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EXPLORING AI'S ROLE IN SHAPING ENTREPRENEURSHIP AND ECONOMIC PROGRESS

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ABSTRACT

In the age of the Fifth Industrial Revolution, recent technological progress in the spaces of Artificial Intelligence (AI) is changing entrepreneurship and economic growth significantly. Recent research found high levels of concern about how AI impacts the productivity of entrepreneurship and economic growth. This chapter aims to develop a theoretical framework for thinking about the potential implications of AI on the relationship between entrepreneurship and economic growth. First, we model entrepreneurship in the form of new start-ups as the principal cause of business cycles and economic growth. Then, drawing from the Knowledge Spill over Theory, we suggest that AI can bring the benefit of creating new knowledge to entrepreneurship and thus contribute to economic growth. Finally, we address the possible main lines of future developments for AI, entrepreneurship and economic growth.

Keywords: Entrepreneurship · Artificial Intelligence (AI) · Economic growth · Fifth Industrial Revolution · Knowledge · Start-ups

INTRODUCTION

This chapter discusses entrepreneurship and Artificial Intelligence (AI) in innovating new product and their contribution to economic growth. These previous ideas have their origins in research conducted in the last century when Schumpeter first claimed that entrepreneurs are the coordinators of production and economic agents of" creative estruction. "Later, David Audretsch and Zoltan Acs further argued that new firms produce imbalances to the situation of stationary equilibrium through the commercialization of innovations. Therefore ,much of the discussion about entrepreneurship and entrepreneurs in this chapter is framed in terms of *"opportunity-driven agents who drive economic change through innovative new firms"*.

For that reason, we attempt to fill this gap by developing a framework about the interplay between AI and entrepreneurship and their impact on economic growth. At the heart of our framework is the idea that AI can increase the productivity of the entrepreneurial functions such as making better decisions entering the market and thus increase economic growth in terms of employment, and competition [14, 18, 19].

In addressing our research aim, the first section offers some theoretical background about how entrepreneurship can contribute other process of disrupting the markets and economic growth. This paves the way for the next section, discussing the potential impact of AI in strengthening the previous relationship. Finally, discussion and concluding thoughts are presented.

The Role of Entrepreneurship in Economic Growth

Building on the Knowledge Spill over Theory, entrepreneurs who exploit knowledge spillovers

through new start-ups can contribute significantly to economic growth by commercializing new products and services to the industry In history, Schumpeter first presented the substantial role of entrepreneurship in economic growth. He argued that innovative entrepreneurs are the coordinators of production and economic agents of "creative destruction." These "agents" replace existing markets' value by creating new markets with new products that offer a higher rate of return than that provided by existing firms. Thus, "creative destruction" is the primary source of economic growth. Current studies have shown that entrepreneurial activities based on knowledge make a significant contribution to economic growth. Specifically, entrepreneurship based on knowledge could be positively correlated to transforming an opportunity into a new venture that has an added value to the market. However, Acs suggested that entrepreneurship should be studied with its capacity to initiate new start-ups and stimulate knowledge in the country at the same time. Together, some studies found that entrepreneurship serves as a conduit to transfer knowledge capacity and, consequently, produce spillover dynamics that contribute to economic growth Building on the previous argument, challenged Romer's conclusions, arguing that knowledge may not be automatically linked with economic growth as acknowledged in models of endogenous growth. Therefore, an increasing amount of literature has examined the effects of entrepreneurship as a conduit of knowledge.

In this sense, different studies have examined the importance of entrepreneurs' capacities and aspirations to start and grow businesses that promote economic growth. Mainly, one study found that opportunity-driven entrepreneurs bring the benefit of new knowledge to economic growth by creating new products that provide a continuous increment of knowledge. Cost of products and services that depend on information and prediction, known as using data needed for better business decisions. This is important because a decline in the price of an input such as prediction will affect large industries such as agriculture, transportation, healthcare, retail, and energy manufacturing. AI can lower the cost of knowledge needed for new start-ups by offering cheaper, faster and more effective ways to identify, sort, acquire and process information. Moreover, AI can reduce the costs of the research and innovation process for aspiring entrepreneurs by taking advantage of the interplay between the large datasets and enhanced prediction algorithms.

Another potential aspect of AI is the way consumers inter act with new firms. AI applications may allow consumers to reduce the search cost and find more customized products and services they want. This would help more start-ups to serve customers more efficiently. As a result, economic theory tells us that when the cost of AI prediction decreases, there will be more demand for using AI applications by aspiring entrepreneurs. The second mechanism where AI is expected to contribute towards entrepreneurship and economic growth is increasing the demand for human judgment. While prediction can be enabled by AI to enhance entrepreneurial decisions, it is not the only input into the decision-making process; the other key input is judgment. The term judgment refers to *"how we compare the benefits and costs of different decisions in different situations"*. The judgment process may involve prioritizing goals for firms, considering emotional and ethical dimensions, and so on. From an economic perspective, judgment is a complement to prediction, and thus, when the cost of prediction decreases, the demand for human judgment skills could become much more valuable.

In this regard, most stakeholders who target aspiring entrepreneurs such as investors, incubators, and policymakers struggle in the selection process due to the limited time and search capabilities. This decision-making process of selecting potential successful entrepreneurial projects is often the result of two steps. The first step is the eligibility criteria, where entrepreneurs should satisfy the minimum requirements to apply for the program. The second step is for eligible entrepreneurs to go over a filtering process to decide who matches the expectations and standards to join in the program. If AI can narrow down the potential pool of desirable candidates and offer efficient early-stage predictions to investors, more entrepreneurial projects may be considered potential targets for investments. However, investors and other stakeholders must use their judgment about different activities such as supplementing or conditioning financing with technical or managerial support. As a result, more aspiring entrepreneurs are likely to enter the market due to the higher demand offered by stakeholders such as incubators and investors. Another facet of human judgment's importance can be seen in emergent situations such as human-induced disasters, natural disasters, political change, and rapid migration flows. These events may create uncertain situations for incumbent firms that may not be predicted and managed efficiently by AI. This is evident in the case of the COVID-19 pandemic, which poses many challenges to the AI industry such as tracking and predicting the spread of the infection, helping in making diagnoses and prognoses, searching for treatments and a vaccine, and using it for social control. Therefore, aspiring

entrepreneurs will have more opportunities to start new firms that exercise human judgment [10]. This is known as the productivity effect, when automation such as AI reduces the cost of producing a subset of tasks (i.e., prediction), the demand on entrepreneurs might increase in non-automated tasks such as human judgment in the same sectors [1]. Based on the previous discussions, we propose the following: P1:AI moderates the positive relationship between entrepreneurship and economic growth such that the higher levels of AI systems, the stronger this relationship.

DISCUSSION AND FUTURE RESEARCH

While the benefits of AI are relatively clear, as discussed in the previous section, several challenges lie ahead. In this regard, policymakers are concerned that the development of AI systems could pose a threat to labor markets and economic growth. However, are port by McKinsey & Company suggested that the revolution of AI applications would offer positive impacts on our society and economy. This is because incumbent firms that adopt automated work activities would save billions of dollars for R & D and create new kinds of job. As a result, the Knowledge Spill over Theory for Entrepreneurship suggested, ceteris paribus, the number of new start-ups will be more significant where investments in new knowledge are relatively high since aspiring entrepreneurs will depend on knowledge and experience gained in R&D laboratories from their former incumbent firms. At the same time, the lower cost of using AI applications may offer new opportunities to entrepreneurs to start and grow their businesses internationally due to the potential for higher returns in terms of fewer expenses and less time consuming for better exchange information. An excellent example of the previous discussion can be found in Kiss work. Although entrepreneurs in emerging economies such as India face obstacles in accessing technology due to the lack of technological infrastructure, they have managed to overcome these challenges
and develop new industries, such as medical tourism and IT services that compete effectively with other firms internationally. These new industries have become globally competitive by offering cheap and up-to-date technology and a highly-skilled labor force to attract customers and businesses around the world.

Therefore, one of how policymakers might achieve higher levels of entrepreneurship and employment is sponsoring leading technologists at ecosystem events, promoting local technologies and technologists, restructuring education and training, and paying particular attention to the Foreign Direct Investments (FDI). Although jobs from FDI are a vital source of increasing corporate entrepreneurship, it is essential to start enterprise development policies to encourage technology-based start-ups in the long run.

In addition to the threat of massive job displacement, various challenges are stemming from the development of AI systems to overcome. These challenges may include new venture risk assessment, hacking, cybersecurity, ethical dilemmas, and others. Hence, these previous challenges faced by entrepreneurs could lead to fruitful directions for future research to better understand the development of AI systems and their disruption potential in different industries. Finally, future research lines should be undertaken to explore how AI will affect new firms and incumbent firms in terms of cost advantages and to what extent they depend on data in their businesses.

CONCLUSION

The new era of the Fifth Industrial Revolution differs in the scale and pace of market disruption compared to previous industrial revolutions. In this chapter, we discussed the potential effects of AI on entrepreneurship and economic growth due to the Fifth Industrial Revolution. Despite the growing interests and the intensifying debate about the impact of AI on entrepreneurship and economic growth, the discussions lack a satisfactory conceptual framework. This lack of appropriate conceptual approach is also the key reason for whether AI will hinder or facilitate the growth of new start-ups that foster economic growth. Therefore ,we developed a conceptual framework that can help understand the implications of AI by answering the following question: How will AI reshape the future of entrepreneurship and economic growth? At the center of our frame work is the Knowledge Spillover Theory for Entrepreneurship, where AI is conceptualized as a better tool to increase the productivity of entrepreneurial operations toward economic growth. The study findings suggested that the combined effect of entrepreneurship and AI carries tremendous promise in promoting economic growth. Moreover, we provided insights for many dimensions related to individuals, firms, industries, and consumers. As a summary, it seems that the current impacts and the expected disruptive changes of entrepreneurship and AI in economic growth would be through two main mechanisms. First, innovative entrepreneurs will use AI to lower the cost of goods and services that depend on information and

prediction. Second, entrepreneurs will invest more in human judgment skills such as management, emotional, and ethical intelligence to complement the prediction results of AI systems. Therefore, future empirical investigation concerned with the two mechanisms at the industry level is strongly recommended [19].

We hope that our study will encourage further research into the relationship between AI, entrepreneurship, and economic growth.

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