1 Economics: Evolutionary and Entrepreneurial

Modern economics is surprisingly static considering the object of its study. Economic models and explanations tend to be based on the assumption that markets are in equilibrium and that they will quickly reestablish equilibrium should economic data change. Simply put, as it is currently exercised, economics lacks support for dynamism. It cannot explain how economies evolve, unfold, and progress over time.

This is a rather recent development, however, and not representative of the study of economics *in toto*. Indeed, dynamism is core to economics traditions outside of the contemporary mainstream as well as in earlier theorizing. It was only when economics turned to formal modeling in the 20th century (Blaug 2003) that it turned to static analysis and, importantly, abandoned entrepreneurship as the endogenous cause and driver of change. Modern economic models tend to exclude the phenomenon of entrepreneurship altogether and with it economic dynamism.

After all, there can be no entrepreneurship in general equilibrium because the economy is already assumed to be in its maximizing state (e.g., Jones 1965). And under so-called perfect competition – "an economy with complete knowledge" (Stigler 1957, 11) – there is similarly no space for the entrepreneur because opportunities are known by all and economic profits are therefore zero. Not to mention that entrepreneurship is elusive and difficult to specify. As the source of novelty, and thus cause of disruption and the evolutionary progression of an economy, entrepreneurship may even undermine the assumptions that facilitate formal modeling and precise predictions. Therefore, by assumption, the models have neither entrepreneurs nor endogenous causes of novelty, which allows the economist to calculate maximizing behaviors and therefore estimate "optimality." Models, as Milton Friedman (1953) famously argued, may benefit from unrealistic or even alien assumptions if they can still predict economic outcomes. This has led to an economics in which the entrepreneur is no longer recognized as a core player in the economy, but has instead become "the specter who haunts our economic models" (Baumol 1993, 197).

Entrepreneurship, and with it the engine of economic change, has been "expunged" from modern mainstream economics (Baumol 1968, 66). The earlier understanding of the economy as a "process of industrial mutation" (Schumpeter 1947, 85), an *evolutionary* process undergoing constant renewal, was abandoned to make modeling practicable.

1.1 Evolutionary Economics

Modern mainstream economics is not without critics, including from within the academic economics profession. One such critique takes the evolutionary

nature of an economy to heart. It was originally formulated by Richard R. Nelson and Sidney G. Winter (1973, 1982), who presented an alternative approach to explaining economic growth based on what they referred to as the "Schumpeterian alternative" (Nelson and Winter 1974; cf. Schumpeter 1934). This approach is based on two premises: that "economic change is important and interesting" and that "a major reconstruction of the theoretical foundations of our discipline is a precondition for significant growth in our understanding of economic change" (Nelson and Winter 1982, 3–4).

Nelson and Winter's work spawned a "new wave" of approaches to economic theorizing under the umbrella term *Evolutionary Economics* (Hodgson 2019). These approaches have in common that they recognize the economy as an evolving, evolutionary system in which productive capabilities are subject to a Darwinian process of variation-selection-replication. As Potts and Dopfer (2024, 20) put it, "an economy [is] made of habits and routines, capabilities and technologies, from which entrepreneurial action generates variation, market processes generate selection, and knowledge is replicated in firms, etc." The evolutionary process is thus instigated by entrepreneurs who introduce variation in the form of new technology (e.g., Metcalfe 2002; Nelson 2005) that is intended to produce new and valuable production capabilities. Technology, writes Dopfer (2005, 53), "is conceived of as an instrument for serving economic purposes" that "is mostly used in a productive context to perform complex productive tasks."

As successful (proven) new technology is replicated and therefore propagates through the economy, the economy, and specifically economic growth, is a process of generating and accumulating *knowledge* (Malerba and McKelvey 2019, 2020; Koppl et al. 2023) of productive capabilities. However, as we will argue in Section 3.1, this presumes the economics of technological development, which is a matter of value-motivated innovation – novel production undertaken in the pursuit of creating new value. In other words, it is a matter of entrepreneurship.

1.2 Entrepreneurship: Origin and Meaning

Entrepreneurship has been identified as the "driving force of the market, the element tending toward unceasing innovation and improvement" (Mises 1998, 256) – the entrepreneur is the innovator, a creator of novelty and new value (Schumpeter 1934). Thus, an economy without entrepreneurship is not only a simplified and perhaps bland model of the buzzling and vibrant real-world market but a fundamentally and altogether different construct (Bylund 2022a, 2024).

Israel M. Kirzner (1997, 39; emphases in original) puts it thus:

> In order to perceive regularities amidst the apparently chaotic vagaries of real-world market volatility, it may seem methodologically sound to imagine a world with *no* scope for entrepreneurship. Yet, paradoxically, exactly the opposite is the case. It is *only* when entrepreneurship is introduced that we begin to appreciate how and why markets work.

The study of entrepreneurship is at least as old as the study of economics (Thornton 1998). Indeed, entrepreneurship had a pivotal role (Brown and Thornton 2013) already in Richard Cantillon's *Essai Sur La Nature Du Commerce En Général* published in 1755 (Hébert and Link 2009), often regarded the very first economics treatise (Jevons 1905).

To Cantillon (1931), what characterizes entrepreneurship is economic action for which the costs are known but the revenues are not. In other words, Cantillon defines the entrepreneur as an *uncertainty-bearer* who takes resources at given prices, transforms them through some productive activity, and then presents the results to potential buyers with hopes that they will purchase them at a selling price higher than their already incurred cost. The bearing of uncertainty, or the risk of suffering losses in pursuit of unknown profits, remains a core aspect of our understanding of entrepreneurship today (e.g., McMullen and Shepherd 2006; McKelvie, Haynie, and Gustavsson 2011).

What is curious about Cantillon's discussion is not how he uses the term, which from the perspective of today's entrepreneurship scholarship appears rather standard, but how he *changed* it. Cantillon in fact turned the meaning on its head (Thornton 2020; cf. Hébert and Link 2009, 5). The word "entrepreneur"[1] had previously referred specifically to government contractors, who were generally regarded as unreliable cheaters because they produced for the government at fixed prices and therefore could only (and did) maximize their profits by reducing costs. They often did so by compromising on quality and cutting corners in other ways.

Cantillon chose to use the term "entrepreneurship" differently: known costs but unknown revenues (and thus profits). That Cantillon was able to pull off the feat of changing (if not reversing) the definition of entrepreneurship is indicative of his treatise's great influence on the bourgeoning field of economics. Not only does Adam Smith, generally recognized as the "father" of economics, repeatedly cite Cantillon in his *An Inquiry into the Nature and Causes of the Wealth of Nations* published in 1776 (Smith 1976) but Mark Thornton (2020) notes that many influential thinkers in economics broadly were directly

[1] Translations of Cantillon's *Essai* (e.g., 1931) have used the term "undertaker," but Cantillon used "entrepreneur" in the original French.

influenced by Cantillon's work: from François Quesnay and the Physiocrats to A. R. J. Turgot and J. B. Say.

Playing such a central role in Cantillon's *Essai*, entrepreneurship theory arguably "created" economics (Thornton 1998; Brown and Thornton 2013).

1.3 Entrepreneurship: Evolution and Use

Entrepreneurship has played a fundamental and important role in economic theorizing since Cantillon. During this time, it has taken on different meanings and uses. Its precise implications have varied between economists and schools of economic thought as different theories and theorists have leveraged the entrepreneurship function to explain a range of phenomena and processes.

In their historical overview of the uses of entrepreneurship in the history of economic thought, Robert F. Hébert and Albert N. Link (2009, 100–101; cf. 1988) identify twelve distinct but overlapping roles:

1. The entrepreneur is the person who assumes the risk associated with uncertainty (Cantillon, von Thünen, von Mangoldt, Mill, Hawley, Knight, von Mises, Cole, Shackle).
2. The entrepreneur is the person who supplies financial capital (Smith, Turgot, von Böhm-Bawerk, Edgeworth, Pigou, von Mises).
3. The entrepreneur is an innovator (Baudeau, Bentham, von Thünen, Schmoller, Sombart, Weber, Schumpeter).
4. The entrepreneur is a decision-maker (Cantillon, Menger, Marshall, von Wieser, Amasa Walker, Francis Walker, Keynes, von Mises, Shackle, Cole, Schultz).
5. The entrepreneur is an industrial leader (Say, Saint-Simon, Amasa Walker, Francis Walker, Marshall, von Wieser, Sombart, Weber, Schumpeter).
6. The entrepreneur is a manager or superintendent (Say, Mill, Marshall, Menger).
7. The entrepreneur is an organizer and coordinator of economic resources (Say, Walras, von Wieser, Schmoller, Sombart, Weber, Clark, Davenport, Schumpeter, Coase).
8. The entrepreneur is the owner of an enterprise (Quesnay, von Wieser, Pigou, Hawley).
9. The entrepreneur is an employer of factors of production (e.g., Amasa Walker, Francis Walker, von Wieser, Keynes).
10. The entrepreneur is a contractor (Bentham).
11. The entrepreneur is an arbitrageur (Cantillon, Walras, Kirzner).
12. The entrepreneur is an allocator of resources among alternative uses (Cantillon, Kirzner, Schultz).

The list of theoretical applications is illuminating for several reasons. First, it shows the pervasiveness of entrepreneurship in economic theorizing. The scholars listed are among the thinkers in economics and beyond who created and shaped the field and made it into the highly influential body of theory that we know today. Second, although the meaning of entrepreneurship varies, the different uses revolve around active change in and to the economy: the entrepreneur is involved in, if not the cause of, most or all of the change processes in the market. The role of the entrepreneur is therefore closely related to or the driver of economic value creation – and therefore central to how and why economies evolve over time.

1.4 The Economic Function

Importantly, the entrepreneur in economic theory is not the person, such as the founder of a business or a businessman but refers to the *function* provided in the economy. Economics is traditionally the study of functions and how they relate to, if not *cause* (cf. Menger 2007), observable economic phenomena. Whereas most economists are methodologically individualist (Schumpeter 1909), meaning they find that agency and valuation rest ultimately with individuals rather than collectives or groups of individuals, economics is not the study of the individual per se. After all, we are complex beings who act in different ways with different purposes and implications: a single person can be both a producer and a consumer as well as laborer, capitalist, and entrepreneur.

For economic analysis, it matters not what person is carrying out labor or entrepreneurship but the implications of the function, the role it plays in the economic system. It is based on this function that we can explain its compensation (if any), which economists have long attempted to understand. This is also part of the price system and therefore the bottom-up allocation of resources between production processes in an economy (Hayek 1945). Whereas factors of production, such as land and labor, earn economic rents as determined by their respective market prices (rent, wages), entrepreneurship has generally been understood as earning *profit* (e.g., Knight 1921) from bearing the uncertainty of productive enterprise.

Mises well put it:

> The specific entrepreneurial function consists in determining the employment of the factors of production. The entrepreneur is the man who dedicates them to special purposes. In doing so he is driven solely by the selfish interest in making profits and in acquiring wealth. But he cannot evade the law of the market. He can succeed only by best serving the consumers. His profit depends on the approval of his conduct by the consumers. (Mises 1998, 288)

The role of the entrepreneur is to find and realize new and better ways to create value understood as consumer want satisfaction facilitated by the production of goods and services.[2] The entrepreneur, thus, causes change to the economy's production structure (e.g., Bylund 2015d) by, for example, "the carrying out of new combinations" of factors (Schumpeter 1934, 66).

The entrepreneur may suffer a loss (earn a profit) if costs exceed revenues (revenues exceed costs), but *the person* who is that entrepreneur can still have been fully compensated for his contribution of labor and management services as well as land (such as office space) to the enterprise. In other words, the person John Smith who has started a business may have more money at the end of a year than at the beginning despite suffering a loss *as entrepreneur*. This is not splitting hairs as we are not, as economists, interested in the person John Smith or his financial status – and also not whether or to what extent he acts as laborer, manager, landowner, or entrepreneur. We are interested in the economics of *the functions*. The impact of entrepreneurship in the economy is distinct from the impact of labor or land ownership, and what matters to understanding the economy is the implications of entrepreneurship compared to implications of other, logically separable functions.

Despite not theorizing on the function of entrepreneurship, contemporary economics recognizes that entrepreneurship has important implications for economic growth and thus for policy. In other words, economists must account for the observable implications of entrepreneurship in the real economy. This has generated a mass of research, predominantly empirical and relating to public policy (e.g., Wennekers and Thurik 1999; Carree and Thurik 2010), that deals with entrepreneurship but deviates from the traditional study of the function within and with respect to the evolution of an economy.

Peter G. Klein (2008) usefully distinguishes between three different perspectives on entrepreneurship in the literature: occupational, structural, and functional. They each have different units of analysis and define entrepreneurship in different ways. Occupational research focuses on the individual and sees entrepreneurship as the choice to be self-employed over employed by others (e.g., Lazear 2004; Parker 2004; Levine and Rubinstein 2017). Structural research instead focuses on the firm or industry and defines as entrepreneurial the small

[2] Value is the satisfaction that a good or service provides a consumer when using that good or service. It is subjective and immeasurable and exists only in the reduction or removal of some felt uneasiness. The expectation of such value thus determines the consumer's willingness to pay for a good or service offered for sale. The consumer's opportunity cost is the anticipated value of other known or expected uses for their purchasing power. Ultimately, a good's market price approximates (in money terms) the satisfaction it brings consumers compared to other goods.