

How does Entrepreneurial Decision-making Logic Affect New Venture Performance? A Literature Review

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Abstract: Entrepreneurs must make lots of decisions when they start a business. The way they make decisions greatly affects new venture performance. The purpose of this paper is to review the studies on the relationship between entrepreneurial decision-making logic and new venture performance. It examines 48 articles in the Web of Science, Emerald, Springer, and EBSCO databases from 2009 to 2020, with a time span of 12 years. It summarizes the research methods on the relationship between entrepreneurial decision-making logic and new venture performance. It also classifies the related researches into the three categories which are direct impact, the contextual factors, and the mediation factors. This study contributes to clarify the influence of entrepreneurial decision-making logic on new venture performance. Additionally, this paper analyses the shortcomings of the current research from the perspectives of the theoretical basis, research methods and research contents. It points out the future research direction.

Keywords: entrepreneurial decision-making logic; causation, effectuation; new venture performance

1. Introduction

In the process of entrepreneurship, entrepreneurs need to make a series of entrepreneurial decisions, such as opportunity identification and evaluation, resource integration, team building. The effectiveness of entrepreneurial decisions markedly affects the success of entrepreneurship [1]. Sarasvathy (2001) points out that causation and effectuation are the two most important entrepreneurial decision-making logics [2].

Causation was first put forward by Burks (1977), and then it was introduced into the field of economics and management [3]. Based on the rational decision-making theory, causators make rational choices according to the expected return estimated by the relevant information of decision-making. Causal logic assumes that the future is the continuation of the past and corresponds to an adaptive approach to environmental conditions [2,4]. Due to the assumption that the future is predictable, causal logic starts with predetermined goals [5,6]. Causators rely on the analysis of market trends to understand competition in the market [7], in order to select between possible means to realize predetermined goals [8].

However, in the process of entrepreneurship, uncertainty is usually high, and decision-making goal is always unclear. Those challenge the effectiveness of causation. Sarasvathy (2001) proposes a decision-making theory called effectuation by combining bounded rationality theory with uncertainty theory to the entrepreneurship research [9,10]. The effectuators focus on the control strategy and means oriented. Through active interaction with others, they strive for the pre-commitments of stakeholders to form a strategic alliance. On the basis of affordable losses, they take actions to choose satisfactory effects [11]. As soon as the theory of effectuation is proposed, it has been greatly sought after by scholars. Many scholars believe that effectuation highlights the uniqueness of entrepreneurial context. It is a breakthrough for entrepreneurial research to seek academic contributions [7,12].

In recent decades, whether entrepreneurial decision-making logic affects new venture performance has been a hot issue in the field of entrepreneurship. Although scholars have made a lot of exploration, they have not reached a consensus [13-15]. Scholars believe that the researches should not focus on whether entrepreneurial decision-making logic directly affects new venture performance, but should be carried out in combination with contextual factors. Therefore, some scholars discuss the moderate effect of contextual factors, such as environmental uncertainty [16,17]. There are also some scholars who explore the mediate factors between entrepreneurial decision-making logic and new venture performance [18,19]. In addition, some scholars have expanded the entrepreneurial decision logic theory to other research fields, such as innovation [20,21], angel investors' investment [22,23], internationalization [24-26].

It is of great significance to examine the influence of entrepreneurial decision-making logic on new venture performance. It contributes to clarify the law of entrepreneurial decision-making, and helps to analyze why new ventures' performance is different. That is the essential problem of entrepreneurial field. Therefore, this paper reviews the existing researches on how the entrepreneurial decision-making logic affects new venture performance.

To reach our goal, this article is organized as follows. In Section 1, we present briefly a literature review on the entrepreneurial decision-making logic and its impacts on

new venture performance. In Section 2, we first introduce the main screening methods in this paper, and then review different stages of research methods on the impact of entrepreneurial decision-making logic on new venture performance in existing literature. In Section 3, the main aspects related entrepreneurial decision-making logic and its impacts on new venture performance are discussed. We classify the researches into the three categories which are direct impact, the contextual factors, and the mediation factors. Section 4 presents the discussion and future research direction. In Section 5, we present the conclusions of the study.

2. Research Methodology

This study adopts the review process suggested by Thorpe et al. (2005) [27]. Firstly, we determine the exclusion criteria in terms of publication type, research quality and cover period [28]. We choose mainstream databases as our databases, such as the Web of Science, Emerald, Springer, and EBSCO database. And this study concentrate on articles published in peer-reviewed journals (Paul and Benito, 2018) due to the quality of peer review process in journals [29]. As the original effectuation paper was published in 2001, we review articles published between 2001 and 2020.

Then, considering that the aim of this research is the investigation of the impacts of entrepreneurial decision-making logic on new venture performance from the perspective of effectuation logic, we take "Effectual + New Venture", "Effectuation + New Venture", "Effectual + Small Business", "Effectuation + Small Business" as the keywords, and perform exhaustive retrieval in the databases.

Finally, by reading the titles and abstracts of all articles, we deleted the literatures that only mentioned the concept, measurement or antecedent of entrepreneurial decision-making logic [30]. 48 articles which relate new venture performance with entrepreneurial decision-making logic are selected. These articles are distributed from 2009 to 2020, with a time span of 12 years. From the perspective of publication time, the study of entrepreneurial decision-making logic on new venture performance generally shows an increasing trend and is becoming an important topic in entrepreneurship and management research.

In terms of the research methods, they have gone through three stages of development. The first stage (before 2011) is an exploration stage that mainly uses meta-analysis or secondary data obtained from existing databases. In this stage, most of them discuss the differences between effectuation and causation, and explore the measurement of entrepreneurial decision-making logic [31]. There are a few of articles on the impact of entrepreneurial decision-making logic on new venture performance. These studies are relatively scattered and fragmented, which did not form a convincing explanation logic. For example, Read et al. (2009) analyze the literatures in *Journal of Business Venturing* by meta-analysis method. They confirm that the means orientation, partnership and leverage contingency have a positive impact on new venture performance, while

affordable loss has no impact on new venture performance [13]. The research method of meta-analysis is not universal and cannot be used to test the relationship between entrepreneurial decision-making logic and new venture performance in entrepreneurial practical. Later, Forster and York (2009) use the data from Panel Study of Entrepreneurial Dynamics (PSED) to find that effectuation is conducive to increasing the chances of success in the first start-up [32]. By analyzing the data from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE), Garonne et al. (2010) find out that effectuation can promote new ventures to the operation faster [33].

The second stage (2012-2016) mainly adopts case study and questionnaire survey. On the one hand, by case study, researches qualitatively analyze the impact of entrepreneurial decision-making logic on new venture performance. Galkina and Chetty (2015) conduct a case study on 7 SMEs from Finland, and find that the balanced use of effectuation and causation can better promote SMEs to entry foreign market [34]. On the other hand, with the development of the scales that are designed by Chandler et al. (2011) and Brettel et al. (2012), the number of quantitative has increased greatly. For example, referring to the effectuation scale proposed by Chandler et al. (2011), Mckelvie et al. (2013) use 196 new ventures in plastic production and software packaging industry in the United States as research objects [35,36]. The results find that different principles of effectuation have different effects. Most of them are positive. Pre-commitments have a positive effect on long-term financial performance. Causation has a positive effect on short-term financial performance. Brettel et al. (2012) further improve the measurement of entrepreneurial decision-making logic. Then, more and more researches empirically study the relationship between entrepreneurial decision-making logic and new venture performance. For example, Appelhoff et al. (2016) use 141 new ventures in German venture capital industry as research data to study the impact of entrepreneurs' decision logic on task conflict between entrepreneurs and venture investors [37]. The results show that there is a higher task conflict between entrepreneurs and investors who use the competition analysis principle of causation. However, entrepreneurs and investors who use the effectual principle of affordable loss have lower task conflicts.

In the third stage (from 2017 to the present), the research methods become diversified. More and more scholars realize that questionnaire survey and case study have many limitations. They try using new research methods, such as a simulation method and a qualitative comparative analysis (QCA) method. For example, Mauer et al. (2018) construct an agent-based simulation model to study the impact of search process based on prediction-based strategy and control-based strategy on new venture performance [38]. The results show that control-based search gains an advantage over prediction-based search with increasing dynamism and decreasing levels of goal specificity, while prediction gains an advantage with decreasing levels of goal specificity in stable

environments. Based on the NK model, Welter and Kim (2018) explore the impact of entrepreneurial decision-making logic on new venture performance in the uncertain and risky environment. NK model is proposed by Kauffman (1993) [16,39]. It is developed from the adaptability landscape theory. N represents the number of organizational decisions, and K represents the level of complexity of a firm's decisions. They find the use of causation can improve venture performance when the degree of environmental uncertainty and risk predictability is greater than 75%. However, when the degree of uncertainty or risk in the future is unpredictable, effectuation has an absolute advantage in improving the venture performance. In addition, in the field of entrepreneurship research, the research object often involves multiple cases. QCA can effectively analyze the data of multiple case comparison. Some entrepreneurial scholars realize its uniqueness. An et al. (2020) use QCA to explore how causation, effectuation and bricolage influence the growth of new venture in different development stages and enterprise scales [40].

3. Results

Scholars carry out theoretical construction, experimental research, case study and empirical study on the entrepreneurial decision-making logic. Due to the difficulties in measurement and data collection, early studies on entrepreneurial decision-making logic mainly focus on discussing the principles of effectuation and causation, as well as the differences between effectuation and causation. With the development of the research on the entrepreneurial decision-making logic, scholars have shifted their research to its impact on new venture performance. They do case study and empirical studies to explore the relationship between entrepreneurial decision-making logic and new venture performance. At present, empirical research has gradually become the mainstream. These researches are mainly divided into three categories: the direct effect of entrepreneurial decision-making logic on new venture performance, the moderate effect of contextual factors, and the effect of mediating variables (as shown in Figure 1).

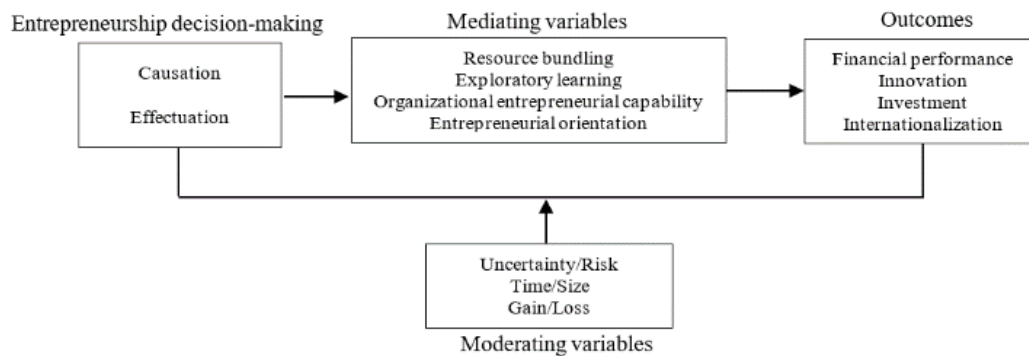


Figure 1. Research model of the relationship between entrepreneurial decision-making logic and new venture performance

3.1. Research on the Direct Effect of Entrepreneurial Decision-making Logic on New Venture Performance

The researchers explore the direct effect of entrepreneurial decision-making logic on new venture performance are mainly from four perspectives. They are as follows.

Financial performance. Early studies on the relationship between entrepreneurial decision-making logic and new venture performance mainly focus on financial performance. Most of them show that entrepreneurial decision-making logic has a positive effect on the financial performance of new ventures. For example, Forster and York (2009) select 817 first-time entrepreneurs based on PSED [32]. The results show that means-driven action has a positive effect on financial performance. Partnership has a positive influence on new venture performance, especially financial performance. Causation negatively affects financial performance. Roach et al. (2016) take 169 SMEs in the U.S. electronics manufacturing industry as the research objects [41]. They find that affordable loss has a positive impact on financial performance.

Some scholars hold different views. They think entrepreneurial decision-making logic is not always able

to improve financial performance. For example, Smolka et al. (2016) analyze the questionnaire data of 1453 college students' entrepreneurs from 25 countries selected from the Global University Enterprise Spiritual Students' Survey (GUESSS) [14]. The results show that affordable loss has a negative effect on financial performance. They believe that affordable loss plays an important role in avoiding loss. It cannot improve the new venture performance, which may lead a negative impact of affordable loss on financial performance. Mckelvie et al. (2013) divide financial performance into short-term financial performance and long-term financial performance, and study the impact of causation and effectuation on them [35]. The results show that different principles of effectuation have different effects, most of which are positive. Among them, pre-commitments have a positive effect on long-term financial performance, while causation has a positive effect on short-term financial performance.

Innovation. It has been proved that effectuation can promote the development of new products. Duening et al. (2012) find that effectuation can help promote the product development process and systems development process [20]. Blauth et al. (2014) obtain the same results in the study of the impact of entrepreneurial decision-making

logic on practiced creativity in the new product development [6]. Guo (2018) conducts a study on 162 high-tech new ventures from China. The results show that effectuation has a positive effect on innovation strategy [21]. In addition, Brettel et al. (2012) conduct research on R&D project performance (R&D efficiency, R&D output). The results show that effectuation can promote R&D performance in highly innovative projects [7]. Specifically, affordable loss has a positive effect on R&D efficiency. Partnership and leverage contingency have a positive influence on R&D output. Means-oriented has no significant impact. Causation positively affects R&D performance in the less innovative projects. Among them, goal-oriented and avoiding contingency have a positive effect on R&D efficiency and R&D output. Competitive analysis has a positive influence on R&D output.

Investment. With the development of research, some scholars extend the research perspective of entrepreneurial decision-making logic to the field of investment. They try to analyze the relationship between angel investors' entrepreneurial decision-making logic and investment outcomes. For example, by analyzing the data of 1038 investment projects from 121 angel investors, Wiltbank et al. (2009a) study the impact of prediction and control on the outcomes of venture capital investment [22]. They find that angel investors who emphasized prediction would invest more in venture capital. But they would not get more return. Angel investors who emphasized control would reduce the number of investment failures without reducing the number of successful investments. Schmidt et al. (2018) conduct a survey using a sample of 73 angel investment [23]. The results show that means-orientation make a significant increase in informal investors' investment valuation on the early post-investment phase. Dew et al. (2009) draw lessons from the theory of behavioral economics [42]. They conclude that investment performance largely depends on the accuracy of prediction based on the principle of expected return. If investors focus on affordable loss, it can reduce losses when the business fails. Moreover, it attracts more entry into entrepreneurship when taken together with the implication that affordable loss leads to more frequent venture start-up.

Internationalization. Transnational business involves more uncertainty and more complex dynamic network. It has typical characteristics of entrepreneurial context. Some scholars apply entrepreneurial decision-making logic to the field of internationalization. Some researchers believe that effectuation can promote the internationalization of new ventures. Frishammar and Andersson (2009) discover that small and medium-sized manufacturing ventures active in the international market mainly rely on effectuation rather than detailed market analysis and customer-oriented [43]. For ventures entering new foreign markets for the first time, adopting effectuation is conducive to creating new international opportunities [44]. Gabrielsson and Gabrielsson (2013) put forward the proposition that effectuation can promote firms to realize international commercialization quickly [45]. It also enhances the role of opportunity development

in the survival and growth of new international ventures. Moreover, Prashantham et al (2018) study the effects of effectual and causal network-building approaches on the dimensions of initial entry speed, international scope speed and international commitment speed [46]. The results show that an effectual approach to network-building is positively associated with initial entry speed and international scope speed, but negatively associated with international commitment speed, while a causal approach is negatively associated with initial entry speed and international scope speed, but positively associated with international commitment speed.

In addition, some scholars believe that in the process of internationalization of new ventures, it is not rational to emphasize only one kind of entrepreneurial decision-making logic. Galkina and Chetty (2015) conduct a study on 7 SMEs from Finland that have been internationally operated [34]. The results show that partnership makes ventures be possible to operate internationally. In the early stage of internationalization, international ventures tend to achieve the goal of rapid internationalization by using causation and effectuation.

3.2. The Moderating Effect on the Relationship between Entrepreneurial Decision Logic and New Venture Performance

There are more and more studies on the relationship between entrepreneurial decision-making logic and new venture performance. However, the conclusions are often inconsistent or even contradictory [47,48]. Entrepreneurial decision-making logic is a unique cognitive process induced by the particularity of entrepreneurial context (Venkataraman et al. 2012). Some scholars examine the moderating effect of entrepreneurial context [49]. The moderating variables fall into three categories: external environment, internal environment, and entrepreneurs' perception of external environment.

First, researches are mainly focus on the moderating effect of the external environment. In the external environment with high uncertainty, the effectuation is more effective than the causation in promoting new venture performance. Garonne et al. (2010) select 625 new ventures in the CAUSEE [33]. The research shows that effectuation is more effective in promoting enterprises to enter the operation in innovative environment. Causation is more effective in stable environment. Futterer et al. (2018) investigate 128 Germans who invest in new ventures from the perspective of industry growth [50]. They examine the impact of entrepreneurial decision-making logic on business model innovation. The research shows that effectuation has a positive influence on business model innovation in fast growing industries. Causation has a positive impact on business model innovation in slow growing industries. Blauth et al. (2014) use the measurement scale developed by Brettel et al. (2012) to study 219 employees from the new product development department of German ventures [6]. The results show that the principles of effectuation do not affect new product development except for the affordable loss in the high uncertainty environment. The principles of

causation have different influence. Goal-oriented and avoiding contingency have negative effects on new product development. Expected return and competitive analysis have no significant influence.

Second, some scholars examine the moderating effect of internal environment. An et al. (2020) find that small ventures tend to use effectuation to improve venture performance in the early stage [40]. Large ventures tend to interchangeably use causation and effectuation in the early stage. They turn to rely on causation in the later stage. Yang et al. (2019) conduct empirical analysis using data from 270 ventures in different industries in China [51]. The results show that effectuation is related to searching activities. Causation is related to performing activities. Ventures over 7 years have more profits in performing activities. Ventures less than 7 years have less profits in performing activities. They gain more profits in searching activities.

Third, there are a few scholars who study the moderating effect of entrepreneurs' perception of external environment. Parida et al. (2016) conduct a survey of 104 new Swedish ventures [52]. They try to explore the moderating effect of entrepreneurs' interpretation of the environment on the relationship between the entrepreneurial decision-making logic and first-time sales. The perception of controllable environment enhances the influence of causation on promoting first-time sales. The perception of high-yield environment has a positive moderating effect on the relationship between effectuation and first-time sales.

3.3. The Mediating Effect between Entrepreneurial Decision Logic and New Venture Performance

Most of existing researchers focus on the direct relationship between entrepreneurial decision-making logic and new venture performance. They often ignore the mediating effect between them. There are some scholars that realize its significance. They try to examine the mediating effect from different perspectives, such as resource bundling, exploratory learning, organizational entrepreneurial capability, and entrepreneurial orientation. Guo et al. (2016) use the questionnaire data of 118 new internet ventures in China to study the mediating effect of different types of resource bundling (stabilizing resource bundling and pioneering resource bundling) on entrepreneurial decision-making logic and new venture growth [18]. The results show that stabilizing resource bundling plays a full mediating role in the relationship between causation and new venture growth. The

pioneering resource bundling plays a full mediating role in the relationship between effectuation and new venture growth. Cai et al. (2017) conduct a research on the questionnaire data of 226 new ventures in manufacturing, information technology services and software industries in China [53]. They find that exploratory learning completely mediates the impact of effectuation on new venture performance. Xia et al (2019) collect survey data from 140 Chinese new ventures [54]. They explore the mediating role of organizational entrepreneurial capability between effectuation and new venture performance. The results show that organizational entrepreneurial capability plays a positively mediating role in the association between entrepreneurs' effectuation and new venture performance. Szambelan and Jiang (2020) examine the mediating effect of entrepreneurial orientation on innovation performance and the effectual dimension of control orientation [19]. The results show that entrepreneurial orientation (behavior dimension rather than management attitude towards risk dimension) completely mediates the effect of effectuation on innovation performance. Although the experiment focuses on the control orientation dimension of effectuation, it still contains four other dimensions of effectuation in the model, the result shows that entrepreneurial orientation does not mediate the influence of the other four dimensions. Not all constructs can mediate the impact of entrepreneurial decision logic on new venture performance. Yusuf et al. (2018) conduct an empirical study based on the data of 91 Malaysian technology-based small and medium-sized entrepreneurs [55]. They explore the mediating role of social intelligence in entrepreneurial decision-making logic and new venture performance. The results show that social intelligence does not play a mediating role.

4. Discussion and Future Research

The research on the relationship between entrepreneurial decision logic and new venture performance is one of the hot issues in entrepreneurship management. More and more scholars explore this topic from different perspectives. Although they draw some interesting conclusion, there are still many research questions to be studied in the further. By combing the existing literature, this paper analyzes the shortcomings of existing research. It puts forward the future research directions from the following perspectives (as shown in Figure 2).

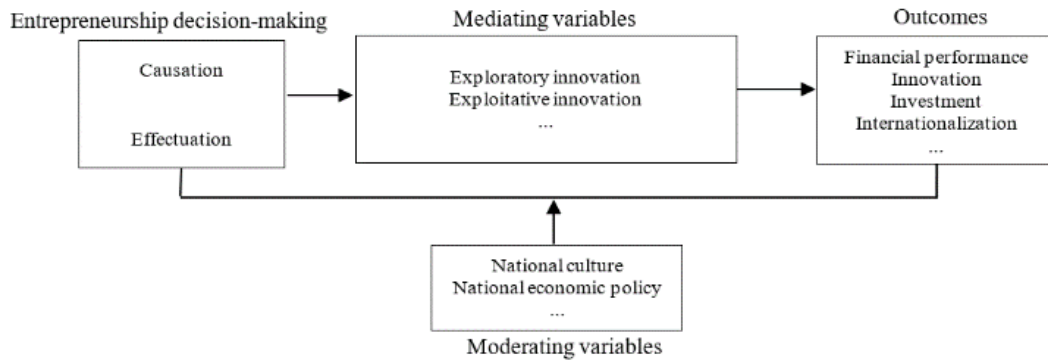


Figure 2. Future research on the relationship between entrepreneurial decision logic and new venture performance

First, the future research needs to investigate the interaction between causation and effectuation and its effect on new venture performance. Many studies regard effectuation as the opposite of causation [56]. They analyze the impact of a particular entrepreneurial decision-making logic on new venture performance from a single and decentralized perspective. With the development of research, some studies find that effectuation and causation are not two ends of a continuum. They have an orthogonal relationship [7,36]. Galkina and Chetty (2015) prove this result. They find that small and medium-sized ventures do not fully comply with the effectuation strategy in the process of internationalization [34]. They flexibly use effectuation and causation according to the context. It makes the SMEs better handle the uncertainty in the process of internationalization, especially, in the early stages of venture entering foreign markets.

Second, future research needs to re-define the logic of entrepreneurial decision-making from the macro perspective, such as national culture, national economic policy. Scholars can develop a new measurement scale of entrepreneurial decision-making logic, and compare the differences of the impact of entrepreneurial decision-making logic on new venture performance in different macro contexts. The existing research mainly analyses it from the micro perspective. The theory of entrepreneurial decision-making logic is based on the background of western countries. Due to the differences in economy, system and culture, the theory may be not applicable in other countries. For example, Laine and Galkina (2016) find that institutional uncertainty in Russia can promote the use of effectuation [57]. Entrepreneurs are more likely to invest affordable capitals in emerging opportunities and learning, rather than consider exiting the venture at an affordable cost. This conclusion is different from the researches in other countries.

Third, researchers should explore more moderating and mediating variables to examine the effects of entrepreneurial decision-making logic on new venture performance. The constructs can be studied are as follows: the moderating effects of cultural differences in different countries, the mediating effect of exploratory innovation and exploitative innovation.

5. Conclusion

This study reviews the relationship between entrepreneurial decision-making logic and new venture performance. It draws two main findings. Firstly, the research methods become diversified. Many scholars begin to try using new research methods like a simulation method and QCA method, instead of empirical and case studies.

Secondly, this study classifies the related researches into the three categories which are direct impact, the contextual factors, and the mediation factors. Most scholars study the direct effect of entrepreneurial decision-making logic on new firm performance. Their researches mainly focus on financial performance [32,35], innovation [6,7], investment [22] and internationalization [56,58]. Meanwhile, there are few studies on the mediating factors and the moderating factors. More researches are needed in this subject in the future.

In a word, more and more scholars pay attention to the research on the impact of entrepreneurial decision-making logic on new firm performance, and a lot of research results have been obtained. These findings not only enrich the researches of decision-making, but also help entrepreneurs improve new venture performance.

Acknowledgement

This research was supported by the National Natural Science Foundation of China (Nos. 71772055), Humanities and Social Sciences of Ministry of Education Planning Fund of China (No. 17YJA630067), Fundamental Research Funds for the Central Universities (No. JZ2019HGTB0094), Anhui Philosophical and Social Science Program (No. AHSKY2019D030).

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