Entrepreneurship, Innovation and Technological Change

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Introduction

One view of entrepreneurship and innovation is that they are virtually synonymous. As Shane and Venkataraman ([136], p. 218) argue, the field of entrepreneurship is defined by the study of "how, by whom and with what consequences opportunities to produce future goods and services are discovered, evaluated and exploited." This would suggest that innovation and entrepreneurship are almost a tautology.

Instead, we take the position here that entrepreneurship has an organizational component and involves the creation of new enterprises. This reflects the view of Gartner and Carter ([59], p. 195), who posit that "Entrepreneurial behavior involves the activities of individuals who are associated with creating new organizations rather than the activities of individuals who are involved with maintaining or changing the operations of on-going established organizations." This view suggests that the relationship between entrepreneurship, when viewed as the creation of new organizations, and innovative activity, is anything but trivial. Rather, what distinguishes entrepreneurship from innovation is the organizational context.

In fact, well into the 1970s, a conventional wisdom prevailed suggesting the entrepreneurship, at least as represented by new ventures, had a competitive disadvantage for undertaking innovative activity

[135]. This conventional wisdom had been shaped largely by scholars such as Alfred Chandler [41], Joseph Schumpeter [129] and John Kenneth Galbraith [58] who had convinced a generation of scholars and policy makers that innovation and technological change lie in the domain of large corporations and that small business would fade away as the victim of its own inefficiencies.

At the heart of this conventional wisdom was the belief that monolithic enterprises exploiting market power were the driving engine of innovative activity. Schumpeter had declared the debate closed, with his proclamation in 1942 ([129], p. 106) that, "What we have got to accept is that (the large-scale establishment) has come to be the most powerful engine of progress." Galbraith ([57], p. 86) echoed Schumpeter's sentiment, "There is no more pleasant fiction than that technological change is the product of the matchless ingenuity of the small man forced by competition to employ his wits to better his neighbor. Unhappily, it is a fiction."

At the same time, the conventional wisdom about new ventures and small firms was that they were burdened with a size-inherent handicap in terms of innovative activity. Because they had a deficit of resources required to generate and commercialize ideas, this conventional wisdom viewed small enterprises as being largely outside of the domain of innovative activity and technological change. Thus, Even after David Birch [33] revealed the startling findings from his study that small firms provided the engine of job creation in the U.S., most scholars still assumed that, while new ventures and small businesses may create the bulk of new jobs, innovation and technological change remained beyond their sphere.

While this conventional wisdom about the singular role played by large enterprises with market power prevailed during the first three decades subsequent to the close of the Second World War II, more recently a wave of new studies has challenged this conventional wisdom. Most importantly, these studies have identified a much wider spectrum of enterprises contributing to innovative activity, and that, in particular, new ventures and small entrepreneurial firms as well as large established incumbents play an important role in the innovation and process of technological change [7].

Taken together, these studies comprise a new understanding of the links between entrepreneurship, innovation and economic growth. The purpose of this survey is to weave together and interpret the disparate set of studies that, when taken together, constitutes a new understanding about the role that entrepreneurship plays with respect to technological change and innovation and to contrast it with the conventional wisdom. This survey begins by linking together the prevalent theory concerning opportunity recognition and exploitation from the entrepreneurship literature to economic theory, and in particular the most prevalent theory in economics about innovation and technological change – the model of the knowledge production function. Just as the conventional wisdom was shaped largely by the available empirical data and analyses, so it is with the newer view. Thus, in Section 3, issues arising when trying to measure innovative activity are discussed.

The debate and the evidence regarding the relationship between innovative activity and organizational context is examined in Section 4. In Section 5, the impact that the external industry context exerts on technological change is identified. The role that the external knowledge context, or what has become known as knowledge spillovers and geographic location, plays in innovative activity is explained in Section 6. This leads to a re-interpretation of the role of entrepreneurship in innovative activity and technology in Section 7.

Finally, a summary and conclusions are provided in Section 8. A key finding is that the conventional wisdom regarding the process of innovation and technological change is generally inconsistent with the new understanding about the role of entrepreneurship in innovative activity. The empirical evidence strongly suggests that new ventures and small entrepreneurial firms play a key role in generating innovations, at least in certain industry and spatial contexts. While the conventional wisdom is derived from the Schumpeterian hypothesis and assumption that scale economies exist in R&D effort, more recent theories and empirical evidence suggests that scale economies bestowed through the geographic proximity facilitated by spatial clusters seems to be more important than those for large enterprises in producing innovative output. Entrepreneurship plays a crucial role in innovative

activity by serving as the mechanism by which knowledge spills over from the organization producing that knowledge to the (new) organization commercializing it.

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