

Analysis on Investment Behavior of Agricultural Sector in China

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Abstract: In the process of industrialization, China has been a big agricultural country, and the agricultural sector's economic activities have been playing important role in economic growth. This paper established the investment behavior model of agricultural enterprises on the basis of Chinese practice. And then, the model presented the important factors impacting on investment, such as financing cost, wage, and policy factors, etc. Thirdly, this paper in particular used *R*-studio to estimate the impact of financing cost and policy factor on investment and capital accumulation of primary industry sector by gathering the data from 2003 to 2013. The results showed that the official interest rate of loans of financial institutions could be the proxy variable as the financing cost of agricultural enterprises, and the employment level of agricultural enterprises had negative impact on investment. Finally, this paper provided some explanations and suggestions on the basis of above results.

Key words: agricultural sector, investment behavior, financing cost, employment level

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Introduction

Since the reform and opening up, China has been in the economic boom period, and the primary industry played important role in economic development. Meanwhile, investment has been the critical factor for promoting such high-speed economic growth and agricultural industry development. In recent decades, China achieved rapid development at economic growth rate of 7.4% and fixed asset investment rose by 15.7% in 2014. Especially, the average per capita growth rate of investment in the primary industry from 2004 to 2011 was 28.85% which was almost 5% higher than the national level. As a result, it is exactly important to stimulate and optimize agricultural investment for maintaining the rapid and sustainable economic growth. For the sake of promoting investment structure and share of agricultural sector, we should focus our research priorities on the investment behavior and its

influencing factors in China.

Many researchers paid close attention to investment and had reached a consensus with respect to factors impacting on the investment behavior of firms. It is particularly notorious that financial constraint affects investment scales and returns in firms. Fazzari *et al.* (1988) proposed financial constraint hypothesis according to the information asymmetry and found that enterprise investment was under the influence of financial constraint. Henceforth, a lot of research achievements have been presented in this field, some scholars (Kashyap *et al.*, 1994; Hu and Schianterelli, 1998) supported arguments from Fazzari *et al.* (1988) as well. In view of specific situation in China, Feng (1999), Li *et al.* (2006) and Wang *et al.* (2008) testified the impact of financial constraint on restricting investment and capital stock and the conclusions were also consistent with Fazzari *et al.* (1988). Almeida *et al.* (2011) studied a model and verified that financing constraints led firms to have

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a preference for investments with shorter payback periods, and investments with less risk. Expect for enterprise situation of finance and demand for investing, Zeng (2013) argued that fluctuations in policy, technical progress, financial shock etc. also played important role on investment decision. Kang *et al.* (2010) assessed the impact of the Sarbanes-Oxley Act of 2002 on corporate investment in an investment Euler equation framework and concluded that the effects of the legislation on corporate investment were asymmetric and were much more significant among relatively small firms. Bolton *et al.* (2011) developed a model for predicting the financial crisis influence on investment, then showed quantitatively that real effects of financing shocks might be substantially smoothed out as a result of firms' adjustments in anticipation of future financial crises. Meanwhile, Chow *et al.* (2010) examined that soft budget constraint was significant relative with the ownership structure of enterprises. Zhang *et al.* (2011) found that the firms had political relations initiated over-investing more easily. Chen *et al.* (2011) tested that government intervention, as a form of friction, distorted firms' investment behavior and led to investment inefficiency.

Although, many researchers above have been studying on enterprise investment behaviors, there were not many papers paid close attention to studying on agricultural sector investment in the view of quantitative analysis. So we focused on agriculture department behaviors in China based on the former studies. And this paper organized as follows. In the second part, we established mathematical investing model which presented investment behaviors of agricultural enterprises.

The third part searched for suitable variables for describing investment behavior factors on the basis of data validity. Fourthly, this paper built the econometric model based on above work for verifying our assumptions and found out the factors which affected agricultural enterprise investment. Finally, this paper summarized the conclusions deriving from previous study.

Models and Methods

Investment decision is a trade-off process which firms pursue for future benefits compensation at the expense of existing resources under information and resource constraints. Firms make decision of investment opportunity and quantity in accordance with their business objective. In China, primary industry has played important role in economic development: on the one hand, although rural labor force transported to secondary industry and tertiary industry, primary industrial labors still accounted for 31.40% of the total employed persons in 2013; on the other hand, for solving the problem of food supply and food security, agriculture, forestry, animal husbandry and fishery have to sustain appropriate level of output, so that agricultural enterprises could simultaneously face with two objectives which were profit and production maximization.

On the basis of the above analyses, we assumed that agricultural enterprises aimed to balance profit and production maximization according to the concrete condition in China. The firms' objective function could be presented as follow:

$$\Pi_t = \theta_t^Y \cdot [p_t \cdot Y(K_t, L_t) - \delta \cdot K_{t-1} - r_t \cdot I_t - \omega_t \cdot L_t] + Y(K_t, L_t) \quad (1)$$

Where, Π_t was the enterprise objective including profit and production maximization; $\theta_t^Y \in (0, 1)$ was the weight distributed between the maximization of output and profit; p_t captured the price of agricultural products; $Y_t(K_t, L_t)$ was the production function, L_t and K_t were labor and physical capital; I_t represented the firm investment which was loaned from bank; ω_t was wage; δ was capital rate of depreciation which was constant, and r_t was financing cost offered from banks. In terms of perpetual inventory method, physical capital stock at period t could be expressed as equation (2):

$$K_t = K_{t-1} + I_t - \delta \cdot K_{t-1} \quad (2)$$

Where, K_t was state variable and I_t was control variable which adjusted capital stock.

We assumed that agricultural enterprises preferred different levels of operation targets in each period,

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