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EXTENT AND DETERMINANTS OF INDEBTEDNESS AMONG FARMERS IN RURAL PUNJAB: INTER - REGIONAL ANALYSIS (PART I)

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Abstract

The present paper attempts to examine the extent and determinants of indebtedness of the different farm-size categories across the regions in the rural areas of the Punjab state. The paper brings out that the proportion of farm households under debt is the highest in the central plain region (South). The amount of debt per household and per acre is the highest in the western plain region (South). The amount of debt per household is positively associated with farm-size and the amount of debt per operated acre is negatively associated with farm-size in all the regions. Source wise the commission agents come out to be the largest contributor towards loans in the central plain region (North) and the western plain region (South). The major proportion of non-productive loans goes to family maintenance expenditure. Income from subsidiary occupations and the educational level of the head of the family have inverse relationship with indebtedness.

Introduction

The transformation of Punjab agriculture from traditional subsistence farming into modern commercialised farming in a short span of about three decades has been internationally acclaimed as one of the rare success stories (Shergill, 1998). The recent technological breakthrough has also pushed up the capital requirement of the farm sector manifold as different component of new farm-technology involve increasing reliance on purchased non-conventional inputs in contradistinction to the owned traditional inputs (Singh and Dhawan, 1979). Most of the rural people depend for their livelihood on agriculture and allied ventures (Balishter and Naresh, 1984). Agriculture in India has always

been a way of life rather than a business and has suffered from stagnation due to low productivity arising from inadequate investment (Kumar,1993). Farmer needs finance for carrying out cultivation as well as for subsistence. Indian farmer borrows year after year but he is not in a position to clear off the loan (Tewari,1969). Institutional agencies hitherto benefited only the creditworthy and big cultivators, driving the small, unprogressive and less creditworthy peasants to the money-lender professional or otherwise (Vijaygopalan,1976). The small size of land holding, poor resource base and varying monsoon behavior are exposing majority of the farmers particularly, the small and marginal, leading some of them finally to commit suicide

because of mounting debts of moneylenders (Kumari, 2005). Distribution of credit through institutional sources since the introduction of new agriculture technology indebtedness among the farmers households is found to be widespread even today (Narayanamoorthy and Kalambar, 2005).

The bulk of the cultivators of the Punjab province are born in debt, live in debt and die in debt. There is probably hardly a district where more than a third are free of debt, and in some the percentage is even less than ten. Moreover, owing to the inflated value of land and the consequent expansion of credit, this debt is much greater than it was fifty, or even ten years ago, and its rapid increase has deprived the cultivator of much of the benefit that he would otherwise have derived from the growing prosperity of the province. It is unnecessary to recapitulate the causes of debt, but in examining them we saw that debt was allied to prosperity and poverty alike, and that, while its existence was due to poverty, its volume was due to prosperity (Darling, 1925).

Reports of distress among the farmers coming from the different parts of India are causing much concern. Extreme manifestation of such distress occurs in the form of suicides by the farmers. Introduction of liberalization and globalization during the 1990's further increased the pressure on the agrarian economy. The new economic policy advocating withdrawal of the state from the economic sphere leaving the agriculture sector to the vagaries of free market have proved disastrous. Under this pretext, the present paper attempts to examine the extent and determinants of indebtedness among the different farm-size categories across the regions in the rural areas of Punjab.

Study Area

The state of Punjab occupies an

extremely important place in India. Although the Punjab economy witnessed major changes over the years, yet its agrarian sector predominates over all other sectors. Till date, agriculture is the main stay of the people of Punjab. Agriculture and livestock contribute more than forty per cent of gross state domestic product (Government of Punjab, 2004)

Research Methodology

The present study relates to the year 2003-04. The whole state was divided into the five regions i.e., the Siwalik Foot-hill Region, comprising districts of Gurdaspur, Hoshiarpur and Rupnagar; the Central Plain Region (North), spreading over Amritsar, Kapurthala, Jalandhar, Nawanshahr and Ludhiana districts; the Central Plain Region (South), enclosing districts of Sangrur, Fatehgarh Sahib, and Patiala; the Western Plain Region (South), confined to Bathinda and Mansa districts; and the Western Plain Region, comprising Ferozepur, Moga, Faridkot and Muktsar districts (Fig. 1). The data for the study were collected from all the five different regions. One district from each region was selected for survey. On the basis of random sample method one village from each tehsil of the selected district has been chosen. In all, twenty four villages were selected for survey. Out of 24 villages 451 farming households were selected for data collection. A representative proportional sample of farm households comprising the marginal (up to 2.5 acres), small (more than 2.5 acres and up to 5 acres), medium (more than 5 acres and up to 15 acres) and large farmers (more than 15 acres) have been taken up for survey. Out of 451 households 77 households were from the Siwalik foot-hill region, 125 households from the central plain region (North), 92 households from the central plain region (South), 65 households from the western plain region (South) and 92 households

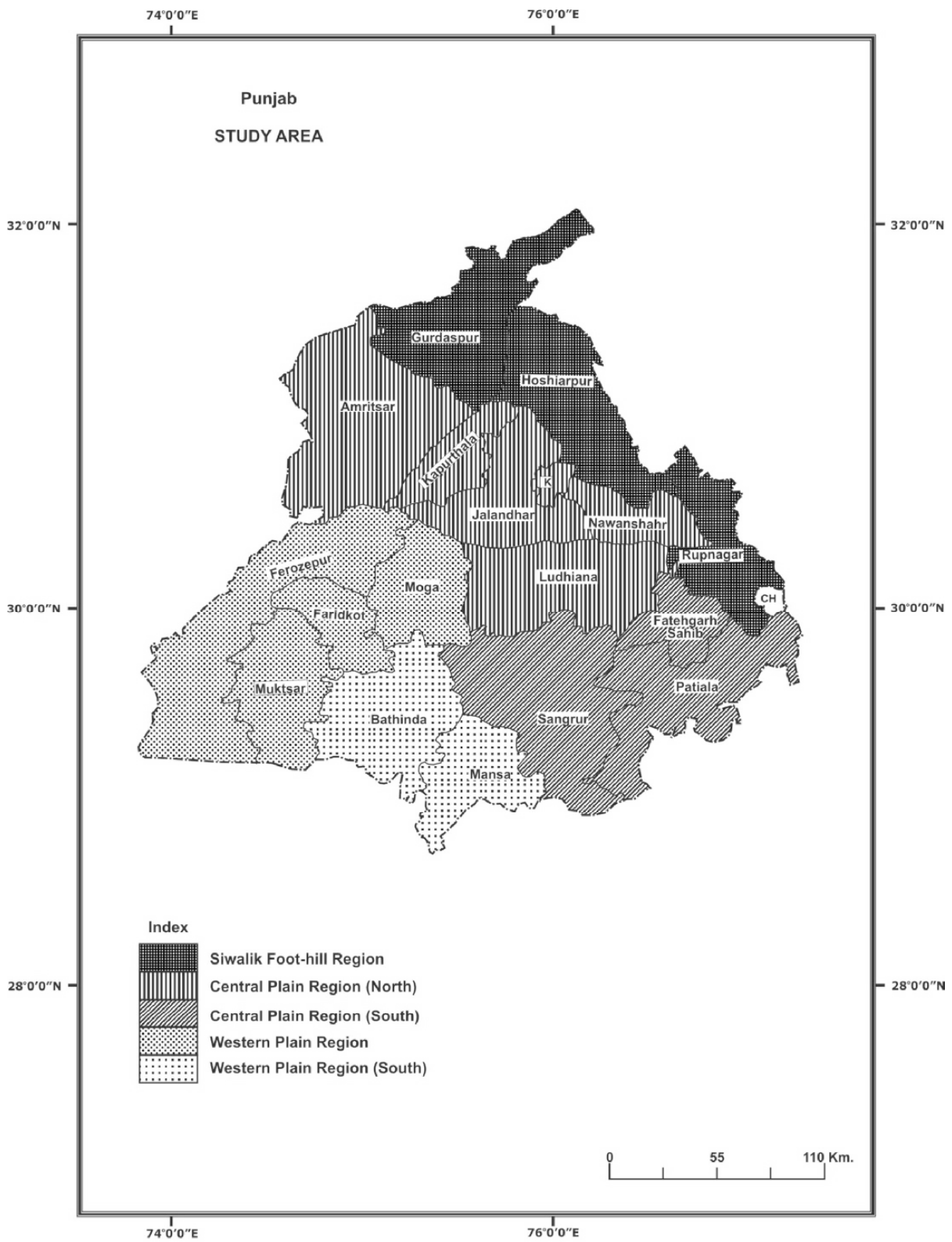


Fig. 1

from the western plain region. The outstanding amount of loans is taken as debt. Linear regression is used to analyse the relative indebtedness for the different farm-size categories of the selected regions as given below:

$$Y=f(x_1,x_2,x_3,x_4,x_5,x_6)$$

where, Y=Indebtedness (Rs.)

x_1 =Family-size

x_2 =Ratio of credit from non-institutional sources to that from institutional sources

x_3 =Income from sources other than the main occupation

x_4 =Expenditure of borrowed funds on unproductive purposes

x_5 =Education level of the decision maker in the family

x_6 =Fame-size (Acres)

Results and Discussion

Extent of Debt

Region-wise indebtedness is presented in Table 1. The table brings out that the indebted households range between 75.00 per cent in the western plain region to 81.52 per cent in the central plain region (South). The highest proportion of the marginal farm households under debt (84.21 per cent) are in the central plain region (South) followed by the Siwalik foot-hill region, the central plain region (North), the western plain region and the western plain region (South). The highest proportion of the small farmers under debt is in the central plain region (North) while the lowest exists in the Siwalik foot-hill region. The central plain region (South) shows the highest proportion (100 per cent) under debt for the medium farm-size category. All the large farmers are under debt in the Siwalik foot-hill region, but this percentage is only 58.33 per cent in case of the central plain region (North).

The indebtedness per household ranges

between Rs. 35777.14 for the marginal farm-size category in the Siwalik foot-hill region to Rs. 466181.81 for the large farm-size category of the western plain region (South). The lowest indebtedness for the small and medium farm-size categories per sampled household as well as per indebted household is prevalent in the western plain region. The highest indebtedness per sampled household and per indebted household is prevalent amongst all the categories except the small farmers as well as an average farming household of the western plain region (South). The reasons behind this higher tendency of indebtedness in this region are high operational cost, particularly plant protection cost due to wheat-cotton rotation and partly relatively higher expenditure on social ceremonies. The lowest indebtedness is in the Siwalik foot-hill region. This is due to the lack of adoption of the new agricultural technology.

Table 2 clearly shows that the amount of loans per operated acre is the highest (Rs.16407.86) in the western plain region (South) and the lowest (Rs. 9485.44) in the western plain region. The amount of loans per operated acre is decreasing as farm-size goes up in all the regions except the central plain region (North). In this region, amount of loans per operated acre is the highest for the small farmers followed by the marginal, medium and large farmers. This shows that in all the regions the burden of debt is higher for the marginal and small farmers than the medium and large farmers. The amount of debt per operated acre is the highest in the western plain region (South) for all the farm-size categories. This supports our earlier conclusion that this is cotton producing belt and as a result of this operational costs are much higher than other regions. The amount of debt per operated acre is the lowest in the Siwalik foot-hill region for the marginal and small farm-size categories, in the western plain region for the medium farm-size

Table 1
Punjab: Extent of Debt Among Farming Households

Regions	Farm-Size Categories	No. of Households		Indebted households as percentage of sampled households	Average amount of debt (Rs.)	
		Sampled	Indebted		Per sampled household	Per indebted household
Siwalik Foot-hill Region	Marginal farmers	35	29	82.86	35777.14	43179.31
	Small farmers	26	19	73.08	69757.69	95457.89
	Medium farmers	13	9	69.23	181000.00	261444.44
	Large farmers	3	3	100.00	383333.33	383333.33
	All Categories	77	60	77.92	85310.38	109481.67
Central Plain Region (North)	Marginal farmers	32	26	81.25	39729.68	48898.08
	Small farmers	41	34	82.92	90789.74	109481.74
	Medium farmers	40	31	77.50	185222.50	238996.77
	Large farmers	12	7	58.33	213758.33	366442.85
	All Categories	125	98	78.40	119741.84	152731.94
Central Plain Region (South)	Marginal farmers	19	16	84.21	35842.08	42562.50
	Small farmers	29	23	79.31	70001.38	88262.61
	Medium farmers	33	27	81.82	184699.99	225744.43
	Large farmers	11	9	81.82	199363.64	243666.67
	All Categories	92	75	81.52	119555.86	146655.20
Western Plain Region (South)	Marginal farmers	10	8	80.00	41830.00	52287.50
	Small farmers	17	14	82.34	87441.17	106178.56
	Medium farmers	27	20	74.07	195755.55	264269.99
	Large farmers	11	8	72.72	466181.81	640999.99
	All Categories	65	50	76.92	189510.76	246363.99
Western Plain Region	Marginal farmers	5	4	80.00	38980.00	48725.00
	Small farmers	27	21	77.78	63881.47	82133.33
	Medium farmers	37	27	72.97	110324.32	151185.18
	Large farmers	23	17	73.91	222434.78	300941.17
	All Categories	92	69	75.00	120844.56	161126.09

Source: Field Survey 2003-04.

category and in the central plain region (North) for the large farm-size category.

Like the amount of debt per operated acre the amount of debt per owned acre is also the highest in the western plain region (South) followed by the central plain region (North),

the Siwalik foot-hill region, the central plain region (South) and the western plain region (Table 2). The amount of debt per owned acre is decreasing as farm-size goes up in all the regions. The amount of debt per owned acre is also the highest in the western plain region

Table 2
Punjab: Amount of Debt Per Acre

Regions	Farm-Size Categories	Amount of Debt Per Owned Acre	Amount of Debt Per Operated Acre
Siwalik Foot-hill Region	Marginal farmers	22360.71	16115.83
	Small farmers	16809.08	15640.73
	Medium farmers	16514.59	15435.21
	Large farmers	6928.13	7516.34
	All Categories	13916.86	13434.70
Central Plain Region (North)	Marginal farmers	23933.54	17124.86
	Small farmers	23279.42	19033.48
	Medium farmers	18900.25	16514.59
	Large farmers	7943.45	6971.89
	All Categories	16137.71	13393.94
Central Plain Region (South)	Marginal farmers	18571.02	19693.45
	Small farmers	17327.07	16548.78
	Medium farmers	17181.39	16684.73
	Large farmers	7563.11	7563.11
	All Categories	13773.71	13539.73
Western Plain Region (South)	Marginal farmers	24319.76	24319.76
	Small farmers	23632.74	23632.74
	Medium farmers	20584.17	19733.42
	Large farmers	12726.77	12726.77
	All Categories	16652.97	16407.86
Western Plain Region	Marginal farmers	18561.90	16947.83
	Small farmers	16766.79	16010.39
	Medium farmers	11939.86	11600.87
	Large farmers	7186.91	7021.29
	All Categories	9530.31	9485.44

Source: Field Survey 2003-04.

(South) for the different farm-size categories. The amount of debt per owned acre is the lowest in the western plain region for the marginal, small and medium farm-size categories and in the Siwalik foot-hill region for the large farm-size category.

Sources of Debt

The information related to loan provided by various credit agencies in the study area has been presented in Table 3. The table reveals that the small, medium and large farm-size categories in all the regions, the marginal

Table 3
Punjab: Debt Incurred From Different Credit Agencies

Sl. No.	Sources of Debt	Sivalik Foot-hill Region				Central Plain Region (North)				All Categories
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	
	Non-institutional Agencies									
1.	Large farmers	4160.00 (11.63)	7692.31 (11.03)			3085.94 (7.77)	280.48 (0.31)	2500.00 (1.35)		1682.00 (1.40)
2.	Professional money-lenders	3878.57 (10.84)	1292.31 (1.85)			1718.75 (4.33)	841.46 (0.93)			716.00 (0.60)
3.	Commission agents	11131.42 (31.11)	12319.23 (17.66)	27000.00 (14.92)	66666.67 (17.39)	14606.25 (36.76)	42551.22 (46.87)	82720.00 (44.66)	65500.00 (30.64)	50454.40 (42.14)
	Sub-total	19169.99 (53.58)	21303.85 (30.54)	27000.00 (14.92)	66666.67 (17.39)	19410.94 (48.86)	43673.16 (48.11)	85220.00 (46.01)	65500.00 (30.64)	52852.40 (44.14)
	Institutional Agencies									
4.	Co-operative societies/banks	4011.43 (11.22)	15319.23 (21.96)	27538.46 (15.21)	60000.00 (15.65)	5334.37 (13.43)	20285.37 (22.34)	32670.00 (17.64)	56875.00 (26.61)	23933.60 (19.99)
5.	Land development banks	1774.28 (4.96)	7692.31 (11.03)			3593.75 (9.04)	14634.15 (16.12)	16125.00 (08.71)	40000.00 (18.71)	14720.00 (12.29)
6.	Regional rural banks	4362.85 (12.19)	3511.54 (5.03)	57230.77 (31.62)	123333.33 (32.18)			875.00 (0.47)		280.00 (0.23)
7.	Commercial banks	4372.85 (5.83)	19346.15 (27.73)	69230.77 (38.25)	133333.33 (34.78)	11390.62 (28.67)	8538.53 (9.40)	50332.50 (27.17)	51383.33 (24.04)	26755.84 (22.35)
8.	Housefed	2085.74 (12.22)	2584.61 (3.71)				3658.53 (4.03)			1199.99 (1.00)
	Sub-total	16607.15 (46.42)	48453.84 (69.46)	154000.00 (85.08)	316666.66 (82.61)	20318.74 (51.14)	47116.58 (51.89)	100002.50 (53.99)	148258.33 (69.36)	66889.43 (55.86)
	Total	35777.14 (100.00)	69757.69 (100.00)	181000.00 (100.00)	383333.33 (100.00)	39729.68 (100.00)	90789.74 (100.00)	185222.50 (100.00)	213758.33 (100.00)	119741.83 (100.00)

Table 3 (Contd.)

Sl. No.	Central Plain Region (South)					Western Plain Region (South)					Western Plain Region				
	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories
1.	1178.94 (3.29)				243.48 (0.20)	10700.00 (25.58)	2044.18 (23.38)			6992.31 (3.69)					
2.						1200.00 (2.87)				184.62 (0.10)	1851.85 (2.90)				543.48 (0.45)
3.	17689.47 (49.35)	20668.97 (29.53)	53175.76 (28.79)	10181.82 (5.11)	30459.78 (25.48)	24110.00 (57.64)	42058.82 (48.10)	106585.18 (54.45)	105636.36 (22.66)	76859.99 (40.56)	32044.44 (50.16)	27394.59 (24.83)	22391.30 (10.07)	26871.73 (22.24)	
	18868.41 (52.64)	20668.97 (29.53)	53175.76 (28.79)	10181.82 (5.11)	30703.26 (25.68)	36010.00 (86.09)	62500.00 (71.48)	106585.18 (54.45)	105636.36 (22.66)	84036.92 (44.35)	33896.29 (53.06)	27394.59 (24.83)	22391.30 (10.07)	27415.21 (22.69)	
4.	8968.42 (25.02)	18089.66 (25.84)	28936.36 (15.67)	66090.91 (33.15)	25835.87 (21.61)	5820.00 (13.91)	11882.35 (13.59)	46540.74 (23.78)	142800 (30.63)	46662.37 (24.62)	9422.22 (14.75)	25294.59 (22.93)	69478.26 (31.24)	30595.65 (25.32)	
5.	5263.15 (14.69)	5172.41 (7.39)	13636.36 (7.38)	40909.05 (20.52)	12499.99 (10.46)		3529.41 (4.03)	7407.41 (3.78)	40909.09 (8.78)	10083.91 (5.32)	3703.70 (5.80)		46956.52 (21.11)	13804.35 (11.42)	
6.															
7.	2742.10 (7.65)	26070.34 (37.24)	88951.51 (48.16)	82181.81 (41.22)	50516.73 (42.25)		9529.41 (10.90)	35222.22 (17.99)	176836.36 (37.93)	48727.56 (25.71)	16859.26 (26.39)	57635.14 (52.24)	83608.70 (37.58)	49029.35 (40.57)	
8.	16973.67 (47.36)	49332.41 (70.47)	131524.23 (71.21)	189181.82 (94.89)	88852.59 (74.32)	5820.00 (13.91)	24941.17 (28.52)	89170.37 (45.55)	360545.45 (77.34)	105470.84 (55.65)	29984.18 (46.94)	82929.73 (75.17)	20043.48 (89.93)	93429.35 (77.31)	
	35842.08 (100.00)	70001.38 (100.00)	184699.99 (100.00)	199363.64 (100.00)	119555.86 (100.00)	41930.00 (100.00)	87441.17 (100.00)	195755.55 (100.00)	466181.81 (100.00)	189510.76 (100.00)	63881.47 (100.00)	110324.32 (100.00)	222434.78 (100.00)	120844.56 (100.00)	

Source: Field Survey 2003-04.

Note: Figures in parentheses are percentages

farm-size category of the central plain region (North) and the western plain region take the major amount of loans from institutional agencies. The marginal farm-size category of the remaining three regions takes the major amount of loans from non-institutional agencies. An average farming household in all the regions takes maximum amount from institutional agencies. Among the institutional sources, commercial banks and co-operative societies/banks are the major sources of loans. Among the non-institutional sources, the commission agents are the major source of loans for all the categories in all the regions. But the marginal and small farm-size categories in all the regions have taken some amount of loans from the professional money-lenders and large farmers.

The table further shows that an average farming household in the western plain region (South) takes 44.35 per cent of total loans from non-institutional agencies while the corresponding figure is 44.14 per cent for the central plain region (North), 27.03 per cent for the Siwalik foot-hill region, 25.68 per cent for the central plain region (South) and 22.69 per cent for the western plain region. Commission agents come out to be the largest contributor towards loans in the central plain region (North) and the western plain region (South). This proportion is as high as 42.14 per cent and 40.56 per cent for the central plain region (North) and the western plain region (South) respectively (Table 3). The share of institutional sources is 77.31 per cent for an average farming household in the western plain region followed by the central plain region (South), the Siwalik foot-hill region, the central plain region (North) and the western plain region (South). The commercial banks and co-operative societies/banks come at the first and second place respectively among institutional agencies in all the regions except the Siwalik foot-hill

region. In this region, regional rural banks come at the second place and co-operative societies/banks at the third place. In the case of marginal farm-size category the proportional share of non-institutional agencies is as high as 85.09 per cent and 53.58 per cent in the western plain region (South) and the Siwalik foot-hill region respectively. The corresponding figures are 52.64 per cent, 48.86 per cent and 40.22 per cent for the central plain regions (South), the central plain region (North) and the western plain region respectively.

The share of non-institutional agencies in case of the small farm-size category is 71.48 per cent for the western plain region (South), 53.06 per cent for the western plain region, 48.11 per cent for the central plain region (North), 30.54 per cent for the Siwalik foot-hill region and 29.53 per cent for the central plain region (South) (Table 3). Commission agents come out to be the largest contributor towards loans for these categories. The field survey highlights the fact that people are either ignorant about the formalities and procedures to take loan from institutional agencies or they are irritated by the indifferent bureaucratic attitude of the officials of institutional agencies. Therefore, they are left with the only alternative to go in for private agencies, like the money-lenders and commission agents as they have easy access and personal relations with these people. The medium and large farm-size categories in all the regions have taken maximum amount of loans from the institutional agencies. The large farm-size category of the central plain region (South) has taken 94.89 per cent loan from institutional agencies. The corresponding figures are 89.93 per cent, 82.61 per cent, 77.34 per cent and 69.36 per cent for the western plain region, the Siwalik foot-hill region, the western plain region (South) and the central plain region (North) respectively. Similarly, the medium

farm-size category of the Siwalik foot-hill region has taken 85.08 per cent loan from institutional agencies. The corresponding figures are 75.17 per cent for the western plain region, 53.99 per cent for the central plain region (North) and 45.55 per cent for the western plain region (South) respectively. Among institutional agencies the commercial banks contribute maximum amount of total loans to the medium and large farm-size categories in all the regions.

The above analysis shows that the marginal, small and medium farmers of the western plain region (South) have taken more than fifty per cent of total loans from non-institutional agencies. This is due to the higher operational cost of farming and the higher expenditure on social and religious ceremonies, apart from easy access to such moneylenders.

Purposes of Debt

Purpose-wise distribution of debt is given in Table 4. The table elucidates that the major amount of loans has been taken by an average farming household for productive purposes in all the regions. The large farm-size category of all the regions, the medium farm-size category of all the regions except the western plain region (South) and the small farm-size category of the Siwalik foot-hill region and the central plain region (South) spent the major amount of loans for productive purposes. On the other hand, the marginal farm-size category of all the regions, the small farm-size category of the central plain region (North), the western plain region (South) and the western plain region and the medium farm-size category of the western plain region (South) have taken the major amount of loans for non-productive purposes. It has been observed that the amount of productive loans is increasing with the increase of farm-size in all the regions.

The table further shows that the highest proportion of loans is being spent on productive purposes by an average farming household in all the regions. This proportion is the highest (about 78 per cent) in the western plain region followed by the central plain region (South), the Siwalik foot-hill region, the western plain region (South) and the central plain region (North). This proportion is positively associated with farm-size in all the regions indicating that higher the size of the farm more is the loan taken for productive purposes.

The major proportion of loans spent on productive purposes goes for the purchase of farm inputs. The proportion of loan taken to purchase of farm inputs ranges between 37.61 in the central plain region (North) to 68.03 in the western plain region. Farm inventory is the second major purpose of productive loans in all the regions.

The share of non-productive loans ranges between 22.12 per cent in the western plain region to 45.33 per cent in the central plain region (North). The major proportion of non-productive debt is accounted for by family maintenance expenditure by an average farming household in all the regions. The table also revealed a disturbing fact that the marginal and small farm-size categories in all the regions have taken the maximum amount of loans for non-productive purposes. The share of loan for non-productive purposes in total loans is as high as 78.92 per cent in the case of marginal farm-size category of the western plain regions (South). The corresponding figures are 55.42 per cent in the Siwalik foot-hill region, 58.34 per cent in the central plain region (North), 61.45 per cent in the central plain region (South) and 58.18 per cent in the western plain region. The small farm-size categories of the central plain region (North), the western plain region (South) and the western plain region and the medium farm-size category of the western

Table 4
Punjab: Debt Incurred for Different Purposes

Sl No.	Purpose of Debt	Siwalik Foot-hill Region					Central Plain Region (North)					All Categories	
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers			
1.	Productive												
	Farm inventory	2622.86 (7.33)	18288.46 (26.22)	57230.77 (31.62)	123333.33 (32.18)	21835.08 (25.60)	-	12195.12 (13.43)	23750.00 (12.82)	15000.00 (7.02)	13039.99 (10.89)		
2.	Farm inputs	7469.99 (20.88)	22603.84 (32.40)	96769.23 (53.46)	193333.33 (50.43)	34898.05 (40.90)	9209.37 (23.18)	22314.14 (24.58)	70502.50 (38.06)	133258.33 (62.34)	45030.24 (37.61)		
3.	Milch cattle	5857.14 (16.37)	1538.46 (2.21)	-	-	3181.81 (3.73)	7343.75 (18.48)	7521.95 (8.29)	7000.00 (3.78)	-	6587.20 (5.50)		
4.	Purchase of land	-	-	-	-	-	-	-	2500.00 (1.35)	-	800.00 (0.67)		
	Sub-total	15950.00 (44.58)	42430.76 (60.83)	154000.00 (5.08)	316666.66 (82.61)	59914.94 (70.23)	16553.12 (41.66)	42031.21 (46.30)	103752.50 (56.01)	148258.33 (69.36)	65457.43 (54.67)		
	Non-Productive												
5.	House construction and major repairs	9488.57 (26.52)	6430.76 (9.22)	-	-	6484.41 (7.60)	937.50 (2.36)	3658.54 (4.03)	2500.00 (1.35)	-	2240.00 (1.87)		
6.	Family maintenance expenditure	7072.86 (19.77)	13834.62 (19.83)	27000.00 (14.92)	66666.67 (17.39)	15042.20 (17.63)	12410.94 (31.24)	22873.17 (25.19)	56050.00 (30.26)	33333.33 (15.59)	31815.60 (26.57)		
7.	Social and religious ceremonies	1685.71 (4.71)	7061.55 (10.12)	-	-	3150.66 (3.69)	8656.25 (21.79)	16129.26 (17.76)	19020.00 (10.27)	23833.33 (11.15)	15880.80 (13.26)		
8.	Redemption of old debts	1580.00 (4.42)	-	-	-	718.18 (0.85)	1171.87 (2.95)	3658.54 (4.03)	2500.00 (1.35)	-	2300.00 (1.92)		
9.	Expenditure on health	-	-	-	-	-	-	2439.02 (2.69)	1400.00 (0.76)	8333.33 (3.90)	2048.00 (1.71)		
10.	Any other	-	-	-	-	-	-	-	-	-	-		
	Sub-Total	19827.14 (55.42)	27326.93 (39.17)	27000.00 (14.92)	66666.67 (17.39)	25395.45 (29.77)	23176.56 (58.34)	48758.53 (53.70)	81470.00 (43.99)	65499.99 (30.64)	54284.40 (45.33)		
	Total	35777.14 (100.00)	69757.69 (100.00)	181000 (100.00)	383333.33 (100.00)	85310.38 (100.00)	39729.68 (100.00)	90789.74 (100.00)	185222.50 (100.00)	213758.32 (100.00)	119741.83 (100.00)		

Table 4 (Contd.)

Sl. No.	Central Plain Region (South)				Western Plain Region (South)				Western Plain Region				All Categories		
	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers		Medium Farmers	Large Farmers
1.	5263.15 (14.69)	16379.31 (23.40)	46060.61 (24.94)	36363.64 (18.24)	27119.56 (22.68)	-	-	18518.52 (9.47)	54545.45 (11.70)	16923.07 (8.93)	-	12962.96 (20.29)	4054.05 (3.67)	2391.31 (1.07)	6032.61 (4.99)
2.	8552.63 (23.85)	31856.55 (45.51)	60948.48 (36.25)	152818.18 (76.65)	54093.91 (45.25)	5820.00 (13.91)	28058.82 (32.09)	7065.85 (36.09)	306000.00 (65.64)	89386.14 (47.16)	4300 (11.03)	14059.26 (22.01)	80994.59 (73.42)	181130.41 (81.43)	82216.29 (68.03)
3.	-	-	5303.03 (2.87)	-	1902.18 (1.59)	3000.00 (7.17)	3529.41 (4.04)	-	-	1384.61 (0.73)	12000 (30.79)	3703.70 (5.80)	-	16521.76 (7.43)	5869.56 (4.86)
4.	-	-	3030.30 (1.64)	-	1086.95 (0.91)	-	-	-	-	-	-	-	-	-	-
	13815.78 (38.55)	48235.86 (68.91)	121342.42 (65.70)	189181.82 (94.89)	84202.60 (70.43)	8820.00 (21.08)	31588.23 (36.13)	89170.37 (45.56)	360545.45 (77.34)	107673.82 (56.82)	16300 (41.82)	30725.92 (48.10)	85048.64 (77.09)	200043.48 (89.93)	94118.46 (77.88)
5.	-	-	19090.91 (10.34)	-	6847.82 (5.73)	-	-	15703.70 (8.02)	-	6523.07 (3.44)	-	1851.85 (2.90)	-	-	543.48 (0.45)
6.	14942.10 (41.69)	15834.48 (22.62)	32812.12 (17.76)	10181.82 (5.11)	21064.13 (17.62)	-	49617.95 (56.74)	65992.59 (33.71)	94363.63 (20.24)	56388.53 (29.74)	7000 (17.96)	26711.11 (41.81)	21094.59 (19.21)	22391.30 (10.07)	22341.31 (18.49)
7.	2557.89 (7.14)	5931.04 (8.47)	6787.88 (3.68)	-	4832.61 (4.04)	2110.00 (50.47)	6235.29 (7.13)	1748.49 (8.93)	11272.73 (2.42)	14047.68 (7.41)	15680 (40.22)	4592.59 (7.19)	2567.57 (2.33)	-	3232.61 (2.68)
8.	2105.26 (5.87)	-	3757.57 (2.03)	-	1782.60 (1.48)	10700.00 (25.58)	-	3703.70 (1.89)	-	3184.60 (1.68)	-	-	-	-	-
9.	2421.05 (6.75)	-	-	-	500.00 (0.42)	1200.00 (2.87)	-	3703.70 (1.89)	-	1723.07 (0.91)	-	-	1513.52 (1.37)	-	608.69 (0.50)
10.	-	-	909.09 (0.49)	-	326.09 (0.28)	-	-	-	-	-	-	-	-	-	-
	22026.30 (61.45)	21765.52 (31.09)	63357.57 (34.30)	10181.82 (5.11)	35353.25 (29.57)	33010.00 (78.92)	55853.24 (63.87)	106685.18 (54.44)	105636.36 (22.66)	81886.95 (43.18)	22880 (58.18)	33155.55 (51.90)	25275.68 (22.91)	22391.30 (10.07)	26726.09 (22.12)
	35842.08 (100.00)	70001.38 (100.00)	184699.99 (100.00)	199363.64 (100.00)	119555.86 (100.00)	41830.00 (100.00)	87441.17 (100.00)	195755.55 (100.00)	466181.81 (100.00)	189510.76 (100.00)	38980 (100.00)	63881.47 (100.00)	110324.32 (100.00)	222434.78 (100.00)	120844.56 (100.00)

plain region (South) has taken more than fifty per cent of their loans for non-productive purposes. The family maintenance expenditure is the major purpose of non-productive loans in all the regions. The second important purpose of non-productive loans is to meet expenditure on social and religious ceremonies in all the regions except the medium farm-size category of the central plain region (South). For this category house construction and major repairs is the second important purpose of non-productive loans.

The above analysis shows that due to the application of new farm strategy the farmers have to borrow funds for growing the crops. The marginal and small farmers are unable to meet their consumption expenditure with their income. To fulfill this gap these farmers borrow mainly for family maintenance. The situation is worse for the marginal and small farmers than the medium and large farmers.

Debt According to Rate of Interest

The mean values of debt according to rate of interest across the regions are presented in Table 5. The table shows that an average farming household of the western plain region borrowed the maximum amount (Rs. 60,828.26) at the rate of interest less than 10 per cent followed by the western plain region (South), the central plain region (South), the central plain region (North) and the Siwalik foot-hill region. This amount ranges between Rs. 2,742.10 for the marginal farm-size category of the central plain region (South) to Rs. 204,109.09 for the large farm-size category of the western plain region (South). An average farming household of the western plain region (South) has taken Rs. 54,867.69 at the rate of interest ranging between 10 to 20 per cent followed by the central plain region (South), the Siwalik foot-hill region, the central plain region-North and the western plain region. This

amount increases as farm-size increases in all the regions. An average farming household of the western plain region (South) incurred Rs. 76010.76 and 8506.15 at the rate of interest ranging between 20 to 30 per cent and more than 30 per cent respectively. It is interesting to note that the large farm-size category has taken maximum amount of loans at the rate of interest less than 10 per cent in all the regions except the Siwalik foot-hill region, while the marginal farm-size category has taken the maximum amount at the rate of interest ranging between 20 to 30 per cent in all the regions except the Siwalik foot-hill region.

The table further reveals that the marginal farm-size category of all the regions except the Siwalik foot-hill region has taken the highest share of total loans at the rate of interest ranging between 20 to 30 per cent. This proportion is the highest (about 58 per cent) for the western plain region (South) and the lowest (21.49 per cent) for the Siwalik foot-hill region. An average farming household of the central plain region (North) and the western plain region (South) has also taken the highest share of total loans at this range of rate of interest. The small and medium farm-size categories of these two regions have incurred the highest proportion of total loans at this range of rate of interest.

An average farming household of the Siwalik foot-hill region and central plain region (South) has obtained the highest proportion of total loans at the rate of interest ranging between 10 to 20 per cent. The proportional share is 46.31 and 37.96 respectively for these two regions. All the farming categories of the Siwalik foot-hill region and the small and medium farm-size categories of the central plain region (South) have taken the highest proportion of total loan at this range of rate of interest.

An average farming household of the

Table 5
Punjab: Debt According to Rate of Interest

(Mean Values, in Rs.)

Regions	Farm-Size Categories	Rate of Interest, (Per cent, Per Annum)				Overall
		0-10	10-20	20-30	30-40	
Siwalik Foot-hill Region	Marginal	11861.43	12865.71	9690.00	3360.00	35777.14
	Farmers	(33.15)	(35.97)	(21.49)	(9.39)	(100.00)
Region	Small	12726.92	36134.62	18450.00	2446.15	69557.69
	Farmers	(18.24)	(51.80)	(26.45)	(3.51)	(100.00)
	Medium	69230.77	84769.23	27000.00	-	181000.00
	Farmers	(38.25)	(46.83)	(14.92)		(100.00)
Region	Large	133333.33	183333.33	66666.67	-	383333.33
	Farmers	(34.78)	(47.83)	(17.39)		(100.00)
Region	All	26572.07	39503.89	16881.17	2353.24	85310.38
	Categories	(31.14)	(46.31)	(19.79)	(2.76)	(100.00)
Central Plain Region (North)	Marginal	8265.62	12053.13	13906.25	5504.68	39729.68
	Farmers	(20.80)	(30.34)	(35.00)	(13.86)	(100.00)
Region (North)	Small	9314.14	38534.15	40112.20	2829.25	90789.68
	Farmers	(10.26)	(42.44)	(44.18)	(3.12)	(100.00)
	Medium	50332.50	49670.00	82720.00	2500.00	185222.50
	Farmers	(27.17)	(26.82)	(44.66)	(1.35)	(100.00)
Region (North)	Large	76383.33	71875.00	65500.00	-	213758.33
	Farmers	(35.73)	(33.63)	(30.64)		(100.00)
Region (North)	All	28610.24	38519.20	49475.20	3137.19	119741.83
	Categories	(23.89)	(32.17)	(41.32)	(2.62)	(100.00)
Central Plain Region (North)	Marginal	2742.10	14231.57	16763.15	2105.26	35842.08
	Farmers	(7.65)	(39.71)	(46.77)	(5.87)	(100.00)
Region (North)	Small	19104.83	30227.59	20668.96	-	70001.38
	Farmers	(27.29)	(43.18)	(29.53)		(100.00)
	Medium	57284.85	73027.27	54387.87	-	184699.99
	Farmers	(31.01)	(39.54)	(29.45)		(100.00)
Region (North)	Large	133000.00	56181.82	10181.82	-	199363.64
	Farmers	(66.71)	(28.18)	(5.11)		(100.00)
Region (North)	All	43038.48	45379.35	30703.25	434.78	119555.83
	Categories	(36.00)	(37.96)	(25.68)	(0.36)	(100.00)
Central Plain Region (North)	Marginal	-	5820.00	24110.00	11900.00	41830.00
	Farmers		(13.91)	(57.64)	(28.45)	(100.00)
Region (North)	Small	9529.41	13576.47	38811.76	25523.53	87441.17
	Farmers	(10.90)	(15.53)	(44.38)	(29.19)	(100.00)
Region (North)	Medium	31518.52	57651.85	106585.18	-	195755.55
	Farmers	(16.10)	(29.45)	(54.45)		(100.00)
Region (North)	Large	204109.09	156436.36	105636.36	-	466181.81
	Farmers	(43.78)	(33.56)	(22.66)		(100.00)
Region (North)	All	50126.16	54867.69	76010.76	8506.15	189510.75
	Categories	(26.45)	(28.95)	(40.11)	(4.49)	(100.00)
Western Plain Region	Marginal	-	23300.00	15680.00	-	38980.00
	Farmers		(59.78)	(40.22)		(100.00)
Region	Small	15007.41	14977.77	31600.00	2296.29	63881.47
	Farmers	(23.49)	(23.45)	(49.47)	(3.59)	(100.00)
	Medium	50486.49	33335.13	26502.70	-	110324.32
	Farmers	(45.76)	(30.22)	(24.02)		(100.00)
Region	Large	1444478.26	55565.22	22391.30	-	222434.78
	Farmers	(64.95)	(24.98)	(10.07)		(100.00)
Region	All	60828.26	32959.78	26382.60	673.91	120844.55
	Categories	(50.34)	(27.27)	(21.83)	(0.56)	(100.00)

Source: Field Survey 2003-04.
Note: Figures in parentheses are percentages

western plain region has taken 50.34 per cent of the total loans at the rate of interest less than 10 per cent. The large farmers of all the regions except the Siwalik foot-hill region incurred the highest proportion of loans at this range of rate of interest. This proportion is as high as 66.71 per cent and 64.95 per cent in the central plain region (South) and the western plain region respectively.

In the western plain region (South) 4.49 per cent of total debt has been taken on the rate of interest above 30 per cent by an average farming household. The marginal farmers of all the regions and the small farmers of the Siwalik foot-hill region, the central plain region (North) and the western plain region (South) have incurred some amount of total loans at this range of rate of interest. This shows that the marginal and small farmers are still in the clutches of commission agents and money-lenders which charge exorbitant rates of interest. The medium and large farmers have taken maximum loans at the rate of interest less than 20 per cent.

Determinants of Indebtedness

In order to understand the variations in the significance of factors influencing the magnitude of indebtedness, region-wise multiple regression analysis has been done and results have been reflected in Table 6.

Variations in the magnitude of indebtedness among the marginal farmers are explained by ratio of credit from non-institutional sources to that from institutional sources, income from subsidiary occupations and expenditure on unproductive purposes in the central plain region (North) and the central plain region (South). While coefficients for ratio of credit from non-institutional sources to that from institutional sources and expenditure on unproductive purposes are positive and significant. The income from subsidiary

occupations and education level of the head of the family have negative relationships with indebtedness. In the Siwalik foot-hill region both these variables are significant. The coefficients of family size and farm-size are non-significant in all the regions. The coefficients of multiple determinations explain 80 per cent, 65 per cent and 68 per cent variations in magnitude of indebtedness in the Siwalik foot-hill region, the central plain region (North) and the central plain region (South) respectively.

The estimates of regression coefficients suggest that the variations in the magnitude of indebtedness among the small farmers of the Siwalik foot-hill region and the central plain region (South) are explained by ratio of credit from non-institutional sources to that from institutional sources, family size, income from subsidiary occupations and educational level. The ratio of credit from non-institutional sources and educational level of the head of the family is also significant in the central plain region (North) and the western plain region.

The regression coefficient for family-size in the Siwalik foot-hill region, the central plain region (South) and the western plain region (South) is positive and significant indicating positive relationship of family size with indebtedness. The coefficients for ratio of credit from non-institutional sources to that from institutional sources are positive and statistically significant in all the regions. This shows that the amount of debt increases as a result of taking more loans from the non-institutional sources.

Income from subsidiary occupations contributes in decreasing indebtedness significantly in the Siwalik foot-hill region, the central plain region (South) and the western plain regions. The coefficient for educational level is negative and significant in all the regions. This indicates that as the education

Table 6
Punjab: Factors Determining Indebtedness and Results of Multiple Regression Analysis

Sl. No.	Factors	Siwalik Foot-hill Region					Central Plain Region (North)				
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories
1.	Family Size	924.79 (2.43)	4579.02*** (1.74)	4661.80	1533.37*** (1.66)	414.86	7983.81	1208.85	4453.38	1049.54* (2.84)	
2.	Ratio of credit from non-institutional sources to that from institutional sources	1.729	0.1919*** (1.87)	2750*** (2.35)	.3999* (2.83)	0.4355* (2.83)	1.2468** (2.52)	0.5510	0.3111*** (2.14)	0.567* (5.36)	
3.	Income from subsidiary occupations	-0.1029** (2.43)	-1.001* (3.69)	-6.271	-0.2254* (4.66)	-0.141** (2.28)	-0.6259	0.7626	-0.97*** (2.14)	1.049 (1.39)	
4.	Expenditure on unproductive purposes	0.623	1.3581	0.9364	0.7823** (2.12)	1.6217*** (1.74)	0.1244* (2.52)	0.7788	1.1434*** (2.16)	0.787* (2.86)	
5.	Education level of the head of the family	-643.92* (2.96)	-3957.85* (3.94)	-5474.14*** (2.43)	-1922.03* (4.12)	-75.204* (2.92)	-345.50* (4.58)	-296.13	-385.40	333.40* (4.14)	
6.	Farm-size	6092.07	13015.39	3660.77	4949.66* (2.81)	1372.64	5012.83	2720.80	8219.38	2382.92* (3.31)	
		0.80	0.12	0.95	0.83	0.65	0.71	0.92	0.98	0.84	

Sl. No.	Factors	Central Plain Region (South)					Western Plain Region (South)					Western Plain Region				
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Categories
1.		318.12	2415.16* (3.95)	1401.3.21	17313.04	2645.90	1092.63*** (1.79)	0.3344	27799	6355.77	9987.14	8409.07	1350.05	17401.51	1099.14 (-0.05)	
2.		0.2929** (2.24)	0.5015* (2.96)	1.003* (3.88)	0.4016* (4.02)	0.9901* (6.04)	0.068** (5.58)	1.32	0.068** (5.58)	1.32	1.1396* (3.33)	1.25*** (1.82)	0.014* (6.04)	1.01* (3.96)	0.7639* (5.36)	
3.		-0.6691* (6.46)	-0.5295* (3.30)	-1.4994*** (1.68)	-0.2522** (2.68)	-0.1301* (3.09)	-5866** (2.79)	-0.2518* (3.59)	-0.104** (3.11)	-0.104** (3.11)	-0.3979* (3.80)	-1.18	-0.0154* (4.22)	-0.0018* (3.45)	-0.2909* (5.28)	
4.		0.0472* (3.37)	1.413	0.7494	0.0744* (4.02)	2459*** (1.78)	1.079	1.1006	0.5098** (2.59)	0.5427*** (1.96)	0.1794*** (1.80)	1.0142	0.9852* (3.96)	.3490* (4.37)		
5.		2603.42** (1.76)	-4948.71* (3.79)	-5806.65* (2.97)	-18088.39	-743.38* (3.18)	-1011.19*** (1.98)	-527.43* (5.25)	1567.88** (2.71)	-646.14* (3.14)	-4116.16* (3.71)	-103.96* (3.20)	-5747.16	-525.51* (3.26)		
6.		8596.25	10031.42	8495.75	6462.95	5838.10 (1.38)	5618.99	207.21	994.56	8511.49*** (1.76)	7156.41	297.95	276.73	5428.1* (2.85)		
		0.68	0.72	0.98	0.52	0.93	0.98	0.98	0.91	0.82	0.63	0.98	0.97	0.58		

Source: Field Survey 2003-04.

Note : Figures in parentheses indicate t-values

* Significant at one per cent

** Significant at five per cent

*** Significant at ten per cent

level improves, debt comes down.

The contribution of the explanatory variables such as ratio of credit from non-institutional to that from institutional sources, income from subsidiary occupations and education level is statistically significant in the case of medium farmers in the central plain region (South), the western plain region (South) and the western plain region. In the Siwalik foot-hill region and the central plain region (North), the contribution of explanatory variables, i.e. the ratio of credit from non-institutional sources to that from institutional sources and expenditure on unproductive purposes, is positive and significant. The family-size is significant in the central plain region (North) only. The coefficient for farm-size is found to be non-significant statistically in all the regions. The coefficient of multiple determinations explains more than 90 per cent variation in magnitude of indebtedness in all the regions.

For the large farm-size category the regression coefficient for ratio of credit from non-institutional sources to that from institutional sources is positive and significant in all the regions except the western plain region (South). The regression coefficient for expenditure on unproductive purposes is also significant in all the regions. The income from subsidiary occupations has significant contribution towards decreasing the magnitude of indebtedness of the large farmers in the central plain region (South) and the western plain region. The coefficients for family-size and farm-size are found to be non-significant in all the regions. The regression coefficient for educational level of the head of the family is found to be negative and significant in the central plain region (North) and the western plain region (South).

In the case of all the categories of the farmers taken together, the contribution of

explanatory variables such as ratio of credit from non-institutional sources to that from institutional sources, expenditure on unproductive purposes, educational level of the head of the family and farm-size is statistically significant in all the regions. The regression coefficient for income from subsidiary occupations is negative and statistically significant in all the regions except the central plain region (North). This reveals that income from subsidiary occupations has an inverse relationship with indebtedness.

The regression coefficient for family-size is significant in the Siwalik foot-hill region and the central plain region (North). The variable of expenditure on unproductive purposes bears a direct relationship with indebtedness implying an increase in indebtedness with the increase in expenditure on unproductive purposes. Farm-size has a significant positive relationship with indebtedness. This indicates that the capacity of the farmers to take loans increases as farm-size goes up. The educational level of the head of the family has inverse relationship with indebtedness. This suggests that education increases the awareness among the farmers. The values of R^2 are of the order of 0.83, 0.84, 0.93, 0.82, and 0.58 in the Siwalik foot-hill region, the central plain region (North), the central plain region (South), the western plain region (South) and the western plain region respectively.

Major Findings

- The proportion of households under debt is the highest in the central plain region (South).
- The amount of debt per household and per acre is the highest in the western plain region (South).
- The amount of debt per household is positively associated with farm-size and

the amount of debt per operated acre is negatively associated with farm-size in all the regions.

- Source-wise the commission agents come out to be the largest contributor towards loans in the central plain region (North) and the western plain region (South). For the remaining three regions the commercial banks are the largest contributor towards loans.
- The farmers have taken the highest proportion of loans for productive purposes in all the regions. The major proportion of loans spent on productive purposes goes to the purchase of farm inputs.
- The major proportion of non-productive loans goes to family maintenance expenditure.
- The large farm-size category has taken maximum amount of loans at the rate of interest less than 10 per cent in all the regions except the Siwalik foot-hill region, while the marginal farm-size category has taken the maximum amount at the rate of interest ranging between 20 to 30 per cent in all the regions except the Siwalik foot-hill region.
- The contribution of explanatory variables such as ratio of credit from non-institutional sources to that from institutional sources, expenditure on unproductive purposes, education level of the head of the family and farm-size are statistically significant in all the regions.
- The regression coefficient for income from subsidiary occupations is negative and statistically significant in all the regions except the central plain region (North). The regression coefficient for family-size is significant in the Siwalik

foot-hill region and the central plain region (North).

Suggestions

To overcome the problem of indebtedness, it is necessary to develop subsidiary occupations. The government should exercise a strong check on the activities of non-institutional agencies and provide credit to all the farmers at reasonable rates of interest with easy repayment facilities. Implementation of land reforms in favor of the marginal and small farmers will result in increasing their farm-size and consequently will be helpful in increasing their farm business income. The remunerative prices of agricultural products must be fixed at reasonable level taking into consideration cost of production and consumer price indices.

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