Foreword

David B. Audretsch

Al Link made a presentation of his research on R&D and productivity the first time I met him in April of 1981. The occasion was the third annual Middlebury College Conference on Economic Issues, and Al, who was barely out of graduate school, was one of the distinguished speakers. The theme of the conference was *Industrial Organization, Antitrust, and Public Policy*.

Reflecting the field of industrial organization at that time, most of the papers and presentations were focused on market concentration, pricing decisions under market power, mergers, and the profits accruing to firms enjoying market power. The public policy focus accordingly was on the main policy instruments dealing with market power, concentration and oligopoly—antitrust and regulation. Al's research was decidedly different and focused on an issue that did not seem to be central or germane to the field at that time—the relationship between research and development (R&D) and productivity.

In a field dominated by the relationships between firms, industry, and economic performance in a static context, Al stood apart with his focus on the dynamic analysis of firms, industries and markets seen through a dynamic lens, and in particular with his concern for innovation and technological change as a driving force of the economy. While Al could be characterized as a Schumpeterian well after Schumpeter, his early work clearly preceded the emergence of what has become a widespread acceptance of Schumpeter's portrayal of the entrepreneur and innovation as the key phenomena underlying economic performance. Certainly, one of his first papers subsequent to earning his doctorate degree, 'Firm Size and Efficient Entrepreneurial Activity: A Reformulation of the Schumpeterian Hypothesis', was published in the *Journal of Political Economy* during an era when there was a paucity of attention among scholars on Schumpeter and entrepreneurship.

Al's interest and focus on what seemed to be a niche research topic at that time continued with his 1981 paper, 'Basic Research and Productivity Increase in Manufacturing: Additional Evidence', in the *American Economic Review*, along with his subsequent article published a year later on productivity growth and R&D in the *Bell Journal of Economics*, which was a precursor of what today is the *RAND Journal of Economics*.

It is striking to note that none of these seminal papers are included in this volume. The reason is simple. Al's earlier work examined the impact of entrepreneurship and innovation on performance. The focus of these earlier papers was on identifying if a link existed at all, and if so, was it positive or negative.

In fact, Al was a pioneer in raising these questions. Ultimately, he was joined by a minor army of scholars verifying his earlier findings that entrepreneurship and innovation are crucial driving forces of economic performance. By the time that a large and compelling body of literature could verify Al's prescient insight that innovation and entrepreneurship are the keys to economic performance, Al was well on his way to providing insights into the next obvious question concerning the appropriate role for public policy in an innovative driven entrepreneurial economy.

In fact, it is the series of pioneering articles concerning the role of public policy to enhance innovative activity in such entrepreneurial firms that is the focus of this volume. Robert Solow, an eminent economist from MIT, was awarded the Nobel Prize for explaining that, while innovation and technological change are important, they 'fall like manna from heaven'. The policy implications from Solow's famous economic growth model seemed to have more to do with religion than with public policy. Innovative activity was apparently beyond the reach and influence of government.

Not so with Al Link and the impressive body of his research presented in this volume. Perhaps in response to the mainframe view reflected by Solow and others, Al set out to probe and establish the contours and boundaries of effective public support of innovative activity within the context of entrepreneurial organizations. He was among the first scholars to recognize the potential impact and significance of the Small Business Innovation Research (SBIR) program, which was enacted by the US Congress in 1982. The purpose of the SBIR was to restore an American economy – bogged down by recession and unemployment resulting from the OPEC oil shocks of the 1970s – to high growth, international competitiveness, and robust job creation through generating entrepreneurial driven innovative activity. The Congressional legislation provided a mandate for the major US federal agencies, such as the Department of Defense and the National Institutes of Health, to allocate a significant share of their extramural R&D research budgets to funding innovative projects in small business.

Some three decades later, subsequent to subjecting the SBIR program to a plethora of empirical analyses from various perspectives to ascertain its actual impact on economic performance, Al was able to characterize the SBIR as *Government as Entrepreneur* (Link and Link, 2009). It is the most poignant and compelling of these studies that are contained in this volume. Al analyzes the impact of various aspects of the SBIR program on the most important performance measures, such as employment growth and patented inventions, as well as its impact on the investment behavior of private firms as well as the commercialization activities of research universities.

Not only do the individual chapters contained in this volume point to the key role that public policy can play in promoting entrepreneurship, technology, and innovation, and ultimately jobs and economic growth, but taken together, they highlight a blueprint for the economic analysis of public policy. Rather than succumb to the rhetoric and assumptions of one political persuasion or the other, Al Link applies the rich and powerful tool kit of economic analyses to reach well-reasoned and compelling conclusions about what works and does not work in public policy towards entrepreneurship and innovation. This path breaking set of studies contained in this volume analyzing the public support of innovation in entrepreneurial firms provides a virtual blueprint which scholars would be well advised to follow, substituting rigorous systematic empirical testing and analyses for the political laden rhetoric currently characterizing much of the policy course in this country.

David B. Audretsch
Distinguished Professor and Ameritech Chair of Economic Development
Indiana University School of Public and
Environmental Affairs
Director of the Institute for Development
Strategies at Indiana University

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