

DETERMINANTS OF CAPITAL FORMATION IN AGRICULTURE: BIKANER DIVISION OF RAJASTHAN**SURENDRA KUMAR SHARMA**

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Abstract

Investment is the sine qua-not of economic development, while income, savings, and investment are the key factors that influence an economy. The objective of this study was to analyze the factors that influence the formation of capital in the Bikaner division of Rajasthan. The study was conducted through a combination of qualitative and quantitative methods. Data collected from the primary sources were then analyzed through a pre-tested structured interview schedule from 2019-20 to 2020-21. The objective of this study was to identify the factors that influence the formation of capital. These include education, age, land holding, family size, and income. The results indicated that the multiple linear models were good fit for the study. In the Bikaner Division, the F ratio was at 1 percent, while the R² was at over 90 percent. In all the cases except for medium and large farmers, the capital formation was significantly influenced by factors such as land holding, income, cropping intensity, and family size.

Keywords: Capital, Regression, Determinants, Saving and investment.

INTRODUCTION

Capital is a broad term that refers to various physical assets and the working capital that can be utilized for the production of goods and services. However, it only includes those tangible assets that can be used for the furtherance of the economic activity. These include the ability to transfer stocks into flow services and improve productivity. The return on private investments is regarded as the most important factor that influences the formation of private capital. The addition of new farm holdings is regarded as one of the most important factors that affects private investment. Due to the indivisible nature of most capital assets, it is not possible to fully share all of them. This means that the need for new farm buildings and machinery is also a major factor that affects private capital formation. Another important factor that is considered when it comes to private capital formation is the availability of long- and short-term loans. According to Singh and Sidhu, the increase in the gross cultivated area, water table,

and livestock contribution, as well as the volume of output from agricultural crops, positively affect private investments in agriculture. Various socio-economic factors also have an effect on the sector. The factors that influence a farmer's decision-making process are many. Some of these include the age of the farmer, the size of his family, the type of crops he or she grows, the availability of credit, and the proximity of the output and input markets. In addition to these, other factors such as government support and the level of returns that an investor can expect are also taken into account. According to Singh, in 1970, there is a strong correlation between the size of a farm and the formation of capital in agriculture. In 1974, Mishra and Singh noted that the irrigation and holdings of farms are the most important factors that influence the formation of capital in agriculture. In 2006, Murukannaiah noted that the larger the portion of the family's current output that is invested in capital assets, the faster the rate of growth and increase in production. In 1995, Chand and Mishra examined the private and public capital formation in Indian agriculture and looked into its efficiency.

They concluded that the rate of improvement has been continuous since the seventh plan was implemented in 1985.

The growth of the allied and agriculture sectors is a crucial factor that contributes to the country's economic expansion. Under the Thirteenth Five-Year Plan period (2017-22), the target of 4 percent was achieved. However, during the previous two years, the growth rate of these sectors was negative 0.2 percent. Both the public and private sectors need to step up their investments in order to sustain the country's growth rate at 4 percent. The agricultural development process involves various technical, organizational, demographic, financial, and sociological aspects. Besides investment, other factors such as income and savings are also taken into account when it comes to economic development. Savings provide the where-to-invest. The income level also affects investment and savings. It determines past capital goods purchases and current income. In developing countries, the low level of income is mainly caused by the low rate of capital formation and the scarcity of stocks of capital. This study aimed to identify the factors that influence the formation of capital in the agriculture sector in Rajasthan's Bikaner Division.

The state of Rajasthan is the largest in India, accounting for over 10% of the country's total geographical area. It has 33 districts and seven divisions. It is also divided into nine,168 gram panchayats and 244 tehsils. Among the major crops grown in the state are wheat, bajra, jowar, cotton, mustard, and rapeseed. The growth of the agricultural economy is mainly driven by the formation of gross fixed capital in agriculture. The growth of the GFCF in the allied and agriculture sectors has significantly increased over the last ten years. According to estimates, the real gross state domestic product is expected to touch a level of 5.83 trillion rupees during the financial year 2018-19. This is 6.71 percent higher than the previous year's figure of 5.46 trillion rupees. The real gross value added (GVA) of the country is expected to reach 5.53 lakh crore during the financial year 2018-19, which is 6.72 percent higher than the 5.19 lakh crore in the previous year. During the year 2017-18, the country's total assets amounted to 2,36,428 crore. This is 35.15 percent of the GSDP of over 6 million crore. The

gross fixed capital formation during the year 2017-18 was increased by 11.54 percent over the previous year. The three sectoral growth rates were: 6.37 percent in Agriculture, 4.09 percent in Industry, and 8.41 percent in Service. During the year 2020-21, the total gross state domestic product grew by 6.71 percent.

Materials and Methods

The state of Rajasthan, which is India's largest state, covers an area of 3.42 lakh square kilometers. It is divided into 33 districts. These districts are all agriculturally advanced. The region includes four districts namely Bikaner, Sri Ganganagar, Churu, and Hanumangarh. The selection of villages and farmers from the Bikaner division of Rajasthan state was carried out through a three-stage random sampling method. The region consists of four districts. These districts are considered to be agriculturally advanced. One block was randomly chosen from each district. From the three villages that were selected, simple random sampling techniques were used. Four farmers from each category of farmer were chosen to participate in the random sampling process. A total of 192 farmers were selected from the 12 villages.

Source and period of data

The study was based on Primary data. Primary Data was collected with pretested structured schedule by personal interview method from the period of 2019-20 to 2020-21.

Analytical tool

Multiple Linear Regression Model was used for analyse the Determinants of capital formation in agriculture. Functional form of Multiple Linear Regression Model is as follows

$$K = b_0 + \sum b_i X_i + u_i \quad (i= 1 \text{ to } 7)$$

Where,

K = Capital Formation in Agriculture ('000 Rs.)

X₁ = Education (Years)

X₂ = Age (Years)

X₃ = Family size (No.)

X₄ = Land holding (ha)

X₅ = Cropping intensity (%)

X₆ = Income ('000 Rs.)

X₇ = Saving ('000 Rs.)

b₀ & b_i = Intercept and Slope Coefficients of the Regression Model, respectively,

u_i = Random Disturbance Term.

Results and Discussion

Determinants of capital formation

In agriculture, certain factors influence the formation of capital. This study aims to identify these critical factors in the Bikaner Division..

The study analyzed seven factors that affect the development and maintenance of a family. These include education, age, income, land holding, family size, and cropping intensity. A multi-linear regression model was utilized to analyze these factors' relationship.

The overall adequacy of the model was tested through F ratio and R², which appeared to be fairly good in all the categories of the farms.

Linear regression models were generally good fit in the farm size categories in the Bikaner Division. The F ratio and R² values were also significant. In all the cases, the former was at around 1 percent while the latter was at over 90 percent. Medium and large farmers had the lowest R² values. The factors that affected the formation of capital in Bikaner Division were income, land holding, crop intensity, family size, and saving. These factors contributed positively and significantly to the overall capital formation.

The factors that influenced the formation of capital in different farm size categories vary. For instance, in the Bikaner Division, the main factors that contributed to the development of capital were the land holding intensity, income, and saving of small and medium farmers, as well as the income and savings of large farmers.

Table - 1 : List of selected districts, blocks, villages and number of respondents in Bikaner Division

Name of the District	Name of the Blocks	Name of the Villages	Number of Respondents
Bikaner	Nokha	Anasar	16
		Biramsar	16
		Kirtasar	16
Sri Ganganagar	Suratgarh	Bhojewala	16
		manaksar	16
		Peepasar	16
Hanumangarh	Bhadra	Bhangarh	16
		Hathi Pura	16
		Sherara	16
Churu	Ratangarh	Alsar	16
		Balrampura	16
		Haripura	16

Table - 2 : Determinants of capital formation of different size of farms in Bikaner Division

Variable	Regression coefficient(β)	t-value
Marginal Farmers		
Constant	-7.045	-1.518
Education(Years)	.075	.878
AGE(Years)	.015	.511
Family size(No.)	.193	1.267
Land holding (ha)	9.984**	2.526
Cropping intensity (%)	.032**	2.501
Income(*000 Rs)	.117***	7.387
Saving(*000 Rs)	.236***	8.358
R ² =.979		
F-value =269.39***		
Small Farmers		
Constant	-27.62***	-3.53
Education(Years)	0.10	0.27
AGE(Years)	0.08	1.37
Family size(No.)	-0.19	-0.50
Land holding (hec.)	23.32**	2.61
Cropping intensity (%)	0.01	0.99
Income(Rs/000)	0.16***	3.15
Saving(Rs/000)	0.21***	5.01
R ² =.958		
F-value =131.57***		
Medium Farmers		
Constant	-194.98***	-3.51
Education(Years)	0.75	0.59
AGE(Years)	0.54	1.08
Family size(No.)	-1.92	-0.69
Land holding (hec.)	68.54***	5.03
Cropping intensity (%)	0.10	0.53
Income(Rs/000)	0.14*	1.69
Saving(Rs/000)	0.17*	1.89
R ² =.794		
F-value =22.001***		
Large Farmers		
Constant	-55.422	-5.36
Education(Years)	3.513	1.112
AGE(Years)	1.051	1.478
Family size(No.)	-11.510***	-3.298
Land holding (hec.)	22.158**	2.675
Cropping intensity (%)	.084	.311
Income(Rs/000)	.090**	2.552
Saving(Rs/000)	.199***	2.855
R ² =.804		
F-value =23.425***		

The findings of this study are in line with those of other studies, such as those conducted by Murukannaiah (2006), Singh (1970), and Sing and Mishra (1974). According to Singh (1970), the various factors that affect the capital formation of farms are their land holding, income, and cropping intensity. In 1970, Singh noted that the size of farms

was an influencing factor in the formation of capital in Haryana. In 1974, Mishra and Singh also analyzed the factors that influence the formation of capital in Bihar. The two researchers found that the irrigation and holdings sizes were the most significant factors that affected the capital formation in the state. The study found that the increase in the size of the farms and the difference in structure and income were some of the factors that influence the profitability of a farm. In 1999, Bartels noted that the income generated by small farms was not justified by the heavy investment required for education. According to Kumar and Chand, in 2004, the return on private investments is the most important factor that affects the formation of capital. Another important factor that is considered when it comes to the formation of capital is the addition of fresh farm holdings. In 2006, Sidhu and his colleagues noted that the accumulation of capital depends on the rate at which it is invested. This means that the savings rate also affects the accumulation rate.

The various factors that affect the formation of capital in a given area have been regarded as positive. For instance, the value of land holdings has been identified as the most vital factor that has contributed to the development of capital in the Bikaner division.

The factors that influenced the formation of capital in farm categories varied. For instance, in the Bikaner Division, factors such as land holding, income, and saving were identified as significant. The results showed that the increase in the size of holding was associated with the higher level of capital formation. One of the most critical factors that private investment can consider when it comes to establishing a farm is the addition of new land holding. A study conducted in Bikaner Division revealed that land holding is one of the most crucial factors that can affect the formation of capital in a farm. The efforts to increase credit availability on medium and large farms have resulted in a steady increase in capital formation. However, more attention should be paid to small and marginal farms. This can be achieved through the establishment of extension facilities and the education of farmers about the importance of capital assets. In addition, it can be done through the organizing of groups of small and marginal farmers to improve their economic status.

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