between resources and the services of these resources require that the resource-based approach to entrepreneurship be a subjective one. Moreover, the informational problems associated with economic activity, change, and rapid adaptation, create economic opportunities for new resources to be discovered and implemented by entrepreneurs.

According to Loasby (2002: 52), one of the more conceptually significant and novel elements in Penrose’s (1959) theory is the rejection of the standard concept of a production function in which inputs are assimilated as factors of production, in favor of an analytical scheme in which resources become a distinct subject of economic analysis and their application is problematic, not only because the economic opportunities to their use have to be perceived (Kirzner, 1973) or imagined (Shackle, 1967), but also because the effectiveness of a resource to a particular business application can never be guaranteed in advance.

Penrose (1959) provides a subjectivist economics where decision-making is not rigidly determined by a given external environment. Penrose (1959) makes conceptual room in her theory for the creativity and autonomy of individual choice. Entrepreneurs do not merely respond to, but also create economic change (O'Driscoll and Rizzo, 1985). Penrose (1959) thus anticipates the concept of entrepreneurial discovery (Kirzner, 1979) and market processes as a kind of discovery procedure where a coherent “spontaneous ordering” (Hayek: 1978: 34) can emerge from the market interactions of various entrepreneurial activities, and in which such an ordering is “the result of human action but not of human design” (Hayek, 1948: 7).

Alvarez and Barney argue that: “Indeed, it may be by examining the intersection between entrepreneurship and the resource-based view (RBV) that clarity may be achieved with regard to the larger impact of entrepreneurship on strategic management” (2002: 89). In order to explain economic performance differences among firms, firms have been modeled as bundles of resources. As resource-based theory has developed, the primary theoretical contributions have been refinements regarding under what conditions resources can yield long-run economic performance advantages. To selectively highlight two contributions, resources yield superior economic performance if resources are valuable and rare, and cannot be completely imitated or replaced (Barney, 1991; Peteraf, 1993). Imitation is made difficult by causal ambiguity and social complexity (Barney, 1991; Dierickx and Cool, 1989). Causal ambiguity occurs when an imitator is uncertain about the cause and effect relationships among resources and economic performance. Social complexity occurs when individuals and their respective talents combine into working relationships, teamwork, organizational routines, corporate culture, and other interactions that in effect create a new resource that can only be fully utilized inside the firm.

In short, the heterogeneity of economic performance among firms has been explained as a result of the heterogeneity of resources of firms. But recent theoretical work by a number of important authors has begun to bring Penrosian themes into dynamic resource-based theory. Most especially, researchers have noticed the need for a theory of heterogeneity of opportunities within the dynamic resource-based theory of the firm. For example, Mosakowski (2002: 106-107) argues that: “Traditional research on the resource-based view of strategy has generally ignored the wide range of human choices and behaviors involved in identifying, leveraging, and creating resources. Penrose’s work (1959) is perhaps most sensitive to the importance of managerial choices and behaviors by suggesting that a firm’s resources alone do not matter, but how a firm uses its resources is also important.”²

Entrepreneurial opportunities often exist (or are created) because different decision-makers have different beliefs about the relative economic value of resources when they are converted from inputs into outputs (Schumpeter, 1934; Kirzner, 1979; Penrose, 1959). Indeed, as Alvarez and Busenitz (2001: 756) observe: “heterogeneity is a common attribute of both resource-based and entrepreneurship theory --- although resource-based logic has tended to focus on heterogeneity of resources while entrepreneurship theory has tended to focus on heterogeneity in beliefs about the value of resources.”

² Some scholars working within the resource-based view of strategy have highlighted the entrepreneur’s role in firm strategy (e.g., Alvarez and Barney, 2000; Mosakowski, 1998). Other scholars interested in entrepreneurial phenomena have drawn from the resource-based view of strategy to understand outcomes associated with new ventures (e.g., McGrath, 1995; Thornhill and Amit, 2001). Finally, we note that Alvarez and Busenitz (2001) build a theory of entrepreneurship that builds on Peteraf’s (1993) four cornerstones of competitive advantage: resource heterogeneity (Barney, 1991), ex post limits to competition due to causal ambiguity (Rumelt, 1984), imperfect factor mobility due to non-tradeable asset stocks (Dierickx and Cool, 1989), and ex ante limits to competition (Rumelt, 1987).

Conclusions and Directions for Future Research

The discipline of economics and entrepreneurship research are not, in recent years, well connected. In the current paper we have attempted to connect these two disjoint research literatures. Our intellectual research approach has taken two directions. First, we have highlighted the need for a subjectivist theory of entrepreneurship that focuses on the interrelationships among persons, knowledge, and perceived economic opportunities. Second, we have begun to address this need by building on the seminal work of Penrose (1959), who in important ways anticipated a subjectivist theory of entrepreneurship. We hope that students pursuing the evolving science of organization can bring together the relevance of entrepreneurship research with the rigor that can be found in the economics discipline and that strategic management can move forward to develop a dynamic and integrated subjectivist theory of how entrepreneurship functions for individuals, for firms, and for the economy at large.

Contemplating the role of entrepreneurship from a more global perspective, entrepreneurship is of keen interest to people, firms, and government agencies worldwide. Entrepreneurship liberalizes the economy, promotes foreign investment, infuses new technology, and increases the standards of living (Zahra, Ireland, Gutierrez and Hitt, 2000). Moreover, profitably operated new business ventures buffer taxpayers from the high operating costs of inefficient government-managed enterprises (Ozkaya and Askari, 1999). And, entrepreneurial small business firms create job. For example, by the year 2000 nearly half of the United States' workforce was employed in small businesses (Hochberg, 2002). Thus, the growing relevance of entrepreneurship worldwide for the economic development of poorer nations and the continued

capability to create economic wealth by developed nations demands an increased effort by scholars to understand more fully this important business phenomenon (North, 1990).

Existing economic research on entrepreneurship has typically adopted two approaches. First, the researcher characterizes entrepreneurship as self-employment, and the study of entrepreneurship has been a search for demographic, financial, or environmental factors that affect the choice of self-employment. Second, the small firm has been assumed to be entrepreneurial, and the market for financial capital for small firms has been examined (venture capital, bank lending, or others). But a subjectivist view of entrepreneurship and entrepreneurs requires renewed focus on the person of the entrepreneur. Without denying the value of research grounded in either labor economics or finance theory, studying the individuals in more depth or in a different way might be expected to yield dividends in the subjectivist approach. Without pretending to be exhaustive, a few directions for future research are proposed.

First, a richer conception of human capital is likely to bear fruit. Traditionally, measures of human capital have been limited to education and work experience. Such a strict dichotomy may not capture the rich subjective nature of entrepreneurship. As one example, one might distinguish between those experiences leading to tacit knowledge versus experiences leading to explicit knowledge, discussed above. A second research direction might usefully employ the concepts of specific versus general knowledge (Hayek, 1945). Specific knowledge is typically knowledge of time and place, which is difficult to communicate to a central decision maker. Information regarding a vacant lot, an underutilized worker, or a source of supply can be more economically valuable than formal job training or education for entrepreneurs. As a third possible research direction, an old maxim of entrepreneurship teaching is that an entrepreneur requires 50,000 chunks of information to succeed with a venture (e.g., Warshaw, 2000). How to

represent these chunks, and how to capture them in empirical models, is an intriguing challenge. In short, a richer conception of human capital is necessary.

A fourth possible research direction is to utilize the difference between resources and their services. As noted above, resources are static but their services are dynamic, specific to the task at hand. Matching resources and their services to opportunities is likely to be of particular value. Or resources can be applied in multiple ways; a resource that generates productive services for the product may also provide valuable reputational capital to attract investors. Particularly in smaller firms, one might expect resources to be used in multiple ways. A subjectivist perspective suggests that the economic value of the services of such resources depends upon application, creating much more opportunities for analysis but also creating a higher level of complexity.

Human and social capital of entrepreneurs determines the subjective productive opportunity set. The initial task would be to characterize the subjective opportunity set of a person, and how that combination comes about. The second task would be to advance a theory by which the subjective opportunity set is created by a team. Interdisciplinary research, examining psychological processes by which opportunities are evaluated for their economic potential, or noting that what individuals perceive in their utility function is to some extent determined by social interactions and social forces, would be promising approaches.

Such research may require new or updated methodological techniques. Thoughtful histories are likely to be helpful (Schumpeter, 1991 [1947]). Histories and taxonomies are reasonable beginnings for a new direction of analysis; it is how most sciences begin. Whatever the other merits, however, a historical approach is unlikely to lead to significant progress, where significant means statistical significance. Therefore some technique of aggregation may be

appropriate. Without precluding the creativity and entrepreneurship of particular scholars, multi-level methods or meta-analysis may be two such approaches. There are at least five possible levels of influence on the success of a venture: the individual, the team, the opportunity, the fit between the individual and the opportunity, and the industry. Careful coding of thoughtful case analyses may lead to the kind of statistical analysis that leads to greater understanding.

Finally, we do a disservice to ourselves and to the field if we focus on abstract theory at the expense of real business concerns. Our students are interested in the practical question of how to start a successful business, and, as scholars of professional schools, we should respond to that aspiration. Theories that are completely devoid of practical implications, or are so rarefied as to give no guidance to entrepreneurs, should be neither a goal nor a criterion for success. The famous phrase, “Nothing is more practical than a good theory,” should provide a criterion for judgment of our endeavors and our research output.

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