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IMPACT OF THE SOCIO-ECONOMIC VARIABLES ON THE PADDY PRODUCTION FROM 2007 TO 2014 – A CASE STUDY OF DISTRICT KULGAM, JAMMU AND KASHMIR

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ABSTRACT

In the present study, the researcher estimates the association between the different socioeconomic variables and the paddy production from 2007 to 2014 at the household level in Kulgam, one of the districts of Jammu and Kashmir. In the past few decades, agricultural sector in the whole state and particularly in the district of Kulgam has witnessed a heavy shift in the cropping pattern from food crops to non-food crops (cash-crops). The horticultural sector has been playing an important role in the State, largely by contributing to the State Economy and turns to be the source of livelihood for nearly thirty-three lakh people, but the paddy production on the other hand has shown an opposite trend. Paddy land is getting changed into the horticultural land, as the farmers find it to be more remunerative. Kulgam, which was once the major producer of rice in the State, and was known to be the "Rice Bowl of Kashmir", is now among the least producers of rice. Farmers witnessed that sticking only to the water-intensive crops proved to be non-beneficial and they willingly shifted to the cash crops, like: apple, almond, and walnut. Chi Square test has been used to find out the association between the different socioeconomic variables and the paddy production from 2007 to 2014.

KEYWORDS: Kashmir; Crop Diversification; Paddy; Apple; Crop

INTRODUCTION

Crop diversification is a best strategy to achieve the goals of development. It took the attention of policy makers in the country during the recent years. The approach envisages changes in production activities of farm sector, to adjust to changes in economic environment and to face the problems like unemployment and depletion of natural resources (Ramesh Chand, 1999). The main objective of this approach is to raise per capita income by means of opening of avenues for prolific employment opportunities in farm and non-farm sectors and to make the economic growth broad and stable in the long-run (Amitabh Kundu, 2012). The success of the policy lies in the identification of the particular crop for the appropriate region-specific, diversification choices, establishment of physical and institutional infrastructure services and execution of suitable strategies.

Another feature of this approach is to prepare the farmers to grow excellent and profitable produce based on both demand and supply in the long run (Anjani Kumar et al., 2012). Diversification in cropping pattern is likely to save the disintegration of agriculture economy and environment of the study area. Crop diversification acquires extraordinary implication in this region because of the ecological and environmental problems and depletion of the natural resources. Crop diversification refers to the competition between the crops growing in a region. If there is eagerness in the competition, the higher will be the extent of crop diversification; and less important the competition, the better will be the trend in the direction of crop specialization (where emphasis is on one or two crops). Therefore crop diversification is an idea which is contradictory to crop specialization. The extent of crop diversification mainly depends on the geo climatic/socio-economic conditions and technological development in the area (Husain, 2000).

India is blessed with a varied set of regional, agronomic, ecological, climatic, social and economic attributes. As far the state of Jammu and Kashmir is concerned, it is totally different regarding all these features with the rest of the country. The economy of Jammu & Kashmir principally depends on agriculture, having about one-third of its population engaged with this agriculture and allied sectors. The geography setup of the area is restricting the growth of paddy cultivation. The production of paddy is not increasing in proportion to the cost involved in the farming, so in this background of stagnation in paddy production, which is not able to raise the level of employment in the region, horticulture is a possible option for exploration. The area is blessed with the appropriate climatic zones for rising temperate, sub-tropical and tropical fruits throughout the whole year. These fruits are not only the supplement diet of the local people, but also appear to be the main item of export to other parts of India and rest of world (SP Sharma et al., 2011). Kulgam which famous for the rice productivity once used to be called as *rice bowl* of the Kashmir is now amongst the least producers of rice (A. N. Raina, 2012). Paddy land is getting converted into horticultural land as farmers seek to earn more revenue against horticultural products (Mohmad Iqbal Reshi et al., 2010). Farmers feel that sticking only to the waterintensive crops like paddy in times of water-scarcity might prove non-beneficial and they readily switch over to cash crops like apple, almond and walnuts (J&K Govt. Report, 2012).

THEORETICAL PERSPECTIVE

There are two ways by which the farmers go for crop diversification; one is to go for substitution and second way is to go for expansion. In the former one the farmers go directly for substituting the crop by new one, and in latter the farmers can go by increasing the land area by bringing unwanted lands or by clearing the forests under cultivation. But mostly the farmers have adopted substitution method rather than the expansion method in the study area. There are lots of theories (Theory of Production and Costs, Prof. Schultz Theory of Transforming Traditional Agriculture) which discuss about the crop diversification in detail, but the present study has used the Theory of Profit Maximisation to understand the issue very well.

METHODOLOGY

The researcher has made an attempt to examine the ground realities in the study area to devise a methodology and research design of the present study by going through the existing literature meticulously in the area of research. The present study is exploratory in nature, mainly based on the primary data collected from thorough field survey with structured interview schedule and the units of analyses being the household heads.

SAMPLING DESIGN

Among the three divisions (Jammu, Kashmir, and Ladakh) of Jammu and Kashmir State, Kashmir division chosen for the present study which is dominated by the cultivation of apple. Kashmir division if further divided into South, North and Central parts, comprises of ten districts. Anantnag, Kulgam, Shopian, and Pulwama form the Southern part; while as Bandipora, Baramulla, and Kupwara forms the Northern part and Budgam, Ganderbal and Srinagar as the Central part of the region.

In all the ten districts of Kashmir region, both apple and rice are extensively cultivated. Out of which, the five districts which come under high productivity group in case of both apple and rice production are: Kulgam, Budgam, Anantnag, Pulwama, and Baramulla. Kulgam district, which was once known as the "*Rice Bowl of Kashmir*" has been chosen for observing the rapid trend in the shifting of paddy cultivation towards the apple cultivation over the last few decades.

Primary data were obtained from the survey samples by adopting stratified random sampling method to choose the respondents from the selected villages, with the help of an interview schedule by implementing three-stage sampling procedure as follows:

Stage I: Selection of all ten horticultural blocks of district Kulgam. (Manzgam, Waripora, D.K. Marg, Kulgam, Arreh, Kadder, Qazigund, Devsar, Qaimoh, and Yaripora)

Stage II: Selection of thirty-four highly apple populated orchardist villages from all ten blocks by the number of villages in the respective blocks.

Stage III: Selection of total of 272 sample respondents of the total thirty-four villages, eight sample respondents from each village.

OBJECTIVES

The following objectives were set for the present research:

1. To find out the association between the different socioeconomic variables and the paddy production from 2007 to 2014.

HYPOTHESES

- 1. There is an association between the attribute (age) and the paddy production from 2007 to 2014.
- 2. There is no association between the attribute (gender) and the paddy production from 2007 to 2014.
- 3. There is an association between the attribute (educational qualification) and the paddy production from 2007 to 2014.
- 4. There is no association between the attribute (occupation) and the paddy production from 2007 to 2014.
- 5. There is an association between the attribute (family type) and the paddy production from 2007 to 2014.
- 6. There is no association between the attribute (family size) and the paddy production from 2007 to 2014.
- 7. There is an association between the attribute (land owned) and the paddy production from 2007 to 2014.

RESULTS AND DISCUSSION

The table 1 examines the association between the dependent variable i.e. the production pattern in case of paddy cultivation from 2007 to 2014, (whether increased, or decreased, or did not change) and the various independent variables (characteristics of the household head) such as age, gender, educational qualification, occupation, family type, family size and land owned. Out of the total sample size, N=272 respondents, 118 respondents (43.4 per cent) depicted an increase, 102 respondents (37.5 per cent) depicted no change and the rest of 52 respondents (19.1 per cent) depicted decrease in the paddy production over the period.

In the age group of 21 to 40, the highest share of 20 sample respondents (41.7 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 12 sample respondents (25.0 per cent of the row total) show a decrease in the paddy production over the last seven years. Similarly, in the age group of 41 to 60, the highest share of 78 sample respondents (45.3 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 32 sample respondents (18.6 per cent of the row total) show a decrease in the paddy production over the last seven years. But, in the age group with respondents having age above 60 years, the highest share of 24 sample respondents (46.2 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 8 sample respondents (15.4 per cent of the row total) show a decrease in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (age) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (3.10) at 4 degrees of freedom is > 0.05. Hence the null hypothesis is accepted. Therefore, it can be concluded that there is no association between the attribute (age) and the production pattern in case of paddy cultivation over the last seven years.

In the case of gender, among the males, the highest share of 110 sample respondents (45.1 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 50 sample respondents (20.5 per cent of the row total) show a decrease in the paddy production over the last seven years. And among the females the highest share of 18 sample respondents (64.3 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 2 sample respondents (7.1 per cent of the row total) show a decrease in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (gender) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (9.89) at 4 degrees of freedom is significant at 0.01 levels. Hence the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that there is an association between the attribute (gender) and the production pattern in case of paddy cultivation over the last seven years.

In the case of educational qualification, considering illiterates, the highest share of 40 sample respondents (50.0 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 14 sample respondents (17.5 per cent of the row total) show a decrease in the paddy production over the last seven years. Among the respondents who have studied up to middle, the highest share of 50 sample respondents (49.0 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 18 sample respondents (17.6 per cent of the row total) show a decrease in the paddy production over the last seven years. Among the respondents (17.6 per cent of the row total) show a decrease in the paddy production over the last seven years. Among the respondents (17.6 per cent of the row total) show a decrease in the paddy production over the last seven years. Among the respondents, who have studied

HSC, the highest share of 22 sample respondents (61.1 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 4 sample respondents (11.1 per cent of the row total) show a decrease in the paddy production over the last seven years. But, the respondents who have studied up to graduation, the highest share of 10 sample respondents (45.5 per cent of the row total) show an increase in the paddy production over the last seven years, a share of 6 sample respondents (27.3 per cent of the row total) show a decrease in the paddy production over the last seven years and a share of 6 sample respondents (27.3 per cent of the row total) show no change in the paddy production over the last seven vears. And finally among the sample respondents who have studied PG or above, the highest share of 12 sample respondents (37.5 per cent of the row total) show an increase in the paddy production over the last seven years, a share of 10 sample respondents (31.3 per cent of the row total) show a decrease in the paddy production over the last seven years and a share of 10 sample respondents (31.3 per cent of the row total) show no change in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (educational qualification) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (16.72) at 8 degrees of freedom is significant at 0.01 levels. Hence the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that there is an association between the attribute (educational qualification) and the production pattern in case of paddy cultivation over the last seven years.

In the case of occupational structure, among the respondents practicing agriculture, the highest share of 54 sample respondents (45.8 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 22 sample respondents (18.6 per cent of the row total) show a decrease in the paddy production over the last seven years. But, among the respondents having business as their main income generating source, the highest share of 44 sample respondents (53.7 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 10 sample respondents (12.2 per cent of the row total) show a decrease in the paddy production over the last seven years. Similarly, among the respondents who are in government service, the highest share of 32 sample respondents (44.4 per cent of the row total) show an increase in the paddy production over the last seven years, a share of 20 sample respondents (27.8 per cent of the row total) show a decrease in the paddy production over the last seven years and a share of 20 sample respondents (27.8 per cent of the row total) show no change in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (occupation) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (12.76) at 4 degrees of freedom is significant at 0.01 levels. Hence the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that there is an association between the attribute (occupation) and the production pattern in case of paddy cultivation over the last seven years.

In the case of family type, among the nuclear type household families, the highest share of 86 sample respondents (44.3 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 42 sample respondents (21.6 per cent of the row total) show a decrease in the paddy production over the last seven years. And among the joint family type households, the highest share of 36 sample respondents (46.2 per cent of the row total) show no change in the paddy production over the last seven years and the least share of 10 sample respondents (12.8 per cent of the row total) show a decrease in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (family type) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (4.59) at 2 degrees of freedom is significant at 0.01 levels. Hence the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that there is an association between the attribute (family type) and the production pattern in case of paddy cultivation over the last seven years.

In the case of family size, in the group of households having family size below 5, the highest share of 62 sample respondents (39.7 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 38 sample respondents (24.4 per cent of the row total) show a decrease in the paddy production over the last seven years. Similarly, among the households in the group of 6-10 the highest share of 38 sample respondents (50.0 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 10 sample respondents (13.2 per cent of the row total) show a decrease in the paddy production over the last seven years. And, among the households having the family size of above 10, 18 sample respondents (45.0 per cent of the row total) show an increase in the paddy production over the last seven years, 18 sample respondents (45.0 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 4 sample respondents (10.0 per cent of the row total) show a decrease in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (family size) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (7.376) at 4 degrees of freedom is > 0.05. Hence the null hypothesis is accepted. Therefore, it can be concluded that there is no association between the attribute (family size) and the production pattern in case of paddy cultivation over the last seven years.

In case of land owned, considering the group of households having land size below 2 Kanals, 4 sample respondents (40.0 per cent of the row total) show an increase in the paddy production over the last seven years, a share of 4 sample respondents (40.0 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 2 sample respondents (20.0 per cent of the row total) depicted a decrease in the paddy production over the last seven years. Among the respondents who have been having the land size of 3 to 4 Kanals, the highest share of 24 sample respondents (48.0 per cent of the row total) depicted no change in the paddy production over the last seven years and the least share of 4 sample respondents (8.0 per cent of the row total) show a decrease in the paddy production over the last seven years. Among the respondents, who have land size of 5 to 8 Kanals, the highest share of 44 sample respondents (40.7 per cent of the row total) show an increase in the paddy production over the last seven years, a share of 32 sample respondents (29.6 per cent of the row total) show a decrease in the paddy production over the last seven years and the least share of 32 sample respondents (29.6 per cent of the row total) show no change in the paddy production over the last seven years. Among the respondents who have land size of 9 to 16 Kanals, the highest share of 44 sample respondents (47.8 per cent of the row total) show an increase in the paddy production over the last seven years and the least share of 14 sample respondents (15.2 per cent of the row total) show a decrease in the paddy production over the last seven years. And among the sample respondents who have land size of above 16 Kanals, the highest share of 8 sample respondents (66.7 per cent of the row total) show a decrease in the paddy production over the last seven years, and the rest of the 4 sample respondents (33.3 per cent of the row

total) show a decrease in the paddy production over the last seven years.

The Chi Square test is used for finding out the association between the attribute (land owned) and the production pattern in case of paddy cultivation over the last seven years. The result reveals that the calculated chi-square value (19.40) at 8 degrees of freedom is significant at 0.01 levels. Hence the null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, it can be concluded that there is an association between the attribute (land owned) and the production pattern in case of paddy cultivation over the last seven years.

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Table 1

Impact of the Socio-Economic Variables on the Paddy Production from 2007 to 2014.

Variables		Paddy Production from 2007 to 2014			Total
		Increased	Decreased	Did not Change	Total
Age	21 to 40	20	12	16	48
		(41.7)	(25.0)	(33.3)	(100.0)
	41 to 60	78	32	62	172
		(45.3)	(18.6)	(36.0)	(100.0)
	Above 60	20	8	24	52
		(38.5)	(15.4)	(46.2)	(100.0)
	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
3.10		4			0.54 NS
iender	Male	110	50	84	244
		(45.1)	(20.5)	(34.4)	(100.0)
	Female	8	2	18	28
		(28.6)	(7.1)	(64.3)	(100.0)
Ċ	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square			df		P-Value
9.89		2			0.001 S
	Illiterate	40	14	26	80
ц		(50.0)	(17.5)	(32.5)	(100.0)
alificatio	Middle	34	18	50	102
		(33.3)	(17.6)	(49.0)	(100.0)
	HSC	22	4	10	36
Qu		(61.1)	(11.1)	(27.8)	(100.0)
lal	Graduation	10	6	6	22
ior		(45.5)	(27.3)	(27.3)	(100.0)
Educat	PG/Other	12	10	10	32
		(37.5)	(31.3)	(31.3)	(100.0)
	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
16.72		8			0.001 S
	Agriculture	42	22	54	118
-		(35.6)	(18.6)	(45.8)	(100.0)
ona re	Business	44	10	28	82
atic		(53.7)	(12.2)	(34.1)	(100.0)
np;	Government Service	32	20	20	72
0cci St		(44.4)	(27.8)	(27.8)	(100.0)
	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
12.76		4			0.01 S

Variables		Paddy Production from 2007 to 2014			Tatal
		Increased	Decreased	Did not Change	TOLAI
Type of Family	Nuclear	86	42	66	194
		(44.3)	(21.6)	(34.0)	(100.0)
	Joint	32	10	36	78
		(41.0)	(12.8)	(46.2)	(100.0)
	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
4.59		2			0.10 NS
e of the Family	Below 5	62	38	56	156
		(39.7)	(24.4)	(35.9)	(100.0)
	6-10	38	10	28	76
		(50.0)	(13.2)	(36.8)	(100.0)
	Above 10	18	4	18	40
		(45.0)	(10.0)	(45.0)	(100.0)
Siz	Total	118	52	102	272
0,		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
4.59		2			0.10 NS
of Land Owned	Below 2	4	2	4	10
		(40.0)	(20.0)	(40.0)	(100.0)
	3-4	22	4	24	50
		(44.0)	(8.0)	(48.0)	(100.0)
	5-8	44	32	32	108
		(40.7)	(29.6)	(29.6)	(100.0)
	9-16	44	14	34	92
		(47.8)	(15.2)	(37.0)	(100.0)
ze o	Above 16	4	0	8	12
Siz		(33.3)		(66.7)	(100.0)
	Total	118	52	102	272
		(43.4)	(19.1)	(37.5)	(100.0)
Chi-Square		df			P-Value
19.40		8			0.01 S

Table 1 Contd...

Source:Computed

Note: Figures in parentheses indicate percentage to the row total.

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