Sources and Determinants of Farm Income in Kerala: Findings from A Village Study

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Abstract:
This paper attempts to analyse the condition of farmers in terms of their sources of income and the determinants of farm income in the context of the extensive agricultural land conversion and the continuous decrease in the share of agricultural income in Kerala. The emergence of a non-agrarian population due to lack of profit to attract youngsters into agriculture even at the village level, this study assumes importance as to examine the sources of income of farmers and the role of education, experience, household size and possession of land and area converted for non-agricultural purposes in determining farm income. The study finds that agricultural land use plays an important role in contributing positively to farmers' income. Whereas the agricultural land converted by farmers with non-farm income significantly reduces their farm income. The farmers with major income sources of income as remittances and salary are able to acquire more land as they invest their money on land and not so much for agriculture. They are able to acquire more loans by mortgaging land as their average debt is comparatively high. For this category land is an appreciating capital and a speculative asset which will be kept fallow, or sold for non-agricultural purposes as and when the opportunity arises. They can afford to convert their land to non-agricultural uses when the prices of the agricultural products fall. The second category of farmers is more attached to land and least interested in converting it. Their sole income is farming and is at a disadvantageous position with negative savings and with more debt which cannot be repaid with the farm income alone. Thus, the study calls forth special attention from the policy makers to concentrate on small and marginal farmers with no off- farm income and also to formulate strict rule against conversion of agricultural land to non-agricultural purposes in order to preserve the existing land for food security.

1. Introduction

India, despite of its impressive performance in Gross Domestic Product, and poverty coming down significantly, large majority of its people reside in the country side is in the grip of a severe agrarian crisis (Patnaik, 2007). The tragic face of this agrarian crisis is seen in farmers' suicide across states. Farmers are confronted in the new liberalisation era with hosts of problems. The starting of liberalisation policies during 1990s has left farmers in the shadow of uncertainty which cannot be recovered with their own effort. The integration of agriculture with the world market, and producing for market has already affected the food security and the dependence on market for their food. The reduction in subsidies due to liberalisation, low investment in agriculture, liberal import of agricultural products, lack of access to low cost/cheap loans for agricultural production, and the creation of economic zones etc. are the policies which has affected the agricultural growth and employment in agriculture. The NITI AYOG also expresses its concern over the progress of agriculture and how it is affecting the fate of millions of farmers. While highlighting the major problems faced by farm sector in India, such as low output per worker, farmers lack in the knowledge about remunerative prices offered by the government, declining farm size which has become unviable for cultivation, and the inadequacies of the relief measures of the government such as procedural inefficiencies and delays.

The state of Kerala despite its achievements in human development, literacy rate and sex ratio and streaming ahead with potential destination for eco-tourism and information technology still drags with its agro based rural economy (GoK, 2016). The structural transformation of Kerala economy to a non-agrarian nature in terms of income and employment (Kannan, 2012) has its implication on agriculture and farmers of the state. Though the state boasts of a comprehensive agricultural policy passed both in 1992 and in 2013,

the situation of agriculture and the farmers are still in a very doleful condition. The young generation move away from agriculture as it does not attract sufficient income. Its economy characterises a non-agrarian nature due to the dominance of service sector on the one hand and move away from farming by the young generations. As per NSSO 59th round 44 percent of the rural households were farmers in 2003-04. This is one of the lowest among all the states in India and much below all India average (60 Percent). The farmers in Kerala are found to be highly literate, the highest among all Indian villages and much above all India average (65 percent) as a result the awareness related to fertilizers, MSP and WTO are also very high in Kerala. The Kerala farmers alike all farmers in the country appreciate farming too (67 percent). But the survey conducted by NSSO in 2012-13, which included all the farming households whether they have land or not, could have shown an increase of farming community. But the agricultural households were the least compared to all other states (27.3). This presents a picture that Kerala farmers are leaving agriculture year by year. The survey also reveals that among these 27 percent, only for 16 percent of them, agriculture is the principal source of living. All India average is 63.5 percent (see Appendix Table A1.1). For most of the agricultural households, wages and salaries constitute the major source of income (29.9 percent) and other agricultural activity (16.9 percent). Whereas in India wages and salaries constitute major source of income to just for 22 percent of the agricultural households. The source of income of the households largely determined by the extent of land possession. More than 12 percent of the agricultural households in Kerala possess only homestead land to cultivate. Whereas in India, it is just 6.7 percent (see Appendix Table A1.2). Moreover, the crucial factor of production for agriculture when it has become a speculative asset has resulted in a land transfer from farmers to those who have non-farm income as their major source of income has resulted in a significant land conversion to non-agricultural purposes. The inequality among different categories of farmers has been found increasing. In this context, this paper examines the sources of farm income and non-farm income of the farmers and the role of agricultural land conversion as a major determinant of reduction of farm income. While examining this, the role of the farmers who has non-farm income as their major source of income in converting agricultural land is highlighted and thus widely observed land transactions and amassing the precious asset land for different motives by a group of wealthy people. This also has resulted in a fall in agricultural income.

This paper is organised into five sections. Section two describes the data and methodology. Section three examines the status of famers based on the primary survey. Section 4 analyses the determinants of farm income and section five conclude the paper with major findings and policy suggestions.

2. Data and Methodology

The census study of a village has been done in Manimooly village, in Vazhikkadavu Panchayath, which is the northern most part of Kerala in Malappuram District. Primarily an agrarian village where production of food crops such as rice and tapioca flourished during the early years of migration in 1940s from south Kerala. The agrarian transformation took place in the village from mid 1970s with the introduction land reform and with the initiation of policies like SADU[1]. The early migrants came here for cultivation to sustain their lives. Since oral information is available regarding the history of the village, this village is taken to understand the dynamism of land use change and its impact on farmers and agricultural income. The number of houses interviewed was 360. Among them 199 (55.3 per cent) were farm households. The details of data and methodology used for the analysis are given in Table 1.

[1] . Special Agricultural Development Unit that promotes the cultivation of perennial crops during 1970s.

Table 1. Measurements and Data Source of Variables

Variables	How measured	Source	Methodology
The status of the farmers is assessed by taking their income, sources of income both agricultural and non-agricultural, debt position, government transfersetc.	All these variables are in quantitative forms which are measured using the structured interview schedule by the researcher.	A census study conducted in Manimooly village, in Vazhikkadavu Panchayath in Malappuram District for the period 2013 July to 2014 June. .	Averages, cross tabs, percentage share and correlation analyses are used to assess the status of farmers in the village.
To find out the determinant of income of the farm household, the variables such as age, education, household size and total land of the farm households and area converted to non-agricultural uses have been taken as independent variables.	These variables are in quantitative forms which are measured using the structured interview schedule by the researcher.		A double log model of regression is used for the analysis with respect farm households with off farm income and farm households with only farm income.

Source: Field Survey 2013-14

3. The Present Status of Farmers: Findings from the Village Survey

By status of famers meant the standard of living of farmers/ well-being of farmers. The most appropriate measure of farmers' well-being is the level of farm income (Chand et.al, 2015). Moreover, the agrarian distress is highly associated with low growth rate in farm income. But the well-being of the farm households depends not only on farm income but also on the government transfers, government taxes and other liabilities of the farm households. (USDA, 2004).

Moreover, farm households also receive a good amount from off- farm components such as gross wages and salaries, property income, social transfers and other income. Both farm income and off farm income constitute the total farm income, and from these taxes and other mandatory payments are deducted, one will get the disposable farm household income, which is more important as far as a household is concerned (OECD, 2003). But according to USDA study, the well-being of farmer depends on one side disposable income and on other side, how these incomes is allocated for consumption and saving which may further lead to increase in wealth of farm households. The well-being of farm households is not determined solely by the annual income of their members. Household wealth can play an important role in alleviating the impact of sudden changes in income, and most of the wealth of farm households is in the form of farm business assets, particularly farmland (USDA, 2004).

The present status of the farmers based on the primary data is done so as to understand more clearly the position of farmers with regard to their income, sources of income, consumption expenditure pattern, asset positions, land distribution and occupation. In the context of the overall land use change in the village, an attempt has been made to unravel the nature of farmers and how they have diversified their employment for survival.

Farm households' income consisted of farm income and non-farm income. Farm income is income from agriculture and allied activities. All other income such as salary, wage earning, business income, remittances and income from other non-agricultural activities are included in non-farm income. While calculating the household income, government transfers like pension and other allowances are not taken into account as the farm households who received pension reported that there was no regularity in the payment of these transfers. The mandatory contributions like tax on property, and depreciation allowances etc. are not deducted from household income to get the disposable income. Gross receipt from farm means the total income received by the farmer from farming which is inclusive of the paid out labour. From this only paid out cost in terms of cash expenses is reduced to get the farm income. While calculating the income sources,

two categories of farmers are identified. They are first, the farm households without any non-farm income and second, the farm households with non-farm income as their major source of income. The income of both these categories is calculated in the following manner.

Category1: Farm Households without non-farm income
Household Income = Gross Receipts from Farm – Cash Expenses of the farm
Category2: **Farm households with non-farm income**
Household Income= Gross Receipts from Farm- Cash Expenses of the farm + non-farm income

3.1 Distribution of Households by Income Category

In order to see the variations in agricultural income, the households with annual agricultural income were categorized into four groups-very low-income group (Below Rs. 50,000); Low Income group (Rs. 50,000 to Rs. 1, 50,000); Middle income group (Above Rs. 1.5 lakh to Rs. 3.5 lakh); and high-income group (Above Rs. 3.5 lakh). The agricultural income also includes income from dairying and poultry. Out of the total households in Manimooly village (360), there are 199 households deriving their income from farming operations. Table 3 shows the distribution of agriculture and allied income across groups/categories.

Table 3. Annual Agriculture and Allied Income

Sl. No.	Agricultural Income Category (Rs/ per annum)	Number of Households	Percent
1	Very Low Income (Below 50,000)	106	53.3
2	Low Income (50000 to 150000)	32	16.1
3	Middle Income (150001 to 3.5lakh)	39	19.6
4	High Income (Above 3.5lakh)	22	11.0
5	Total	199	100

Source: Field Survey, 2013-14.

There are about 55per cent of the household's deriving income from agriculture and allied activities while another 45 per cent get no income from farming. Among those who receive income from agriculture, a majority of the households (53.3per cent) receive an annual income below Rs.50, 000/- and the other 16 per cent receive low income up to 1.5lakh per annum. These together constitute about 69 percent of the total agricultural households. However, about 11 percent of the households get a high income from agriculture. This shows a high inequality in the income distribution among the agricultural income households. The income from cultivation alone across different categories of farmers computed to know the crop income among these farmers is shown in Table 3.1. This also unravels the reasons for such inequality in the distribution of agricultural income.

3.2 Income from Cultivation across type of farmers

Across farmers, there exist wide variations in income. The marginal farmers with below 2.5 acres of land constitute about 71.4 per cent of the farm households with an average acre of just 0.77. The average annual income from cultivation is measured as per acre income from farm which is also very low with Rs.50152/- Another 21 percent are small farmers with 3.5 acre of land and on an average, for this category earn an income amount to Rs. 72626/acre for a year. Thus, marginal and small farmers together constitute about 92 per cent of the households. There is also a small category of big farmers holding 8 acres of land, on an average, and they get an income of Rs.75169/per acre. Thus, it is clear from this that, the marginal and small farmers dominate the study area. Besides there is also a small group of large farmers receiving sufficiently large income from land. On the other side, marginal farmers with less than one acre of land are at a disadvantageous position, as their land size is small which cannot fetch a sufficient income.

Table 3.1 Annual Income from Cultivation across Farmer categories

Farm Size Category	% share in the total number of farmers	Average farm size (acre)	Average Annual Income from cultivation (Rs/acre)
Marginal farmers (less than 2.50 acre)	71.4	0.77	50152.0

Small farmers (2.51-5.00 acre)	20.6	3.5	72626.0
Large farmers (more than 5.01 acre)	8.0	7.5	75159.0
Overall	100	1.87	66838.0

Source: Field Survey, 2013-14.

3.3 Indebtedness of Households

In the study area all the households are broadly divided into five categories for a comparison purpose with regard to their income and debt position. This also gives an understanding of the increase in consumption expenditure of households under different categories. The share of their consumption expenditure is presented in the following section. Here, the analysis is confined to only the average income of the households under different categories, their debt outstanding in terms of an average amount of debt and the percentage of households who are indebted. This is given in Table 3.2.

Table 3.2 Household income versus Debt Outstanding

Households Income	Debt		No Debt	Average Annual Income		
	Per cent of HH	Average Debt (Rs.in Lakhs)	Per cent of HH	Agricultural (Rs. in Lakhs)	Non-Agricultural (Rs. in Lakhs)	Total No. of HH
Agriculture	58.8 (117)	6.6	41.2 (82)	1.3	4.0	55.3 (199)
Non-Agriculture	57.7 (194)	5.2	39.4 (142)	0.0	3.7	93.3 (336)
Agricultural Income (only)	79.2 (19)	5.2	20.8 (5)	2.4	0.0	6.7 (24)
Agriculture & non-agricultural	56.0 (98)	6.9	44.0 (77)	1.2	4.0	48.6 (175)
Non-agricultural (only)	59.6 (96)	3.6	40.4 (65)	0.0	3.3	44.7 (161)
Total Number of Households	59.2 (213)	5.2	40.8 (147)	1.3	3.7	100 (360)

Source: Field Survey, 2013-14.
Note: Figures in parentheses are the actual number of households under each category.

The income, expenditure and debt of the households are linked. The average agricultural income of the households in the village amounts to Rs.1.3 lakh, whereas the average non-agricultural income constitutes

3.4 lakh, on an average. Thus, the non-agricultural income is about three times higher than the agricultural income. There are 24 households with only agricultural income. About 59 per cent of the households in the village are indebted with an outstanding debt of Rs.5.2 lakh on an average while the highest amount of debt (average) was incurred by households with both agricultural and non-agricultural income (Rs. 6.9 lakh). The highest per cent of households indebted are farmers with no other sources of income (79 per cent) with an average debt of Rs.5.2 lakh.

It is also found that the debt of the households and their total income are related in that a positive correlation is observed between the debt and income of the farm households with non-farm income. But for farm households with only farm income, a negative association between income and debt is observed ($r = -0.3$), while for households with only non-farm income a positive correlation is observed between their income and debt ($r = 0.44$). It is important to note here that the latter households and the households with non-farm income use credit instruments/securities such as land and gold to avail loans. About 81.4 per cent of loans availed of by the households in the village were through mortgaging of land and gold.

3.4 Sources of Income of Farmers

The sources of income of the farmers under the two categories are examined here separately. Among 55.3 percent of the households with income from farming, 48.6 per cent of the farm families derive their major share of income from non-farm activities. Another 6.7 per cent have no other income sources except farming. The share of income from different source is given in Table 3.3 for a better understanding of the source which provides them with maximum income.

Table 3.3 Sources of Income of Farm Households (percentage share in the Total Income)

Sources of Income	Farm Households with non-farm Income	Farm Households without non-farm Income
Paddy	0.03	-
Tapioca	0.04	-
Plantain	0.39	2.3
Rubber	15.88	70.0
Coconut	1.79	5.2
Arecanut	1.39	18.5
Homestead	1.42	0.74
Total Cultivation	**20.94**	**96.8**
Dairying	1.51	3.1
Others$	0.023	0.12
Total Allied sector	**1.53**	**3.2**
Agriculture Labour	0.5	-
Wage Earning	2.0	-
Salary	25.7	-
Business	5.2	-
Pension	9.6	-
Remittances	29.3	-
Other skilled Employment	5.2	-
Total Non-Agricultural Income	**77.5**	-
Total Agriculture and allied	**22.5**	100
Total Income	100	100

Source: Field Survey, 2013-14.
$include income from poultry, rabbit and goat rearing

The share of agricultural income of farm households in the non-farm income amounts to 22.5 per cent and the remaining 77.5 per cent is accounted for by non-farm sources. These households' major contribution of non-farm income is remittances (29.3) and salary (25.7 percent). The major source of farm income is rubber (15.8 percent).

There are 24 households out of 199 which derive income only from farming. This farm households' income mostly comes from cultivation (96.8 percent) and a small share from dairying and poultry (3.2 percent). However, 70 percent of cultivation income comes from rubber. Rubber is the most remunerative crop for these households. Further, these households are mostly self-employed in the farm and hence, no other source of income. They are still able to sustain their life as their own family labour is involved in the production, especially rubber, for which nearly 120 days of labour are required for tapping an acre of rubber for a year. Even if the prices of rubber falls, these farmers are able to continue production as they utilise their own labour. The percentage share of income from Arecanut is the next important contributor to the total household income (18.5 percent). However, the share of income from coconut amounts to as low as 5 per cent. This variation in the share of income from the farm sector is not due to a decrease in productivity/yield, but due to variations in the cropping pattern, land ownership and the prices of commodities. Rubber makes a major contribution to the household income as the price of rubber is very high as compared to other crops (Rs.150/kg). Arecanut also is one of the rewarding crops, as it fetches a good price (Rs.30/kg for raw Arecanut), whereas coconut price is just Rs.20/kg. Three to four coconuts is amounts to 1kg. In this case, the price per coconut is just Rs.5/-. The implication is that if such a situation prevails long, there is a possibility of these coconut gardens getting converted into rubber gardens, which is already happening in the village. This point to the reason for a decline in the area under coconut during the second half of the Economic Reform Phase observed while analysing the macro data on area. Moreover, a market-oriented production is also visible in this study area for both the categories of farmers.

3.5 The Economic Characteristics of Farm Households

The economic characteristics will reveal the status of farmers coming under the two categories. The variables include average annual income of the households and its components, type of house and average consumption expenditure. This is given in Table 3.4.

Table 3.4 Economic Features of Farm Households

Characteristics	**Farm Households with non-farm income**	**Farm Households with no non-farm income**
Number of Households	**175**	**24**
Average Annual Income of the Households (Rs.)	524584.0	246555.0
Annual Percapita Income (Rs.)	110339.0	59173.0
Average Family Size	4.7	4.2
Type of House		
Concrete (Per cent of households)	76.6	87.5
Tiled (Per cent of households)	23.4	12.5
Average Land Size (acres)	1.7	2.9
Average HH Consumption Expenditure (Rs/annum)	211298.0	255903.0
Annual Percapita Expenditure	44443.0	61417.0
Share of Consumption Expenditure in Total Income	40.3	103.8

Source: Field Survey, 2013-14.

These farm households with non-farm income constitute 175 farm households. Their share of consumption expenditure in the total income amounts to 40 per cent. Here, consumption expenditure includes all their expenditure on yearly basis, excluding expenditure on durables. Thus, the average income, the share of consumption expenditure and the percapita income reveal that the farmers with non-farm income are in a better position.

The farm households without non-farm income constitute 24 households. They get, on an average Rs. 2.4 lakh annually as income. Their average family size is four members and monthly Percapita income, on an average, is Rs.4931. But on an average, their monthly Percapita expenditure on necessities is worked out to Rs.5118. This indicates that having an annual income above 2 lakhs does not mean that they are able to satisfy their basic needs. Besides they seem practically unable to save, considering their consumption expenditure. This is the reason why they borrow to fulfil other obligations of the households and even continue with farming.

3.6 Agricultural Income Estimate

Agricultural income comprises both crop income and income from other agricultural activities such as dairying and poultry. The average annual income from different sources, along with the percentage share of the households is given in Table 3.5.

Table 3.5 Annual Average Income from Agriculture and Allied

Sources of Agricultural Income	**Farm Households with Non-farm Income**		**Farm Households without Non-farm Income**	
	Annual Average Income (in Rs)	**No. of Households with their percentage share**	**Annual Average Income**	**No. of Households with their percentage share**
Paddy	23700.0	1 (0.6)	0.0	0.0
Tapioca	8030.0	5 (2.9)	0.0	0.0
Plantain	27471.0	13 (7.4)	66630.0	2 (8.3)
Rubber	242933.0	60 (34.3)	258985.0	16 (66.7)
Coconut	31059.0	53 (30.3)	23678.0	13 (54.2)
Arecanut	30458.0	42 (24.0)	109862.0	10 (41.7)
Homestead	13572.0	96 (54.9)	5496.0	8 (33.3)
Cultivation	**121611.0**	**158 (90.3)**	**249018.0**	**23 (95.8)**
Dairying	51214.0	27 (15.4)	45645.0	4 (16.4)
Poultry	709.0	29 (16.6)	814.0	3 (12.5)

Rabbit Rearing	640.0	1 (0.6)	0.0	0 (0.0)
Goat rearing	1620.0	1 (0.6)	0.0	0 (0.0)
Total	117890.0	175 (88.0)	246352.0	24 (12.0)

Source: Field Survey, 2013-14.
Note: Figures in parentheses indicate percentage share to the Total

The households without non-farm income are mostly engaged in the cultivation of rubber (66.7 percent) followed by coconut and Arecanut cultivation (54 percent and 42 percent respectively). A good number of households cultivate their homesteads too. But the income pattern from these crops shows huge variations. Rubber cultivation contributes to Rs. 2.5 lakh to the household income, on an average, annually, while Arecanut cultivation contributes almost one lakh rupees. Plantain is also another important commercial crop which could bring in more income to the households (more than a half lakh) than coconut cultivation. This variation also is due to falling prices of coconuts, not due to a decrease in yield levels.
The households with non-farm income sources derive, on an average, an annual income of Rs. 1.2 lakh from cultivation, while rubber cultivators obtain an annual income of Rs. 2.4 lakh. Homestead also is an important source of income for 104 households. Among allied activities, dairying contributes almost half a lakh of rupees to the households. The farm households with non-farm income, barring a few, tend to look out for employment, as the farm income is not sufficient enough to sustain their lives.

3.7 Government Transfers

Government transfers are one of the components of income for the farm households. To measure this source the questions asked included whether they had ration cards, if so, what type, and whether they were getting any other assistance from the government including pension and benefit from Kudumbashree (Table 3.6).
Almost 87 percent of the farm households with non-farm income get ration for Rs.8/kg and 17 percent are members of Kudumbashree and they get an average loan of Rs.27136/year. Only 5 percent of the households are receiving a pension of Rs.500/month from the government. This income was not included in the calculation of the total income of these households in view of being irregular, as expressed by the households.

Table 3.6 Government Transfers to Farmers

Category	Ration (No. of HH)		Other Benefits (No. of HH)	
	Above Poverty Line	Below Poverty Line	Kudumbashree Loan	Agricultural/ Old age Pension
Farm Households with Non-farm Income	152 (86.9)	23 (13.1)	30 (17.1)	7 (4.0)
Farm Households without Non-farm Income	23 (95.8)	1 (4.2)	2 (8.3)	5 (20.8)

Source: Field Survey 2013-14; Note: Figures in parentheses are percentage out of the Total

The farmers with non-farm income about 87 per cent possess an APL ration card and only 13 per cent are having BPL ration card. The case of farmers without non-farm income also the same as almost all of them possess an APL card (95.8 per cent). The possession of the type ration card is based on the amount of land possessed. However, a mere possession of agricultural land does not ensure that they are able to meet their basic needs and come out of their poverty. Their income from land is not sufficient to meet their daily household chores as their monthly expenditure is more than their farm income. Thus, the net income is almost negative, that makes it difficult for them to meet the basic necessities. Kudumbashree loan is availed of by only 8 percent of the households while agricultural and old age pension is received by only 21 percent of the households. This shows that government aid to farmers is almost negligible. Moreover, since famers have land, they are denied of their eligible ration.

4. Determinants of Farm Income

It is important to analyse the determinants of farm income for both the categories of farmers in order to know the most important determinants of farm income and also to know whether agricultural land

conversion has affected their farm income. A double log model is used for the analysis. The variables considered for the analysis are given in a regression equation as follows

$\text{Log}Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + U$

Where Y = Farm Income which is dependent on the variables such as X_1 = Education, X_2 = Household Size, X3 =Experience, X_4 = Total Land Owned and X_5 =Area Converted to non-agricultural activities and U is the disturbance term which captures all the other variables not included in the model. Here, the variables X_1, X_2, X_3 and X_4, are assumed to share a positive relationship with Y and X_5 is assumed to be negatively related to Y. The results based on the Regression analysis are given in Table 4.

Table 4. Determinants of Farm Income

Variables	Farm Households with non-farm Income	Farm Households with no non-farm Income
	B Coefficients	***B Coefficients***
Intercept	4.7	5.24
Log Age	0.2	0.12
log HH_Size	0.1	-0.29
Log Schooling	-0.4	-0.43
log Total Land	**1.4*** **	**1.52*** **
log ALC (in cents)	**-0.3***	-0.21
	R Square 0.53 **Number of observations 175**	R Square 0.8 Number of observations 24

Source: Author

Note: ***, * denote significance at 1% and 10% levels, respectively

The major determinants of the farm income of the households with non-farm incomes are, land size and agricultural land converted. ALC has reduced the farm income significantly of these households. The agricultural land converted has reduced farm income, on an average, by 0.3 percent. For these households, the only variable which has affected the agricultural production positively is the land size. On an average, the income has increased by 1.4 percent, as land size, on an average of increases by one percent. The model is statistically significant as the F statistics is significant. The R square shows that almost 53 percent of the variations are explained by the model.

A regression analysis-based results with respect to farmers without non-farm income reveal that land is the most important determinant of farmer income. However, the other determinants such as household size and schooling do not show the expected sign. This means that as household size increases, the members do not undertake farming or cannot contribute to farming. This may be due to the lack of land with the farmer that an extra member cannot add substantially, to agricultural production. The negative sign for education indicates that as farmers' educational attainments increase there is a possibility of farming activities getting diverted, for education makes them aware of the fact that there is no scope for farming and that farming is not a status-job. Farmers'expereince in farming contributes positively to income, but is not found significant. This also highlights that, while the older farmers are engaged mostly in agriculture, utilizing their knowledge and experience in farming, the younger generation tends to keep itself away from faming. This also point toward a structural transformation in agriculture. However, the continued agricultural land conversions which tend to reduce the income of farmers are not found too significant in terms of influencing the farmers' basic attitude towards agricultural land. This is generally reflected in their reluctance to alienate themselves from their most important asset, that is, land, despite being aware of the absence of other sources of income. The model is statistically significant as the F statistics is significant.

5. Conclusion

This study basically focused on the sources of income of farmers and the determinants of farm income. While analysing the status of farmers, it was found that there are two categories of farmers; farmers with non-farm income and farmers without any non-farm income. And the major sources of income of the former category are remittances and salary and agriculture constitute only a meagre share of their income. For farmers with only farm income, their major source of income is from the cultivation of rubber. Government

transfers to farmers are meagre and irregular. Most of the farmers since they have land are under the APL category. This affects more the farmers with only farm income. The study found that the former category farmers are better off both in terms of land and in terms of non-agricultural income. Since they have more land, they are able to acquire more loans mortgaging land. Hence for this category, the average debt is the highest. Moreover, the regression analysis on the determinants of farm-income confirms that the agricultural land conversion contributes significantly in reducing farm income for farm households with non-farm income. Whereas the farmers who are solely dependent on farming with no off-farm income, found to be having negative savings. Their expenditure is more than their income and hence they are forced to borrow. This has an effect on their survival. For both the category, the regression analysis confirmed that land is contributing more to their farm income. These call forth reform in the agricultural sector which should concentrate on farmers with only farm income as they are attached to the land. The government needs to follow a kind of distributive justice to farmers. NITI AYOG needs to address this problem first of all by creating a clear-cut demarcation among so many categories of farmers. They should address the marginal and small farmers more compared to the medium and large farmers as this category almost solely dependent on farming and not engaged in other off-farm activities. Moreover, in the case of Kerala, which is an acute land scarce state, there should be a provision against agricultural land conversion as the land is in the hands of households with non-agricultural income and has no interest in cultivation. This will eventually lead to more conversion of agricultural land as the prices of agricultural products fall.

Appendix1

TableA1.1 Per 1000 distribution of agricultural households by principal source of income during last 365 days for major States

Category	Kerala	Percentage	India	Percentage
Cultivation	161	16.1	635	63.5
Livestock	60	6	37	3.7
Other Agricultural Activity	169	16.9	11	1.1
Non-Agricultural enterprises	134	13.4	47	4.7
Wages/salaried employment	299	29.9	220	22
Others	176	17.6	51	5.1
All	1000	100	1000	100
Estimated Number of Agricultural Households (00)	14043		902011	

Source: Situation Assessment Survey of Agricultural Households 2013

TabeA1.2: Distribution of agricultural households by type of land possessed and number of per 1000 agricultural households operated any land for agricultural activities in Kerala Vs. India

	Kerala	Percentage	India	Percentage
Homestead Only	123	12.3	67	6.7
Homestead and other land	871	87.1	926	92.6
Other Land Only	6	0.6	5	0.5
No Land	0	0	1	0.1
All	1000	100	1000	100
Operated any land for agriculture during the last 365 days (per 1000 HH)	994	99.4	966	96.6
Having MGNREG job Card (per 1000 HH)	429		444	
Estimated Number of Agricultural Households (00)	14043	27.3	902011	57.8

Source: Situation Assessment Survey of Agricultural Households 2013

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