Volume : 2 | Issue : 6 | June 2013 • ISSN No 2277 - 8160

Research Paper | Economics

Financial Productivity of Agricultural Crops in Karnataka

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ABSTRACT

In the present paper an attempt has made estimate the financial productivity of selected agricultural crops in order to recommend crops for cultivation, based on financial productivity of crops. The financial productivity of sugarcane is comparatively high, given the irrigation facilities and cost constraints. Hence, it has been recommended for selection as a commercial crop. Next to sugarcane, it is the cotton, recommended as a second best particularly in non irrigated areas instead of groundnut, jowar and ragi. Paddy could have been the third alternative, particularly in irrigated areas. Instead of jowar, groundnut could have been the better option. Since, there are no significant differences between ragi and jowar one can be chose one among them. All these recommendations are subject to cost constraint and agro-climatic conditions.

KEYWORDS: Agriculture, Area of Production, Agricultural Production, Real Productivity and Financial Productivity.

Introduction:

Karnataka is one of the major states of India, even though, Bangalore, known to be the silicon city, even today agriculture is the major employment provider in Karnataka (Oladeji J.O., Oyesola O.B., et. al., 2011). India basically an agrarian economy and it is the employment providers to 52 per cent of the country's workforce as well as it is the largest private sector in terms of occupation (GOI, 2010). Indian agriculture has significantly developed and contributed immensely for the sustainability of Indian economic growth (Saravanan RAJ, 2010). Mean while the living standard of the farmers, who are the backbone of India, not improved considerably because of unsolved problems associated with the Indian agriculture (Surabhi Mittal, 2009). Over the period of time, the share of agriculture has been declined in India's GDP. One of the major regions for this could be lower productivity of agriculture (Krishna Reddy P., 2004). Within the agriculture, the productivity of different crops differing significantly (Farhad Lashgararal, & Roya Mohammadil, et. al., 2011, Varghese P.K. 2004). Having this background in the present paper an attempt has made to estimate the productivity of selected major crops in Karnataka.

Methodology:

Normally, agriculture productivity has been measured in its real term; i. e., dividing the production by area of production, which is traditional method of measurement of productivity of agriculture. In the present work we have used a modified methodology which estimates the financial productivity of each crop. The secondary time series data have been used in this analysis, which have been collected from economic survey of Karnataka. Data were collected for area of production, production and price of each crop. Current price of crop has been converted to its constant values by using price index value, to know the real financial productivity of each crop. Data were collected for the period from 2000-01 to 2012-13 and presented in the processed form. By using area, production and price data other data were generated for real productivity of each crop, income from each crop and financial productivity of each crop. The ANOVA and post hoc LSD tests were conducted to find the significant difference in each of the variable among the different crops. Descriptive statistics and growth rates were also calculated and used for descriptive analysis.

Productivity of Paddy:

Paddy is one of the major food crops in Karnataka and during the reference period it had been grown in 14.10 lakh hectares. During the period area of paddy production has been increased at an average annual growth rate (AAGR) of 0.80 percent. In Karnataka, average paddy production was 36.98 lakh tonnes and paddy production has been increased at an AAGR of 2.34 percent. The average real productivity of paddy was 2.61 tonnes per hectare and it has been grown at the AAGR of 1.12 percent. The average constant price of paddy was 740.39 rupees per quintal and it has been grown at the AAGR of 1.27 percent. The average constant income (financial productivity of) from paddy per hector was 13722.5 rupees and it has been grown at the AAGR of 2.42 percent. Therefore, the financial productivity was greater than the real productivity of paddy which has been the result of real price effect.

Productivity of Ragi:

Ragi is the most popularly being consumed common food in the country side of Southern parts of Karnataka and also one of the major food crops in Karnataka and during the reference period it had been grown in 8.34 lakh hectares. During the period area of ragi production has been decreased at an average annual growth rate (AAGR) of -1.26 percent. In Karnataka, average ragi production was 13.07 lakh tonnes and ragi production has been increased at an AAGR of 6.38 percent. Therefore, even though the area of production has been decreased, the production has shown positive trend. The average real productivity of ragi was 1.558 tonnes per hectare and it has been grown at the AAGR of 4.13 percent. The average constant price of ragi was 5067 rupees per quintal and it has been grown at the AAGR of 5.09 percent. The average constant income (financial productivity of) from ragi per hector was 7951.42 rupees and it has been grown at the AAGR of 9.33 percent. Therefore, the financial productivity was greater than the real productivity of ragi which has been the result of real price effect.

Productivity of Jowar:

Jowar is the most popularly being consumed common food in the country side of Northern Karnataka and also one of the major food crops in Karnataka, and during the reference period it had been grown in 14.897 lakh hectares. During the period area of jowar production has been decreased at an average annual growth rate (AAGR) of -3.63 percent. In Karnataka, average jowar production was 13.611 lakh tonnes and jowar production has been increased at an AAGR of 3.08 percent. Therefore, even though the area of production has been decreased, the production has shown positive trend. The average real productivity of jowar was 0.943 tonne per hectare and it has been grown at the AAGR of 7.07 percent. The average constant price of jowar was 4997.10 rupees per quintal and it has been grown at the AAGR of 5.56 percent. The average constant income per hectare (financial productivity of) from jowar was 4771.45 rupees and it has been grown at the AAGR of 13.04 percent. Therefore, the financial productivity was greater than the real productivity of ragi which has been the result of real price effect.

Productivity of Sugarcane:

Sugarcane is commercial crop and Karnataka is one of the major sugarcane producers in India. Sugarcane is a commonly growing both in South and North Karnataka and during the reference period it had been grown in 3.12 lakh hectares. During the period area of sugarcane production has been decreased at an average annual growth rate (AAGR) of -0.48 percent. In Karnataka, average sugarcane production was 275.04 lakh tonnes and sugarcane production has been decreased

at an AAGR of -0.04 percent. Therefore, both the area and production have been decreased. The average real productivity of sugarcane was 87.07 tonnes per hectare and it has been decreased at the AAGR of -0.07 percent. The average constant price of sugarcane was 666.07 rupees per tonne and it has been grown at the AAGR of 5.05 percent. The average constant income per hectare (financial productivity of) from sugarcane was 57976.41 rupees and it has been grown at the AAGR of 5.02 percent. Therefore, even though the real productivity of sugarcane was negative the financial productivity was positive, which has been the result of real price effect.

Productivity of Groundnut:

Groundnut is a food and as well as oil crop and it has been grown all over the Karnataka and during the reference period it had been grown in 8.78 lakh hectares. During the period area of groundnut production has been decreased at an average annual growth rate (AAGR) of -1.40 percent. In Karnataka, average groundnut production was 6.51lakh tonnes and groundnut production has been increased at an AAGR of 9.21 percent. Therefore, even though the area of production shown negative trend the production has registered positive growth. The average real productivity of groundnut was 0.74 tonne per hectare and it has been increased at the AAGR of 7.60 percent. The average constant price of groundnut was 13289.73 rupees per tonne and it has been grown at the AAGR of 4.06 percent. The average constant income per hectare (financial productivity of) from groundnut was 10084.28 rupees and it has been grown at the AAGR of 12.17 percent. Therefore, the real productivity of groundnut was higher than the financial productivity of groundnut, which has been the result of real price effect.

Productivity of Cotton:

Cotton is a commercial crop and it has been grown mainly in Northern Karnataka and during the reference period it had been grown in 4.03 lakh hectares. During the period, area of cotton production has been increased at an average annual growth rate (AAGR) of 2.61 percent. In Karnataka, average cotton production was 7.01 lakh tonnes and cotton production has been increased at an AAGR of 9.35 percent. Therefore, both the area and production have shown positive growth and growth of production was higher than area of production. The average real productivity of cotton was 1.72 tonne per hectare and it has been increased at the AAGR of 6.81 percent. The average constant price of cotton was 15586.08 rupees per tonne and it has been grown at the AAGR of 0.69 percent. The average constant income per hectare (financial productivity of) from cotton was 26766.68 rupees and it has been grown at the AAGR of 7.99 percent. Therefore, the real productivity of groundnut was higher than the financial productivity of cotton, which has been the result of real price effect.

Comparative Analysis for Trends:

The following table shows a comparative picture about the trends in area of production, production, price, real productivity and financial productivity.

Table 1: Trends in Crops

Crops	Area	Production	Price	Real Productivity	Financial Productivity
Paddy	+	+	+	+	+
Ragi	-	+	+	+	+
Jowar	-	+	+	+	+
Sugarcane	-	-	+	-	+
Groundnut	-	+	+	+	+
Cotton	+	+	+	+	+

The positive trends have been shown in area of production for paddy and cotton, whereas all other crops have shown negative trends. Except sugarcane all other crops have shown positive trends in production. All crops have shown positive trends in price. Except sugarcane all other crops have shown positive trends in real productivity. All crops have shown positive trends in terms of financial productivity.

Comparisons of Financial Productivity:

It has been found from the previous analysis that the real growth of financial productivity was higher than the real productivity of crops. Real productivity is not a recommendable measurement of relative advantages of crops. Hence, in the following section an attempt has made to identify the significant difference in financial productivity of crops, even though it has not considered the cost of production.

Table 2: Financial Productivity of Crops

Crops	N	Minimum	Maximum	Mean	Std. Dev
Sugarcane	13	41978	76591	57976	10680
Cotton	13	11469	43895	26767	9351
Paddy	13	11105	17565	13723	1765
Groundnut	13	5204	23689	10084	4936
Ragi	13	4607	12865	7951	2298
Jowar	13	2191	9471	4772	1784

The financial productivity refers to the annual income from crop without considering the cost of production. The average financial productivity of sugarcane is quite high compared to all other crops. The average financial productivity of cotton is lower than sugarcane and higher than all other crops. The average financial productivity of paddy is lower than sugarcane and cotton and higher than other crops. Groundnut and ragi have fourth and fifth place in the order and the financial productivity is lower than all other crops.

Table 3: Financial Productivity of Crops

ANOVA					
Grouping	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26032894892	5	5206578978	131.5	.000
Within Groups	2849882010	72	39581694		
Total	28882776903	77			

It has been found from the descriptive analysis that there are differences in financial productivity among the different crops. It has been proved from the ANOVA that the one of the crop is significantly differing from other crops in terms of financial productivity. However, which crop is differing is not identified from ANOVA. Hence the post hoc test was conducted to identify the significant difference between each pair of crops in terms of financial productivity.

Table 4: LSD Post hoc Test Results for Multiple Comparison

*. The mean difference is significant at the 0.05 level.

The average financial productivity of sugarcane is significantly high compared to all other crops. The average financial productivity of cotton is significantly lower than sugarcane and significantly higher than all other crops. The average financial productivity of paddy is significantly lower than sugarcane and cotton and higher than ragi and jowar, and the difference between paddy and groundnut is not significant. The difference between ragi and groundnut is not significant. The difference between jowar and groundnut is not significant.

Conclusion:

Productivity is one of the major concerns of agriculture. While selecting a crop knowing the productivity is very essentials in order to avoid the probable losses. In Karnataka, over the period of time the area of production has been declined over the period of time. Hence, agricultural land has to be used judiciously and efficiently. Accordingly, since the financial productivity of sugarcane is comparatively high, given the irrigation facilities and cost constraints it has been recommended for selection as a commercial crop. Next to sugarcane, it is the cotton, recommended as a second best and paddy could have been the third alternative. Instead of jowar ground could have been the better option. Since, there are no significant differences between ragi and jowar one can be chosen among them. All these recommendations are subject to cost constraint and agro-climatic conditions.

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