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**Entrepreneurship,  
Knowledge, and  
Economic Growth**

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# Entrepreneurship, Knowledge, and Economic Growth

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## Entrepreneurship, Knowledge, and Economic Growth\*

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### Abstract

Knowledge plays a critical role in economic development, still our understanding of how knowledge is created, diffused and converted into growth, is fragmented and partial. The neoclassical growth models disregarded the entrepreneur and viewed knowledge as an exogenous factor. Contemporary current knowledge-based growth models have re-introduced the notion of the entrepreneur, however stripped of its most typical characteristics, and the diffusion of knowledge is kept exogenous. It implies that the predictions and policy conclusions derived from these models may be flawed. This paper reviews the literature that addresses the issues of knowledge creation, knowledge

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diffusion and growth, and the role attributed the entrepreneur in such dynamic processes. I will explore how these insights can be integrated into existing growth models and suggest a more thorough microeconomic foundations from which empirically testable hypotheses can be derived.

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# 1

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## Introduction

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A society's ability to increase its wealth and welfare over time critically hinges on its potential to develop, exploit, and diffuse knowledge, thereby influencing growth. The more pronounced step in the evolution of mankind has been preceded by discontinuous, or lumpy, augmentations of knowledge and technical progress. The stages of knowledge leaps were followed by economic development characterized by uncertainty, market experiments, redistribution of wealth, and the generation of new structures and industries. This pattern mirrors the evolution during the first and second industrial revolution in the 18th and 19th centuries, and is also a conspicuous feature of the "third," ongoing, digital revolution.

Despite the fact that there is a general presumption within the economic disciplines that micro-level processes play a vital role in the diffusion of knowledge, and thus the growth process, there is a lack of stringent theoretical framework but also of empirical analyses to support this allegation. The economic variables knowledge, entrepreneurship, and economic development has since long been treated as different and separate entities. It is not until the last 10–15 years that a literature has emerged that aims at integrating these economic concepts into

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a coherent framework. Different academic traditions and perspectives have contributed to ameliorate our understandings of how knowledge, entrepreneurship, and growth are interrelated, and to draw adequate policy conclusions from these insights.

The main objective of this paper is hence to shed light on recent advances in our understanding of the forces that underpin the creation of knowledge, its diffusion and commercialization, and the role of the entrepreneur in these dynamic processes.<sup>1</sup> Moreover, I will explore how these insights are integrated into existing growth models. This implies a modified knowledge-based growth model that originates from more thorough microeconomic foundations from which empirically testable hypotheses can be derived regarding the interaction and interdependencies between knowledge, entrepreneurship, industrial dynamics and growth at the regional and national level. Understanding growth thus requires a well-defined micro- to macro-analytical framework.

Irrespective of the seminal contributions by Joseph Schumpeter in the early 20th century, issues related to economic impact of entrepreneurship has for a (too) long time been neglected in mainstream economics. The general equilibrium paradigm that dominated economics for at least half a century (and still does to large extent) left little room for the entrepreneur. In the last decade or so interest in the entrepreneur's contribution to industrial dynamics and the development of an economy has however revived among academicians and policy makers.<sup>2</sup> Interestingly enough, the processes described by Schumpeter (1911) suggest a link to the contemporary knowledge-based (endogenous) growth theory (Romer, 1986, 1990). There is also a vein in the theoretical literature that more explicitly seeks to introduce the entrepreneur into a growth context.

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<sup>1</sup> Previous surveys that allude to the topics addressed in this paper include contributions by Casson (1990), Livesay (1995), Goel (1997), Yu (1997), Glancy and McQuaig (2000), Sexton and Landström (2000), Weasthead and Wright (2000), Shane (2003), and Davidsson (2004). See also Acs and Audretsch (2003).

<sup>2</sup> The interest among policy makers in knowledge generation and diffusion, innovation, and entrepreneurship is confirmed not least by the decision taken by the European Council in Lisbon 2000, that Europe by 2010 should be the most competitive knowledge economy in the world.

For instance, Schmitz (1989) develops a model where an increase in the proportion of entrepreneurs leads to an increase in long-run growth (through imitation). Lucas (1988) makes a direct link between entrepreneurs and “softer” values, emphasizing the externalities that stem from the special form of human capital called entrepreneurs. He also discusses to what extent this may mirror different growth rates across countries. The so called neo-Schumpeterian models in the endogenous growth literature — the “quality ladder” model — allowing for entry through new and improved qualities of products, is yet another attempt (Segerstrom et al., 1990; Segerstrom, 1991; Aghion and Howitt, 1992; Segerstrom, 1995). Still, these latter models rather capture the behavior of large incumbent firms, involved in R&D-races, than the “genuine” entrepreneur.

To comprehend the conditions, the characteristics, the drivers and the effects of knowledge creation, innovation and entrepreneurship, and the subsequent impact on industrial dynamics and growth, request insights from several disciplines. Those primarily concerned are economics, economic geography, business administration, and management. The main thrust of this survey relates to the economics literature with the objective to pin down the microeconomic foundation of growth, the extent to which contemporary models fail in that respect, and to suggest improvements.

Growth cannot be understood if the true “agents of change” — the entrepreneur — is dismissed from the process. It also means that micro founded evolutionary processes such as individual behavior, experiments, and creative destruction becomes cornerstones in the understanding of growth. In this context Schumpeter (1947, p. 149), perhaps more than any other economist, is explicit about the specific economic function of the entrepreneur: “the inventor produces ideas, the entrepreneur ‘gets things done’ ... an idea or scientific principle is not, by itself, of any importance for economic practice.” Thus, Schumpeter envisioned a clear division between the entrepreneur and knowledge creation, defined in terms of scientific achievements.

The view that entrepreneurship could play an important role in a knowledge-based economy seems to contrast much of the conventional wisdom. According to for instance Galbraith (1967), Williamson

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(1968), and Chandler (1977), it seemed inevitable that exploitation of economies of scale by large corporations would become the main engine of innovation and technical change. But also the “late” Joseph Schumpeter (1942) shared these views, albeit he was considerably more skeptical about the beneficial outcome than his colleagues.<sup>3</sup> Rather, Schumpeter feared that the replacement of small and medium sized enterprise by large firms would negatively influence entrepreneurial values, innovation, and technological change. Despite these early prophecies of prominent scholar, there is ample empirical evidence that the development has actually reversed since the early 1970s for most industrialized countries (Brown et al., 1990; Evans, 1991; Loveman and Sengenberger, 1991). The tide has turned and the risk prone entrepreneur is increasingly seen as indispensable to economic growth and prosperity, even among former skeptics.

The rest of this survey is organized into four separate parts. Section 2 considers the theoretical aspects of entrepreneurship, knowledge, growth at the regional and national level, and how agglomerated structures impact growth. It draws on the advances made in the fields of economic geography and endogenous growth, together with findings in evolutionary, entrepreneurial, institutional, and regional economics. Section 3 is basically organized in the same way but present the empirical findings, emphasizing the interfaces between entrepreneurship, knowledge, and growth. In Section 4, the policy implications are discussed and the progress in terms of understanding how policies should be designed to jointly foster knowledge accumulation, its diffusion and growth. The subsequent Section 5 aims at defining some of the most urgent knowledge gaps that need to be addressed by future research while the final Section 6 concludes.

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<sup>3</sup>Over his career, Schumpeter changed his view on entrepreneurs and their role in the economy. His earlier work, where the entrepreneur is seen as the key agent in propelling change and development in an economy, is often referred to as his Mark I regime. Consequently, Schumpeter’s later and more pessimistic view on the scope for entrepreneurial change, where instead large incumbents were claimed to undertake most of innovative activities, is denoted the Mark II regime. This review is primarily preoccupied with Schumpeter’s Mark I regime.

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