The Role of Entrepreneurship in Economic Growth and Development Models

Professor Eman Selim

Eman.saleem@commerce.tanta.edu.eg

emansaleem@aucegypt.edu

The Role of Entrepreneurship in Economic Growth and Development Models

Professor Eman Selim

Eman.saleem@commerce.tanta.edu.eg

emansaleem@aucegypt.edu

Abstract:

For decades, the entrepreneur was considered the" invisible man". The role of entrepreneurship was ignored in economic literature until the 20th century and in economic growth and development models until the early the 1990s. Since then, the role of entrepreneur is included in different branches of economics.

The purpose of this paper is to review the role of the entrepreneurs and entrepreneurship in economic growth and development models. After being considered an invisible man in the economics literature, Schumpeter 1911, 1934 considered economic development as a dynamic process that disturbs the closed circular flow of the economic system. Schumpeter considered the entrepreneur as an innovator who plays a fundamental role in the process of economic development. However, few attempts have been made to include entrepreneurship in neoclassical and general equilibrium growth and development models due to the assumptions of perfect competition, static market equilibrium and perfect information about markets and production processes.

Endogenous growth models (Romer 1986, 1990; Lucas 1990; Schmitz 1989; Aghion and Howitt 1992) make it possible to include entrepreneurship and entrepreneurs in growth models by emphasizing the role of knowledge externalities, innovations and returns to scale. They consider entrepreneurship as the channel through which these processes affect economic growth.

The paper also reviews empirical studies using three macroeconomics databases to describe the entrepreneurial impact on growth, productivity and employment.

Introduction

Most economists and entrepreneurship scholars usually suggest that entrepreneurship is beneficial for economic growth in developed countries. However, recent research shows that a positive relationship between entrepreneurship and economic development does not exist for developing countries and that this relationship might be negative.

Schumpeter (1934) considers that entrepreneurship as having a positive impact on economic growth. Schumpeter considered that entrepreneurship is a key factor in the development of the economy. Schumpeter considers innovation to be at the heart of economic growth and development. Leibenstein (1968) distinguished between two types of entrepreneurship routine entrepreneurship and Schumpeterian entrepreneurship. He considered that entrepreneurs have a unique and critical role in economic development because labor contracts are incomplete, production functions are not well specified and not all factors of production are marketed. The first generation of endogenous economic growth models (Lucas 1988; Romer 1986 1990 and Jones 1995) concentrate on human capital(Lucas 1988), research and development R&D(Romer 1986) and technological knowledge as a non-rival partially excludable good (Romer 1990) as the variables that affect economic growth. Endogenous growth models did not explain the transmission of technological knowledge into economic knowledge through entrepreneurs and they did not provide an explicit role for entrepreneurship in economic growth. However, the second generation of endogenous growth models tries to incorporate the role of entrepreneurship in economic growth. Jones &Romer (2010) updated Kaldor's facts and considered of four variables: ideas, institutions, population, and human capital. Economic development theories concentrate on structural transformation, market, and/or government failure. Some economic development economists recommend government entrepreneurship. Naude (2009) argued that entrepreneurship "is not a binding constraint" on economic development and structural change in the developing countries, but it may play a role in understanding the actual binding constraints as institutions which is considered as a as "black box" . Baumol (1990) argued that, even if all countries have the same supplies of entrepreneurs, the institutional environment will determine the allocation of entrepreneurship into productive, unproductive, and destructive forms of activity. That countries with weak institutions would not provide incentives to encourage productive entrepreneurship, but only unproductive or destructive entrepreneurship

The purpose of this paper is to provide a selective literature review of economic growth and economic development theories and empirical studies on the relationship between entrepreneurship and economic development. The paper is organized as follows: Section 2 reviews economic development theories. Section three reviews the data bases for entrepreneurship, section 4 reviews the empirical studies and section 5 concludes.

2.Entrepreneurship in Economic Development and Economic Growth Theories

2. 1. Schumpeter's development theory (1934) attributes a key role to the entrepreneur and the innovations he introduces in the economic development process. He introduced the concept of creative destruction, which is the source of economic growth. It is a competitive process in which entrepreneurs constantly look for new ideas that will make their competitors' ideas

obsolete. The key element that motivates this creative destruction is innovation. They also point out that temporary monopolistic rent is, in the context of Schumpeter, what stimulates innovation and makes the economy grow, and thus the importance of preserving intellectual property rights through an appropriate system of international patent protection. In short, according to Schumpeter, innovations - the implementation of new combinations - can be classified into five groups: 1) introducing a new commodity or new quality of good goods ; 2) introducing a new method of unproven production ; 3) opening a new market ; 4) invading a new source for the supply of raw materials or partially manufactured goods ; and 5) implementing a new industry organization. The Schumpeterian entrepreneur is an innovator. When an entrepreneur stops innovating, he ceases to be an entrepreneur. In addition, day-to-day business management is a routine job and does not require the participation of entrepreneurs. Therefore, someone who establishes a new business by replicating existing businesses is not an entrepreneur in a Schumpeterian sense. To disturb the static Walrasian equilibrium , the entrepreneur uses bank credit to finance his innovations. The credit does not come from savings from the current income but is created by the banking system. For Schumpeter credit creation by the banking system plays an essential role in the development process. The entrepreneurs do not respond to consumers preferences, as in neoclassical theory, where producers are passive. Entrepreneurs by innovating and introducing new commodities change consumers 'tastes and preferences. In Schumpeter analysis, the development process is not gradual harmonious development process is a series of dissentious disturbances of the circular flow. These disturbances are innovations. As the entrepreneur's business becomes too big innovation thus degenerates into a routine depersonalized activity carried out in large companies through a bureaucracy of highly skilled managers. As a result, entrepreneurial function has become obsolete.

2.2 Economic growth theories

2.2.1 Neoclassical growth model

The neoclassical theory of economic growth has several restrictions on the existence of the entrepreneur, including the assumptions of perfect competition, perfect information, rational behavior of consumers and producers and autonomous equilibrium in goods and factor markets without government intervention.

The Solow neoclassical model (1956) is a very simple model where there is only a single good. The government is absent. Full employment is preserved. The model is based on four variables: output, capital, labor, and knowledge. Production is represented by an aggregate function. The three inputs of capital, labor and knowledge are used to produce output. The amount of output changes over time indirectly through the changes in the three inputs over time. If the amount of capital and labor are given, the output increases over time if technology or the amount of technological progress increases. The production function exhibits constant economies of scale because the economy is large enough that the benefits from specialization are exhausted and that inputs other than capital, labor and knowledge are not important. The model assumes that the marginal product of capital is positive but declines as the amount of capital increases. The marginal product of labor is also positive and declines as the quantity of labor increases. The marginal product of capital is very large if the amount of capital stock is very small. The same

for the marginal product of labor is in the opposite direction to the available quantity of labor. The last assumption guarantees that the economy will diverge and the marginal product of capital and the marginal product of labor in developing countries are higher than their counterparts in developed countries. The model also assumes that the levels of capital, labor, and knowledge the economy begins with are given and positive. Both labor and knowledge grow at an exogenous constant rate. The rate of growth of the labor is the natural rate of population growth. Both labor and knowledge grow exogenously. The output is divided between consumption and savings. The fraction of output devoted to savings is constant. All savings are used to finance investment. Capital stock depreciates at a constant rate. The rate of change of the capital stock is the difference between the actual investment and the breakeven investment i.e. the amount of investment necessary to prevent capital stock from falling. The economy converges to a balanced state whatever the initial level. In the balanced state, every variable in the model grows at a constant rate. The rate of savings, the rate of depreciation, the rate of population growth and the rate of technological progress all these parameters are constant and exogenous. Thus, the role of knowledge accumulation has been eliminated. The only source of growth (per capita) in its model was capital accumulation, and at the macro level, savings determined levels of investment and capital accumulation. However, Solow (1957) found that capital accumulation explained 13% of growth in the United States from 1901 to 1949 and attributed the remaining 87% to (increased exclusive employment) technical change. this unexplained Solow residual.

2.2.2. Endogenous growth theory

Some of the more pioneering and important contributions in this field include Romer (1986, 1990), Lucas (1988), Grossman and Helpman (1991), and Aghion and Howitt (1992). A unifying characteristic of endogenous growth models , which also fundamentally distinguishes them from the Solow model, is that knowledge is modeled as being endogenous. Growth is generated by investments in knowledge and the models outline the determinants of investment decisions in knowledge. Furthermore, some of these models, such as e.g. Lucas (1988), differentiate between physical and human capital.

The first generation of endogenous growth models (Lucas 1988, Romer 1986, 1990 , Helpman & Grossman 1991, 1994)) suggest that "profit maximizing" firms undertake research and development activities to provide new knowledge and that knowledge is considered as an input in the growth process. Investment in new knowledge endogenously creates technological opportunities and generates economic growth through the spill over of knowledge, where the rate of per capita GDP growth equals the rate of technological creation at the steady state path of growth. In endogenous growth models, the ability to exploit the benefits of knowledge from overall investment in knowledge is not adequately explained. These models assume that knowledge (normally defined as codified research and development) is automatically transformed into commercial activities, or economic knowledge that represents a business opportunity. The transformation of knowledge into economic knowledge and commercial activities is an unpredictable and complicated process. Not all inventions have been successively commercialized and yield revenues. Endogenous growth theory does not explain how or why

spillovers occur. Endogenous growth models fail to include the transmission of knowledge spillovers through entrepreneurship.

Romer (1986) presents a fully specified model of long-run growth in which knowledge is assumed to be an input in production that has increasing marginal productivity. It is essentially a competitive equilibrium model with endogenous technological change. In contrast, models based on diminishing returns; growth rates can be increasing over time. The effects of small disturbances can be amplified by the actions of private agents, and large countries may always grow faster than snail countries. Long-run evidence is offered to support the empirical relevance of these possibilities. He did not explicitly mention entrepreneurship in this model.

Lucas (1988) considered three models and compared them to evidence: a model emphasizing physical capital accumulation and technological change, a model emphasizing human capital accumulation through schooling, and a model emphasizing specialized human capital accumulation through learning-by-doing.

Romer 1990 shows that growth in this model is driven by technological change that arises from intentional investment decisions made by profit-maximizing agents. The distinguishing feature of the technology as an input is that it is neither a conventional good nor a public good; it is a non- rival, partially excludable good. Because of the nonconvexity introduced by a nonrival good, price-taking competition cannot be supported. Instead, the equilibrium is one with monopolistic competition. The main conclusions are that the stock of human capital determines the rate of growth, that too little human capital is de- voted to research in equilibrium, that integration into world markets will increase growth rates, and that having a large population is not sufficient to generate growth.

Grossman and Helpmann (1991, 1994), where all R&D and investment decisions are made by forward-looking "profit maximizing" entrepreneurs. Successive quality improvements are made of available goods and services, so called quality ladders. The model generates an equilibrium with a deterministic aggregate level of innovation, which is constant in the steady state. While the model claims to capture several realistic aspects of the innovation process, such as e.g. product life cycles, non-uniform development across sectors etc. and the role and behavior of the entrepreneur is relatively simplistic and mimics the behavior of the standard "profit maximizing" firm.

Second generation of endogenous growth models try to partially remedy the deficiencies in the first-generation models. Aghion and Howitt (1992) consider a model of economic growth based on the Schumpeterian concept of creative destruction. They considered that long-run growth is generated by innovations where innovations result from entrepreneurial investments (R&D, training, computer purchase. New innovations replace old technologies Innovations are generated by a competitive research sector(entrepreneurs). Entrepreneurs respond to the economic incentives (positive or negative) which result from economic policies and economic institutions. Each innovation results in intermediate goods that can efficiently produce final goods. The amount of research in any period is affected by the expected research in the next period. The new research renders the old technology obsolete through creative destruction.

Future research discourages current research by destroying the monopoly rent achieved by current research. The growth rate and variance of the growth rate are increasing functions in innovations. They consider that innovations result from entrepreneurial investments (R&D, training, and computer purchase,) and entrepreneurs respond to economic incentives (positive or negative) that result from economic policies and economic institutions.

Schmitz, James Jr. (1989) develops a model to endogenize entrepreneurial activity as an important determinant of economic growth. He considers that imitative activities of the entrepreneur drive economic growth. He also emphasizes the external effects resulting from entrepreneurial activities. He distinguishes it from the production of knowledge which earlier endogenous growth models focused on as Romer (1986, 1990)

Segerstrom (1991) develops a model with a steady state equilibrium in which some firms are innovative and other firms are the imitative. Innovation subsidies by the government increase economic growth. Innovation should exceed a critical level for welfare to increase.

Semi-endogenous growth models assume a decrease in returns to the knowledge balance and no negative effects on the spread of products. Therefore, semi-domestic growth models imply that knowledge growth rates and per capita output depend on the growth rate of research efforts. (Jones 1995, Kortum 1997, Segerstrom 1998)

2.2.3. The knowledge Spillovers theory of entrepreneurship (KSTE)

Acs et al. (2013) use the knowledge spillover theory of entrepreneurship[1] (KSTE), to propose a Knowledge Incubator which is a private firm, non-profit organization, government, university, or research institution which use its own resources to develop new knowledge. The new knowledge has the potential to be commercialized in markets. Knowledge Incubator choose not to commercialize the knowledge for many reasons including the uncertainty. High impact entrepreneurs are economic agents that can absorb and convert knowledge spillovers into economic knowledge. they receive from Knowledge Incubators. High impact entrepreneurs found new firms to commercialize the knowledge spillovers and convert it into economic knowledge and economic growth. They do not bear the full costs of the new knowledge produced at knowledge Incubator. Differences in economic growth among countries can be attributed to differences in the costs and benefits of knowledge spillovers

2.3 Economic Development Theories

There are three stages in the evolution of development economics since its origin after World War Two to the present. There is fair agreement in the literature that the field has gone through these three stages, Nayyar (2008) and Naude (2009) can be described as follows:

2.3.1.'Development Consensus' phase from 1940 to roughly 1980.

The "consensus for the development phase focused on the structural economic transformation of poor economies through industrialization. Changing low-value-added activities, low productivity, rural activities to more productive value-added activities and increased value

---

[1] This theory is considered as the microeconomic foundation of endogenous growth models.

added in urban services and manufacturing. They are thinking about structural changes, market failures and international inequalities dominated during this period. As a result, the need for strong government intervention was encouraged during the first stage after World War II, entrepreneurship was not seen as a constraint on economic development. There was a strong direction toward limiting the degree of openness and integration with the world economy and more dependence on self-development. Industrialization was considered as the engine of economic development and based on import substitution in the manufacturing sector.

Hollis B. Chenery (1955; 1975) has no explicit views on entrepreneurship. Later, others will argue that in leapfrogging development, entrepreneurs in lagging countries may play a potentially important role by imitating and copying technology from advanced countries.

Raul Prebisch (1959) did not explicitly mention entrepreneurs or entrepreneurship.

Michael Lipton (1968) Suggested that farmers in developing countries act as entrepreneurs who do not maximize profit. Identify rural entrepreneurship as limited by lack of access to land (wealth). Although production is small scale (small firm size), it is often an important (efficient) response to conditions.

Harvey Leibenstein (1968) considered that entrepreneurs are needed to solve the problem of imperfect markets , incomplete labor contracts and unspecified production functions. The supply of entrepreneurs may be constrained by a lack of capabilities, opportunity costs, etc. He distinguished between routine entrepreneurship (e.g., management) and Schumpeterian entrepreneurship.

Nathan Leff (1979) explicitly considered the role of the entrepreneur. However, he concluded that entrepreneurship is not a constraint on economic development, but that imperfections in product markets are.

2.3.2 'Washington Consensus' phase from 1981 to 2000.

The second idea is that development is a multidimensional concept that requires more than eradicating income poverty. Growth depends on the institutional context. Underlines the importance of contractual rights and collective action. Both failures of the market and the government keep the underdeveloped countries, it is not the size of the government that counts, but the structure of the incentives it creates and whether it can remedy or aggravate market failures. Sustainable livelihoods should be the focus of development policy, focusing on understanding poverty in its many dimensions. Developing countries need to be open to trade and export promotion. It focuses on property rights and free markets as key "institutions" for economic development.

Robert Chambers (1981) considered that entrepreneurial behavior important for rural development and small-scale farming, as a vehicle out of poverty. He argued that governments do not often understand the requirements of small-scale informal entrepreneurs.

Jagdish Bhagwati (1982) did not directly concerned with entrepreneurs, but his analysis of rent-seeking predates ideas in entrepreneurship about institutional incentives, which leads to skewed allocation of entrepreneurial talent towards unproductive activities.

Joseph Stiglitz (1986) implied a role for government but he was not directly concerned with entrepreneurs. However, his work has implications for instance in understanding the nature of financial constraints on startups.

Robert Barro (1996) was not directly concerned with entrepreneurs, but his emphasis on property rights and other legal bases for growth implies that entrepreneurs (firms) will function better under certain institutional conditions.

Mancur Olson (1996) argued that businesses (i.e. entrepreneurs) in developing countries act rationally, even under difficult conditions. However, this does not necessarily generate "socially effective results. Besides, he considered that cultural differences (including differences in entrepreneurial culture) cannot account for significant differences in income across the country.

2.3.3. The Post-Washington Consensus phase, 2000–to the present

The third is the idea that market failures prevail and that the state has a mission of coordinating and organizational role in development. Differences in productivity and growth between countries are due to the risks of investment and investment in human capital and technology. However, growth may begin without proper institutions, but it will require the continuation of these institutions. Developing countries are stuck in the trap of poverty. Government intervention is needed to promote manufacturing because industrialization is essential to development. This requires a "strategic partnership" between the State and the private sector.

Daron Acemoglu (2003) shows that institutions create incentives which affect the allocation of talent. Many productive activities in poor countries are often exposed to unthinkable risks.

Jeffrey Sachs (2003) shows that entrepreneurship is an important way out of poverty; international aid projects should encourage rural entrepreneurship in the poorest countries. geographical factors are important in explain global inequality and poverty. The IMF and the World Bank play a key role in global development in promoting the Millennium Development Goals as international development goals.

Ha-Joon Chang (2007) calls for 'state entrepreneurship'. It is a state that provides vision and mobilizes resources to achieve this vision.

Dani Rodrik (2007) shows that the state should, through industrial policy, encourage entrepreneurs to "discover" what an economy is good at producing. Institutional and political reforms could have a negative impact on growth if preexisting entrepreneurial activity is strong, and vice versa.

2.4. Porter three stages of economic development: ÁCS et al 2008 development goes through three stages, a factor-driven stage, an efficiency-driven stage and an innovation-driven stage (and two transitions between these stages; the transition from the factor-driven stage to the

efficiency-driven stage and the transition from the efficiency-driven stage to the innovation-Driven stage.

2.4.1 At the lowest levels of economic development, production depends on the mobilization of primary factors of production: land, primary commodities, and unskilled labor. At this factor-driven stage, international competitiveness is mainly based on lower costs of factors and/or the presence of metals and other commodities. The first stage is marked with high rates of nonagricultural self-employment. The self-employed probably account for most small manufacturing firms and service firms. The self. Employment can be considered a necessity entrepreneurship. Self-employment in this stage is not a Schumpeterian innovative entrepreneurship. Almost all economies experience this stage. These countries neither create knowledge for innovation nor use knowledge for export.

2.4.2. The main processes in the transition from the first phase to phase II are capital accumulation and technology dissemination. To move into the second stage, the efficiency-driven stage, or the investment- driven stage countries must educate the workforce to be able to adapt in the subsequent technological development phase. To be competitive in this second stage, countries must have effective productive practices in large markets that enable companies to exploit economies of scale. Industries at this stage are manufacturers or provide basic services. Exports are very important in this stage to enable large scale firms to achieve economies of scale.

The efficiency-driven stage is marked by decreasing rates of self-employment. Wages are high. There are several reasons to expect entrepreneurial activity to decrease as economies become more developed. Countries at the efficiency-driven stage can be subject to financial crises and external sector demand shocks.

2.4.3. A third stage is a technology-generating economy (innovation-driven stage). countries that have reached this stage are innovating at the global technological frontier in at least some sectors. This step also involves a high-income status. The transition at this stage requires a country to develop its capacity to generate and commercialize new knowledge. This involves intensive cooperation between universities, private companies, and the government. Once a critical mass of knowledge, technology, skills and purchasing power has been established, innovation can achieve increasing returns at scale. These will fuel the process of self-perpetuation of continuous innovation and long-term economic growth (Sachs, 2000). At this point, we can talk about the knowledge economy. **Audretsch and Thurik (2000,2001,2004)** describe this transition as that of the managed economy to entrepreneurship. The innovation-driven stage is marked by an increase in entrepreneurial activity. For over a century, there has been a trend in economic activity, exhibited in virtually every developed industrialized country, away from small firms and towards larger organizations. this trend had not only ceased sometime during the mid-1970s, but had begun to reverse itself

3. The databases for Entrepreneurial Activity

The databases describe the entrepreneurial activity of countries: The International Labor Organization (ILO) measures self-employment, the Global Entrepreneurship Monitor (GEM) measures the startup rates of new firms, and the World Bank measures the registration of new

firms. It is worth noting that these databases are concerned with formal as opposed to informal firms.

ACS et al. (2008) compared two datasets designed to measure entrepreneurship: The Global Entrepreneurship Monitor (GEM) dataset and the World Bank Group Entrepreneurship Survey (WBGES) dataset. It is important to understand what the data indicate, and exactly what elements of entrepreneurial dynamics are being measured. The WBGES data, for example, measures the registration of LLCs, which is one kind of legal arrangement for a new firm. studies using GEM and WBGES data have found contradictory results. The GEM systematically assesses two things: the level of startup activity or the prevalence of nascent firms and the prevalence of new or young firms that have survived the startup phase. The startup activity (the ''nascent'' rate) is measured by the proportion of the adult population (18–64 years of age) in each country that is currently engaged in the process of creating a nascent business. The proportion of adults in each country who are involved in operating a business that is less than 42 months old measures the presence of new firms (the ''baby'' rate). The WBGES defines the unit of measurement of entrepreneurship as any economic unit of the formal sector incorporated as a legal entity and registered in a public registry, which is capable, in its own right, of incurring liabilities and engaging in economic activities and transactions with other entities . The WBGES measurement excluded the informal sector. They found several important differences when the data were compared. First, GEM data tend to report significantly higher levels of early stage entrepreneurship in developing economies than do the World Bank business entry data, while the World Bank business entry data tend to be higher than GEM data for developed countries. Second, they found that the magnitude of the difference between the datasets across countries is related to the local institutional and environmental conditions for entrepreneurs after controlling for levels of economic development. Their findings suggest that entrepreneurs in developed countries have greater ease and incentives to incorporate, both for the benefits of greater access to formal financing and labor contracts as well as for tax and other purposes not directly related to business activities.

4. Macro Empirical Evidence

Macro-level empirical work has been concerned with how entrepreneurship influences economic development measured by GDP, productivity, and employment. Most studies concentrate on physical variable and very few studies have considered non-monetary or subjective measures.

4.1. First, there is no clear empirical evidence as to whether entrepreneurship is the engine of economic growth, productivity, or employment. Studies have found a mix of results.

Nystrom (2008) provides a summary of empirical tests on the relationship between entrepreneurship and economic growth. She provides 38 studies between 1996 and 2006 that quantify the relationship between entrepreneurship and economic performance. Except for three studies, the studies focus exclusively on developed economies. She reviews empirical results on the relationship between entrepreneurship and three measures of economic performance: GDP growth, employment, productivity, and overall economic growth. In these studies, entrepreneurship is measured either by self-employment rates (most often), business ownership

rates, early-stage entrepreneurial activity (startup activity), or even by the number of registered patents (to reflect the idea that it is "innovative" entrepreneurship that really matters). The review shows that studies that do not find a positive link between entrepreneurship and productivity growth have studied a relatively short period of time. Most studies that have studied a longer period provide fairly clear evidence of the positive relationship between entrepreneurship and growth. Regarding the relationship between entrepreneurship and employment growth, empirical results show that some different directions. However, she concluded that in the long run there appears to be a positive relationship.

Braunerhjelm et al. (2010) provide a model that demonstrates how growth depends on the accumulation and dissemination of knowledge through both incumbents and entrepreneurial activities. They claim that entrepreneurs are a missing link in the transformation of knowledge into economically relevant knowledge. The implementation of various regression techniques for OECD countries from 1981 to 2002 provides surprisingly strong evidence that entrepreneurs contributed primarily to growth and that the importance of entrepreneurs increased in the 1990s. Granger's test confirms that causality is moving in the direction from business to growth. The results suggest that policies that facilitate entrepreneurship are an important tool for promoting knowledge dissemination and promoting economic   growth.

Thurik (1999) presents an empirical cross-sectional study from 1984 to 1994 in 23 OECD countries. The study shows that the increase in entrepreneurship, as measured by business ownership rates, is associated with higher rates of employment growth at the country level.

Most studies on the relationship between entrepreneurship and overall economic growth have found a positive relationship. Studies that find a negative relationship usually use un harmonized self-employment rates as a measure of entrepreneurship. However, the studies use different definitions of entrepreneurship, different times periods, different quality of data, and different estimation methods which make the results incomparable. Besides these (macro level) studies use OLS methodologies with cross-sectional data which may be biased because of non-constant variance of error terms. Cross-section analysis cannot take account for differences among the included countries. Studies using employment or productivity as independent variables included GDP per capita as a control variable despite the high correlation among the variables.

4.2 Second, studies that show a U-shaped relationship between entrepreneurship and a country's level of economic development, as measured by GDP per capita.

Blau (1987) observes that the proportions of both male and female self-employed in the nonagricultural U.S. labor force declined during most of this century. He also observes that this decline was at the bottom in the early the 1970s and started to rise until at least 1982. Blau 1987 examined self-employment rates in the United States over a two-decade period using a general equilibrium model of self-employment if wage employment and U.S. time series data. The empirical results show that an increase in the rate of technological change, industrial structure , tax rates and social security retirement benefits led to an increase in the self-employment rate and reverse the downward trend that continues for almost a decade, which was observed in international cross-section data when comparing labor force composition across countries at

different levels of development and for aggregate time series for the United States and other developed countries.

Carlsson (1989) shows that plant and firm size in manufacturing, especially in the engineering industry, in several Western industrial countries has declined since the early the 1970s. He provided two hypotheses explaining this decline. The first is specialization: the divestiture of non-core businesses to free up scarce resources (particularly management time) to defend and nurture core business activities. The second hypothesis is that the emergence of new computer-based technology has improved the quality and productivity of small and medium - scale production relative to standardized mass-production techniques which dominated previously.

 Loveman, G. and W. Sengenberger (1991) reported that the long-term trend towards centralized business regulation had stalled and had been reversed in many developed industrialized countries as the share of employment in small enterprises increased. The article documents important developments in the distribution of volume for production in the six largest OECD countries, examines different interpretations of changes, such as the business cycle, sectoral decomposition of the economy, the advantages of labor cost in small firms and the spread of flexible specialization.

Acs et al. (1994) report that of 23 OECD countries, 15 experienced an increase in the self-employment rate during the 1970s and the 1980s. They show that the weighted average of the self-employment rate in OECD countries rose slightly from 8.4% in 1978 to 8.9% in 1987. The 15 OECD countries had a U-shaped relationship between entrepreneurship measured as self-employment and economic growth.

Yamada, (1996) reported a negative relationship between economic development and the rate of business ownership (self-employment). Their studies use a large cross-section of countries with a wide variety in the stage of economic development.

Carree et al. (2002) address the relationship between business ownership and economic development. They focus on three issues. First, how is the equilibrium rate of business ownership related to the stage of economic development? Second, what is the speed of convergence toward the equilibrium rate when the rate of business ownership is out-of-equilibrium? Third, to what extent does deviating from the equilibrium rate of business ownership hamper economic growth? Hypotheses concerning all three issues are formulated in the framework of a new two-equation model. They find confirmation for the hypothesized economic growth penalty on deviations from the equilibrium rate of business ownership using a data panel of 23 OECD countries. An important policy implication of their exercises is that low barriers to entry and exit of businesses are necessary conditions for the equilibrium seeking mechanisms that are vital for a sound economic development.

Regressing global entrepreneurship (GEM) 2002 data for the rate of nascent entrepreneurship which is defined as the number of people actively involved in attempting to start a new business, expressed as a percentage of the adult population, in 36 countries on the level of economic development as measured either by per capita income or by an index for innovative capacity, **Wennekers et al (2005)** have found support for a U-shaped relationship. The results suggest

that the natural rate of nascent entrepreneurship is to some extent governed by 'laws' related to the level of economic development. For the most advanced nations, improving incentive structures for business start-ups and promoting the commercial exploitation of scientific findings offer the most promising approach for public policy. Developing nations, however, may be better off pursuing the exploitation of scale economies, fostering foreign direct investment and promoting management education. In this study, they also find U-shaped relationship between Total Entrepreneurial Activity (TEA) and economic development. This means that, as a nation develops economically, its prevalence of nascent entrepreneurship and of new business start-ups is likely to decline until a revival occurs at the high end of economic development. The U-shaped relationship implies a higher rate of entrepreneurial activity in low-income countries than in middle-income countries.

Using cross-sectional data on the 37 countries participating in GEM 2002 and an augmented Cobb-Douglas production function, **Wong et al. (2005)** explored the impact of four types of entrepreneurship; high growth potential TEA, necessity TEA, opportunity TEA and overall TEA on economic growth. They have found that only high growth potential entrepreneurship has a significant impact on economic growth.

Using a sample of 36 developed and developing countries, **Van Stel et al. (2005**) find that entrepreneurial activity by nascent entrepreneurs and owner/managers of young businesses affects economic growth measured by GDP per capita. Entrepreneurial activity has positive effect on GDP per capita in developed countries and a negative effect on GDP per capital of developing countries.

Golin (2008) shows that in most poor countries, small businesses and self-employment are the dominant forms of enterprise. This is true not only in agriculture and the service sector but also in the manufacturing sector, and large fractions of the workforce are self-employed. In Ghana, for example, more than 75 per cent of the manufacturing workforce was self-employed in 1984. For rich countries, on the other hand, the self-employed account for a very small share of manufacturing employment and almost very small fractions of output. Some observers explain the prevalence of self-employment in poor countries as a phenomenon of distorted policies or credit market imperfections. A model, calibrated in Japanese time series data, is shown to have key characteristics of cross-country and time series data. Changes in relative factor prices, driven by changes in productivity, account for much of the differences between countries in the size of institutions and self-employment rates. While policy distortions and market imperfections may also be important in explaining the prevalence of self-employment in developing countries, productivity changes alone could account for up to two-thirds of the variation in cross-sectional data.

Carree et al. 2007 suggested that the L-shaped and U-shaped relationship between entrepreneurship and economic development could not be distinguished empirically because not all countries are yet in the bottom-up part. This study revisits the two-equation model of Carree, van Stel, Thurik and Wennekers (2002), where deviations from the equilibrium rate of business ownership play a central role in determining both the growth of business ownership and that of economic development. Two extensions of the initial configuration are discussed: using a series

of longer average data delays from 23 OECD countries (until 2004), we can distinguish between the different functional forms of the "equilibria" rate and allow different penalties to be above or below the equilibrium rate. The additional data do not provide evidence of a superior statistical adjustment of a U-shaped "equilibria" relationship to an L-shaped relationship. There seems 2007 be a growth penalty for having too few business owners, but not for having too much.

Acs and Amorus (2008) show that the U-shaped approach is not very useful in explaining the role of entrepreneurship in developing countries in the efficiency-driven stage of development, either as they enter the efficiency-driven stage or leave the efficiency-driven stage. They studied the relationship between entrepreneurial activity and competitiveness in Latin American countries. They used three different international data sources for our analysis. The Global Entrepreneurship Monitor (GEM early stage entrepreneurial activity and its components) measures entrepreneurial dynamics. Competitiveness indicators are derived from the World Economic Forum's Global Competitiveness Reports, including the Global Growth and Competitiveness Index. The level of economic development is measured by per capita income from the IMF's World Economic Outlook database. They used panel data for 55 countries over the 2001-2006 period. They noted that the U-shaped approach is not very useful in explaining the role of entrepreneurship in developing countries in the efficiency-oriented development stage, either as they enter the efficiency phase or move away from the efficiency stage.

The 2004 Global Entrepreneurship Report **Aces et al. (2005**) began to pursue the idea of using the opportunity-to-necessity ratio as a composite indicator of entrepreneurial activity and economic development. Opportunity entrepreneurship represents the voluntary nature of participation. Necessity entrepreneurship reflects the individual's perception that such actions have presented the best available option for employment, but not necessarily the preferred option, A positive relationship appears between income level and entrepreneurship ratio and not a U-shaped relationship.

4.3. Third, empirical studies that show that entrepreneurship and institutions are essential to explain the variation in economic growth that is not considered by changes in the contributions of factors

Bjørnskov and, Foss (   ) argued that institutions , including the rule of law, easy regulations, low taxes, and limited government interference in the economy, allow entrepreneurial experimentation with combining productive factors to take place at low transaction costs. Institutions moderate the relationship from entrepreneurship to total factor productivity. Institutions moderate the relationship of entrepreneurship by increasing the elasticity of substitution among factors of production, which is a very important mechanism in the growth process. They considered the link between both entrepreneurship in the form of startups and the strategic entrepreneurship done by established firms and the institutional characteristics of economic growth. They measured entrepreneurial activity as harmonized self-employment rates for OECD and economic freedom indices to investigate which institution affects the supply of entrepreneurship.

Weitzman (1970) estimated the Solow production function for the e Soviet Union. He estimated that the Solow residual is only 20% that present the effect of technology on economic growth. This means that almost 80% of economic growth in the Soviet Union was explained by capital and labor. The difference between the results of the United States where technology explains 87% of economic growth and the Soviet Union where technology explains only 20% of economic growth is the institutional environment and the incentives for entrepreneurship.

Using Global Entrepreneurship Monitor (GEM) data**, Aidis et al. (2008)** studied the effects of the weak institutional environment in Russia on entrepreneurship measured by the number of startups and existing business ownership and compare it with all available GEM countries. Their findings suggest that Russia's weak institutional environment explain its relatively low levels of entrepreneurship development.

Using data from a representative global survey and institutional sources for 46 countries over the period 2002–2011, **Acs et al. (2018)** try to explain the source of the Solow residual in terms of institutions and entrepreneurship, whether singly or in combination in an ecosystem. They considered the combination of both entrepreneurship and institutions as the variable that should enter the aggregate production function to explain differences in economic growth among countries. They find that the stronger the entrepreneurial ecosystem. The more productive the technology and the stronger the impact of technology on economic growth.

4.4. Fourth; Other Empirical Studies:

(ACS et al. (2005) used the opportunity-necessity ratio as a proxy for entrepreneurial activity and economic development measured by per capita income. They used Global Entrepreneurship Monitor (GEM) data for countries with different levels of development. They have found a positive relationship appears between income level and entrepreneurship ratio. In other words, countries where more entrepreneurship is motivated by an economic opportunity recognized than by necessity have higher levels of income. Immediately.

Since the U-shaped measures are inadequate for understanding entrepreneurship in developed and developing countries, **Ahmed, and Hoffman (2008)** among others, relied on other measures. Measures such as the startup rate (Startup), which shows a linear and not U-shaped relationship between entrepreneurship and economic development, The Complex Global Entrepreneurship Context Index (CEC). The CBC shows an S-shaped positive relationship between entrepreneurship and economic development and not a U-shaped relationship. The CBC index is consistent with the factor-driven stage, the efficiency-driven stage and the innovation-driven stage.

Acemoglu et al.(2007). show that at the efficiency stage, entrepreneurial activity increases slightly or is relatively flat as necessity entrepreneurship is gradually reduced and innovation comes from outside, as developing countries are far from the technological frontier. They analyze an economy where firms undertake both innovation and adoption of technologies from the global frontier of technology. The selection of high-level managers and firms is more important for innovation than for adoption. As the economy approaches the border, selection becomes more important. Early stage countries pursue an investment-based strategy that relies

on existing firms and managers to maximize investment but sacrifices these selections. Closer to the global technology frontier, economies are moving to an innovation-based strategy with short-term relationships, younger roles, less investment, and better selection of firms and managers. They show that relatively backward economies can withdraw from the investment-based strategies too early, so that some policies, such as limits to competition in the product market or investment subsidies, which encourage investment-based strategy, can be beneficial. However, these policies can have long-term costs, as they make it more likely that a company will be trapped in the investment strategy and will not converge on the global technological frontier. This is attracting technology through foreign direct investment (FDI).

By studying the development experiences of Ireland and Hungary, **Acs et al. (2007**) show that (FDI) from foreign direct investment is becoming essential to create efficiency in the efficiency and knowledge-based phase of moving a country to the technological frontier, they add that it is widely recognized that foreign direct investment (FDI) plays an important role in economic development. However, its impact on entrepreneurial activity has not been well studied. The theory of internalization is used to explore the impact of incoming FDI on entrepreneurial activity. They test the assumptions that entrepreneurs as well as the public's attitude towards entrepreneurs, are different in Hungary and Ireland. Using data from the Global Entrepreneurship Monitor (GEM), they see significant differences in entrepreneurial activity between Ireland and Hungary, both in the type of people starting a business and, in the opportunities sought. Economic development policies should focus on increasing human capital, promoting business development, and improving the quality of (FDI).

Using data from the Global Entrepreneurship Monitor (GEM) for a panel of 83 countries from 2002 to 2014, **Boudreaux and Caudill 2019** examined the relationship between entrepreneurship and economic growth. They believed that this is a mixing model to test the hypothesis that there are two regimes in the data: entrepreneurship encourages growth for developed countries and does not encourage growth in developing countries. They find that entrepreneurship encourages economic growth, but not in developing countries. In addition, their data show that a country's institutional environment, as measured by the entrepreneurial conditions (CFE) of the GEM, contributes only to economic growth in more developed countries, but not in developing countries. These findings have important policy implications. Namely, their data run counter to policy proposals that suggest that entrepreneurship and the adoption of market-friendly institutions that support it do not generate economic growth in developing countries.

Salgado-Banda (2005) study proposes a new variable based on patent data to proxy for productive entrepreneurship PAT, which is interpreted as a measure of the degree of innovativeness of different nations. Data on self-employment is used as an alternative proxy. Specifically, the paper studies the impact of entrepreneurship on economic growth by using data on patent and self-employment. data on patent measures productive entrepreneurship. The study applied to 22 OECD countries and finds a positive relationship between the proposed measure of productive entrepreneurship, the degree of innovativeness of different nations, and economic growth, while the alternative measure, based on self-employment, appears to be negatively

related with economic growth. The study used cross-section regressions for the period 1980-1995 estimated by different techniques; ordinary least squares (OLS). two-stage least squares (TSLS) and generalized method of moments (GMM) models are estimated. The findings are relied on various econometric specifications and techniques. The study also used a dynamic panel model estimated for two periods estimated by the GMM-type estimator.

Kardos (2012) investigated the connections between sustainable entrepreneurship and sustainable development in European Union countries. His results indicate that sustainable entrepreneurship defined as innovative SMEs, is part of the support system for sustainable development. He considered that entrepreneurs and entrepreneurial enterprises as important variables for innovation, competitiveness, and sustainable development.

For an individual country study, **Chen (2013)** used the Vector Autoregression VAR model to investigate the relationship among entrepreneurship, economic growth and employment using quarterly data from Taiwan from 1987 to 2012. Entrepreneurship was proxied by the number of new company formations and economic growth was measured by the growth rate of the real general domestic product .His results show that entrepreneurship has a significant positive impact on economic growth with one period of lag . The results also show that entrepreneurship can boost employment, but after two periods of lag. However, an increase in employment can negatively affect entrepreneurship with three periods of lag. Therefore, he recommended that the government to put policies that would encourage and stimulate entrepreneurship.

Yu (1998) discussed the role of entrepreneurship in manufacturing and economic development in Hong Kong from a national perspective. He argued that the dynamics of Hong Kong's economy are largely attributed to adaptive entrepreneurs, who maintain the flexibility of their production and respond quickly to change. The use of entrepreneurial strategies tailored to foreign companies and the sale of improved products abroad has enabled Hong Kong to catch up with advanced economies.

Sabella et al. (2014) examined the nature of the relationship between entrepreneurship and economic growth in the West Bank of the Palestinian territories that occurred after the Oslo Agreement. This study has two main objectives: first, to examine with empirical evidence the impact of entrepreneurship on economic growth; second, to explore the effect of two control variables on the relationship at checkpoints and international aid, which are unique to this particular study. Using data spanning over a course of sixteen years, various statistical methods were applied to explain the effect of variant levels of entrepreneurial activity on GDP and unemployment. The results show that entrepreneurship appeared to have no significant impact on economic growth. This can be explained by the fact that entrepreneurial activity is expected to decrease because of growth in the economy as new jobs are created.

Conclusion

Entrepreneurship is often described as its ability to generate economic growth and economic development. Through Schumpeterian destructive creative process, entrepreneurs are often able to innovate and to increase employment and economic growth. Although some empirical evidence supports this logic, it has also been criticized recently. Entrepreneurship does not lead

to growth in developing countries; does only in the most advanced countries with higher income levels.

The Solow growth model which is an exogenous model of economic growth analyzes changes in the level of output in an economy over time as a result of changes in the population growth rate, the savings rate, and the rate of technological progress. Entrepreneurship does not play a role in Solow growth model.

The first generation of endogenous growth models recognizes that investments in knowledge and human capital endogenously generate economic growth through the spillover of knowledge. However, endogenous growth models do not explain how or why spillovers occur. They did not include the transmission of knowledge spillovers through entrepreneurships. The second-generation of endogenous growth models such as Schumpeterian models by Aghion and Howitt (1992) and Grossman and Helpman (1991 and semi-endogenous growth theory have gradually become the dominant paradigm. The second generation of endogenous growth models tried to remedy this problem. Michelacci (2003) introduced an endogenous growth model in which innovation requires researchers who produce inventions and entrepreneurs who transform inventions into production. He shows that low rates of return to R&D may be due to a lack of entrepreneurial skills.

Economic development theories did not consider entrepreneurship as a binding constraint to economic development (Naude 2009) and did not consider it the as the vehicle of economic development. Porter three stages of economic development suggest that entrepreneurship drives innovation only in the final stage of development: the innovation-driven development stage. Only developed countries have reached the innovation-driven development stage.

Acs,etal.(2013) show that the theory of knowledge spillovers of entrepreneurship (KSTE) , and the environment in which decision-making is derived, can affect one's determination to become an entrepreneur. A knowledge-rich environment generates entrepreneurship opportunities from those ideas. By marketing ideas that have emerged from an existing organization through the creation of a new company, the entrepreneur (human capital) not only acts as a conduit for the extension of knowledge, but also the innovative activity that followed and the promotion of economic performance through resource allocation. The theory of knowledge spillovers of entrepreneurship combines contemporary theories and ideas of entrepreneurship with the prevailing theories of economic growth, geography and strategy, thus explaining not only why some people choose to become entrepreneurs, but also why this is so important to the economy and society.

The empirical studies of the relationship between entrepreneurship and economic growth cited by Nyström (2008) focuses on developed countries. The results of these empirical studies depend on the definition of entrepreneurship. They are macro-level studies using OLS methodology with cross-sectional data. OLS estimators are biased due to non-constant variance of the error terms. Besides cross section analysis can consider the heterogeneity among countries.

The U-shaped relationship between entrepreneurship, defined as self-employment and economic development, implies a higher rate of entrepreneurial activity in low-income countries than in

middle-income countries, even when entrepreneurship is defined as opportunity entrepreneurship and necessity entrepreneurship. This result may reflect that entrepreneurs in developing countries are less innovative and tend to be more 'necessity' motivated. Studies used the ratio of opportunity to necessity entrepreneurship show a linear positive relationship between entrepreneurship and economic development. Studies that used a combination of entrepreneurship and institutions in ecosystem show that the interactive between entrepreneurship is missing variable in an aggregate production function and explain differences of economic growth among countries.

Studies that have used the Startup rate, to show a positive relationship between entrepreneurship and economic development. Studies using the CBC index show an S-shaped relationship between traineeship and economic development. The S-shaped relationship between entrepreneurship and economic development is consistent with Porter three stages of economic development. Studies show that entrepreneurship encourages economic growth in developed economies, but not in developing countries.

References

Acemoglu, D. (2003). 'Root Causes: A Historical Approach to Assessing the Role of Institutions in Economic Development'. Finance and Development, 40 (2). 27–30.

Acs, Z. J., & Amorós, J. E. (2008). Entrepreneurship and competitiveness dynamics in Latin America. Small Business Economics, 31(3), this issue. doi:10.1007/s11187-008-9133-y

Acs, Z. J., Arenius, P., Hay, M., & Minniti, M. (2005). 2004 Global entrepreneurship monitor. London UK and Babson Park, MA: London Business School and Babson College.

Acs, Z. J., Audretsch, D. B., & Feldman, M. (1994). R&D spillovers and recipient firm size. The Review of Economics and Statistics, 76(2), 336–340.

Acs, Z. J., Audretsch, D. B &Lehmann, F.E (2013) "The knowledge spillover theory of entrepreneurship" Small Business Economics volume 41, pages 757–774(2013)

Acs, Z. J., Desai, S., & Klapper, L. F. (2008 a). What does "entrepreneurship" data really show? Small Business Economics, 31(3), this issue. doi:10.1007/s11187-008-9137-7.

Acs, Z. J., Gorman, C., Szerb, L., & Terjesen, S. (2007). Can the Irish miracle be repeated in Hungary? Small Business Economics, 28(2–3), 123–142.

 Acs,Z,J. Estrin,S. Mickiewicz,T. & Szerb,L. (2018)" Entrepreneurship, institutional economics and economic growth : an ecosystem perspective Small Business Economics Volume 51, pages501–514

Ahmad, N., & Hoffmann, A. N. (2008). A framework for addressing and measuring entrepreneurship. OECD Statistics Working Paper, 2. Retrieved May 9, 2008, from: http://ssrn.com/abstract=1090374

Acemoglu, D., Aghion, P., & Zilibotti, F. (2007). Distance to frontier, selection and economic growth. Journal of the European Economic Association, 4, 37–74.

Aghion, P., & Howitt, P. A. (1992). Model of growth through creative destruction. Econometrica, 60(2), 323–351. https://doi.org/10.3386/w3223.

Aidis, R., Estrin, S., & Mickiewicz, T. (2008). Institutions and entrepreneurship development in Russia: a comparative perspective. Journal of Business Venturing, 23(6), 656–672.

Audretsch, D.B. and A. R. Thurik, 2000, "Capitalism and democracy in the 21st century: from the managed to the entrepreneurial economy", Journal of Evolutionary Economics 10, 1734. Audretsch, D.B. and A.R. Thurik, 2001, "What is new about the new economy: sources of growth in the managed and entrepreneurial economies", Industrial and Corporate Change 19, 795-821.

Audretsch, D.B. and A. R. Thurik, 2004," A Model of the Entrepreneurial Economy" International Journal of Entrepreneurship Education 2(2): 143-166. © 2004, Senate Hall Academic Publishing.

Barro, R. J. (1996). 'Democracy and Growth'. Journal of Economic Growth, 1 (1): 1–27.

Boudreaux, Christopher and Caudill, Steven (2019)" Entrepreneurship, Institutions, and Economic" Online at https://mpra.ub.uni-muenchen.de/94244/ MPRA Paper No. 94244, posted 05 Jun 2019 21:03 UTC

Baumol, W. J. (1990). Entrepreneurship: productive, unproductive, and destructive. Journal of Political Economy, 98(5), 893–921.

Bhagwati, J. (1982). 'Directly Unproductive Profit Seeking Activities'. Journal of Political Economy, 90 (5): 988–1022.

Bjørnskov, C., & Foss, N. (2013). How strategic entrepreneurship and the institutional context drive economic growth. Strategic Entrepreneurship Journal, 7(1), 50–69. https://doi.org/10.1002/sej.1148.Return to ref 2013 in article

Blau,D.(1987), A time series anaylsis of self-employment in the United States. Journal of Political Economy, 95(3), 445-467.

Boudreaux, Christopher & Caudill, Steven, 2019. "Entrepreneurship, Institutions, and Economic Growth: Does the Level of Development Matter?," MPRA Paper 94244, University Library of Munich, Germany. file:///D:/entrepreneur1903.02934.pdf

Braunerhjelm, Pontus , Acs, Zoltan J, Audretsch David B, & Carlsson Bo "The missing link: knowledge diffusion and entrepreneurship in endogenous growth" Small Business Economics volume 34, pages 105–125(2010)

Carlsson, B., 1989, 'The Evolution of Manufacturing Technology and Its Impact on Industrial Structure: An International Study', Small Business Economics 1, 21–37

Carree, M. A., van Stel, A. J., Thurik, A. R., & Wennekers, A. R. M. (2002). Economic development and business ownership: An analysis using data of 23 OECD countries in the period 1976–1996. Small Business Economics, 19, 271–290.

Carree, M., van Stel, A., Thurik, R., & Wennekers, S. (2007). The relationship between economic development and business ownership revisited. Entrepreneurship and Regional Development, 19(3), 281–291.

Chambers, R. (1981). 'Rural Poverty Unperceived: Problems and Remedies'. World Development, 9 (1): 1–19.

Chen,C.C.(2013) "Entrepreneurship, Economic Growth and Employment; A Case Study of Taiwan " Hitostsubashi Journal of Economics 55(2014)pp71-88.

Chenery, H. B. (1955). 'The Role of Industrialization in Development Programmes', American Economic Review, 45 (2): 40–57.

—— (1975).' Restructuring the World Economy'. Foreign Affairs, 53 (2). 242–63.

Dejardin,M.(2001) "Entrepreneurship and Economic Growth: An Obvious Conjunction? Business Economics 30, pp.375-391

Gollin, D. (2008). 'Nobody's business but my own: Self-employment and small enterprise in economic development', Journal of Monetary Economics, 55 (2) : 219-233.

Grossman G., Helpman E., (1991) Innovation and Growth in the Global Economy, MIT Press, Cambridge MA.

Grossman, Gene M., and Elhanan Helpman. 1994. "Endogenous Innovation in the Theory of Growth." Journal of Economic Perspectives, 8 (1): 23-44.

Jones, C.I., 1995. R & D based models of economic growth. Journal of Political Economy 103, 759–784

Jones, C. I., & Romer, P. M. (2009). The new Kaldor facts: ideas, institutions, population, and human capital. American Economic Journal: Macroeconomics, 2(1), 224–245.

Kardos, M. (2012), "The Relationship between Entrepreneurship, Innovation and Sustainable Development: Research on European Union Countries," Procedia Economics and Finance 3, pp.1030-1035.

Kortum, S., 1997. Research, patenting, and technological change. Econometrica, 65, 1389–1419.

Leff, N. (1979). 'Entrepreneurship and Economic Development: The Problem Revisited'. Journal of Economic Literature, 17: 46–64.

Leibenstein, H. (1968). 'Entrepreneurship and Development'. American Economic Review, 58 (2): 72–83.

Lipton, M. (1968). 'The Theory of the Optimizing Peasant'. Journal of Development Studies, 4. 327–51.

Loveman, G. and W. Sengenberger, 1991, 'The Re-emergence of Small-Scale Production; an International Comparison', Small Business Economics 3, 1–37.

Lucas, R. E. 1988. "On the mechanism of economic development". Journal of Monetary Economics 22 (1): 3–42.

Michelacci, Claudio 2003 " Low Returns in R&D Due to the Lack of Entrepreneurial Skills" The Economic Journal, 113 (January), 207–225

Naudé, W. (2009). Entrepreneurship is not Binding Constraint on Growth and Development in the Poorest Countries. United Nations University Research Paper No.2009/45.

Nayyar, D. (2008). 'Learning to Unlearn from Development'. Oxford Development Studies, 36 (3): 259–80.

Nyström, K. (2008). 'Is Entrepreneurship the Salvation for Enhanced Economic Growth? CESIS Electronic Working Paper Series 143. Stockholm: Royal Institute of Technology.

Olson, M. (1996). 'Big Bills Left On the Sidewalk: Why Some Nations are Rich and Others Poor'. Journal of Economic Perspectives, 10 (2). 3–24.

Prebisch, R. (1959). 'Commercial Policy in Underdeveloped Countries'. American Economic Review, 49 (2): 251–73.

Rodrik, D. (2007). One Economics, Many Recipes: Globalization, Institutions and Economic Growth. Princeton: Princeton University Press

Romer, P. M. (1986). Increasing returns and long-run growth. Journal of Political Economy, 94(5), 1002–1037.

Romer, P. M. (1990). Endogenous technological change. Journal of Political Economy, 98(5, Part 2), S71–S102.

Rosenstein-Rodan, P. (1943). 'Problems of Industrialization of Eastern and South-eastern Europe'. Economic Journal, 53: 202–11.

Sabella, Antonr R. Farraj. Wajdan A. burbar, Maisa and Qaimary, Dana (2014) " Entrepreneurship and Economic Growth in West Bank Palestine" Journal of Developmental Entrepreneurship Vol. 19, No. 01, 1450003 (2014) https://doi.org/10.1142/S1084946714500034

Sachs, J. D. (2003). 'Institutions Matter, but Not for Everything', Finance and Development, 40 (2): 38–41.

Salgado-Banda, Hector. (2005). " Entrepreneurship and Economic Growth: An Empirical Analysis" file:///D:/empiricalentrepreneurC010_031.pdf

Schmitz, J. (1989). Imitation, entrepreneurship, and long-run growth. Journal of Political Economy, 97, 721–739.

Schumpeter, J. A. 1934. The Theory of Economic Development. Cambridge, MA: Harvard University Press (first edition in German: 1911).

Segerstrom, P. (1991). Innovation, imitation and economic growth. Journal of Political Economy, 99, 190–207.

Segerstrom, P.S., 1998." Endogenous growth without scale effects." American Economic Review, 88, 1290–1310.

Solow, R. (1956). A contribution to the theory of economic growth. Quarterly Journal of Economics, 94, 614–623.

Solow, R. (1957). Technical change and the aggregate production function. The Review of Economics and Statistics, 39, 312–320.

Stiglitz, J. E. (1986). 'The New Development Economics'. World Development, 14 (2): 257–65

Thurik, R. (1999). Entrepreneurship, industrial transformation, and growth. In G. D. Libecap (Ed.), The sources of entrepreneurial activity (pp. 29–65). Stamford, CT: JAI Press.

van Stel, Andre, Martin Carree and Roy Thurik (2005). "The Effect of Entrepreneurial Activity on National Economic Growth," Small Business Economics, 24, 311-321.

Wennekers, S., van Stel, A., Thurik, A. R., & Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. Small Business Economics, 24(3), 293–309.

Weitzman, M. L. (1970). Soviet postwar economic growth and capital-labor substitution. American Economic Review, 60(4), 676–692 http://www.jstor.org/stable/1818411.

Wong, Poh K., Yuen Ping Ho, and Erkko Autio (2005). "Entrepreneurship, Innovation and Economic Growth: Evidence from GEM Data," Small Business Economics, 24, 335-350.

Yamada, G., 1996, 'Urban Informal Employment and Self Employment in Developing Countries: Theory and Evidence', Economic Development and Cultural Change 44, 289–314.

Yu, T.F.-L. (1998), "Adaptive Entrepreneurship and the Economic Development of Hong Kong," World Development 26, pp.897-911.