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Using Fuzzy-set Qualitative Comparative Analysis (fsQCA) to explore
the relationship between entrepreneurship and enterprise growth

Module | ENTREPRENEURIAL PERSPECTIVES LCDB7001

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Abstract

Entrepreneurship, a special resource, is of great significance to enterprise growth (Penrose, 2009). The relation of entrepreneurship and corporate growth has always been an important research topic (Santarelli and Vivarelli, 2007). However, entrepreneurship is regarded as a whole variable in the previous researches to explore the relationship between entrepreneurship and enterprise growth. Furthermore, the company growth is mainly measured by economic indicators. Moreover, researchers do not explain the role of entrepreneurship plays in the process of corporate growth in detail in previous researches. Therefore, the research purpose is to investigate the relation between the dimensions of entrepreneurship and the set of high growth and low growth of company.

Given that, Qualitative Comparative Analysis (QCA) is to be used as the approach in this research. The primary data about entrepreneurship and enterprise growth is going to be collected through questionnaire and to ensure the reliability and validity of the measurement, 7 Point Likert scale is to be adopted. The stratified sampling is going to be used to select sample from Shanghai Pudong Productivity Centre (SPPC) and Sino-Bright. And then the data is to be analyzed through the software of fsQCA 3.0 following the four steps of data calibration, necessary and sufficient conditions identification, truth table construction and configurational path analysis.

This research makes a contribution for knowledge by providing the insight into how entrepreneurship affecting corporate growth. In addition, this research contributes to practice that could offer a guidance of entrepreneur development and corporate growth in Chinese context.

1 Introduction

1.1 Background and Context

The rapid growth is the purpose of most of the companies to strive for, which is also an important source of social wealth increase. According to a statistics across 43 countries of the world, the expansion of existing enterprises contributes the two thirds of their country's economic growth rate, while only one third of the economic contribution comes from new ventures(Rajan and Zingales, 2015). In recent years, the economy of China has developed rapidly, which indicates that there are countless companies growing up fast. Without the contributions of these enterprises, the state economy becomes the water with no source and the tree with no root. This kind of economic effect brought by the growth of enterprise is called growth economy by Penrose. Compared with economies of scale, one of the features of growth economy is that the effect depends on the productive resources of enterprise. While, the utilization of the opportunity provided by these resources is unrelated to the size of the enterprise.

Therefore, the growth economy exists in enterprises of all size. From the perspective of the enterprise and the entire economy, the growth of enterprises of any size is the result of efficient application of resources(Penrose, 2009). What does the driving force for enterprise to develop? Generally, one of the driving forces is the need for profit-making. In order to make full use of their remaining resources and acquire a larger market share, the enterprises have a strong incentive to accelerate their speed of growth. As the main body of market competition, almost all enterprises try to develop sustainably, keeping advantageous in the competition(Marshall, 2009). The second one is the pressure of competition. The capacity of the corporate growth is crucial to its survival. Once an enterprise reaches a certain critical point, it is difficult to stop growing. Just as cyclists have to move forward to keep balance, companies are forced by competition to grow for survival(Bhide, 1996).

Enterprises are faced with internal motivation and external pressure, however, in most cases, the situation is not as they expect. In fact, companies which can achieve rapid

growth account for only a small part of the total number of enterprises. Generally, only a few companies have a long history. While, most enterprises would soon lose out in the rat race. Despite that some companies can be standout during a short period, they would go down finally.

Although the lifespan of an enterprise is only one aspect of enterprise growth, it can be seen that the necessity and urgency to research on the corporate growth. It is also essential for theory development, which aims at exploring what promotes the continuous development of enterprise. Penrose(2009) regards the entrepreneurship, a special resource, as a key factor for corporate growth. He argues that enterprise growth is the process of making use of resources which are continuously produced, and the new resources are discovered through increased knowledge. Therefore, the resources is productively applied by creative activities, but the inactivity would make company inefficient. This statement is true whether from the perspective of enterprise or macroeconomics.

It is the entrepreneurs who are in charge of the effective use of the resources of company. There must be relationship between the personal quality of entrepreneurs and the development of company. However, what is the relationship, how does entrepreneurship affect the enterprise growth, and how much influence is there? At present, there is no sophisticated theory to explain in detail, and it is the goal of this research trying to achieve.

1.2 Research aim and research objective

Entrepreneurs play the key role in the enterprise growth, which depends on the financial resource, material resource and social resource obtained by entrepreneurs. Enterprise growth has always been the most concerned issue of entrepreneurs and has also received widespread attention from scholars. Scholars at home and abroad have conducted a lot of researches on the corporate growth, and they have formed many different views. With the development of society and the evolution of theory, more and

more scholars have shifted in focus on the relation of entrepreneur and enterprise growth. Among them, the relation of entrepreneurial ability and the growth of company is draw most of attention. Entrepreneurial ability is the external expressed by the knowledge background and personal quality of entrepreneur. While, entrepreneurship is showed by the mentality, values and thinking mode of entrepreneur. Compared with the ability of entrepreneur, entrepreneurship is a deeper feature of entrepreneur.

The academic research on entrepreneurship started relatively late. Schumpeter considers that entrepreneurship is to do things which others have not done or doing things in a way that others have not used(Śledzik, 2013). Neoclassical economics representative Marshall argues that entrepreneurship is a psychological feature of decisiveness, wisdom, prudence, aggressiveness, and etc., and a strong desire for superiority(Marshall, 2009). Knight believes that entrepreneurship is the courage of risk-taking and a kind of spirit of innovation to open the way by promoting the dynamic action and creative activity in uncertain situation(Brooke, 2010). Since Miller(1983) putting forward the term of corporate entrepreneurship, the academic payed attention to this field. In the following decades, entrepreneurship has gradually become an emerging research branch in management. Entrepreneurship, including the relation between entrepreneurship and enterprise growth have become one of the major research topics.

However, it is found that the entrepreneurship is regarded as a whole variable in the existing researches to explore the relationship of entrepreneurship and enterprise growth. Furthermore, the company growth is mainly measured by economic indicators. Moreover, researchers do not explain how entrepreneurship works in the process of corporate growth detailed in previous researches.

Given that, the research question is to understand how entrepreneurship affecting corporate growth. In order to examine crucial elements, this research aims at investigating the relationship between the dimensions of entrepreneurship and the set

of high growth and low growth of company. This includes three more specific objectives: 1. constructing the configurational path of entrepreneurship affecting on high growth and low growth of enterprise, and 2. analyzing the impact of entrepreneurship elements in high-growth configuration, and 3. identifying which elements of entrepreneurship are absent in the low-growth configuration.

2 Literature review and Theoretical framework

2.1 Entrepreneurship

2.1.1 Concept of entrepreneurship

Currently, there is still controversy among scholars about if entrepreneurship could be regarded as the research field, as there is not a commonly recognized matured conceptual framework of entrepreneurship. Shane and Venkataraman(2000) consider that traditional research on entrepreneurship mainly focuses on the characteristics of individuals or companies in the process of new ventures formation. While, researchers of Strategic Management also noticed the continual competition advantage of company. Therefore, they believe that entrepreneurship is a dependent and inclusive research field. Some representative definitions of entrepreneurship are shown in Table 1 to help to comprehend the concept of entrepreneurship.

Table 1. Different definitions of Entrepreneurship

Scholar	Definition
Schumpeter (1934)	Entrepreneurship is a series of actions required to initiate and manage the redistribution of economic resources, which purpose is to create economic value.
McClelland (1961)	Entrepreneurship is the behavior of entrepreneurs in pursuit of high achievement.
Stevenson and Gumpert (1985)	Entrepreneurship is the process of integrating unique resources and seeking for opportunity to create value.
Kirzner (1985)	Entrepreneurship is a market-centered learning process.
Drucker (1985)	Entrepreneurship is an innovative process in which opportunity for new

	product or new service are identified, created, and finally developed to generate new wealth.
Covin and Slevin (1989)	Entrepreneurship is that senior managers are more inclined to take risky business actions (adventurous) and are willing to change and create (innovative) in order to gain the competitive advantage and are groundbreaking (pioneering) when competing with competitors.
Begley (1995) Stewart et al. (1998)	The five attitudes of entrepreneurship which are most discussed, namely five personality dimensions in the field of entrepreneurship, are the risk-taking tendency, the need for achievement, the need for autonomy, self-skills and internal and external control.
Sharma and Chrisman (1999)	Entrepreneurship refers to the activities involving the creation, renewal, and innovation of new organization inside and outside the company.
Barringer and Bluedorn (1999)	Entrepreneurship lies in the pursuit of entrepreneurial opportunity, in which the identification of entrepreneurial opportunity is the first task, which is a process of environmental search and industrial perception.
Stevenson, Roberts and Grousbeck (1999)	Entrepreneurship is related to the actions in pursuit of opportunity, which is not in the field of current resource applications, but it is possible to create new value for resource applications in the future.
Drucker (2000)	Entrepreneurship is defined as the spirit of social innovation, which plays an important role in promoting social development.
Low (2001)	Entrepreneurship is one of the most significant characteristics in the process of the new enterprise formation.
Wu (2005)	The meaning of entrepreneurship can be explained as creating new satisfaction or new needs.
Gao (2012)	Entrepreneurship is composed of four characteristics of creativity, courage, ambitiousness, and risk-taking.
Lu (2015)	The essence of entrepreneurship is a spirit of transformation and innovation. The pursuit of personal interests is the internal motivation to inspire entrepreneurship, and the market competition is the external pressure to motivate entrepreneurial spirit.

Source: Made by author

Schumpeter argues that entrepreneurship is a series of behaviors of capturing economic value and redistributing strategic resource (Śledzik, 2013). Since the concept of entrepreneurship was proposed, it has continuously attracted the attention of scholars. In the early studies, researchers tended to focus on the common personality traits in entrepreneurs when they defined entrepreneurship. McClelland (1967) proposes that entrepreneurship is the action of entrepreneur pursuing high achievement. The research finding of Collins and Moore (1964) indicates that family background is one of the significant elements influencing entrepreneurship. However, Drucker (2014) considers

that entrepreneurship is not the personality traits of entrepreneur, but a creative process, in which the opportunities of new product and service can be recognized, and ultimately can be transformed as the ability to value creation. Stevenson et al.(2006) think that it is doomed to fail if only the psychological aspect of entrepreneurs is explored in the research on entrepreneurship. They point out that each traditional definition of entrepreneurship has many opposite evidences. Then the research attention has shifted from personality traits to the behavior of starting the new business. Most researchers agree that entrepreneurship means the behavior of in pursuit of opportunity, which is may not existed in the range of present resources applications, but it is possible creating new value of resources utilizations for the future(Gray, Foster and Howard, 2006).

This research adopts the views of behavior orientation and personality traits, both of which can help to understand the concept of entrepreneurship. At the same time, this research agrees that entrepreneurship not only can be found in entrepreneurs, but also in organizational members, who can make effective use of resource through innovative technology to create value.

2.1.2 Dimension of entrepreneurship

In recent years, more and more attentions have been payed to entrepreneurship. But the dimension of entrepreneurship has always been controversial across scholars. Miller(1983) proposes to measure entrepreneurship from three dimensions of Innovativeness, Risk-taking and Proactiveness. The research of Covin and Slevin(1991) indicates that the three dimensions of entrepreneurship put forward by Miller affect business performance positively. Later scholars propose different dimensions of entrepreneurship based on distinct research contents and research objects.

Table 2. Dimensions of Entrepreneurship

	Innovative- ness	Risk- taking	Proactive- ness	Need for Achievement	Competitive- ness
Miller (1983)	✓	✓	✓		
Covin and Slevin (1991)	✓	✓	✓		
Lumpkin and Dess (1996)	✓	✓	✓		

Lumpkin and Erdogan (2000)	✓	✓	✓	✓	
Culhane (2003)	✓	✓	✓	✓	✓
Lindsay (2006)	✓	✓	✓		
Wiklund and Shepherd (2010)	✓	✓	✓	✓	✓
Santos (2012)	✓	✓	✓		✓
Eriksson and Thunberg (2015)	✓	✓	✓	✓	

Source: Made by author

Miller's three dimensions are widely accepted and testified by empirical researches (Table 2), and the five dimensions of Jia and Zhou(2006), which was proposed in the Chinese context, is suitable for measuring the entrepreneurship of Chinese entrepreneur(Figure 1). Therefore, the three dimensions of Miller, combined with the five dimensions of Jia are to be adopted in this research to measure the entrepreneurship from the six dimensions, including the intellectual accomplishment, the innovativeness, risk-taking, proactiveness, the need for achievement and dedication.

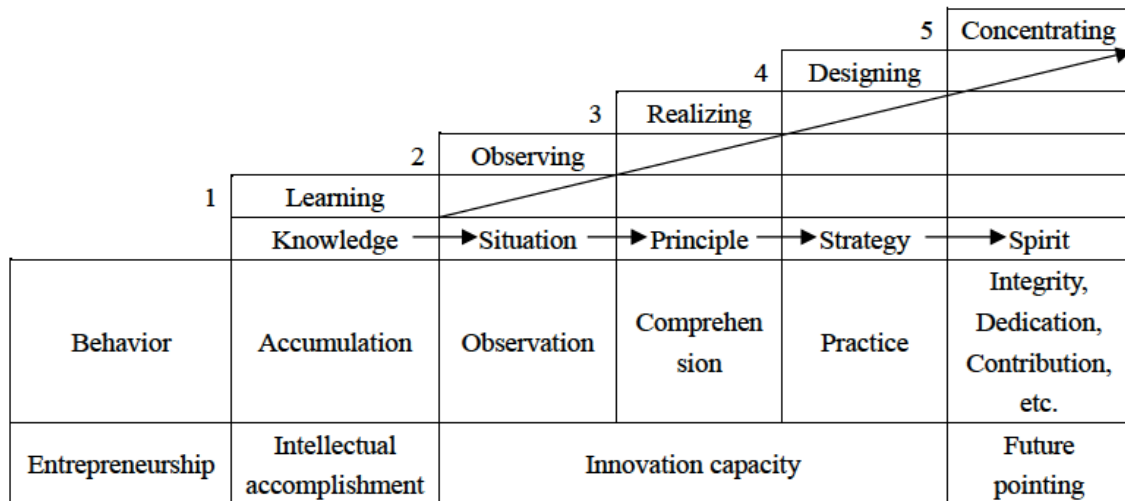


Figure 1. Entrepreneurship and its five dimensions

Source: Made by author based on the research of Jia and Zhou (2006)

(1) Intellectual accomplishment

The intellectual accomplishment of entrepreneurs is the process of study, practice and innovation from knowledge to wisdom, wisdom to strategy, and then designing the strategy to form new knowledge, and then from new knowledge to new strategy(Jia and

Zhou, 2006). Research findings have shown that education background and learning experience are important factors affecting entrepreneurs (Kim, Aldrich and Keister, 2006; West and Noel, 2009; Bae *et al.*, 2014). Entrepreneurs can acquire the ability to obtain resources and reduce costs through learning. The companies of entrepreneurs with more knowledge usually perform better than those run by entrepreneurs who is at lower academic level (Soriano and Castrogiovanni, 2012). University education plays a key role in forming a new business. Knowledge can help entrepreneurs improve the skills of communication (Ramachandran and Shah, 1999), teamwork (Veciana, Aponte and Urbano, 2005), critical analysis, and problem-solving (Haber and Reichel, 2005). Entrepreneurs with these skills can efficiently recognize opportunity, as well as learn about information in a business setting.

(2) Innovativeness

Innovative entrepreneurs can continuously optimize business process, take the lead in adopting new technology to improve productivity and operational efficiency. They also can improve the financial performance of enterprises through actively exploring market opportunity, developing new value proposition, expanding new transaction structure, etc. (Yu, Zhang and Sang, 2013). Marcati *et al.* (2008) find that the entrepreneurship effects the strategic innovation of SMEs. The companies of entrepreneurs with innovativeness perform well in creative activities (Bowen, Rostami and Steel, 2010). Innovativeness is one of the salient feature of entrepreneur, which is conducive for companies to improve business performance and promote economic development (Szabo and Herman, 2012).

(3) Risk-taking

The sense of adventure indicates the level of willingness of entrepreneur to take risk, showing how much the enterprise is willing to invest resources in the uncertain business when making decision and taking action (Lumpkin and Dess, 1996). It also reflects the degree for enterprise to continuously develop new opportunities through adventure (Scott, 2000). Many research findings indicate that insufficient risk

awareness would hinder company from identifying and exploiting opportunity. While, deficient insight of company into market opportunity would result in a slow response to the changing environment, difficulty in grasping fleeting new opportunity, and ultimately failure in achievement of high performance(Colton, Roth and Bearden, 2010). Dong(2014) argues that new venture can perform well when taking moderate risk. While, risk aversion and excessive risk-taking would cause the decrease in performance. However, to ensure the well effect of risk-taking and improving the performance, entrepreneurial capacity should be increased.

(4) Proactiveness

Proactiveness means the prediction of opportunity and takes action in advance to cope with or even actively shape the external environment which company may be faced with, improving the competitive strengths(Covin and Slevin, 1991; Lumpkin and Dess, 1996). Lumpkin and Dess(2005) propose that taking action in advance have to seek for new opportunity for the growth and development of enterprise in the future. Venkatraman(1989) points out that the role of proactiveness in three aspects is significant: looking for new opportunity which may or may not be relevant to the current business, launching new product and new brand before competitors, strategic exiting from the businesses at mature stage or decline stage.

(5) Need for achievement

McClelland(1967) regards the need for achievement as a unique feature distinguishing entrepreneur from non-entrepreneurs, which prompts entrepreneur to set goals and realize themselves through continuous efforts. Those who with high achievement need prefer to set moderate difficult goal, are willing to accept challenge, and hope to receive clear feedback about job performance to understand whether they have made progress. Research findings show that the degree of achievement need is positively correlated to the target level. The higher the degree of achievement need, the higher the target level set by individual and the stronger the desire to pursue a higher performance, which has a positive impact on performance(McClelland, 1965).

(6) Dedication

Dedication has attracted increasingly attention of scholars. It refers to the dynamic and harmonious relationship between the self-expression of organizational members and their work(Kahn, 1990). Dedication includes two components of caring and devotion. Caring emphasizes the effectiveness of cognition and the time employees spend concerning their roles. Devotion refers to putting into a role(Rothbard, 2001). Harter et al.(2002) argue that dedication is related to individual involvement, job satisfaction, and enthusiasm for work. Schaufeli et al.(2002) define dedication as a positive, satisfactory, work-related state of consciousness. Previous researches find that dedication of entrepreneur is closely relevant to personal performance and corporate performance(Gorgievski *et al.*, 2010; Gorgievski, Moriano and Bakker, 2014).

2.2 Enterprise growth

2.2.1 Concept of enterprise growth

Different schools define the corporate growth from distinct research perspectives. Classical economists, such as Marshall and Mueller, define enterprise growth as the size expansion of enterprise, which aims at acquiring economies of scale(Wagner, 1891). The resource school, represented by Penrose, believes that the growth of firm refers to the effective use of enterprise resources through expansion(Penrose, 2009). The capability school, represented by Ansoff, argues that enterprise growth means the development of company in special field, which purpose is to obtain a better position than competitors(Ansoff *et al.*, 2018). In the view of the industrial organization school, the enterprise is a strategy actor, and its growth is the enhancement of initiative and the increment of market share(Bain, 1964). Although different schools have different definitions of enterprise growth (Table 3), researchers agree that enterprise growth is not only an increase in quantity, but also a qualitative improvement.

Table 3. Concept of Enterprise Growth based on different schools

Scholar	Definition
Marshall (1980)	The enterprise growth is the process to obtain economies of scale.
Penrose (1959)	The expansion of the enterprise is the process of achieving the effective use of corporate resources.
Ansoff (1965)	By developing into an advantageous field, enterprise can acquire a better position than their competitors.
Chandler (1962)	Enterprises grow up by updating technology and expanding market, causing fundamental transformation in production and distribution to achieve economies of scale.
Coase (1937)	The enterprise growth refers to the expansion of the corporate boundary caused by the decline in business transaction costs.
Bain (1959)	Enterprise growth is related to the enhancement in proactiveness and increase in market share.
Greiner (1972)	An enterprise is like a living body, whose growth is divided into lifecycles in different stages of evolution.

Source: Made by author

This research adopts the enterprise life cycle theory, considering that company is just like an organic life body, and life cycle rules can be found in the process of the construction and development of enterprise. Generally, there are four phases of enterprise life cycle, involving birth, growth, maturity and death (Levie and Lichtenstein, 2010). In the process of enterprise growth, both qualitative improvement and quantitative addition can be found. The enterprise life cycle theory has been continuously developed for decades, and many scholars propose diverse enterprise life cycle models based on different corporates. Among them, the five-stage model proposed by Greiner and the ten-stage model designed by Adizes have the significant effect on the development of theoretical research on enterprise growth.

In the five-stage model of Greiner (1998), each phase of corporate growth includes early evolution and later transformations and crisis. The transformations and crisis accelerate the speed of stepping into the next phase, and the management mode of each phase is distinct (Figure 2). With the expansion of the enterprise, the management experience of company tends to be mature and healthy. At the same time, there is a certain interaction between the impetus for the enterprise growth and the resistance to the enterprise

growth. Usually, the impetus for the enterprise growth at this stage is also the biggest obstacle to the development of company in the next stage. Whether and how to break through the obstacle is the key for company to develop.

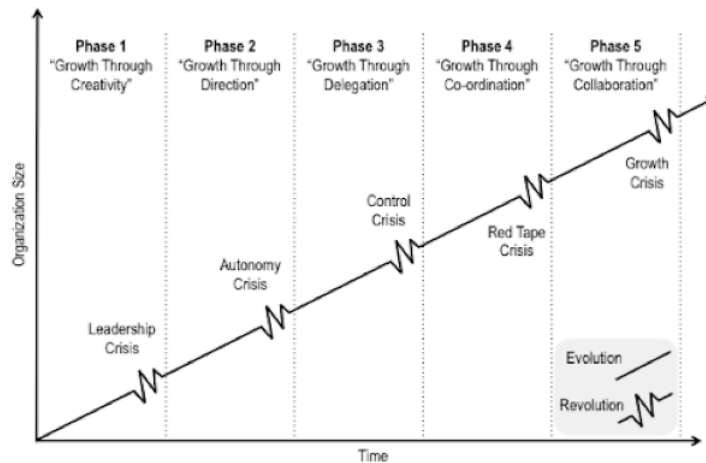


Figure 2. Greiner's Growth Model

Source: Adopted from Greiner(1998)

Adizes(2004) divides the process of company growth into ten stages, belonging to two periods of time, namely growing and aging (Figure 3). Different issues and challenges of corporate growth appear in distinct phases of life cycle. With the development of the enterprise, the firm has gradually acquired the capacity of handling more complicated and difficult issues. In this process, the entrepreneur helps the company step into the next life stage through the effective management, finally achieving the goal of acquiring and keeping the prosperity of enterprise in the long-term.

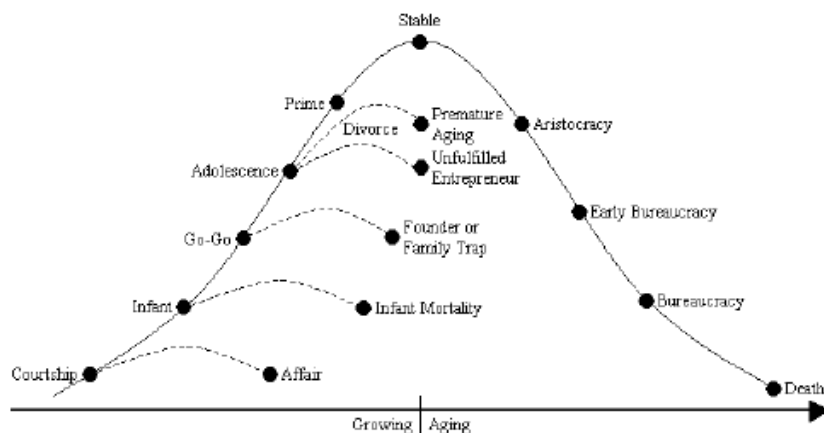


Figure 3. Adizes's Corporate Lifecycle Model

Source: Adopted from Adizes(2004)

2.2.2 Measurement of enterprise growth

The growth of the enterprise is a dynamic and continuous process. Companies accumulate and integrate resources and promote the value-added of resources through reform, innovation, and strengthening management, to achieve the sustainable development. Enterprise growth includes two aspects, namely the growth in quantity and the growth in quality(Yang and Geng, 2005). The growth in quantity mainly refers to the increase in the operational resources of company, which is the expansion of organizational scale and the addition in indicators, such as sales, profits, asset size, number of employees and etc. The qualitative growth means the change of the nature in operational resources and structural reorganization, such as the improving the innovational and transformational capability of enterprise, consolidating their competitive position, advancing the resource structure, and the developing the environmental adaptability(Chandler and Hanks, 1994).

Covin and Slevin(1991)point out that corporate growth should include growth of the capability and the profitability, which embodied in sales growth rate, profit rate and return on assets. Lumpkin and Dess(1996) argue that corporate growth should be considered from multiple dimensions, as financial performance and capability of growth can reflect different information about the corporate development. Therefore, a more scientific approach to evaluate the enterprise growth is to incorporate financial performance and capability of growth. Shen and Luo(2006) propose that the evaluation indicators of enterprise growth should involve four aspects of finance, customer, internal management and employee. Hu and Zhang(2011) use three dimensions of profitability, growth potential and relative performance to measure the growth of corporate in their research.

Given that, this research agrees that the growth of enterprises includes the quantitative growth and the qualitative growth. The measurement in the growth of enterprise should not only consider the profitability but also the growth capacity. A subjective method for evaluation of corporate growth is accepted in this research, measuring the growth of

company from three elements of profitability, growth potential, and innovation capacity.

2.3 Entrepreneurship and enterprise growth

Entrepreneurship is of great significance to the corporate growth, and thus has always been an important research topic (Santarelli and Vivarelli, 2007). Early theories of entrepreneurship tended to connect the concept of entrepreneur and entrepreneurship with adventure and opportunity, focusing on the differences between entrepreneur and non-entrepreneur. Frese et al. (1996) argue that entrepreneurship is a behavioral characteristic of individual, which is one of the elements affecting the performances of individual and organization. Peters and Waterman (1982) consider that the entrepreneurial activity of firm making them higher financial performance, as entrepreneurship can help company improve their competitiveness. Considering the entrepreneurial setting and inner elements of organization, Covin and Slevin (1991) propose five factors in theoretical mode, namely entrepreneurial attitude, external variable, strategic variable, internal variable and company performance, which describe the relation of entrepreneurial posture and corporate development. Lumpkin and Dess (1996) put forward the contingency model of entrepreneurship and enterprise growth to describe the entrepreneurial behavior of company and characteristics, involving innovation, autonomy, risk-taking, proactiveness and competitive aggression, adding two contingency factors of environment and organization. In the research on overseas companies, Zahra and Garvis (2000) find that entrepreneurship can positively affect the performance and growth of company. Zhang and Li (2009) argue that the entrepreneurial activities have an impact on company growth.

Other researchers find that the relation of entrepreneurship and corporate growth is not simple and explicit but affected by the moderating factors and mediating factors. Koryak *et al.* (2015) believe that entrepreneurship decides the capability of entrepreneur and affects the action of entrepreneur, and ultimately influences the corporate growth positively. Guadamillas, Donate and Pablo (2008) consider that knowledge is of significance in entrepreneurship development. And then the entrepreneur promotes

corporate growth through internalizing knowledge in the enterprise. Shariff, Peou and Ali(2010) argue that the state policies play the moderating role in the relation of entrepreneurship and the enterprise growth. Huggins and Thompson(2015) point out that innovation has a moderating effect on the relation of entrepreneurship and enterprise growth, as entrepreneurship promotes the growth of company through embedding innovation into organization. The empirical research of Brouthers, Nakos and Dimitratos(2015) show that entrepreneurship influences the strategic alliance of enterprises, which in turn positively affects the international growth of corporate.

2.4 Research gap

First of all, in the previous researches, scholars regard entrepreneurship as a whole variable to explore the relation between entrepreneurship and the growth of firm, ignoring that different dimensions may lead to different outcomes. While, some researchers study the effect of entrepreneurship on enterprise growth from a certain dimension, such as innovation and risk-taking, overlooking the interaction between the dimensions of entrepreneurship. In addition, existing researches focus on the effect of entrepreneurship on the performance of corporate in the process of corporate growth, applying economic indicators to measure corporate growth. Furthermore, the previous researches mainly explore the relation of entrepreneurship and corporate growth based on the quantitative research method. However, the previous research findings do not clearly explain the role that entrepreneurship plays in the growth of corporate, nor deeply explore the influential mechanism of entrepreneurship on the growth of enterprise.

2.5 Theoretical framework

Therefore, this research intends to explore the combination effect of multiple entrepreneurial elements on enterprise growth, finding out the possible interrelationship between these elements. In this way, not only the differences between the various elements are considered, but also the combination effect of entrepreneurship elements on corporate growth can be interpreted, which provides a new perspective for the

research on the relation of entrepreneurship and enterprise growth. Given that, the theoretical framework is shown in the Figure 4.

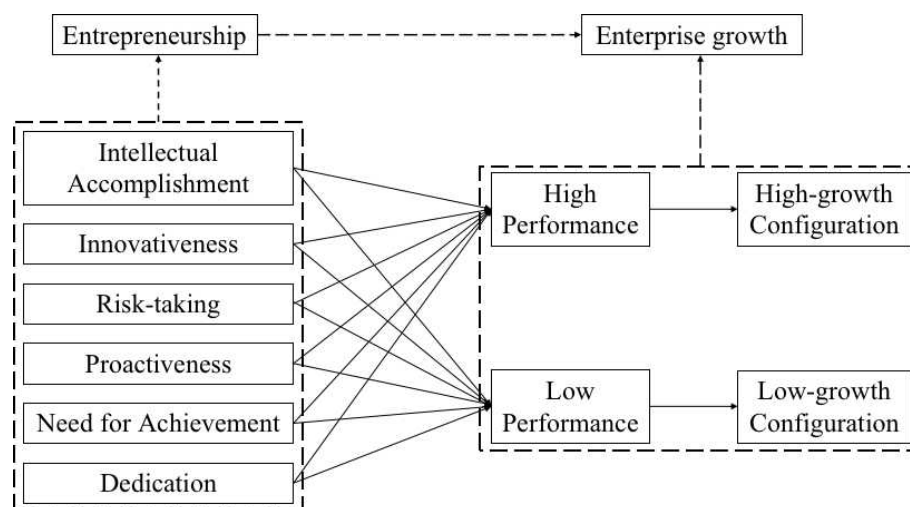


Figure 4. Theoretical framework of this research

3 Methodology

3.1 Research approach

In order to explore the causal relation of different dimensions of entrepreneurship and high growth and low growth of enterprise, Qualitative Comparative Analysis (QCA) is going to be used as the approach in this research. QCA, proposed by the sociologist Charles Ragin based on framing Theory, can effectively explain the causality of multiple conditions (Marx, Rihoux and Ragin, 2014). QCA, which was initially used in the sociological research, has received more and more attention in the field of management in recent years. The QCA is a research approach, which is mixed with the case-orientation research method and variable-orientation research method. Therefore, QCA is more advantageous than the traditional research method (Ragin and Rihoux, 2008).

QCA aims to find the causal relationship between conditions and outcomes through comparing different cases (Schneider and Wagemann, 2010), and to resolve the issues of what types of conditions can produce the expected outcome and which one leads to opposite situation. We assume that conditions are interdependent when analyzing the

conditional configurations from an overall perspective, which is more in line with social phenomenon. Compared with traditional method, such as regression analysis method which regards these variables as independent conditions, QCA assumes that the conditions work dependently on each other(Rihoux, 2006). In this way, the unique effects of each element cannot be covered by the related elements when the independent factors are related to one another. Entrepreneurship is a multi-dimensional concept. However, entrepreneurship was often regarded as a whole factor in previous research, ignoring the possible differences in outcomes produced by different dimensions, and the interaction between these elements.

Moreover, using QCA can explore multiple paths toward an outcome. Based on the configuration perspective, researchers believe that in the application of QCA, combination of the causal conditions that produce a certain outcome as a whole can be identified, and then the different paths that lead to this outcome can be explored(Du and Jia, 2017). In addition, all the effect paths of antecedent conditional configurations are complete equivalence, which do not conflict with each other(Grandori and Furnari, 2008). Based on literature review, we can find that the antecedent variable combination of entrepreneurship which affecting enterprise growth presents diversity. Therefore, QCA meets the need of this research.

Furthermore, QCA, mainly used to explore the affiliation between sets, focusing on the causal asymmetry, which is different from the line correlation between variables in traditional quantitative research(Xia, He and Liu, 2014). In many social science researches, the causality between variables is mostly asymmetric. This kind of causal asymmetry also can be found in the growth of enterprise. It is assumed that a certain factor will increase the performance of the enterprise, but when the factor does not exist, it may not cause the performance of the enterprise to decrease.

Given that, QCA is appropriate applied in this research to explore the causal relation between the different dimensions of entrepreneurship and high growth and low growth

of company.

3.2 Sample selection

The objectives of this research is to examine the relation of entrepreneurship and corporate growth. In order to make the sample cover more types of enterprise and make the research findings higher overall representative, the stratified sampling(Neuman, 2007) is going to be used in this research. The sample of SMEs and large enterprises is selected separately from two channels.

First of all, the sample of SMEs is going to be selected from Shanghai Pudong Productivity Centre (SPPC). SPPC is responsible for recommending qualified SMEs to the Ministry of Science and Technology to apply for the innovation fund. SPPC is also an innovation fund service agency of Shanghai to support the development of SMEs. Therefore, it is appropriate to select sample of SMEs from applicants in SPPC.

In addition, the sample of large size companies is going to be selected through Sino-Bright, which is an investment consultant corporate affiliated to the National Development and Reform Commission. It is one of the officially designated sectors to provide consultant service for enterprises, especially the large-sized one. As Sino-Bright has a special government background and the advantages of wide coverage in the large-sized enterprises, it can ensure the reliable sources and objective data. Therefore, it is suitable for this research to acquire the sample of entrepreneurs and their large-sized enterprises in multiple industries through Sino-Bright.

3.3 Data collection

In the empirical research of management, questionnaire is one of the widely used methods to collect data, which is strongly practical and adaptable(Jones *et al.*, 2008). High-quality research data could be collected through questionnaire if the scales with high validity and reliability and the samples with large size. Moreover, valuable information could be gathered from respondents avoiding being interfered in the survey

of questionnaire. Generally, using questionnaire method can get a lot of information with little money.

However, some disadvantages of questionnaire can be found. For one thing, whether the participants handle it seriously is depended on the controlment of the environment. For another thing, it is not easy to take both completeness and conciseness into consideration if there are massive items within a questionnaire(Gehlbach, 2015). To ensure the quality of the questionnaire as much as possible, the design of questionnaire should be carried out with preciseness(Wen and Ye, 2014).

Therefore, questionnaire is suitable for this research to collect primary data about entrepreneurship and enterprise growth. To make sure the Reliability and Validity of the measurement, the matured scales are adopted in this research and some items are modified based on the Chinese context. Furthermore, the 7 points Likert Scale is going to be applied in the questionnaire, which providing 7 distinct answer options for each question to make participants fully understood.

3.4 Data analysis

According to the different sets, the Qualitative Comparative Analysis method can be subdivided into Crisp Set QCA, Fuzzy Set QCA and Multi-Value QCA. fsQCA is the expansion of the csQCA, in which the value of variables is in the range of 0 to 1. The setting of intersection point value=0.5 makes the score can be marked. Thus, the partial affiliation of variables can be found in fsQCA. Given that the predictive variable and dependent variable in this research are the scores of entrepreneurship and enterprise growth marked by senior managers, therefore, fsQCA is more suitable to be used to form and analyze the configurations(Marx, Rihoux and Ragin, 2014). The software of fsQCA 3.0 is going to be adopted in this research to process and analyze data.

3.4.1 Data calibration

Data calibration is the first and key step of fsQCA. The original scores of different

metrics are converted into standard scores between 0-1 through estimation techniques(Ragin and Rihoux, 2008). The continuous valuation method and linear scaling method are used in this research, to map the variable data to the interval [0,1]. All the scales among the interval [0,1] represent the memberships of fsQCA. 1 indicates that this variable is the Full Membership, and 0 represents that this variable is the Non-Membership.

3.4.2 Necessary and sufficient condition identification

Before constructing the truth table, to examine the necessary and sufficient conditions is useful, which can indicate how strongly the configuration interprets the outcome. In addition, it can find out shared variables and substitute variables in the process of recognizing the necessary and sufficient conditions, thus forming multiple paths toward the interpreted outcome. Consistency is used to describe the degree of misalignment of sufficient conditions. Coverage is used to describe the degree of uniqueness of a configuration as a path leading to the outcome(Ragin, 2006).

$$\text{Consistency } (X_i \leq Y_i) = \sum [\min(X_i, Y_i)] \setminus \sum (X_i)$$

$$\text{Coverage } (X_i \leq Y_i) = \sum [\min(X_i, Y_i)] \setminus \sum (Y_i)$$

X_i is the calibration value of the condition variable, and Y_i is the calibration value of the outcome variable.

3.4.3 Truth table construction

In order to ensure that the configuration with a case frequency greater than or equal to the frequency value covers at least 75% ~ 80% of the cases(Ragin, 2008), and excludes the extreme cases(Rihoux, 2006), the case frequency of high growth and low growth are both set to 2 in this research. Considering the suggestion of Ragin, the value of consistency of high growth and low growth is set to 0.8. Finally, the fsQCA 3.0 software is used to calculate the solution based on Boolean algebra and set analysis, so as to construct different high-growth configurations and low-growth configurations of the enterprise under the combination of entrepreneurship and draw the conditional configuration table.

3.4.4 Configurational path analysis

Three outcomes of complex solution, parsimonious solution and intermediate solution, can be obtained by software standardization analysis. As the intermediate solution retains all the necessary conditions to constitute the result, therefore, the intermediate solution is most logical among these three and favored by researchers (Mendel and Korjani, 2013). Given that, the condition variables that can be found in parsimonious and intermediate solution are marked as core conditions, and the condition variables that appear only in parsimonious solution are marked as auxiliary or marginal conditions (Crilly, Zollo and Hansen, 2012) to analyze the configurational path in this research.

Reference

- Adizes, I. (2004) *Managing corporate lifecycles*. The Adizes Institute Publishing.
- Ansoff, H. I. *et al.* (2018) *Implanting strategic management*. third. Palgrave macmillan.
- Bae, T. J. *et al.* (2014) 'The Relationship Between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review', *Entrepreneurship: Theory and Practice*, 38(2), pp. 217–254.
- Bain, J. S. (1964) 'The Impact on Industrial Organization', *American Economic Association*, 54(3), pp. 28–32.
- Bhide, A. (1996) 'The questions every entrepreneur must answer', *Harvard business review*, 74(6), pp. 120–130.
- Bowen, F. E., Rostami, M. and Steel, P. (2010) 'Timing is everything: A meta-analysis of the relationships between organizational performance and innovation', *Journal of Business Research*. Elsevier Inc., 63(11), pp. 1179–1185.
- Brooke, G. T. F. (2010) 'Uncertainty, profit and entrepreneurial action: Frank Knight's contribution reconsidered', *Journal of the History of Economic Thought*, 32(2), pp. 221–235.
- Brouthers, K. D., Nakos, G. and Dimitratos, P. (2015) 'SME Entrepreneurial Orientation, International Performance, and the Moderating Role of Strategic Alliances', *Entrepreneurship: Theory and Practice*, 39(5), pp. 1161–1187.

- Chandler, G. N. and Hanks, S. H. (1994) 'Market attractiveness, resource-based capabilities, venture strategies, and venture performance', *Journal of business venturing*, 9(4), pp. 331–349.
- Collins, O. F., Moore, D. G. and Unwalla, D. (1964) 'The enterprising man and the business executive', *MSU Business Topics*, 12(1), pp. 19–34.
- Colton, D. A., Roth, M. S. and Bearden, W. O. (2010) 'Drivers of international e-tail performance: The complexities of orientations and resources', *Journal of International Marketing*, 18(1), pp. 1–22.
- Covin, J. G. and Slevin, D. P. (1991) 'A conceptual model of entrepreneurship as firm behavior', *Entrepreneurship theory and practice*, 16(1), pp. 7–26.
- Crilly, D., Zollo, M. and Hansen, M. (2012) 'Faking it or muddling through? Understanding decoupling in response to stakeholder pressures', *Academy of Management Journal*, 55(6), pp. 1429–1448.
- Dess, G. G. and Lumpkin, G. T. (2005) 'The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship', *The Academy of Management Executive*, 19(1), pp. 147–156.
- Dong, B. (2014) 'Should the risk be balanced? the relationship between the risk-taking of new ventures and the inverted u-shaped performance, as well as the mediating role of entrepreneurial capacity', *Management World*, 3(1), pp. 120–131.
- Drucker, P. (2014) *Innovation and entrepreneurship: Practice and Principles*. Routledge.
- Du, Y. and Jia, L. (2017) 'Configuration perspective and Qualitative Comparative Analysis (QCA): a new approach to management research', *Management World*, 6(3), pp. 155–167.
- Frese, M. *et al.* (1996) 'Personal Initiative at Work: Differences between East and West Germany', *The Academy of Management Journal*, 39(1), pp. 37–63.
- Gehlbach, H. (2015) 'Seven Survey Sins', *Journal of Early Adolescence*, 35(5–6), pp. 883–897.
- Gorgievski, M. J. *et al.* (2010) 'Financial problems and psychological distress: Investigating reciprocal effects among business owners', *Journal of Occupational and*

Organizational Psychology, 83(2), pp. 513–530.

Gorgievski, M. J., Moriano, J. A. and Bakker, A. B. (2014) ‘Relating work engagement and workaholism to entrepreneurial performance’, *Journal of Managerial Psychology*, 29(2), pp. 106–121.

Grandori, A. and Furnari, S. (2008) ‘A chemistry of organization: Combinatory analysis and design’, *Organization Studies*, 29(3), pp. 459–485.

Gray, K., Foster, H. and Howard, M. (2006) ‘Motivations of Moroccans to be entrepreneurs’, *Journal of Developmental Entrepreneurship*, 11(4), pp. 297–318.

Greiner, L. E. (1998) ‘Evolution and revolution as organizations grow’, *Harvard Business Review*, 76(3), pp. 55–68.

Guadamillas, F., Donate, M. and Pablo, J. (2008) ‘Knowledge management for corporate entrepreneurship and growth: a case study’, *Knowledge and Process Management*, 15(1), pp. 32–44.

Haber, S. and Reichel, A. (2005) ‘Identifying performance measures of small ventures- The case of the tourism industry’, *Journal of Small Business Management*, 43(3), pp. 257–286.

Harter, J. K., Schmidt, F. L. and Hayes, T. L. (2002) ‘Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis’, *Journal of Applied Psychology*, 87(2), pp. 268–279.

Hu, W. and Zhang, Y. (2011) ‘New Venture Capability of the Transformation from Entrepreneurial Orientation to the New Venture Performance: A Theory Model and Empirical Study in China’, *Nankai Business Review*, 14(1), pp. 83–95.

Huggins, R. and Thompson, P. (2015) ‘Entrepreneurship, innovation and regional growth: a network theory’, *Small Business Economics*, 45(1), pp. 103–128.

Jia, L. and Zhou, S. (2006) ‘Entrepreneurship and its five dimensions’, *Social Sciences in Nanjing*, 9(9), pp. 29–35.

Jones, S. *et al.* (2008) ‘Doing things differently: advantages and disadvantages of Web questionnaires’, *Nurse researcher*, 15(4), pp. 15–26.

Kahn, W. A. (1990) ‘Psychological conditions of personal engagement and disengagement at work’, *Academy of Management Journal*, 33(4), pp. 692–724.

- Kim, P. H., Aldrich, H. E. and Keister, L. A. (2006) 'Access (Not) Denied: The Impact of Financial, Human, and Cultural Capital on Entrepreneurial Entry in the United States', *Small Business Economics*, 27(1), pp. 5–22.
- Koryak, O. *et al.* (2015) 'Entrepreneurial leadership, capabilities and firm growth', *International Small Business Journal: Researching Entrepreneurship*, 33(1), pp. 89–105.
- Levie, J. and Lichtenstein, B. B. (2010) 'A terminal assessment of stages theory: Introducing a dynamic states approach to entrepreneurship', *Entrepreneurship: Theory and Practice*, 34(2), pp. 317–350.
- Lumpkin, G. T. and Dess, G. G. (1996) 'Clarifying the entrepreneurial orientation construct and linking it to performance', *Academy of Management Review*, 21(1), pp. 135–172.
- Marcati, A., Guido, G. and Peluso, A. M. (2008) 'The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations', *Research Policy*, 37(9), pp. 1579–1590.
- Marshall, A. (2009) *Principles of Economics: Unabridged Eighth Edition*. eighth. New York: Cosimo Classics.
- Marx, A., Rihoux, B. and Ragin, C. (2014) 'The origins, development, and application of Qualitative Comparative Analysis: The first 25 years', *European Political Science Review*, 6(1), pp. 115–142.
- McClelland, D. C. (1965) 'Achievement and entrepreneurship: A longitudinal study', *Journal of personality and Social Psychology*, 1(4), pp. 389–397.
- McClelland, D. C. (1967) *Achieving society*. New York: Free Press.
- Mendel, J. M. and Korjani, M. M. (2013) 'Theoretical aspects of Fuzzy Set Qualitative Comparative Analysis (fsQCA)', *Information Sciences*, 237(10), pp. 137–161.
- Miller, D. (1983) 'The Correlates of Entrepreneurship in Three Types of Firms', *Management Science*, 29(7), pp. 770–791.
- Neuman, W. L. (2007) *Basics of social research: Qualitative and quantitative approaches*. 2nd edn. Power.
- Penrose, E. (2009) *The Theory of the Growth of the Firm*. Fourth. New York: Oxford

university press.

Peters, T. J. and Waterman, J. R. H. (1982) 'How the best-run companies turn so-so performers into big winners', *Management Review*, 71(11), pp. 8–16.

Ragin, C. C. (2006) 'Set relations in social research: Evaluating their consistency and coverage', *Political Analysis*, 14(3), pp. 291–310.

Ragin, C. C. (2008) 'What is Qualitative Comparative Analysis (QCA)?', *Qualitative Politics analyse*, 12(2), pp. 189–235.

Ragin, C. C. and Rihoux, B. (2008) *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. SAGE.

Rajan, R. G. and Zingales, L. (2015) 'The firm as a dedicated hierarchy: A theory of the origins and growth of firms', *The Quarterly Journal of Economics*, 116(3), pp. 805–851.

Ramachandran, V. and Shah, M. K. (1999) 'Minority entrepreneurs and firm performance in sub-Saharan Africa', *Journal of Development Studies*, 36(2), pp. 71–87.

Rihoux, B. (2006) 'Qualitative comparative analysis (QCA) and related systematic comparative methods: Recent advances and remaining challenges for social science research', *International Sociology*, 21(5), pp. 679–706.

Rothbard, N. P. (2001) 'Enriching or Depleting? The Dynamics of Engagement in Work and Family Roles', *Administrative Science Quarterly*, 46(4), pp. 655–684.

Santarelli, E. and Vivarelli, M. (2007) 'Entrepreneurship and the process of firms' entry, survival and growth', *Industrial and Corporate Change*, 16(3), pp. 455–488.

Schaufeli, W. *et al.* (2002) 'The Measurement of Engagement and Burnout: A Two Sample Confirmatory Factor Analytic Approach', *Journal of Happiness Studies*, 3(1), pp. 71–92.

Schneider, C. Q. and Wagemann, C. (2010) 'Standards of good practice in qualitative comparative analysis (QCA) and fuzzy-sets', *Comparative Sociology*, 9(3), pp. 397–418.

Scott, S. (2000) 'Prior Knowledge and the Discovery of Entrepreneurial Opportunities', *Organization Science*, 11(4), pp. 448–469.

- Shane, S. and Venkataraman, S. (2000) 'The Promise of Entrepreneurship as a Field of Research', *The Academy of Management Review*, 25(1), pp. 217–226.
- Shariff, M. N. M., Peou, C. and Ali, J. (2010) 'Moderating effect of government policy on entrepreneurship and growth performance of small-medium enterprises in Cambodia', *International Journal of Business and Management Science*, 3(1), pp. 57–72.
- Shen, C. and Luo, L. (2006) 'A study on the key factors of entrepreneurial success and the criteria of performance appraisal', *Journal of Central South University (Social Science)*, 12(2), pp. 231–235.
- Śledzik, K. (2013) 'Schumpeter's view on innovation and entrepreneurship', *Management Trends in Theory and Practice*, 9(4), pp. 89–94.
- Soriano, D. and Castrogiovanni, G. (2012) 'The impact of education, experience and inner circle advisors on SME performance: insights from a study of public development centers', *Small Business Economics*, 38(3), pp. 333–349.
- Stevenson, H., Austin, J. and Wei-Skillern, J. (2006) 'Social and commercial entrepreneurship: same, different, or both?', *Entrepreneurship Theory and Practice*, 30(1), pp. 1–22.
- Szabo, Z. K. and Herman, E. (2012) 'Innovative Entrepreneurship for Economic Development in EU', *Procedia Economics and Finance*, 3(12), pp. 268–275.
- Veciana, J., Aponte, M. and Urbano, D. (2005) 'University Students' Attitudes Towards Entrepreneurship: A Two Countries Comparison', *The International Entrepreneurship and Management Journal*, 1(2), pp. 165–182.
- Venkataraman, N. (1989) 'Strategic Orientation of Business Enterprises: The Construct, Dimensionality, and Measurement', *Management Science*, 35(8), pp. 942–962.
- Wagner, A. (1891) 'Marshall's Principles of Economics', *The Quarterly Journal of Economics*, 5(3), pp. 319–338.
- Wen, Z. lin and Ye, B. juan (2014) 'Analyses of Mediating Effects: The Development of Methods and Models', *Advances in Psychological Science*, 22(5), p. 731.
- West, G. P. and Noel, T. W. (2009) 'The impact of knowledge resources on new venture performance', *Journal of Small Business Management*, 47(1), pp. 1–22.

- Xia, X., He, J. and Liu, J. (2014) 'Research logic of Qualitative Comparative Analysis: On Its implications for Economic Management Research', *Journal of Finance Economics*, 40(10), pp. 97–107.
- Yang, D. and Geng, D. (2005) 'Growth or increase: the four management principal of sustainable growth', *Enterprise Management*, 9(1), pp. 83–92.
- Yu, X., Zhang, W. and Sang, D. (2013) 'A review of Frontier research on informal entrepreneurship and future prospects', *Foreign Economics and Management*, 35(8), pp. 2–13.
- Zahra, S. A. and Garvis, D. M. (2000) 'International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility', *Journal of Business Venturing*, 15(5), pp. 469–492.
- Zhang, Y. and Li, Q. (2009) 'Corporate entrepreneurial orientation, ambidextrous competence and organizational performance', *Journal of Management Sciences in China*, 12(1), pp. 137–152.