

# ***Commercial Funding and Government Funding Influencing the Innovative Behavior in Remote Areas of China***

—Survey data based on the factors influencing the innovative behavior of the old revolutionary areas in Sichuan

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**Abstract**—This paper aims to investigate the influencing factors of innovative behavior of Rural Management organizations. Through investigating the innovation behavior of the rural management organization in the old revolutionary area of Sichuan province, authors combed the literature and analyzed the data. This study examines how six aspects—market demand, competition environment, cooperation resources, government support, professional investment, financing influence the traditional innovation behavior of rural management organizations and establishing the model of influencing factors, the authors put forward the suggestion of commercial funding not government funding.

**Keywords**—Commercial funding; Government funding; Enterprise innovation; Remote areas; Old revolutionary areas

## I. INTRODUCTION

This template, Innovation is the driving force for the rapid development and sustainable development of enterprises. With the deepening of supply-side reform in China, "mass entrepreneurship, mass innovation and innovation" has been vigorously promoted. People pay more and more attention to the driving effect of innovation capital on the growth of enterprises.

But, On the role of government subsidies controversy. Some scholars believe that government subsidies play a role as a catalyst. For example, Hitaji (2013) [1] using 1998-2007 data on the United States wind power industry. The study found that government subsidies play a very important role in the development of wind power industry. Another part of scholars believe that government subsidies have a large capital effect. For example, Van Tongeren (1998)[2]. This paper studies the effect of government funding which has been used in the

Netherlands in 1980s. It is found that government subsidies can improve the solvency of enterprises but not promote the effective flow of social and economic resources. Lemer(1999)[3] that the government funding is easy to produce distorted incentives, leading the government to choose the wrong subsidy project, which has bad policy effect. Geng Qiang, Jiang Feitao et(2011), argue that government subsidies distort factor market prices, drive down investment costs, create overcapacity and become a major factor in China's economic volatility.

With the development of reform, a large number of labor - intensive enterprises in the coastal areas have fallen off or laid off. At the same time, because of the popularization and application of intelligent manufacturing, migrant workers are no longer able to seek satisfactory work in coastal industrial zones as in the past, and the peasants' social network and experience are no longer confined to the cultivated land. However, the research shows that the government should support the development of enterprises. However, it has long been considered that the government should support the R & D investment in enterprises. However, the empirical research has found inconsistent conclusions from different perspectives[4]. Since people's selfishness and inertia, people's support for government is unlimited, and for the government's support and fund support, the demand will only be more and more. So the financing is a no - bottom hole, only commercial funding can solve the problem at all.

## II. THEORETICAL BACKGROUND, RESEARCH MODEL AND HYPOTHESIS

### A. Presentation of hypothetical models

The new round of rural financial system reform is by reducing the access threshold of rural financial market, encouraging private capital and even foreign capital to increase rural financial supply through the establishment of new rural financial institutions such as village and town bank and rural fund mutual aid[5]. Through the introduction of various rural financial institutions such as rural community bank, NGO loan company and cooperative, every financial institution has different market positioning and target customers[6]. So far, many scholars have discussed the goal, feasibility and effect of the new round of rural financial market reform to reduce the access threshold of rural financial market. However, it is difficult to make an effective evaluation on the new round of rural financial institution reform.

Therefore, this paper based on the difficulties of enterprise innovation in the remote areas of China based on the factors influencing the innovation behavior in the old revolutionary areas of Sichuan Province, such as: market demand, competitive environment, cooperative resources, government support, professional investment. Traditional financing survey data analysis, proposed to help not to subsidize the proposal. Therefore, according to the literature review and research assumptions, this paper proposes the innovative ideas source research model to be verified in Fig. 1, and through empirical research to investigate the impact factors of the correlation and impact intensity. It can provide strong data support for the conclusion of the research and the establishment of countermeasure model.

To sum up, this study proposes the following hypotheses, as shown in Fig. 1

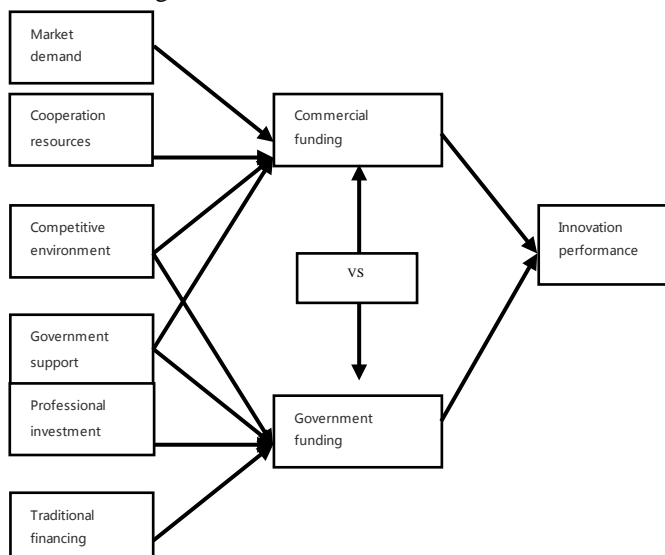


Fig. 1. A hypothetical Model of commercial funding VS government funding

### B. Dimension of Market demand

As two dimensions of market orientation, the response market orientation and the first market orientation have completely different characteristics. The former pays attention to the explicit customer demand. The latter pays attention to the hidden customer demand. Narver [7] and other scholars think that exploring the customer purchase demand is conducive to promoting the innovation model of the organization. According to Narver and others. Market orientation of response refers to the acquisition, diffusion and use of market information related to existing customers and products, focusing on clearly identified customer needs, and understanding that demand can bring higher innovation performance.

Nonaka and Takeuchi [8] point out that in order to develop new products and technologies to meet customer needs, enterprises need to create new knowledge through internal accumulation. It is also necessary to obtain new market information from outside, because market orientation usually leads to the gap of enterprise knowledge resources, but the method of filling the gap of knowledge resources through internal accumulation of enterprises is difficult to respond quickly to the needs of customers. Therefore, the timely discovery of market conditions or the acquisition of knowledge resources from alliance partners to make up for the shortage of their own knowledge resources can promote the independent innovation of enterprises.

Thus, we hypothesize that:

H1a: explore the positive correlation between customer purchase demand and innovation performance

H1b: timely discovery of market information and positive correlation with innovation performance

### C. Dimension of competitive Environment

For most companies, they must create their own competitive environment to meet the needs of their customers. Therefore, creativity is not only a competitive niche requirements for the organization. Also a key tissue survival factor, Amabile(1988). The empirical results of panel data of Jian Li[9] and other listed companies from 2007 to 2012 show that there is an inverted U-shaped relationship between the product market competition faced by manufacturing enterprises and technological innovation of enterprises. That is, before the product market competition reaches the optimal critical value, it can promote technological innovation from Porter[10].

In National competitive advantage, it is suggested that competition and scarcity of resources will force enterprises to develop for production. In 1997, he was a professor at Harvard Business School in the United States. Clayton Christensen, the master of global innovation, put forward the theory of "disruptive innovation" in his famous book "the Innovator's Dilemma". Attack the establishment of new competition, select new consumer groups, so that enterprises will always be ahead of their competitors. Arrow finds that the more competitive environment the enterprise is in the product market. Arrow[11] found that the higher the uncertainty and the risk of being eliminated, the more emphasis will be placed on innovation to enhance their competitiveness.

In summary, we hypothesize that:

H2a: Positive correlation between competition and innovation performance among domestic firms

H2b: the competitive pressure of globalization of foreign firms is positively related to innovation performance

#### *D. Dimension of collaborative resource*

With the development of innovation and development, it will inevitably lead to the problem of innovative resources. Government, enterprises, universities and scientific research institutes, science and technology intermediary institutions as the main body of innovative resources. Guang Chen [12] pointed out that the scientific and technological revolution has always been able to profoundly change the world's development pattern and the fate of the country and nation. Since 2010, China's total economic output has steadily ranked second in the world. The total amount of R & D investment and R & D personnel, the number of international scientific and technological papers, and the number of domestic patents are among the highest in the world, which shows the results of participating in scientific research and technology projects. It also shows that participation in scientific research and technology projects is conducive to promoting innovation performance.

Harrison[13] and other research found that universities and scientific research institutes for their local enterprises to provide all aspects of innovative resources, so that enterprises have significant advantages in the development of innovation, the diffusion of technology and knowledge. The formation of high-tech industrial district is of great significance(in Chinese)[14]. Some domestic scholars believe that the essence of innovation resources synergy is to share the right to use innovative resources in an appropriate way. Chesbrough[15] puts forward a new innovation paradigm "open innovation", which means that enterprises should realize the internal and external innovation resources flow and exchange. And at the same time open the internal and external two market channels to achieve effective and lasting innovation. Entrepreneurship park is to provide an open space for innovation open innovation process is innovation participants to interact on knowledge. Integration and synergy of knowledge flow process. Therefore, renew and strengthen the incubating of entrepreneurial parks to promote entrepreneurial performance.

Thus, we hypothesize that:

H3a: Positive correlation between participation in Scientific Research Technology Project and Innovation performance

H3b: There is a positive correlation between incubator and innovation performance

#### *E. Dimension of government support*

In recent years, it has been shown that many employees (especially those with career orientation) are actively innovating out of the recognition of the external value brought by innovation. Therefore, organizations can create an atmosphere by making policies. Accelerate employee acceptance of organizational goals. With the deepening of the research on the technological innovation activities of

enterprises. At present, there are more and more researches on government subsidies and technological innovation in our country. Although there are still some literatures that government subsidies have substitution effect on technological innovation of enterprises. For example, the data of large and medium-sized industrial enterprises in China are used to investigate the effects of different innovation support policies. The conclusion is that government subsidies have a substitution effect on technological innovation activities of enterprises, but the results of literature show that government subsidies can stimulate technological innovation of enterprises, such as Daming You, Guiju Zhu (2014) [16] constructs the "subsidy R & D-production" dynamic game model between the government and the enterprise, and thinks that the government funding is helpful to improve the enthusiasm of technological innovation of enterprises. There is no crowding out effect. So local government funding helps promote innovation performance.

Thus, the fourth hypothesize that:

H4a: the industrial guidance of the local government is positively related to the innovation performance

H4b: local government's innovation support is positively related to innovation performance

#### *F. Dimension of professional investment*

Research on bank financing points out. There is a significant positive correlation between bank loans and enterprise innovation(in Chinese) [17]. McKinnon's[18] "Financial repression" theory holds that the development of financial markets has a huge impact on the innovation ability of a country. The backward financial market will inhibit the innovation and development of a country.

Brown et al[19]. found that equity financing is more conducive to innovation. M. F. Scheller's research shows that in the context of venture capital support. After completing the initial work and business plan, the startups all experienced a series of well-ordered financing stages, and then invested all their savings or obtained loans through the main assets of the mortgage enterprises.

Thus, we hypothesize that:

H5a: bank's loan support is positively related to the innovation performance

H5b: Vc firm support is positively related to innovation performance

#### *G. Dimension of traditional financing*

Team cooperation is applicable to the mode of joint venture(in Chinese) [20]. Team cooperation mainly refers to the joint investment by multiple partners, collective management, to create the same venture project. For some families of the average conditions. Family economy is not enough to support their own entrepreneurship, whether to find the appropriate funding channels to find creative partners consistent with their own ideas, by the entire entrepreneurial team of people to jointly raise funds, share the economic pressure of entrepreneurship. In order to get enough capital to support the development of entrepreneurial projects, for

example, a university has a green leaf entrepreneurial team. If they are going to start a business in a university, they can choose the way of co-financing, five people share the cost of the project together. In this way, everyone's economic burden can be alleviated better, which is conducive to promoting the smooth progress of entrepreneurial projects.

Individuals and relatives and friends raise all their own venture capital, the benefits of this way are mainly reflected in: the enterprise equity is single, the difficult period of entrepreneurship will gain all the income; Independent decision-making without interference, decision-making efficiency is high; The high risk of self-financing can also bring high returns. Once you get through the early days, when the company is on the right track. The gains will be a huge asset. For a company with few shareholders, business decisions are highly efficient. University student entrepreneurs can run and create the company according to their own design. The disadvantage of full financing is that; All individual capital contribution, operating financial risk entirely by the entrepreneur bear, the risk is high pressure; Generally, the amount of capital for entrepreneurs is limited, so it is difficult to expand the scale quickly. Entrepreneurs' families share business risks and psychological pressures (in Chinese) [21].

In summary, we hypothesize that:

H6a: a positive correlation between Industry Moments's funding and Innovation performance

H6b: support from a family or relative is positively correlated with innovation performance

### III. EMPIRICAL RESEARCH AND DATA ANALYSIS

#### A. Data Sources and Distribution

##### 1) Questionnaire design

At this stage, the innovation evaluation index is not suitable for the actual situation of enterprises in western rural areas, so we based on the above theoretical literature mathematical

theory. The questionnaire is divided into four parts. The first part is enterprise innovation data as dependent variables, including quantity, quality and income. The second part is the innovation status of the organization, including the structure of the organization, cultural atmosphere and rules and regulations; The third part is the influencing factors of innovation; The 4th part is the source of innovative ideas. The questionnaire contains the real information of the investigator to ensure the validity and authenticity of the questionnaire.

##### 2) Data collection

First, 50 innovative decision makers were selected to issue a prediction questionnaire, and then the reliability and validity of 50 prediction questionnaires were analyzed by using SPSS20.0 software. From the pre-questionnaire to the return of the questionnaire, the experience time is about 2 months. A total of 500 questionnaires were sent out. 335 questionnaires were actually collected. 282 of the questionnaires were valid in rural areas.

##### 3) Definition of Rural Grass-roots Management Organization

This article refers to the rural grass-roots management organizations mainly refers to the rural areas engaged in agriculture, forestry, animal husbandry, fishing and other industries related to individual households, cooperatives or small and medium-sized enterprises. The development of rural areas in China is relatively slow. The scale of relevant enterprises is also relatively small.

##### 4) Measurement of dependent variable

The innovation performance of enterprises "innovation is reflected in the number, quality and innovation, innovation benefits the three indexes, which refers to the patented technology innovation innovation, management innovation, business model innovation. This research mainly focuses on" innovation quantity, innovative quality, innovative returns "three indicators as the dependent variable was measured.

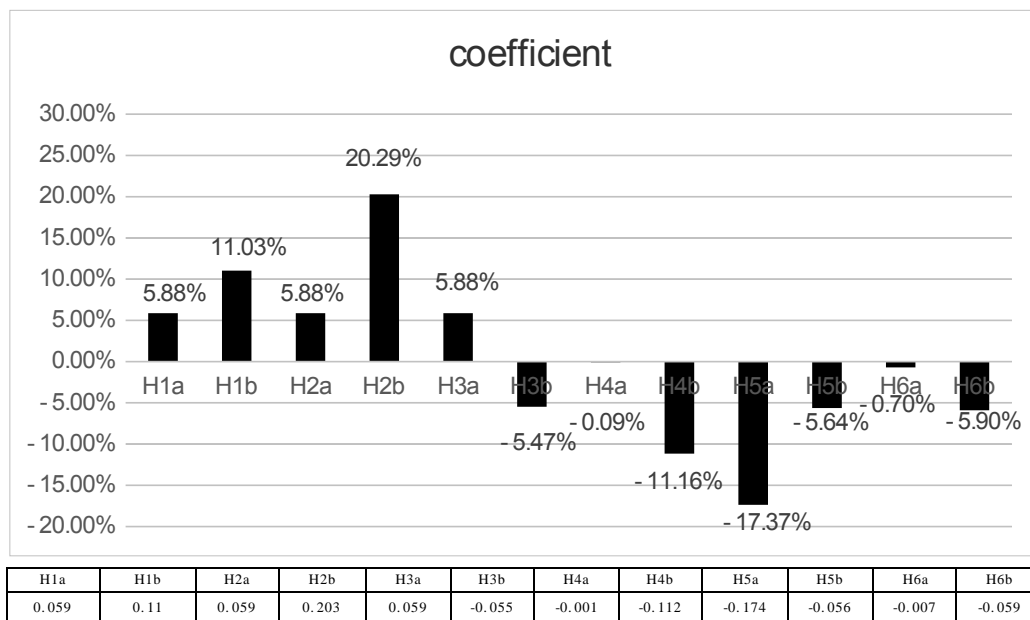
TABLE I. DISTRIBUTION OF QUESTIONNAIRES

Sichuan revolutionary old area	Area	Yi Long County	Ping Chang County	Ba Zhong County	Jiang You County	Gu Lin County	Wan Yuan County	Da Yi County	Qiong Lai County
	Provincial proportion	8%	6%	5%	4%	7%	6%	7%	5%
	Quantity	23	17	13	12	21	17	21	14



## B. Correlation analysis between observational variables and dependent variable

TABLE II. CORRELATION COEFFICIENT DIAGRAM



In the above chart, the following information can be obtained:

According to the correlation coefficient chart, it shows that customer demand, business information, local competition, foreign enterprise sources and other parts of the business aid support is highly relevant, positive correlation. And since the incubation of matching, innovative funding, bank loans. Venture capital, family and friends, and other resources, policy correlation is very small or even negative correlation.

To explore the potential needs of customers and find the market situation to improve their own shortcomings can promote the independent innovation of enterprises. There is competition pressure and motivation for rural areas to face local competition and competition of foreign enterprises. More innovative performance.

But in the remote rural areas and even in the old revolutionary areas, there is a lack of innovation incubator matching for farmers. And they have a strong attachment to the land passed down from generation to generation and are generally reluctant to leave their home villages and towns to do business in government-designated parks. So there is a more prominent negative correlation. This is also the rural work to pay attention to.

Innovation funding is an accident. Our hypothesis is positive correlation, but the data is negative. It shows that the government's massive subsidy behavior is a waste of taxpayers' hard-earned money. A lot of public money has been wasted. The simple way the government likes to subsidize is determined by the desire for political achievement and the short-term effect. Only direct money can produce immediate results. However, after the aid is given, the immediate effect can be achieved. Formation is really dependent on funds and

doing image engineering, and there is no actual source of innovation. From the data reflect, it is counterproductive. Therefore, its correlation with dependent variables is negative.

In general, bank loans and venture capital are positively related to innovative performance, but in remote rural areas and even in the old revolutionary areas, there is a lack of financial support for farmers. Rural land and houses are not publicly traded, so farmers do not have enough collateral to secure bank loans or venture capitalists to invest here. Farmers do business lack of money is generally their own family savings and family and friends to borrow money, but from friends and relatives to borrow money, generally not much. For plain farmers, rushed to loan. The worry is more about what to do when they can't be repaid, so the chances of going to bank loans and venture capital because of innovative behavior are very small, which is a good illustration of small and medium-sized enterprises, especially those in remote rural areas. How difficult it is to finance.

## C. Regression analysis

We designed a scale of 5 to measure the influencing factors of commercial aid. According to the degree of recognition of the topic, the subjects had to be rated. Because of the independent variable model, there are many evaluation factors. In order to test the hypothesis of the model, all the influencing factors are taken as independent variables, and the measurement of commercial aid is analyzed by regression equation. Test the significance of the whole model. According to the significance Measure the impact of independent variables on business aid and funding.

TABLE III. REGRESSION ANALYSIS TABLE

	df	SS	MS	F	Significance F
Regression analysis	12	44.16527	3.680439	4.730396	5.21E-07
Residual	268	208.5148	0.77804		
Total	280	252.6801			

In the above chart, the following information can be obtained:

The sum of square error and the sum of residual square are 44.16527, 208.5148. according to the data we can get that the total deviation of dependent variable to its predicted value is large. According to the mean square deviation and the residual mean square deviation of 3.680439, 0.77804, the effect of fitting is better. We think that because rural remote areas are more different from urban areas, previous assumptions are not applicable to rural areas.

#### IV. CONCLUSIONS AND PROSPECTS

Based on the background of the old revolutionary areas in Sichuan Province, this study compares the organizational characteristics of the management organizations in different remote areas from six dimensions to study the predicament and countermeasures of the innovation of the rural grass-roots management organizations. This paper discusses the innovation of rural grass-roots management organizations according to different dimensions to analyze the different impact of financial aid and commercial aid on the innovation of the old revolutionary areas.

The results show that: 1) customer demand, business information, local competition, foreign enterprise sources and other parts of the business aid support for positive correlation. 2) hatching matching, innovative funding, bank loans. Risk investment, family and friends funding and other resources, policy correlation is very small or even negative correlation. The government for farmers in rural areas, incubator park planning and migrant workers have not been put in place. Moreover, the solution to the problem of innovation financing in rural remote areas is not perfect, and there is a lack of favorable lending policy in rural areas.

Countermeasures: at present, the rural grass-roots management organizations in the old revolutionary areas in China have made great progress under the support of the government, but compared with the organizations of urban enterprises, there are still obvious deficiencies. Need outside business support and support, business for the development of innovation in remote areas need to be enhanced. From the previous comparative analysis can be seen in the old revolutionary areas in the rural grass-roots business organizations, business assistance to this area is of great help, so the vast number of rural grass-roots business organizations in the old revolutionary areas should accept more commercial help. It not only reduces the government's finances but also stimulates the development of the old revolutionary areas.

Under the background of "mass entrepreneurship and global innovation", the number of enterprises returning to the countryside is increasing, and the opportunities and challenges for the rural grass - roots business organizations coexist, and the rural grass - roots operating organizations need to support

the basic construction of the countryside. On the other hand, the rural management organizations need to set up a well - fair and fair entrepreneurial platform. The rural grass - roots business organizations need to explore a new way of innovation with characteristics in the field. At the same time, this study also has some limitations, which provides a direction for future research. The limitations of this study are mainly in two aspects: first. The samples are based on the grass-roots management organizations of the old revolutionary areas in Sichuan Province. The limitations of the region make the applicability of the conclusions of this study limited. The future research can collect more regional data samples. Second, the data of this study still have some limitations, not very good from many aspects of research, if we can collect more and more detailed data. Will lead to more valuable results.

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