

FACTORS AFFECTING ON FARMERS' INDEBTEDNESS AND SUICIDE – A STUDY IN NALGONDA DISTRICT OF TELANGANA STATE IN INDIA

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ABSTRACT

The objective of this study was to know the socio-economic conditions and their impact on farmers' indebtedness and suicides in Nalgonda district of Telangana state in India during 2012- 2016. The study used multi-stage random sampling method to select the sample. The model used was specified and derived from the economic function of $I_f = f$ (gender, land ownership, education, crop grown, family members and income) and the econometric model was $I_f = \beta_0 + \beta_1 g + \beta_2 I_o + \beta_3 edu + \beta_4 C_g + \beta_5 f_m + \beta_6 y + \mu$. The study revealed that the indebtedness of the women heads of households was less than their male counterparts. There was positive relationship between land ownership, level of education, number of crops grown, income and the indebtedness. Negative relationship existed between the number of family members and indebtedness. The study recommended for crop insurance, use of modern methods of rain water harvesting, new skills training and access to ICTs like radio, television, mobile phones and internet.

Keywords: Indebtedness; Farmer suicides; Crop failure; Poverty; Rain water harvesting; New skills training; Access to ICTs.

INTRODUCTION

Farmers suicide is a global phenomenon. Studies in Sri Lanka, USA, Canada, England and Australia have identified farming as a high stress profession that is associated with a higher suicide rate than the general population. This is particularly true among small scale farmers and after periods of economic distress (Behre and Bhishe 2009). Farming population in the United Kingdom, Europe, Australia, Canada and the United States have the highest rates of suicide of any industry and there is growing evidence that those involved in farming are at higher risk of developing mental health problems. The reasons behind farmers suicide include mental health issues, physical environment, family problems, economic stress and uncertainties (Fraser et al. 2005). The suicide rate among farmers is higher than general population in developed countries, such as UK and the USA (Augustine, et.al. (2012).

India is an agrarian country with around 48.9 percent of its people depending directly or indirectly upon agriculture. Nowadays the problem of farmers' suicides is one of the vital concerns that need to be addressed. According to Economic Survey 2014-15, a total of 5650 farmers have committed suicides during 2014, accounting for 4.3 percent of total suicide victims in the country. According to the National Crime Records Bureau of India (NCRB 2014) farmer suicides account for 11.2 percent of all suicides in India. The reasons for farmer suicides are monsoon failure, high debt burdens, personal issues and family problems (Schurman, 2013).

A total of 5178 male farmers and 472 female farmers have committed suicides, accounting for 91.6 percentage and 8.4 percentage of total farmers' suicides. In Telangana State 31.1 percentage (147 out of 472 suicides) female farmers' suicides were reported. In Madhya Pradesh 29.2% (138 suicides), in Maharashtra 14.1 percentage (70 suicides) and in Chhattisgarh 11.0 percentage (52 suicides) of female farmers' suicides were reported in the year 2014. A total of 2568 farmers' suicides were reported in Maharashtra followed by 898 such suicides in Telangana and 826 suicides in Madhya Pradesh, accounting for 45.5 percentage, 15.9 percentage and 14.6 percentage respectively of total farmer suicides during 2014. Chhattisgarh (443 suicides) and Karnataka (321 suicides) accounted for 7.8 percentage and 5.7 percentage, respectively of the total farmer suicides reported in the country. These 5 States together accounted for 89.5 percent of the total farmer suicides (5056 out of 5650) reported in the country during 2014 (NCRB 2014)

OBJECTIVES OF STUDY

The study was based on the following objectives:

1. To know the socio-economic conditions of the households of farmers who committed suicide.
2. To investigate the impact of gender, age, level of education, income, number of family members, land ownership and crop grown on indebtedness of farmers (which is proxy of suicide death) .
3. To find out the details of indebtedness, crop failure, marketing, relations with land owner of the farmers who committed suicide.
4. To ascertain the family disputes, poverty, problem of daughters' marriage and instigation by the political parties for committing suicide of the farmers.

LITERATURE REVIEW

According to the study by Dongre and Deshmukh (2012) the reasons for farmers suicide are debt, addiction, environmental problems, poor prices for farm produce, stress and family responsibilities, government apathy, poor irrigation, increased cost of cultivation, private money lenders, use of chemical fertilizers and crop failure. Landon, M. (2006) revealed that use of chemical fertilizers and environmental degradation destroyed the nutrients of the soil due to over-use of pesticides and chemical fertilizers needed to successfully grow the genetically modified seeds. This repeated degradation resulted in the loss of land productivity. Zhang, et.al (2009) also found in rural China that the chronic pesticide exposure was associated with suicidal tendencies. Where as, Merriott's study (2017) revealed that the socio-economic factors are associated with farmer suicides, with increased indebtedness playing the predominant role.

Many studies revealed that indebtedness was the single important factor responsible for farmer suicides (Nagaraj (2008); Gruere and Sengupta (2011); Sadanandan (2014) and Mishra (2006). Kale, et.al. (2014) found that 98.5 percent of farmer suicide victims were indebted. Mishra's study (2006) found that debt was the most common factor in Maharashtra at 86.5 percent. Nagthan, et.al. (2011) investigated in Karnataka and found that agricultural debt was the primary factor for farmer suicides. Gedala (2008) reported that indebtedness was one of the statistically significant factors for farmers' suicides in Andhra Pradesh. The study by Kaur, et.al. (2016) found that the main reason for farmer suicides was rapid increase in debt and crop failures, among other reasons. Singh and Manisha (2015) found that repeated crop failure had left the farmers with no other solution other than ending their lives. The study by IGSSS (2017) also found that the primary reasons for suicide were crop failure (30 percent) and drought (23 percent) among other reasons.

Chikkara and Kodan (2013) found negative association between the size of holding and percentage of credit attained from informal sources – 29 to 53 percent of credit for marginal farmers, 38 percent for small farmers and 25 percent for large farmers. Sarangi, et.al (2010) found that the reliance on money lenders had increased 18 percent to 27 percent of credit between 1991-2002. There was an inverse correlation between size of the land holding and reliance on non-institutional agencies. Kennedy and King's study (2014) also revealed that the number of marginal farmers in different states was strongly linked to the suicide rate, along with indebtedness and cash crop production. Kale, et.al. (2014) revealed that 69 percent of the suicide victims had no water source and relied entirely on monsoon rains for their fields. Gedela (2008) found that non-suicide farmers had a higher proportion of their land area that was irrigated than suicide victims in Andhra Pradesh. Poor irrigation was not only a direct cause of increased debt by lowering returns and potentially causing crop failures, but also was responsible for the move towards money lenders, as banks were reluctant to lend to farmers who lack irrigation facilities, as the return they receive on their investment was less assured.

Kale, et.al. (2014) reported that majority of suicide cases were the heads of the households. The study by IGSSS (2017) also found that 54 percent of the farmers who committed suicide were the heads of the families and 30 percent of them were elder sons in their families. Nagthan, et. al. (2011) found 73 percent suicide cases had conflict with their wives. Marriage of the farmers' daughters was identified as a responsible factor in 40 percent of suicide cases. Sadashiv's study (2015) revealed that farmers had to give huge fund and gold in the marriage of their daughters. When the farmers failed to perform all these traditions and cultural activities they became frustrate and turned towards suicide. Illiteracy, tradition and culture also forced the farmers to commit suicide. The study by IGSSS (2017) also revealed that family responsibilities like daughters' marriage was responsible for farmers' suicides.

Gedela (2008) found that 92 percent of the suicide cases were illiterates. Kale, et.al. (2014) stated that 16.5 percent of suicide victims were illiterate and only 4 percent educated up to college level. Nagthan, et. al (2011) reported that 50 percent suicide cases had a primary school education. IGSSS (2017) also found that 57 percent who committed suicide were under- metric.

The Government of India's survey (2014) revealed that indebtedness, family problems and failure of crop were the main causes of suicides. The major reasons for farmers suicide were the high cost of seeds, failure of crops due to inadequate irrigation, bankruptcy due to indebtedness from high cost and the subsequent failure of crop (News Gram, 2015).

According to the study by IGSSS (2017) the reasons for farmers' suicides were poverty, problem of marketing of farm produce and non-access to minimum support price.

Since the issue of farmers' suicides is related to the complex inter-play of social, economic, environment and government policies, this study on the factors affecting farmers' indebtedness and suicides assumes important.

METHODOLOGY

The study was conducted in Nalgonda district of Telangana State where many farmer suicides took place. The study used multi-stage random sampling method to select the Mandals and the farmers who committed suicide. In the first stage Nalgonda district of Telangana state was selected due to the reason that many farmers committed suicide. In the

second stage, out of 49 Mandals in Nalgonda district, six Mandals were selected – Kattangur , Narkatpelly, Thipparty Nalgonda, Ramannapet and Kethepally. In the third stage, 25 farmers who committed suicide were selected – Kattangur 7; Narkatpally 6; Thipparthly 2; Nalgonda 4; Ramannapet 5 and Kethepally 1. The study period was for five years, i.e., from 2012 to 2016. Questionnaire was prepared to collect the information from the households of farmers who committed suicide during this period.

The study used multiple regression model to measure the relationship between dependent variable and the independent variables. The dependent variable was indebtedness (which was members, income, land ownership, crop grown, level of education and the sex of the farmer who committed suicide).

The data were analyzed using SPSS to get the results and the policy conclusion was drawn on the basis of the results.

MODEL SPECIFICATION

The model used in this study was specified and derived from the following function:

$$I_f = f(g, l_o, edu, c_g, f_m, y)$$

The econometric model, therefore, becomes as below:

$$I_f = \beta_0 + \beta_1 g + \beta_2 l_o + \beta_3 edu + \beta_4 c_g + \beta_5 f_m + \beta_6 y + \mu$$

Where,

I_f = Indebtedness of the farmer committed suicide

g = Gender of the farmer who committed suicide

l_o = Land ownership

edu = Education level of the farmer

c_g = Crop grown at the time of committing suicide

f_m = Family members

y = Income

u = The Error Term.

Numerically, the econometric model is specified as follows:

$$I_f = 815.005 - 11.170 g + 4.563 l_o + 84.505 edu + 57.557 c_g - 19.083 f_m + 1.067 y + u$$

$$R^2 = 0.215 \quad \text{Adjusted } R^2 = 0.047$$

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.464 ^a	.215	-.047	310.06590

a. Predictors: (Constant), Gender, Land ownership, Education, Crop grown, Family members, Income

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	474166.617	6	79027.769	.822	.567 ^a
	Residual	1730535.543	18	96140.864		
	Total	2204702.160	24			

a. Predictors: (Constant), Gender, Land ownership, Education, Crop grown, Family members, Income

Coefficients^a

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	815.005	564.051		1.445	.166
	Family members	-19.083	66.379	-.067	-.287	.777
	Income of family	1.067	7.768	.037	.137	.892
	Land Ownership	4.563	16.830	.063	.271	.789
	Crop grown	57.557	58.425	.237	.985	.338
	Education	84.505	77.686	.276	1.088	.291
	Gender	-11.170	7.595	-.363	-1.471	.159

a. Dependent Variable: Indebtedness

The model equation is preferred because the standard error of the estimation is smaller than the mean value of the dependent variables. The R^2 value is 0.215, i.e., the independent variables are influencing the dependent variable by 21 percent.

According to the model there existed negative relationship between the gender of the head of the household from male to female and indebtedness. The indebtedness decreased by Rs. 11.170 due to efficient management of female compared to male head of the household. There was positive relationship between land ownership and indebtedness. Increase in one hectare of land ownership resulted in increasing indebtedness by Rs. 4.563, due to need for more amount for cultivation. There existed positive relationship between the level of education and indebtedness, i.e., when the level of education increased by one unit, indebtedness increased by Rs. 84.505, due to increase in the awareness on availability of loan and taking more loan amount.

There was positive relationship between crop grown and indebtedness, i.e., when farmer increased the number of crops from single to double and double to triple, the indebtedness of the farmer increased by Rs. 57.557, due to increase in the cost of production and need for more credit amount for cultivation.

There was negative relationship between the number of family members and indebtedness, i.e., an increase in one family member led to decrease in indebtedness by Rs. 19.083, due to the reason that increase in the number of family members led to increase in the income of the earning members in the family. Where as, there existed positive relationship between income and indebtedness, i.e., when income of the family increased by Re. 1, the indebtedness of the family increased by Rs. 1.067, showing the severity of indebtedness of the farmer.

RESULTS

Socio-Economic Conditions of the Farmers Committed Suicide:

(a) Gender of Farmer who committed Suicide:

The following table (1) shows the gender of farmers who committed suicide

Table 1 : Gender of Farmers who Committed Suicide

Gender	Frequency	Percent
Male	23	92
Female	02	08
Total	25	100

Source: Primary data

Table (1) shows that out of 25 farmers committed suicide, 23 (92 percent) were male and 2 (8 percent) were female.

(b) Age of the Farmers Who Committed Suicide

Table (2) shows the age of the farmers who committed suicide

Table 2: Age of the Farmers Who Committed Suicide

Age group (years)	Frequency	Percent
22-40	14	56
41-60	11	44
Total	25	100

Source: Primary data

Table (2) shows that more than half of the farmers (i.e., 56 percent) committed suicide were between the age of 22 and 40 years and 44 percent were between the age of 41 and 60 years.

(c) Family members of the Farmers Committed Suicide

The following table (3) shows the number of family members

Table 3: Number of Family Members

Number	Frequency	Percent
2 - 4	19	76
5 - 6	06	24
Total 2 - 6	25	100

Source: Primary data

Table (3) shows that the number of family members between 2 to 4 was 76 percent and the number of family members between 5 to 6 was 24 percent of the total households.

(d) Working Members of the Family of Farmers who Committed Suicide

The following table (4) shows the working members of the family of farmers who committed suicide.

Table 4: Working Members of the Family of Farmers who Committed Suicide

Number	Frequency	Percent
1	21	84
2	04	16
Total 1-2	25	100

Source: Primary data

Table (4) shows that in 84 percent of the households the number of working members was only one. Where as, in 16 percent of the households the number of working members was two.

(e) Income of the family of Farmers who Committed Suicide

The table (5) shows the income of the family of farmers who committed suicide

Table 5: Income of the Family of Farmers Who Committed Suicide

Income in '000 INR	Frequency	Percent
20 - 40	20	80
41 - 60	05	20
Total 20 - 60	25	100

Source: Primary data

Table (5) shows that the annual income of the households of farmers who committed suicide was between 20 and 60 thousand rupees. The annual income of 80 percent households was between 20 and 40 thousand rupees. Where as, the annual income of 20 percent households was between 41 and 60 thousand rupees.

(f) Land Ownership of the Farmers Who Committed Suicide

The table (6) shows the land ownership of the farmers who committed suicide.

Table 6: Land Ownership of the Farmers Who Committed Suicide

Land in hectares	Frequency	Percent
1 - 9	19	76
10 - 20	06	24
Total 1-20	25	100

Source: Primary data

The table (6) shows that the land ownership of the farmers who committed suicide was between one hectare and 20 hectares. The land ownership of 76 percent farmers who committed suicide was between one hectare and nine hectares. Where as, the land ownership of 24 percent farmers who committed suicide was between 10 hectares and 20 hectares.

The details of Indebtedness, Crop failure, Marketing and Relations with Land Owners:

The table (7) shows the details of indebtedness, crop failure, marketing and relations with land owners of the farmers who committed suicide.

Table 7: Details of Indebtedness, Crop failure, Marketing and Relations with Land Owners

S.No	Details	Percentage
1.	Indebtedness:	
	(i) Average Debt Amount (in rupees)	530.56
	(ii) Loan from Money Lenders	97.81
	(iii) Loan from Banks	2.19
	(iv) Percentage of money lenders forcing for repayment	44.0
2.	Crop Failure	
	(i) Farmers whose crop failed	56.0
	(ii) Farmers who had irrigation problem	100.0
	(iii) Farmers who had crop insurance	8.0
3.	Marketing	
	(i) Farmers who sold their product in village	52.0
	(ii) Reasons: Un-able to bear transport costs	12.0
	Needed money for necessities	36.0
4.	Relations with Land Owner	
	(i) Not good	8.0

Source: Primary data

Table (7) shows that the average indebtedness of the farmers who committed suicide was Rs. 530.56 . Out of this, 97.81 percent loan was taken from the money lenders and 44 percent of the money lenders were forcing the farmers for repayment of loan amount. More than half of the farmers (56 percent) reported that their crop was failed due to lack of irrigation facilities and only 8 percent of the farmers insured their crop. 52 percent farmers sold their product in the village itself at less than market price because they were unable to bear the transport costs and needed money for purchasing their necessities of life. The relations of 8 percent farmers with their land owners were not good.

Family disputes, Poverty, Problem of daughters' marriage and Instigation by the political Parties for committing suicide:

Table (8): Family disputes, Problem of daughters' marriage and Instigation of political parties

S.No	Details	Percentage
1.	Family Disputes	
	(i) Relations with other family members were not good	4.0
	(ii) Extra-marital relations and disputes	8.0
2.	Poverty	
	(i) Un-able to meet day-to-day expenses	84.0
	(ii) Un-able to pay fees of children	16.0
	(iii) Un-able to pay medical expenses	26.0
	(iv) No own house	24.0
	(v) No safe drinking water facility	76.0
3.	Problem of daughters' marriage	
	(i) Average number of daughters	1.44
	(ii) Problem of daughters' marriage	16.0
4.	Instigation by political parties for suicide	
	(i) Instigation by any political party	0.0
	(ii) Any person offered amount for committing suicide	0.0

Source: Primary data

Table (8) shows that the relations of 4 percent farmers with other family members were not good and 8 percent of the farmers were having extra-marital relations and family disputes. The households of 84 percent farmers who committed suicide were not meeting their day-to-day expenses, 16 percent could not pay fees of their children, 26 percent could not pay medical expenses, 24 percent were not having their own house and 76 percent did not have safe drinking water facility. The average number of daughters per household was 1.44 and 16 percent households were having the problem of their daughters' marriage. The political parties or any person did not instigate the farmers for committing suicide.

DISCUSSION

The results of study showed that the social and economic factors contributed for indebtedness and farmer suicides. These results were in conformity with Nagraj (2008), Gruere, et.al (2011),Sadanandan (2014), Mishra (2006, Nagthan, et.al (2011), Kale, et.al (2014), Dongre and Deshmukh (2012), Kaur, et.al. (2016), Singh and Manisha (2015) and IGSSs (2017).There was negative relationship between gender of the head of the household from male to female, number of family members and indebtedness. Where as, there was positive relationship between land ownership, level of education, number of crops grown, income of family and indebtedness .The loan taken from money lenders was 97.81 percent and from banks it was 2.19 percent only. These results confirm the outcome of the studies by Chikkara and Kodan (2013), Sarangi, et.al. (2010), Kennedy and King (2014). The crop failure , irrigation problem, lack of crop insurance, family disputes, poverty, daughters' marriage problem and lack of own houses contributed for indebtedness and farmer suicides. These results were in conformity with the studies by Merriott (2017), IGSSS (2017), Kale, et.al (2014) and Gedela (2008).

CONCLUSIONS

Agriculture is an un-organized activity in India. Most of the farms are small and economically un-feasible. There is exploitation of farmers by the middlemen. The

Government programmes do not reach the targeted farmers. There prevails high indebtedness and the interest rates are higher.

Since farmers' suicides were caused by the complex inter play of social, economic and environmental constraints, the following recommendations are made.

1. The farmers should not depend on only one crop. They should grow multiple crops, such as, coconut, turmeric, banana, papaya, ginger etc., which gives more income to the farmer
2. The small farms should be consolidated to increase the farm size to use modern methods of agriculture.
3. Crop insurance policies should be implemented so that the farmers should be protected when crop fails due to drought.
4. Improved modern methods of rain water harvesting should be developed.
5. The Government should provide training to the farmers to acquire new skills in animal husbandry, fisheries, timber production etc., so that the alternative source income can be ensured.
6. The farmers should use ICTs (Information and Communication Technologies) like radio, television, mobile phones and internet to know the price of the product for sale and to know the use of modern inputs and credit facilities at lower rate of interest to increase their production and income.

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