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## *Role of Primary Agriculture Cooperative Society in Agriculture Development: Evidence from Demographics*

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*Abstract: The purpose of this study is to examine the influence of demographical variables on role of PACS in agriculture development. For this purpose, we developed a structure questionnaire to measure the demographic characteristics and role of PACS in agriculture development. Then after, we collected the data from 480 beneficiaries. T-test and One-way ANOVA tests were used to examine the influence of demographical variables on role of PACS in agriculture development. In addition, we also used frequency method to show the demographic characteristics of beneficiaries. Our results documented that type of respondents (borrower vs. non-borrower) influence the agriculture output growth and financial assistance. Similarly, our results show that age of respondents influences the financial assistance and technical assistance. In addition, our findings show that gender of respondents influence the agriculture output growth and financial assistance. Furthermore, our findings show that occupation of respondents does not influence agriculture output growth, financial assistance, marketing assistance and technical assistance.*

*Keywords: Agriculture output growth, financial assistance, marketing assistance and technical assistance, demographical characteristics.*

### I. INTRODUCTION

All things considered, credit cooperatives have involved a pre-prominent situation in the arrangement of agribusiness credit and essential primary agricultural cooperative societies (PACS) have been the structure squares of provincial helpful banking in India, for more than 100 years. With the decreasing portion of cooperatives in provincial credit, the pertinence of these establishments has been occasionally addressed in strategy circles in the setting of a quick changing monetary framework where effectiveness, benefit, innovation and manageability are underscored. The refrain of some arrangement support bunches has been that main solid associations that can convey maintainable results ought to be permitted to proceed in the monetary space. Current horticulture on logical lines is credit serious in nature since the utilization of various kinds of farming inputs like manures, hardware and different information sources required a lot of credit. In this way credit plays a dynamic job in the advancement of horticulture (Kaur et al., 2002). It is important to assess the exhibition of helpful according to still up in the air objectives and targets. There is no such thing as the guideline of a helpful society for expanding benefit for its individuals, however for working on the condition for its individuals. Markers to assess the general exhibition of helpful explicit to PACS are rarely accessible. Therefore, in this study, we examine the influence of demographical variables on role of PACS in agriculture development. Moreover, Section 2 discussed relevant studies. Section 3 deals with research methodology. Section 4 shows analysis of data. Section 5 concludes the findings of the study.

## II. LITERATURE REVIEW

A bunch of studies attempted by Bhat (1971), Patel (1975), Baluswami (1978). Khan (1979), Bangarwa (1979) and Sarmah and Singh (1981) uncovered that the irrigation status and the reception of worked on horticultural practices by the respondents contrarily associated with the degree of redirection. The progression of advance can't be administered successfully. The majority of the loanees had not repaid the advances consistently due to trim disappointment, state of dry season, marriage, clinical treatment of feeble relatives and birth of kids, extreme downpours and passings of creatures. Reddy (1982), Kamat (1986), Goyal (1987), and Patel (1988) analyzed that the crude land remained on account of the absence of homestead automation which thusly was because of absence of capital. three factors, viz. aggregate sum of extraordinary advances, level of utilization consumption to add up to use and level of procuring grown-ups to add up to grown-ups were viewed as the main variables answerable for influencing the overdues of the essential rural agreeable credit and administration social orders. Sikka et al. (1988) focuses to the way that borrower's viewpoint about the loaning methodology, strategy and working, and so forth is a decent sign and showing that mental issues of getting are not genuine in Himachal Pradesh. Satyasai and Viswanathan (1988), Chaudhary (1992), Dwivedi (1996), Datta (1997), Lekshmi et al. (1998) Yadav (1999), Satyasai and Badatya (2000), Yashoda (2017) uncovered that the high exchange expenses and mounting nonperforming resources present head difficulties to the agreeable credit establishment. To stay away from the overdues recuperation ought to be spread throughout a more extended timeframe if there should be an occurrence of harvest disappointment. Thorat (2006) revealed that "least attention was paid to the qualitative aspects of credit resulting in loans defaults and erosion of repayment of loans. The ultimate result was disturbing growth of overdues, which not only hampered the recycling of scarce resources but also affected the viability of PACS".

## III. RESEARCH METHODOLOGY

As our objective is to examine the influence of demographical variables on role of PACS in agriculture development, we collected the responses from beneficiaries. We developed a structure questionnaire to measure the demographic characteristics and role of PACS in agriculture development. We included the responses of 480 beneficiaries. The responses of respondents were analyzed using IBM SPSS and Excel. The questionnaire is provided as **Annexure A**.

## IV. DATA ANALYSIS

### 4.1 DEMOGRAPHICAL FEATURES

Table 1 shows type of respondents. The results indicate that 50% of respondents are borrower who borrow the money from primary agriculture cooperative society and rest of 50% of respondents are non-borrower. More specifically, our results provide that equal number of respondents are borrowers and non-borrowers.

**Table 1:** Type of respondents

	Frequency	Percent
Borrower	240	50.0
Non-Borrower	240	50.0
Total	480	100.0

Table 2 shows age of respondents. The results indicate that 42.3% of respondents belong to 25-40 years age group followed by 37.5% of respondents who belong to 40 to 55 years age group. In addition, we found that 16.7% of respondents are more than 55 years old while rest of 3.5% respondents belong to less than 25 years age group.

**Table 2:** Age of respondents

	Frequency	Percent
Less <25	17	3.5
25 to 40	203	42.3
40 to 55	180	37.5
Above 55	80	16.7
Total	480	100.0

Table 3 shows gender of respondents. The results indicate that 81% of respondents are male who borrow the money from primary agriculture cooperative society and rest of 19% of respondents are female. More specifically, our results provide that majority of male are respondents.

**Table 3:** Gender of respondents

	Frequency	Percent
Male	389	81.0
Female	91	19.0
Total	480	100.0

Table 4 shows occupation of respondents. The results indicate that 36% of respondents are engaged in agriculture followed by 25.4% of respondents who belong to agri-related business. In addition, we found that 19.6% of respondents are engaged in business while rest of 19% respondents are working in service sector.

**Table 4:** Occupation of respondents

	Frequency	Percent
Agriculture	173	36.0
Business	94	19.6
Agri-related business	122	25.4
Service	91	19.0
Total	480	100.0

## 4.2 DEMOGRAPHICAL FEATURES AND ROLE OF PACS IN AGRICULTURE DEVELOPMENT

### 4.2.1 Type of respondents and role of PACS in agriculture development

Table 5 shows group statistics for type of respondents. We found that mean value of agriculture output growth and financial assistance are greater for borrower than non-borrower. On other side, the mean of mean value of marketing assistance and technical assistance are greater for non-borrower than borrower.

**Table 5:** Group statistics for type of respondents

	Type	N	Mean	Std. Deviation
Agriculture output growth	Borrower	240	3.8964	0.74668
	Non-Borrower	240	1.8469	0.57877
Financial assistance	Borrower	240	3.6278	1.04821
	Non-Borrower	240	2.4208	0.83687
Marketing assistance	Borrower	240	3.1199	0.92039
	Non-Borrower	240	3.1597	0.91797
Technical assistance	Borrower	240	2.7296	1.26802
	Non-Borrower	240	2.7764	1.22770

Table 6 shows the results of *t*-test in relationship to examine the influence of type of respondents on role of PACS in agriculture development. Our results show that type of respondents influence the agriculture output growth ( $t=33.608$ ,  $p<0.001$ ) and financial assistance ( $t=13.940$ ,  $p<0.001$ ) while it does not influence marketing assistance ( $t=-0.474$ ,  $p>0.05$ ) and technical assistance ( $t=-0.410$ ,  $p>0.05$ ).

**Table 6:** *t*-test for influence of type of respondents and role of PACS in agriculture development

	t-statistic	df	p-value
Agriculture output growth	33.608	478	.000
Financial assistance	13.940	478	.000
Marketing assistance	-0.474	478	.635
Technical assistance	-0.410	478	.682

### 4.2.2 Age of respondents and role of PACS in agriculture development

Table 7 shows group statistics for age of respondents. The mean scores of agriculture output growth were found 3.1618, 2.9310, 2.7986, 2.8234, respectively, for the less than 25, 25-40, 40-55, and above 55 years age group respondents, which

implied that <25 years age group respondents believe that PACS has contributed significant role in agriculture output growth than 25-40, 40-55, and above 55 years age group respondents.

Similarly, the mean scores of financial assistance were found 3.2549, 3.1275, 2.8537, 3.0972, respectively, for the less than 25, 25-40, 40-55, and above 55 years age group respondents, which implied that <25 years age group respondents believe that PACS provide greater financial assistance than 25-40, 40-55, and above 55 years age group respondents.

Then, the mean scores of marketing assistance were found 2.8235, 3.1834, 3.1716, 3.0250, respectively, for the less than 25, 25-40, 40-55, and above 55 years age group respondents, which implied that 25-40 years age group respondents believe that PACS provide greater marketing assistance than <25, 40-55, and above 55 years age group respondents.

In last, the mean scores of technical assistance were found 3.6078, 2.7761, 2.7673, and 2.4806, respectively, for the less than 25, 25-40, 40-55, and above 55 years age group respondents, which implied that less than 25 years age group respondents believe that PACS provide greater technical assistance than 25-40, 40-55, and above 55 years age group respondents.

**Table 7:** Group statistics for age of respondents

		N	Mean	Std. Deviation
Agriculture output growth	<25	17	3.1618	0.48767
	25 to 40	203	2.9310	1.18801
	40 to 55	180	2.7986	1.28161
	Above 55	80	2.8234	1.28844
	Total	480	2.8716	1.22377
Financial assistance	<25	17	3.2549	1.09415
	25 to 40	203	3.1275	1.03116
	40 to 55	180	2.8537	1.16886
	Above 55	80	3.0972	1.21990
	Total	480	3.0243	1.12366
Marketing assistance	<25	17	2.8235	0.55285
	25 to 40	203	3.1834	0.94605
	40 to 55	180	3.1716	0.84418
	Above 55	80	3.0250	1.05231
	Total	480	3.1398	0.91844
Technical assistance	<25	17	3.6078	1.37106
	25 to 40	203	2.7761	1.29645
	40 to 55	180	2.7673	1.06876
	Above 55	80	2.4806	1.38809
	Total	480	2.7530	1.24694

Table 8 shows the results of ANOVA in relationship to examine the influence of age of respondents on role of PACS in agriculture development. Our results show that age of respondents influence the financial assistance ( $F=2.324$ ,  $p<0.10$ ) and technical assistance ( $F=4.043$ ,  $p<0.05$ ) while it does not influence agriculture output growth ( $F=0.732$ ,  $p>0.05$ ) and marketing assistance ( $F=1.315$ ,  $p>0.05$ ).

**Table 8:** ANOVA for age of respondents and role of PACS in agriculture development

		Sum of Squares	df	Mean Square	F	Sig.
Agriculture output growth	Between Groups	3.293	3	1.098	.732	.533
	Within Groups	714.061	476	1.500		
	Total	717.354	479			
Financial assistance	Between Groups	8.731	3	2.910	2.324	.074
	Within Groups	596.059	476	1.252		
	Total	604.791	479			
Marketing assistance	Between Groups	3.322	3	1.107	1.315	.269
	Within Groups	400.727	476	.842		
	Total	404.049	479			
Technical assistance	Between Groups	18.506	3	6.169	4.043	.007
	Within Groups	726.273	476	1.526		
	Total	744.780	479			

## 4.2.3 Gender of respondents and role of PACS in agriculture development

Table 9 shows group statistics for gender of respondents. We found that mean value of agriculture output growth, financial assistance, marketing assistance, and technical assistance are greater for male respondents than female respondents. Therefore, general perception of male respondents is higher for agriculture output growth, financial assistance, marketing assistance, and technical assistance than female respondents.

**Table 9:** Group statistics for gender of respondents

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Agriculture output growth	Male	389	2.9884	1.26392	.06408
	Female	91	2.3723	.87895	.09214
Financial assistance	Male	389	3.1088	1.15244	.05843
	Female	91	2.6630	.91181	.09558
Marketing assistance	Male	389	3.1628	.92297	.04680
	Female	91	3.0415	.89713	.09404
Technical assistance	Male	389	2.7783	1.25880	.06382
	Female	91	2.6447	1.19558	.12533

Table 10 shows the results of *t*-test in relationship to examine the influence of gender of respondents on role of PACS in agriculture development. Our results show that gender of respondents influence the agriculture output growth ( $t=4.406$ ,  $p<0.001$ ) and financial assistance ( $t=3.446$ ,  $p<0.05$ ) while it does not influence marketing assistance ( $t=1.134$ ,  $p>0.05$ ) and technical assistance ( $t=0.920$ ,  $p>0.05$ ).

**Table 10:** *t*-test for gender of respondents and role of PACS in agriculture development

	t-statistics	df	p-value
Agriculture output growth	4.406	478	.000
Financial assistance	3.446	478	.001
Marketing assistance	1.134	478	.257
Technical assistance	.920	478	.358

## 4.2.4 Occupation of respondents and role of PACS in agriculture development

Table 11 shows group statistics for occupation of respondents. The mean scores of agriculture output growth were found 2.9118, 2.7779, 2.8586, 2.9093, respectively, for the agriculture, business, agri-related business, and service respondents, which implied that agriculture respondents believe that PACS has contributed significant role in agriculture output growth than business, agri-related business, and service respondents.

In addition, the mean scores of financial assistance were found 3.1195, 2.8026, 3.0200 and 3.0781, respectively, for the agriculture, business, agri-related business, and service respondents, which implied that agriculture respondents believe that PACS has contributed significant role in financial assistance than business, agri-related business, and service respondents.

Further, the mean scores of marketing assistance were found 3.1741, 3.0047, 3.2577 and 3.0562, respectively, for the agriculture, business, agri-related business, and service respondents, which implied that agriculture respondents believe that PACS has contributed significant role in marketing assistance than business, agri-related business, and service respondents.

In last, the mean scores of technical assistance were found 2.6326, 2.8487, 2.9326 and 2.6422, respectively, for the agriculture, business, agri-related business, and service respondents, which implied that agri-related business respondents believe that PACS has contributed significant role in technical assistance than agriculture, business, and service respondents.

**Table 11:** Group statistics for occupation of respondents

		N	Mean	Std. Deviation
Agriculture output growth	Agriculture	173	2.9118	1.19683
	Business	94	2.7779	1.24989
	Agri related business	122	2.8586	1.34158
	Service	91	2.9093	1.08862
	Total	480	2.8716	1.22377

Financial assistance	Agriculture	173	3.1195	1.17821
	Business	94	2.8026	1.12467
	Agri related business	122	3.0200	0.99678
	Service	91	3.0781	1.16293
	Total	480	3.0243	1.12366
Marketing assistance	Agriculture	173	3.1741	0.91391
	Business	94	3.0047	0.84791
	Agri related business	122	3.2577	0.84767
	Service	91	3.0562	1.06630
	Total	480	3.1398	0.91844
Technical assistance	Agriculture	173	2.6326	1.17022
	Business	94	2.8487	1.31366
	Agri related business	122	2.9326	1.19718
	Service	91	2.6422	1.36182
	Total	480	2.7530	1.24694

Table 12 shows the results of ANOVA in relationship to examine the influence of occupation of respondents on role of PACS in agriculture development. Our results show that occupation of respondents does not influence agriculture output growth ( $F=0.278$ ,  $p>0.05$ ), financial assistance ( $F=1.711$ ,  $p>0.05$ ), marketing assistance ( $F=1.687$ ,  $p>0.05$ ) and technical assistance ( $t=1.814$ ,  $p>0.05$ ).

**Table 12:** ANOVA for occupation of respondents and role of PACS in agriculture development

		Sum of Squares	df	Mean Square	F	Sig.
Agriculture output growth	Between Groups	1.255	3	0.418	0.278	0.841
	Within Groups	716.099	476	1.504		
	Total	717.354	479			
Financial assistance	Between Groups	6.453	3	2.151	1.711	0.164
	Within Groups	598.338	476	1.257		
	Total	604.791	479			
Marketing assistance	Between Groups	4.251	3	1.417	1.687	0.169
	Within Groups	399.797	476	0.840		
	Total	404.049	479			
Technical assistance	Between Groups	8.419	3	2.806	1.814	0.144
	Within Groups	736.360	476	1.547		
	Total	744.780	479			

## V. CONCLUSION

In this study, we attempt to examine the influence of demographical variables on role of PACS in agriculture development. Using the sample of 480 individuals, our study documented that type of respondents (borrower vs. non-borrower) influence the agriculture output growth and financial assistance while it does not influence marketing assistance and technical assistance. Further, our results show that age of respondents influence the financial assistance and technical assistance while it does not influence agriculture output growth and marketing assistance. In addition, our results show that gender of respondents influence the agriculture output growth and financial assistance while it does not influence marketing assistance and technical assistance. In last, our findings show that occupation of respondents does not influence agriculture output growth, financial assistance, marketing assistance and technical assistance. Therefore, our study provides relevant evidence in support of influence of demographical variables on role of PACS in agriculture development. PACS provides short-term and medium-term loan to farmers which helps to meet their short-term financial requirements. It supplies agricultural inputs and provides marketing facility for the agricultural products. For the development of agricultural sector and allied activities adequate and timely finance are essential.

## References

1. Baluswami, N. (1978). Diversion of Crop Loans, Indian Cooperative Review, Vol. 16, (1). pp.52-57.
2. Bangarwa, Balraj Singh, Sisodia, G.S. and Singh Raj (1979). Constraints in Getting Utilisation and Repayment of Loans, The Banker, Vol. XXVI, No.8, pp. 28-32.
3. Bhat, M.L. (1971). Diversion of Long Term Agricultural Finance, Economic and Political Weekly, Vol. 111, No. 40, pp. 2151-2158.
4. Chaudhary, C.M. (1992). Making PACS economically viable, Kurukshetra, XL, (10), pp. 13-17.
5. Datta, Sankar. March 1997. Factors Affecting Performance of Village Level Organisations, Finance India, XI, (1), pp. 79-81.
6. Dwivedi, R.C. October-December (1996). Role of Cooperatives in Rural Economy, Indian Journal of Agricultural Economics, 51, (4), pp. 713-717.
7. Goyal. S.K. and Panday, R.N. (1987). An Analysis of Factors Affecting Overdues of Primary Agricultural Co operative Credit and a Service Societies in Haryana, Indian Cooperarive Review, XXV, (1). pp. 50-54.
8. Kamat, G.S. (1986). Cooperatives and poverty removal, Kurukshetra, XXV, (2-3), pp. 12-24.
9. Lekshmi, S., Rugmini, P. and Thomas, Jesy (1998). Characteristics of Defaulters in Agricultural Credit Use: A Micro Level Analysis With Reference to Kerala, Indian Journal of Agricultural Economics, 53, (4), pp. 640-647.
10. Patel, A.R. (1975). Cooperative Credit - Mounting Overdues a Malady, The Banker, XXI, (12), pp. 32-35.
11. Patel, Premji, M. (1988). Integrated Approach to Institutional Finance for Agriculture – A Case Study of Three Cooperative Societies in Sabarkantha District of Gujarat, Indian Journal of Agricultural Economics, 43, (3), pp. 390-397.
12. Reddy, C.R. (1982). Rural Credit, Kurukshetra, New Delhi: Vol. XXX, pp. 21-22.
13. Sarmah, R. and Singh, D. (1981). Problems Under Agricultural Credit Programme, The Banker, XXVIII, (7), pp. 27-32.
14. Satyasai, K.J.S. and Badatya, K.C. (2000). Restructuring Rural Credit Cooperative Institution, Economic and Politically Weakly, XXXV, 9, pp. 307-330.
15. Satyasai, K.J.S. and Badatya, K.C. January (2000). Restructuring Rural Credit Cooperative Institution, Economic and Politically Weakly, XXXV, (9), pp. 307-330.
16. Sikka, B.K., Vaidya, C.S. and Swamp, R. (1988). Pattern and Cost of Credit from Commercial Banks in Himachal Pradesh, Shimla: Agro-Economic Research Centre, Himachal Pradesh University.
17. Thorat, Y.S.P. January-March (2006). Rural Credit in India: Issues and Concerns; Presidential Address, Indian Journal of Agricultural Economics, 61, (1), pp. 1-10,
18. Yadav, Dinesh Singh. (1999). Performance and Prospects of Agricultural Cooperative Credit Societies in Block Bithaur District Kanpur Dehat (UP), Indian Cooperative Review, XXXVII, (2). pp. 74-78.
19. Yashoda, D. (2017). Role of Primary Agricultural Co-Operative Society (PACS) in Agricultural Development in India. Global Journal of Management and Business Research: C Finance, 17(3), 1-4.

## Annexure A: Questionnaire

## Personal Profile

*Are you a beneficiary of primary agriculture cooperative societies?*

Yes..... No.....

*Age group:*

Less than 25 years..... 25 to 40..... 40 to 55..... above 55

*Gender:*

Male..... Female.....

*Major Occupation:*

Agriculture..... Agri related business..... Business.....

Service.....

## PACS and Agriculture Development

Followings statements shows the impact of PACS over agriculture development, kindly respond to the following how much agree or disagree you are towards these statements, using Likert scale, where SA is strongly agree, A is agree, N is neutral, D is disagree, and SD is strongly disagree.

S.N.		SA	A	N	D	SD
Agriculture output growth						
1	PACS provide technical assistance which leads to improve productivity and profits					
2	Setting up of storages can help farmers to reduce the risk of damage					
3	PACS purchase machinery and animals for hire to farmers for better operations					
4	Loan for buying good quality seeds can help in improving the quality of the crops too					
5	The loan for agriculture land expansion can help in increasing the crop intensity					
6	PACS arrange the scientific storage of the farmers' produce which leads to extend of life of the produces					
7	PACS supply quality fertilizers which lead to better quality crops					
8	PACS supplies pesticides which lead to better quality crops and also saves the farmers from loss due to insects					
Marketing assistance						
9	PACS provide the security of the produce brought for sale					
10	Marketing assistance by PACS help in motivating farmers to increase their agriculture output					
11	Farmers can get the reasonable amount for their crops so					
12	PACS safeguard the farmers for excessive marketing costs and malpractices					
13	PACS arrange the export of the produce of the farmers so that they may get better returns					
14	PACS provide the facilities of grading and market information which may help them to get a good price for their produce					
15	Farmers get easy access of the transport for the produce					
16	PACS provide sufficient storage facilities for the produce					
17	PACS provide accommodation and other facilities on the time of selling of produce					
Financial assistance						
18	PACS inculcates the habit of small savings among the members which they can use in case of any agricultural disaster/ loss or for the buying or expansion of agriculture land					
19	Members of the PACS can easily avail the loan for agriculture related activities which helps in agriculture growth in the economy					
20	PACS reduce the problem of lack of finance and farmers can focus on agriculture development					
21	Rate of interest is less which makes it easy for the farmers to avail loan for agriculture growth					
22	Loan from PACS can be used for the purchase of pesticides, fertilizers, and for other agriculture related purposes					
23	PACS help in getting the fair value of their crops in the market					
24	Getting loan from PACS is cheaper option than commercial banks or other financial institutions					
25	Collateral is not a big problem for taking loan from PACS					
26	There are no biases in PACS for granting loan to its members					
Technological assistance						
27	PACS provide micro ATMs so that farmers can have access to banking services					
28	PACS purchase machinery for hire to farmers for better operations					
29	PACS help farmers by providing digital tool for the activities of the value chain of produce					
30	PACS assist integrated pest management technology that include					



	biological and physical control and the scientific use of chemical pesticides					
31	Bio-Fertilisers provided to the farmers for the better yields of crops					
32	PACS arrange technical training of how to operate and maintain the machines					
33	To reduce the risk of damage and extend the life of produce, PACS provide cold storage facilities					
34	PACS arrange spare parts of machines at reasonable price					
35	PACS provide mobile telephones services to the farmers					