

## ENTREPRENEURSHIP – THE OVERSEEN DETERMINANT OF ECONOMIC GROWTH IN MODERN ENDOGENOUS GROWTH THEORY

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### Abstract

Modern growth theory does not incorporate entrepreneurship. This paper introduces entrepreneurship as key to economic growth. It starts by explaining the development of the theory of entrepreneurship, reviews several versions of modern endogenous theory and introduces the concepts of entrepreneurship on the level of the individual and on the level of the firm. The paper explains why growth theory requires the notion of entrepreneurship, in order to be more truthful. The paper derives some policy recommendations.

Entrepreneurship today is mostly understood as starting a new business by registering a firm (enterprise). This concept is wrong because it does not embody the whole nature of entrepreneurship, which is: perceiving a business opportunity and seizing it through innovative behavior and through taking risks. If observed in this way, entrepreneurship becomes crucial factor to economic growth. This paper explains how. The paper also investigates modern endogenous growth theory, which omits the issue of entrepreneurship. This paper shows how entrepreneurship is complementary to it. The incorporation of entrepreneurship in modern growth theory will inevitably result with better policy recommendations. Examples of such policies are given in the conclusion.

### Entrepreneurship

Entrepreneurship today is defined in two ways: (1) as starting a new business i.e. enterprise by establishing a new firm, and (2) as perceiving a new business opportunity and undertaking risk to seize it. In this paper, I will follow the second way of defining entrepreneurship, following the tradition of Cantillon (1755), Say (1803), Thünen (1875), Schumpeter (1911), Mises (1949), Penrose (1958), Baumol (1968), and Kirzner (1973).

The author that is usually accredited for the first use of the term entrepreneurship in a work on economics is Richard Cantillon (Baumol, 1993). Cantillon describes the entrepreneur as a person that engages in production or merchandise by buying inputs at fixed prices and selling outputs at unknown prices. The entrepreneur has grounded expectations that the buyer will be ready to provide some surplus on top of the costs, but bears significant risks because of not knowing how much that surplus will be.

J. B. Say (1803) defines entrepreneurship as combining labor (*l'industrie humaine*) with capital and natural resources into production or commerce. Some authors like Barreto (1989) argue that Say's concept also covers shifting resources from an area with lower to an area with higher profit yields. Say's concept does not directly deal with the issue of risk attached to entrepreneurship.

Unlike the representatives of the French school, like Cantillon and Say, most of the classical English economists like Smith, Ricardo, as well as Marx, did not distinguish between the entrepreneur and the capitalist. Most probably, this was because in the periods when they were working, the "prevalent business ownership was the small- to medium-sized family firm, the capital funds being provided by the owner, his relatives, or his friends" (Blaug, 1996). Schumpeter in this respect says, "most economists up to the time of the younger Mill failed to keep capitalist and entrepreneur distinct because the manufacturer of a hundred years ago was both" (Schumpeter, 1911, edition 1961, p.77).

Thünen, defines entrepreneurship as a function of taking risks. Thünen (1875, edition 1966) explicitly, and Cantillon (1755, edition 1931) implicitly assume that the entrepreneur possesses all the necessary knowledge about conducting his business, and therefore abilities to extract the most out of his resources.

In all the theories presented so far, with exception of Say's, the authors define entrepreneurship as an agent's willingness to engage and invest in an undertaking with only a vague idea of what the distribution of the payoffs might be. Underlying this risk-taking is the agents' strong belief that their undertakings can bring them profits, if not higher-than-average profits. However, these theories do not answer to following questions: "Why do these agents believe that their investments will bring them profits, if not higher-than-average profits? What makes their undertakings so special that they are so optimistic about them?"

Schumpeter (1961) argues that reasonable entrepreneurs are optimistic about their investments because they are introducing an innovation, or as he called it, a "new combination of resources". This new combination of resources can take the form of introducing a (1) new good, (2) new method of production, (3) new market, (4) new source of supply of raw materials or a (5) new organization of an industry.

There are two grounds on which an entrepreneur can realize high profits according to this theory. Firstly, he can improve the production process of an existing product and achieve lower production costs, which deducted from a stable (equilibrium) price would yield pure profits. Secondly, the entrepreneur might introduce a superior new product, for which the customers would be willing to pay a high price. In this second instance, the new product will also create a new market, where at least temporarily, the entrepreneur will hold a monopolistic position and will be able to extract monopolistic rents.

The theories before Schumpeter were in a way stipulating that all businessmen perceive the same opportunities, but only a small number of them take the risks attached to using them. Schumpeter added the notion of innovation. For example, he argues that one person can be an entrepreneur at one point of time and lose that status

later on “when he settles down to running (his business) as other people run their businesses” (Schumpeter, 1961, p.78).

Like Schumpeter, Kirzner describes the entrepreneur as a person that identifies and uses a business opportunity to improve his present position (following Mises’s theory of human action). Kirzner argues that markets are often in disequilibrium, which is “a situation of widespread market ignorance” (Kirzner, 1979, p.8). Because of this, the markets offer business opportunities to people that can perceive them. The real entrepreneurs perceive these opportunities and combine their knowledge with the knowledge of other people in order to use them.

Following the reviewed theories, I define entrepreneurship as ability of some market agents (individuals and firms) to perceive opportunities for innovation or for improvement of the supply of certain products or services, and willingness to take risks on behalf of the assets they control in order to take advantage of the perceived opportunities.

### **Economic Growth**

Economic growth is the growth of the value added by all entities in a country. For example, the UK Office for National Statistics uses the measure Gross Value Added (GVA) in estimating the Gross Domestic Product (GDP) - the most commonly used indicator for measuring economic growth. The Office defines GVA as a measure of the contribution to the economy of each individual producer, industry or sector.

So far, a number of theories of economic growth have emerged. The cornerstone of prevalent neoclassical theories is the work by Solow (1956) and Swan (1956). In their models, Solow and Swan used labor and capital as key determinants, while keeping technology as a constant and exogenously determined factor. Present growth theory (Romer, 1990; Aghion and Howitt, 1992; Grossman and Helpman, 1991) treats parts of technology as endogenous determinants of growth.

According to the Solow-Swan model, the output in one economy is produced with the help of two factors of production, capital (K) and labor (L), whose rate of input is  $L(t)$ .

$$Y = F(K, L)$$

Technological possibilities in their model are represented by a production function. The mostly used one is the Cobb-Douglas production function:

$$Y = AK^\alpha L^{1-\alpha}, \text{ where } A > 1 \text{ is the level of technology and } \alpha \text{ is a constant with } 0 < \alpha < 1$$

In this model, technology is a constant. The higher it is, the higher the output. However, the constant level of technology and its exogenous nature are a main reason why this theory lacks empirical certification.

Romer’s (1990) model is representative of the modern endogenous models with expanding variety of products. It is specified as:

$$Y(H_A, L, x) = H_Y^\alpha L^\beta A \bar{x}^{1-\alpha-\beta}$$

Where, Y is the output, H is total human capital,  $H_A$  is total human capital employed in research and  $H_Y$  is the total human capital employed in direct production of output Y.  $H_Y$  is directly positively affected by  $H_A$  due to spillover effects. L represents labor services like skills such as eye-hand coordination that are available from a healthy physical body. The constants  $\alpha$  and  $\beta$  determine the level of different intermediate capital goods (technology intensive and technology non-intensive), which are not totally substitutable. Therefore,  $0 < \alpha < 1$ ;  $0 < \beta < 1$  and  $\alpha + \beta < 1$ . The notation x represents all intermediate goods used to produce output Y. Romer keeps the available intermediate goods constant, and therefore uses the notation  $\bar{x}$ .

As can be seen from the above, output is indirectly positively affected by the output of the employed human capital in research. This makes this model endogenous and fairly realistic.

In defining this theory, Romer starts from three presumptions. The first is that technological change—improvement in the instructions for mixing together raw materials—lies at the heart of economic growth. Technological change provides the incentive for continued capital accumulation, and together, capital accumulation and technological change account for much of the increase in output per hour worked.

The second premise is that technological change arises in large part because of intentional actions taken by people who respond to market incentives. Thus the model is one of endogenous rather than exogenous technological change.

The third and most fundamental premise is that instructions for working with raw materials are inherently different from other economic goods. Once the cost of creating a new set of instructions has been incurred, the instructions can be used over and over again at no additional cost. Developing new and better instructions is equivalent to incurring a fixed cost. This property is taken to be the defining characteristic of technology (Romer, 1990).

The theory of endogenous economic growth with improvements in the quality of products, according to Barro and Sala-i-Martin, (2001) can be stated with the following formula:

$$Y = AL^{1-\alpha} \cdot \sum_{j=1}^N (q^{kj} \cdot X_{jkj})^\alpha$$

Here, Y represents the output, A the technology,  $0 < \alpha < 1$ , while q is the quality grade of each intermediate good employed in the production of j-th good. Here q expands exponentially determined by the quality rung k, which is always positive. X is the quantity of intermediate goods employed in the production of j-th good. The economy uses  $X_{jkj}$ , because k identifies the highest quality level of the intermediate goods for the production of j-th good.

This formula notation determines that output grows with the improvements of the intermediate products, noted as k. In this theory, the growth of k is determined by the

incentive to innovate, which is the flow of profit from making the improvement (for details see Barro, Sala-i-Martin, 2001)

### **Entrepreneurship on The Level of the Individual**

As we can see, expanding the variety of products, as well as, improvements in the quality of the present products play a massive role in explaining growth in modern endogenous growth theory. The key to these improvements is innovation. However, modern growth theory assumes that the aggregate level of successful innovation can be modeled according to the incentive to innovate without taking into consideration psychological and sociological factors embedded in the theories of entrepreneurship.

The entrepreneurial behavior seems to be a function of intelligence, knowledge, and cultural and psychological factors. Mises acknowledges this in his “Human Action”.

“...Various individuals do not react to a change in conditions with the same quickness and in the same way. The inequality of men, which is due to differences both in their inborn qualities and in the vicissitudes of their lives, manifests itself in this way too. There are in the market pacemakers and others who only imitate the procedures of their more agile citizens”.  
(Mises, 1949, p.256)

The entrepreneurial profits are not the only possible source of motivation for the entrepreneur. His need for achievement, need to earn respect from other people, need for self-realization, or something else, might also motivate a person to perceive and act upon a business opportunity. For example, the psychologists Zaleznik and Kets de Vries (1974) locate the roots of entrepreneurial behavior in the psychology of people with a distant or absent image of their father. “(The entrepreneur) needs social support, the esteem and the admiration that have been denied him for so long, in order to compensate for feelings of rejection centered on the father image. He is forced to realize his idea, and the enterprise becomes a tangible means of acquiring the self-esteem he desires” (Zaleznik & Kets de Vries, 1974).

Entrepreneurship on the level of the individual is very well treated in the classical literature on entrepreneurship. Actually, all of this literature focuses on the individual entrepreneur, mostly because of the small size of the firms in the past and the key roles played in them by their owners/managers. However, today’s economic landscape is entirely different, due to the enormous size of the modern corporation. This explains why the theory of entrepreneurship has to be expanded to accommodate for the entrepreneurial behavior of the modern firms.

### **Entrepreneurship on the Level of the Firm**

“(In the USA)...90% of all business sales are made by corporations...(they) hire 97% of all workers...account for 98% of all capital expenditures...produce 98% of all the value added” (Carlton and Perlof, 1999, p.14). As in a modern corporation the ownership and management are usually separated, the theory of entrepreneurship has to be modified so that it can apply completely. An entrepreneurial individual in a modern corporation usually has limited opportunities for action even if he/she is the

highest authority in the organization (CEO). This person usually cannot appropriate all of the entrepreneurial profits but also does not bear all the risks involved in acting upon his/her entrepreneurial foresight.

However, this does not mean that the employees of a corporation (including CEOs) cannot be entrepreneurs. They can still be alert to opportunities that their firm can pursue and can take action within the organisation to advocate their use. The difference that occurs in the theory of entrepreneurship with the separation of ownership and management is the differentiation between two distinct types of entrepreneurship: entrepreneurship on the level of individuals, and entrepreneurship on the level of firms.

On the level of the individual, there are two types of entrepreneurship, entrepreneurship of an employee and entrepreneurship of a firm-owner, which was covered previously. The employee entrepreneurship is necessary for a firm to behave as an entrepreneur, because the firm itself, just as a legal entity, is incapable of generating new ideas. Therefore, the firms employ entrepreneurs, who are individuals or groups that provide them with entrepreneurial services (Penrose, 1958). The entrepreneurial services are introduction of new ideas and advocating their acceptance within the firm (Penrose, 1958, p.31).

“Innovation begins with the activation of some person or persons to sense or seize a new opportunity. Variously called “corporate entrepreneurs” (Kanter, 1983), “intrapreneurs”, “idea generators” or “idea champions” (Galbraith, 1982), such individuals are able to initiate a process of departing from the organizations’s established routines or systems” (Kanter, 1988, p. 171).

However, at this point, we have to acknowledge one additional factor that determines the ability of an employee to affect the functioning of his/her firm. The higher the employee is in the organizational hierarchy, the more authority he/she has to take advantage of a perceived opportunity. Therefore, the entrepreneurship of the upper management has a very high influence on the performance of every firm. Covin and Slevin (1988), for example, found that top management’s entrepreneurial orientation had a positive effect on the financial performance of organically structured firms.

The importance of the upper management is even more accentuated as it has authority to accept or deny subordinate’s ideas that could contribute to firm’s entrepreneurship.

“Rarely do bosses in tradition-bound organizations actually have to say “No” directly to a subordinate’s idea. A few well placed frowns or eyebrow raises, some pregnant pauses, a reiteration of the real assignment, and citation of accumulated years of company wisdom can be enough to make it clear to people that new ideas are not welcome.” (Kanter, 1983, p. 69)

Because of the high authority to implement their own entrepreneurship and to channel and use the entrepreneurship of the other employees, the personality of the top manager is very important to the competitive success or failure of a firm.

## **Entrepreneurship as determinant of growth**

At the heart of entrepreneurship lie the following three notions: perception, innovation and risk. As we saw, expanding the variety of products and improving the quality of the present products play a massive role in explaining growth in modern endogenous growth theory. However, these processes require human action.

The human action, which results in improvement of the variety of products or in the quality of the present products, is characterized by perception, innovation and risk. The perception is necessary to identify the possibility for improvement. The innovation is necessary to determine the way for improvement. The risk is necessary in order to implement the improvement.

Basically, the process of improvement i.e. of expanding the variety of products or improving the quality of present products is entrepreneurship. If an individual performs this process, then we have entrepreneurship on the level of the individual. If a firm performs this process of improvement, then we have entrepreneurship on the level of the firm.

There is abundant evidence that entrepreneurial behavior is determined by psychological and sociological factors. This makes the models, which determine growth as a function of innovation, which is a function of material incentives, such as modern endogenous growth theory, not entirely correct. This is why entrepreneurship is an overlooked determinant of economic growth in modern endogenous theory.

## **Conclusion**

Mathematical modeling of a complex phenomenon, such as economic growth, depends on making assumptions. Due to the assumptions it starts from, today's endogenous growth theory overlooks an important growth factor – entrepreneurship. Entrepreneurship is an ability of some market agents (individuals and firms) to perceive opportunities for innovation or for improvement of the supply of certain products or services, and willingness to take risks on behalf of the assets they control in order to take advantage of the perceived opportunities.

Economic growth depends on expanding the variety of products and the quality of the present ones. However, in order for an economy to achieve this, it requires entrepreneurs, both as SME-owners and as corporate employees. “Entrepreneurs are agents of change and growth in a market economy and they can act to accelerate the generation, dissemination and application of innovative ideas. In doing so they not only ensure that efficient use is made of resources, but also expand the boundaries of economic activity” (OECD, 1998, p. 11). The entrepreneurial behavior is rare and is determined by intelligence, knowledge, and cultural and psychological factors.

As a policy recommendation for countries, which seek avenues for economic growth, it appears from this theory that it is important to nurture, assist and reward entrepreneurial talent. Putting the entrepreneur in the pedestal of pop culture and propagating its value throughout the educational system is important for securing long run growth. The entrepreneur is simply a vehicle for implementing innovations. Its place in the economy has to be recognized and celebrated.

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