Impact of Credit Gap for Turmeric Farmers in Erode District, Tamil Nadu

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Abstract — India is the largest producer, consumer and exporter of turmeric in the world and its value added products play a vital role in the world trade. The study focus to the estimation of differences in costs and returns (borrower and non-borrower) of turmeric growers. Two forty samples from bhavani block under erode district were selected for the study. 120 for borrower and 120 for non-borrower was selected. The objective of the study is to assess the credit gap for crop loan availed by marginal and small farmers. Analysis udsed for the study is cost of cultivation. The results revealed that human labour occupies a major share followed by fertilizer and manure, sucker cost, interest on working capital, insecticide, irrigation charges, machine labour, animal labour and so on. Similar trend was observed in non-borrowed farms. Though the scale of finance offered by commercial banks is adequate for turmeric cultivation, a positive deviation was witnessed for efficient turmeric farmers. Hence, Government should take necessary efforts in creating custom hiring centers (CHC), it may help to reduce the labour usage and cultivation cost.

Keywords — *Turmeric; Borrower; Non-Borrower; Cost of Cultivation.*

1. Introduction

Turmeric (*Curcuma longa* L.), is one of the essential spice crop which is commercially grown in India. It is a herbaceous plant belonging to the Zingiberaceae family under the order Scitaminae and originated in South East Asia (Purseglove, 1968). Turmeric has greater responsibility in the national economy of our country. India is the largest producer, consumer and exporter of turmeric in the world and its value added products play a vital role in the world trade to a turn of about 50% (Philip, 1983). Other than India, major producers are China, Myanmar, Nigeria, Bangaladesh, Pakistan, Srilanka, Burma and Indonesia. Estimated global production of turmeric is around 11.00 – 11.5 lakh tonnes.

India contributes 80% of total world production followed by China and Myanmar. In India, turmeric is cultivated in around 238000 ha with a production of 1133000 MT (NHB, 2018). Telangana, Andhra Pradesh, Tamil Nadu, Karnataka, Orissa, West Bengal and Maharashtra are the major turmeric producing states in India. Among the states, Telangana occupies an area of 51,000 ha with the production of 294000 MT followed by Maharashtra, Andhra Pradesh, Karnataka, Gujarat, Tamil Nadu and Orissa. (Spice Board, 2017-18)

In Tamil Nadu, turmeric is cultivated in around 16, 190 ha with a production of 57,150 MT (Spice Board, 2017-18). Major turmeric producing districts of Tamil Nadu are Erode, Salem, Coimbatore, Namakkal, Dharmapuri and Viluppuram. Erode occupies the first position in area and production of turmeric. This district is well known for the production of turmeric and export of turmeric in the entire country.

Although the financial institutions extend the huge volume of credit to the agricultural sector, the majority of the farmers are suffering out of problems like `Overdue/Indebtedness' and lack of timely and adequate agricultural credit (Vijaya Kumari, 2005). In fact, borrowing and overdue are two sides of the same coin, while borrowing is the cause, indebtedness is the result, and sometimes, it leads to farmer's suicide (Narasimhan, 2007, Namde, 2007, Ratan Lall *et al.,* 2007 and Janardhan, 2008).

At all-India level, estimated number of rural households was 147.90 million of which 60.4 percent were farm households. The estimated percentage of indebtedness among farmer households was highest in Andhra Pradesh (82.0 percent), followed by Tamil Nadu (74.5 percent) and Punjab (65.4 percent). The farm households with one hectare or less of land accounted for 66 per cent of all farmer households and about 45 percent of them were indebted. Average outstanding loan per indebted farmer household was the highest in the state of Punjab (₹ 41,576), followed by Kerala (₹. 33,907), Haryana (₹ 26,007), Andhra Pradesh (₹ 23,965), Tamil Nadu (Rs 23,963) and so on. More than 50 per cent of indebted farmer households had taken loans for the purpose of capital or current expenditure in farm business. Such loans accounted for ₹ 584 out of every ₹ 1000 rupees of outstanding loan on an average. Marriages and ceremonies accounted for ₹ 111 per ₹ 1000 of outstanding loans of farmer households. Among

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the states, the loan amount meant for marriages and ceremonies was the highest in Bihar (₹ 229 per ₹ 1000 of outstanding loan), followed by Rajasthan (₹ 176 rupees per ₹ 1000). In Tamil Nadu, loan for consumption and marriage purposes was ₹ 218, while the corresponding figure for All India was ₹ 200 in the year 2005.

The marginal farmers used only 59.65 per cent of the total credit borrowed, small farmers used 60.53 per cent and large farmers used 76.56 per cent of the total credit amount for productive purpose. The remaining amount of credit was used for meeting family expenditure. The main reason for overdue was shifting the borrowed fund to unproductive activity and this resulted in the poor income generation (Ramesh, 2005). In view of the above, it was attempted to study the comparative economic analysis of Borrower and Non-Borrower Turmeric marginal and small farmers in Erode District.

2.　Objectives

➢ To assess the credit gap for crop loan availed by marginal and small farmers.
➢ To give suitable policy suggestion strategies for refining the agricultural credit policies.

3.　Sample Design

The study is based on primary data collected from a sample of farmers selected through multi stage purposive random sampling method. Erode district was purposively selected for the study as it had a major share of area under turmeric in Tamil Nadu, which required more investments on agriculture and in turn demanded more external farm finance. In the second stage of sampling, Bhavani block of Erode district was selected as they had the highest percentage share of area under turmeric among all the blocks of the district. From the selected blocks, sample villages were selected purposively in consultation with bank officials, considering high density of short-term institutional borrower of above-mentioned crops. The sample farm households comprised of two different groups, namely (i) Borrower and (ii) Non-Borrower.

Sample farmer were selected based on the probability proportion to size. The sample size (n) of population in the study area was determined by using the formula (Arkin and Colton, 1963):

$$n = \frac{Nz^2p(1-p)}{Nd^2+z^2p(1-p)}$$

Where: n = sample size; N = total number of population (9158); z = confidence level (at 95 % level z =

1.96); p = estimated population proportion (0.5), this maximizes the sample size; d = error limit of 5% (0.05).

Application of above-mentioned formula suggests taking sample size of 382. N was taken as number of populations in study area. Due to time and financial constraints, about 62 per cent (240) of obtained sample size was selected. That, 62 per cent of sample farmers were randomly selected from the study area. The sample size of the borrowers and non-borrowers was fixed at 120 for turmeric crop farmers.

4.　Methodology

4.1 Cost of Cultivation

The technique of tabular presentation was used to assess the cost, returns, and profits of crops grown in the study area. The percentages and averages of variable costs and fixed costs were computed based on the methodology followed by the Commission on Agricultural Costs and Prices, Government of India, New Delhi. The cost concepts like Cost A, Cost-B and Cost-C listed below were used for the study.

Cost A_1: It includes the value of hired human labour, machine power (owned and hired), value of seeds (farm produced/purchased), value of manures (owned/purchased), value of fertilizers, value of plant protection chemicals, irrigation charges, interest on working capital, depreciation of implements and farm buildings, payments (land revenue, cesses and other taxes) and miscellaneous expenses (electricity charges).

Costs are generated following certain cost concepts. These cost concepts and the items of costs are given below:

Cost A_1	Value of hired human labour.
	Value of hired bullock labour.
	Value of owned bullock labour.
	Value of owned machinery labour.
	Hired machinery charges.
	Value of rhizome (both farm produced and purchased).
	Value of insecticides and pesticides.
	Value of manure (owned and purchased).
	Value of fertilizer.
	Depreciation on implements and farm buildings.
	Irrigation charges.
	Land revenue, cesses and other taxes.
	Interest on working capital.
	Miscellaneous expenses (Artisans *etc.*).
Cost A_2	Cost A_1 + rent paid for leased in land.

Cost B$_1$	Cost A$_1$ + interest on value of owned fixed capital assets (excluding land).
Cost B$_2$	Cost B$_1$+ rental value of owned land (net of land revenue) and rent paid for leased-in land.
Cost C$_1$	Cost B$_1$ + imputed value of family labour.
Cost C$_2$	Cost B$_2$ + imputed value of family labour.
Cost C$_2$*	Cost C$_2$ adjusted to take into account valuation of human labour at market rate or statutory minimum wage rate whichever is higher.
Cost C$_3$	Cost C$_2$* + value of management input at 10 percent of total cost (C$_2$*).

Cost of Production = (Cost C$_3$ - Value of By-Product) / Quantity of Main Product

Gross Return = (Quantity of Main Product x Price of Main Product (Rs)) + (Quantity of By Product× Price of By Product (Rs))

Net Return = Gross Return - Cost C$_3$

4.2 Credit Gap

Credit gap was calculated from the below formula

$$Credit\,gap = \frac{Credit\,Requirement - Approved\,Scale\,of\,finance}{Credit\,Requirement} \times 100$$

5. Results and Discussion

Economics of Turmeric Cultivation in the Sample Farms are,

5.1 Cost of Cultivation of Borrower and Non-borrower Turmeric Farms

The cost of cultivation of turmeric would reveal the relative importance of different inputs and their share in the total costs. Hence, the cost of cultivation per hectare of turmeric was estimated for borrower and non-borrower turmeric farms and the results are presented in Table.1.

Table 1: Cost of cultivation borrower and non-borrower turmeric farms

Sl No	Particulars	Cost	Borrower (Rs/ha)	%	Non-Borrower (Rs/ha)	%
1.1	Cost of Cultivation (Rs/Hectare)	A$_1$	126457.21	65.69	116862.84	65.53
		A$_2$	126703.42	65.82	117094.71	65.66
		B$_1$	133995.90	69.61	125010.53	70.10
		B$_2$	168489.65	87.53	160457.78	89.98
		C$_1$	148843.23	77.32	138750.87	77.81
		C$_2$	183336.98	95.24	174198.12	97.68
		C2 Revised	192503.83	100.00	178326.62	100.00
	Yield (Qtl./Hectare)		458.25		420.35	
	Income (₹/Hectare)		436034		396491	

The comparative analysis of cost and returns based on cost concepts for borrower and non-borrower turmeric farms were also taken to study the impact of credit on income. It is evident from Table. 1, the average C$_2$ (revised) cultivation cost of borrower turmeric farm was ₹192503.83. Cost A$_1$ contributes 65.69 percent to revised C$_2$, similarly 65.82%, 69.61%, 87.53%, 77.32% and 95.24% were contributed by A$_2$, B$_1$, B$_2$, C$_1$ and C$_2$ respectively. In the case of non-borrower, the revised C$_2$ cultivation cost was ₹178326.62. The percentage share of A$_1$ to revised C$_2$ was 65.53%. Similarly, A$_2$, B$_1$, B$_2$, C$_1$ and C$_2$ constituted 65.66 %, 70.10%, 89.98%, 77.81% and 97.68% of revised C$_2$ respectively.

5.2 Cost of Production of Borrower and Non-Borrower Turmeric Farms

It is evident from Table.2, that average C$_3$ production cost per quintal of borrower turmeric farm was ₹ 462.35. Cost A$_1$ contributes 59.72 percent to C$_3$, similarly 59.84%, 63.28%, 79.57%, 70.29%, 86.58% and 90.91% were contributed by A$_2$, B$_1$, B$_2$, C$_1$, C$_2$ and C$_2$ (revised) respectively. In the case of non-borrower turmeric farms, C3 production cost was ₹467.05. The percentage share of A$_1$ to C$_3$ was 59.58%. Similarly, A$_2$, B$_1$, B$_2$, C$_1$, C$_2$ and revised C$_2$ constituted 59.69%, 63.73%, 81.80%, 70.73%, 88.80% and 90.91% of C$_3$ respectively.

Table 2: Cost of production of borrower and non-borrower turmeric farms

Sl No	Particulars	Cost	Borrower (Rs/Qtl)	%	Non-Borrower (Rs/Qtl)	%
2.1 2.8	Cost of Production (Rs/Qtl)	A_1	276.11	59.72	278.24	59.58
		A_2	276.65	59.84	278.80	59.69
		B_1	292.57	63.28	297.64	63.73
		B_2	367.88	79.57	382.04	81.80
		C_1	324.99	70.29	330.36	70.73
		C_2	400.30	86.58	414.76	88.80
		C_2 Revised	420.31	90.91	424.59	90.91
		C_3	462.35	100.00	467.05	100.00

5.3 Operational and Fixed Cost of Borrower and Non-Borrower Farms

From Table.3, it is observed that operational cost constituted 76.68 per cent of total turmeric production cost of borrower with a value of ₹140585.41. Within the operational cost, human labour occupies a major share 29.14% followed by fertilizer and manure (24.23%), seed cost (15.27%), interest on working capital (12.20%), insecticide (6.06%), irrigation charges (5.62%), machine labour (4.27%) and animal labour (0.97%). The share of fixed cost was 23.32% with ₹42751.57. Within the fixed cost, the rental value of owned land occupies a major share of 80.11% followed by interest on fixed capital (17.63%), depreciation on implements & farm building (1.65%), rent

paid for leased-in-land (0.58%) and land revenue, taxes & cesses (0.03%). In the case of turmeric cultivation of non-borrower farms, the share of operational cost to total paddy production cost was 69.02% with a value of ₹47861.17. Within the operational cost, human labour occupies a major share 27.24% followed by fertilizer and manure (25.02%), seed cost (16.06%), interest on working capital (12.36%), insecticide (5.81%), irrigation charges (5.38%), machine labour (4.08%) and animal labour (0.01%). The share of fixed cost was 25.44% with ₹44323.35. Within the fixed cost, the rental value of owned land occupies a major share of 79.45% followed by interest on fixed capital (18.38%), depreciation on implements & farm building (1.62%), rent paid for leased-in-land (0.52%) and land revenue, taxes & cesses (0.03%).

Table 4: Operational and fixed cost of borrower and non-borrower turmeric farms

				(Rs/ha)
SI No	Particulars		Borrower	Non-Borrower
3	Operational Cost		**140585.41 (76.68)**	**129874.77 (74.56)**
3.1.1	Human Labour	Family	14847.33 (10.56)	13740.34 (10.58)
3.1.2		Attached	4645.03 (3.3)	2435.03 (1.87)
3.1.3		Casual	21475.32 (15.28)	19201.05 (14.78)
3.1.4		Total	40967.68 (29.14)	35376.42 (27.24)
3.2.1	Animal Labour	Hired	1345.69 (0.96)	1287.69 (0.99)
3.2.2		Owned	18.75 (0.01)	17.5 (0.01)
3.2.3		Total	1364.44 (0.97)	1305.19 (1)
3.3.1	Machine Labour	Hired	4000 (2.85)	3266.4 (2.52)
3.3.2		Owned	2000 (1.42)	2028 (1.56)
3.3.3		Total	6000 (4.27)	5294.4 (4.08)
3.4	Seed		21472 (15.27)	20857 (16.06)
3.5.1	Fertilizer & Manure	Fertilizer	30489.36 (21.69)	29841.52 (22.98)
3.5.2		Manure	3570.37 (2.54)	2658.74 (2.05)

3.5.3		Total	34059.73 (24.23)	32500.26 (25.02)
3.6	Insecticides		8525.87 (6.06)	7548.66 (5.81)
3.7	Irrigation Charges		7900.36 (5.62)	6987.54 (5.38)
3.8	Miscellaneous		3150 (2.24)	3950.3 (3.04)
3.9	Interest on Working Capital		17145.33 (12.2)	16055 (12.36)
4	Fixed Costs		42751.57 (23.32)	44323.35 (25.44)
4.1	Rental Value of Owned Land		34247.54 (80.11)	35215.38 (79.45)
4.2	Rent Paid for Leased-in-Land		246.21 (0.58)	231.87 (0.52)
4.3	Land Revenue, Taxes, Cesses		12.85 (0.03)	12.5 (0.03)
4.4	Depreciation on Implements & Farm Building		706.28 (1.65)	715.91 (1.62)
4.5	Interest on Fixed Capital		7538.69 (17.63)	8147.69 (18.38)
5	Total Cost [3+4]		183336.98 (100)	174198.12 (100)

It could be concluded that, the share of operational cost was 7.62 percent higher for borrower farmers. It indicates that non-borrower category farmers using lesser inputs compared to borrowers. This may be due to the non-availability of credit. The per hectare total cost of cultivation for turmeric was more in borrower farms than that of the non-borrower farms accounting for an increase of 4.98 per cent. Within the variable cost, human labour occupies a major share followed by fertilizer and manure, rhizome cost, interest on working capital, insecticide, irrigation charges, machine labour and animal labour and so on. Similar trend was observed in non-borrowed farms. In turmeric cultivation demand for labour was found to be higher especially for land preparation, sowing, irrigation, manuring and weeding operations, harvesting and curing. Hence a major percentage share on total cost of cultivation was accounted for human labour.

The second major share of working capital was occupied by fertilizer and manure, because turmeric is highly responded to fertilizer and irrigation. Hence most of the farmers are fertigating once in three day of the entire cropping period.Comparative analysis of per quintal production cost between the borrower and non-borrower category indicates that per quintal production cost is higher for the non-borrower category. Though the cost of cultivation is higher for the borrower category it has a relatively lesser production cost. This higher cultivation cost (4.98 %) and less production cost (-1.02 %) of borrower category confirms that the borrower category yields more output (8.27 %) compare to the non-borrower category. This higher yield of borrower category may be the result of using the optimum level of input which was timely purchased from the credit they got. These results are in line with the findings of Venu, B. N., Umesh, K. B., Kiran, R., & Reddy, V. V. (2014) and Felix, K. T., Bharathi, R. D., & Rajasekar, D. D. (2017).

Table 5: Credit gap based on Cost of cultivation and Scale of Finance

S.No	Crop	Cost of cultivation (Rs/ha)	Scale of finance (Rs/ha)	Credit gap	Percentage
1	Turmeric	183337	157500	25837	14.09

It may be observed from the table above that the credit gap was Turmeric (Rs.25837 or 14.09%) and Paddy (Rs.5743 or 7.61%).This result is in accordance with the results of Rani, S. P., Mani, K., & Anjugam, M. (2016).

Farmers expressed that relaxation in security norms for mortgage of property, margin money requirement for loans above Rs1.60 lakhs, flexibility in repayment, settlement of insurance claim on farm to farm basis, subsidy for inputs, marketing, storage and processing facilities would help them to access more and more institutional credit.

While discussing with banks, it was stated that crop loans are extended liberally as per the norms prescribed by RBI and the targets assigned for the said purpose were reached. Further, organizing farmers into Joint –liability groups would accelerate the flow of credit.

6. Conclusion

In turmeric cultivation demand for labour was found to be higher especially for land preparation, sowing, irrigation, manuring and weeding operations, harvesting and curing. Hence a major percentage share on total cost of cultivation was accounted for human labour. The second major share of working capital was occupied by fertilizer and manure, because turmeric is highly responded to fertilizer and irrigation. Hence most of the farmers are

fertigating once in three day of the entire cropping period. Human labour occupies a major share followed by fertilizer and manure, sucker cost, interest on working capital, insecticide, irrigation charges, machine labour, animal labour and so on. Similar trend was observed in non-borrowed farms. Though the scale of finance offered by commercial banks is adequate for turmeric cultivation, a positive deviation was witnessed for efficient turmeric farmers. Results of this study revealed that the scale of finance was less than the cost of cultivation of crops. The credit gap was found for turmeric crops. Hence, Government should take necessary efforts in creating custom hiring centers (CHC), it may help to reduce the labour usage and cultivation cost.

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