



Research Article

Socio-economic correlation with extent of adoption of indigenous tribal agricultural practices

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SUMMARY : The study was undertaken to understand the relationship between extent of adoption of indigenous tribal agricultural practices (ITAPs) and socio economical characteristics of the Malayali tribes. A sample of 300 tribal farmers was selected from Kolli Hills of Namakkal district in Tamil Nadu using proportionate random sampling technique. The step down multiple regression analysis revealed that, of 23 independent variables only three independent variables viz., age, farming experience and conservatism- liberalism were found to be the important variables positively influencing the extent of adoption to the tune of 76 per cent.

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Socio economic characteristics, Extent of adoption, Indigenous tribal agricultural practices

BACKGROUND AND OBJECTIVES

Indigenous technical knowledge may be denoted mainly as a tacit type of knowledge that has evolved within the local (grassroots) community and has been passed on from one generation to another, encompasses not only local or indigenous knowledge, but also scientific and other knowledge gained from outsiders. Experience and trial and error, tested in the rigorous laboratory of survival of local communities constantly reinforce indigenous knowledge. It is learned through repetition, which is a defining characteristic of tradition even when new knowledge is added. Thus keeping in view the above said factors the study was undertaken to find out relationship between extent of adoption of indigenous tribal agricultural practices (ITAPs) and socio economical characteristics of the Malayali tribes of Kolli Hills of Namakkal district, Tamil Nadu.

hills spread over an area of 441 sq.km. The Kolli hills are situated at the tail end of the Eastern Ghats in the state of Tamil Nadu. They are part of the Talaghat stretch.

Kolli hills block encompasses 14 clusters of villages (Nadu). A sample of 300 farmers was selected by using proportionate random sampling techniques. Structured interview schedules were prepared and administered to the tribal farmer respondents for collecting the required data on the extent of adoption of ITAPs and profile of the farmer respondents.

OBSERVATIONS AND ANALYSIS

After studying the profile characteristics of the respondents (independent variables), it was felt necessary to study the relationship between the independent and dependent variables and influence of independent variables on dependent variables, which could only highlight a true dimension of the association existing among them. For this purpose relevant statistical tools were used and the findings are discussed in the forthcoming sub heads.

Relationship between independent variables and

RESOURCES AND METHODS

The study was carried out in Kolli hills, which is situated in the Namakkal district of Tamil Nadu, South India (78° 17' 05" E to 78° 27' 45" E and 11° 55' 05" N to 11° 21' 10" N) are a low ranging

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the extent of adoption of ITAPs:

In order to comprehend about the relationship about the relationship between the independent variables and the extent of adoption of ITAPs, simple correlation coefficient was employed and the same has been presented in the Table 1 and Fig. 1.

Table 1 : Simple correlation coefficients of independent variables of respondents towards their extent of adoption of ITAPs

(n= 300)		
Sr. No.	Variables	Correlation coefficient
1.	Age	0.826(**)
2.	Educational status	-0.235(**)
3.	Occupational status	-0.117(*)
4.	Family type	0.207(**)
5.	Family size	0.217(**)
6.	Farm size	0.031(NS)
7.	Livestock possession	0.427(**)
8.	Farming experience	0.867(**)
9.	Social participation	-0.772(**)
10.	Extension agency contact	-0.446(**)
11.	Mass media participation	-0.204(**)
12.	Value orientation	-0.138(*)
13.	Scientific orientation	-0.243(**)
14.	Innovativeness	-0.455(**)
15.	Economic motivation	-0.161(**)
16.	Self reliance	0.220(**)
17.	Conservatism- liberalism	0.503(**)
18.	Fatalism- scientism	0.261(**)
19.	Progressivism- traditionalism	-0.175(**)
20.	Religious belief	0.206(**)
21.	Intra tribal communication	0.717(**)
22.	Attitude towards agricultural development programmes	-0.597(**)
23.	Attitude towards ITAP	0.712(**)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

NS Non- significant

The results of correlation analysis depicted in Table 1 revealed that out of the 23 independent variables studied, twenty two variables exhibited significant association with extent of adoption of ITAPs.

The variables age (X_1), family type (X_4), family size (X_5), livestock possession (X_7), farming experience (X_8), self reliance (X_{16}), conservatism-liberalism (X_{17}), fatalism-scientism (X_{18}), religious belief (X_{20}), intra tribal communication (X_{21}) and attitude towards ITAP (X_{23}) exhibited a positive significant association with extent of adoption of ITAPs at one per cent level of significance.

Age had the positive significance with extent of adoption, since accumulated experience gained by the farmers through their age, they would have preferred to adopt the environmentally friendly, economically viable and ever sustainable ITAPs. When the age of the farmers is more, they might be prone to adopt the indigenous technologies and reluctant to adopt modern technologies disseminated to them. This finding derives the support from those of Maraddi *et al.* (2007) and Sakeer Husain (2010).

Family type and family size were found to be positively correlated with the extent of adoption, since if the family size happens to be bigger with joint family system, the old aged persons in the family would have transferred their knowledge in ITAPs to their offspring's at the needed stage. The result is in conformity with those of Salehin *et al.* (2009).

There was a positive and significant correlation between livestock possession and extent of adoption of ITAPs, as the tribal farmers would have used their livestock in most of the traditional equipments in the intercultural operations and also the livestock for use of organic manure. The above relationship derives the support of Malathesh *et al.* (2009).

As the farming experience increases, the extent of adoption of ITAPs also increased because of the fact that the old aged farmers would have generated and as well as received the ITAPs from their fore fathers, thereby increasing usage of ITAP. This result is in line with the findings reported by Maraddi *et al.* (2007) and Sakeer Husain (2010).

The traditional Malayali tribes were self reliant with their ITAPs without any external chemical inputs. This led to a positive correlation between self reliance and extent of adoption of ITAPs. This result coincides with the findings derived by Sakeer Husain (2010) and Arularasan (2010).

The indigenous knowledge possessed by the indigenous people of Kolli Hills would favour conservatism rather than liberalism. The tribal farmers were far away from the reach of modern technologies. So thereby conservatism- liberalism was positively significant to the extent of adoption of ITAPs. Similar findings were reported by Sakeer Husain (2010) and Arularasan (2010)

Fatalism-scientism reported a positive significant correlation with extent of adoption. Farmers who are having traditional orientation would mostly prefer to adopt erstwhile technologies like ITAPs. When the fatalism-scientism increases, the adoption of ITAPs would also increase and the same was supported by the findings of Sakeer Husain (2010).

Religious belief was positively significant towards extent of adoption of ITAPs, since most of the indigenous farming practices were based on the traditional knowledge with some rituals and taboos. The findings of Sakeer Husain (2010) and Arularasan (2010) support the resultant significant result.

The Malayali tribes of Kolli Hills had intra tribal communication among themselves exchanging the ITAPs with



Fig. 1 : Correlation coefficients towards extent of adoption

Table 2 : Step down multiple regression analysis of independent variables towards extent of adoption of ITAPs (n=300)

Sr. No.	Variables	Regression co-efficient	Standard Error (B)	t- value
1.	Age (X ₁)	0.195	0.098	1.996*
2.	Farming experience (X ₂)	1.034	0.106	9.733**
3.	Conservatism- liberalism (X ₃)	0.171	0.072	2.365*

Intercept =11.606, F = 315.467; R²= 0.76

* and ** indicate significance of values at P=0.05 and 0.01, respectively

the available local resources and land use pattern thereby yielding a positive correlation intra tribal communication and extent of adoption of ITAPs. The above finding derives research support from that of Arularasan (2010).

Most of the respondents had exhibited a positive attitude towards ITAPs, there by leading to a positive significant correlation towards extent of adoption. The persistence of favourable attitude might have been due to the low educational status and low extension agency contact of the farmers. The findings derive the support from the findings of Jayawardana (2007).

The variables educational status (X₂), social participation (X₉), extension agency contact (X₁₀), mass media participation (X₁₁), scientific orientation (X₁₃), innovativeness (X₁₄), economic motivation (X₁₅), progressivism- traditionalism (X₁₉), and attitude towards agricultural development programme (X₂₂) exhibited a negative significant association at one per cent level of significance.

Had the tribal farmers have been well educated, they would have been prone towards modern agriculture, but most of the respondents were from middle to old age group with low educational status. Hence their educational status was with negative correlation with extent of adoption. This finding is in conformity with that of Hasan *et al.* (2010) and Singha and Baruah (2011).

The farmers were of Kolli hills have less chances for participation in formal organizations and their degree of social participation was found to be low. Hence, their social participation was negatively correlated with the extent of adoption. The finding is further strengthened by the result reported by Swathilekshmi *et al.* (2006) and Malathesh *et al.* (2009).

Kolli hills are not yet reached by the modern agriculture and chemicals. Though agricultural and horticultural department were serving in this area, they were not able to change the mindset of the farmers from indigenous farming

system. So their extension agency contact was negatively correlated with extent of adoption of ITAPs. This is in line with the result expressed by Sakeer Husain (2010).

As educational qualification of the tribal farmers was below average, they were less inclined towards mass media and their information. Thus mass media participation has negatively significant correlation with extent of adoption of ITAPs. This finding is in agreement with that of Jayawardana (2007) and Maraddi *et al.* (2007).

The tribal farmers possessed low extension agency contact and low social participation. Hence the scientific orientation was negatively correlated with the extent of adoption of ITAPs. The result goes in the same relationship as derived by Ramesh and Govind (2008).

Innovativeness and risk taking capacity of the farmers in using the latest agricultural technologies were found to be meager. Thus this variable was negatively significant. The result acquired the support from that of Sakeer Husain (2010) and Singha and Baruah (2011).

As the ITAPs give higher BC ratio and higher returns per unit of investment, the tribal farmers were self reliant and satisfied with the ITAPs practiced, hence, they were economically satisfied with the viable indigenous practices. Therefore, their Economic motivation was negatively significant with the extent of adoption of ITAPs, with the supportive findings acquired from Singha and Baruah (2011)

Latest agricultural technologies might lead to progressiveness in the career of the farming community. But these tribal farmers were found to be more oriented towards conservative farming, thus progressiveness was negatively significant. This finding also well correlates with the findings derived by Sakeer Husain (2010) and Arularasan (2010).

Since the extension agency contact, social participation and mass media participation of the tribal farmers of Kolli hills were found to be low, their attitude towards agricultural development programmes was also negatively correlated with extent of adoption of ITAPs. The same findings were predicted by Hasan *et al.* (2010).

The variables occupational status (X_3) and value orientation (X_{12}) exhibited a negatively significant association with extent of adoption of ITAPs at five per cent level of significance.

Occupational status was negatively significant, since if the farmers, those who concentrated in other services along with agriculture, will be prone to adoption of latest know how, leading to negative correlation with the adoption of ITAPs. This finding was as depicted by Sakeer Husain (2010)

The respondents were least exposed to mass media and possessed low social participation, hence, the value orientation was negatively associated with the adoption of ITAPs. This finding is in line with the finding reported by Arularasan (2010).

Influence of independent variables on the extent of adoption of ITAPs:

After studying the relationship between independent variable and extent of adoption of ITAPs using correlation analysis, it was decided to find out the influence of independent variables on the dependent variable namely, extent of adoption of ITAPs. Therefore multiple regression analysis was carried out to find out the extent of influence of independent variables on the extent of adoption. The R^2 was 0.76 and 'F' value was 43.088 found to be significant at 1% level. This implies that all the independent variables put together influenced the extent of adoption to the tune of 77 per cent *ceteris paribus*.

In order to eliminate such of those independent variables whose contribution to the variation in the dependent variable may not be substantial, a series of step down multiple regression analysis was performed. The outcome of analysis is provided in Table 2.

It could be observed from the Table 2 that three independent variables *viz.*, age, farming experience and conservatism- liberalism were found to be the important variables influencing the extent of adoption to the tune of 76 per cent and the 'f' value (315.467) was also found to be significant at 1% level. This shows that the 20 eliminated variables (educational status, occupational status, family type, family size, farm size, livestock possession, social participation, extension agency contact, mass media participation, value orientation, scientific orientation, innovativeness, economic motivation, self reliance, fatalism-scientism, progressivism-traditionalism, religious belief, intra tribal communication, attitude towards agricultural development programme and attitude towards indigenous tribal agricultural practices) put together have contributed to the variation in the dependent variable only to an extent of 1 per cent.

Therefore, it could be inferred that the above mentioned three variables (Age, Farming experience, and Conservatism-Liberalism) were alone the important variables in influencing the extent of adoption of ITAPs. Among them, farming experience had highest positive influence that is highly significant.

The table also depicted that one unit increase in age, farming experience and conservatism- liberalism *ceteris paribus* would increase the extent of adoption by 0.195, 1.034 and 0.171 units, respectively.

Indigenous tribal agricultural practices are from the core soul of traditional knowledge; aged farmers may be expected to have more farming experience with higher degree of conservatism- liberalism. Hence, it could be concluded that Age, farming experience and conservatism- liberalism had positively and significantly influenced the dependent variable.

The above findings is in conformity with those of Sakeer Husain (2010) and Arularasan (2010).

Conclusion:

The correlation analysis revealed that eleven independent variables *viz.*, age, family type, family size, livestock possession, farming experience, self reliance, conservatism-liberalism, fatalism-scientism, religious belief, intra tribal communication and attitude towards ITAP, exhibited a positive significant association with extent of adoption of ITAPs at one per cent level of significance. About nine independent variables *viz.*, educational status, social participation, extension agency contact, mass media participation, scientific orientation, innovativeness, economic motivation, progressivism- traditionalism and attitude towards agricultural development programme exhibited a negative significant association at one per cent level of significance. Negative significant association with extent of adoption of ITAPs at five per cent level of significance was noticed in the case of two independent variables *viz.*, occupational status and value orientation. The remaining one variable *viz.*, farm size expressed a non significant association with the extent of adoption of ITAPs.

The step down multiple regression analysis revealed that, of the 23 independent variables, only three independent variables *viz.*, age, farming experience and conservatism-liberalism were found to be the important variables positively influencing the extent of adoption to the tune of 76 per cent.

Hence, the experts involved in technology dissemination may be properly trained with the use and importance of indigenous practices in order to change their attitude towards ITAPs.

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REFERENCES

- Arularasan, G.S.** (2010). A critical analysis of tribal development programmes in western ghats of south India. Ph.D. Thesis, University of Agricultural Sciences, Bengaluru, KARNATAKA (INDIA).
- Hasan, S.S., Ali, M.A. and Khalil, M.I.** (2010). Impact of pineapple cultivation on the increased income of pineapple growers. *The Agriculturists*, **8**(2): 50-56.
- Jayawardana, J.K.J.P.** (2007). Organic agricultural practices in coconut based homesteads in Thiruvananthapuram district. M. Sc. (Ag.) Thesis, Kerala Agricultural University, Thrissur (KERALA) INDIA.
- Malathesh, G.B, Shivamuthy, M., Lakshman Reddy, B.S. and Ramakrishna Rao, L.** (2009). Socio-economic factors and extension use efficiency of the farmers in selected farming systems. *Karnataka J. Agric. Sci.*, **22**(2): 363-367.
- Maraddi, G.N., Hirevenkanagoudar, L.V., Angadi, J.G. and Babalad, H.B.** (2007). Extent of adoption of selected sustainable cultivation practices by sugarcane growers. *Karnataka J. Agric. Sci.*, **20**(3): 560-563.
- Ramesh, P. and Govind, S.** (2008). Extent of adoption and relationship between the characteristics of organic farmers and their adoption level. *Mysore J. Agric. Sci.*, **42**(3): 526-529.
- Sakeer Husain, A.** (2010). Knowledge, adoption and perceived effectiveness of Indigenous Horticultural Practices in Kerala. Ph.D. thesis, GRI (DU), Gandhigram.
- Salehin, M.M., Kabir, M.S., Morshed, K.M. and Farid, K.S.** (2009). Socioeconomic changes of farmers due to adoption of rice production technologies in selected areas of Sherpur district. *J. Bangladesh Agric. Univ.*, **7**(2): 335-341.
- Singha, A.K. and Baruah, M.J.** (2011). Farmers' adoption behaviour in rice technology: An analysis of adoption behaviour of farmers in rice technology under different farming systems in Assam. *J. Hum. Ecol.*, **35**(3): 167-172.
- Swathilekshmi, P.S., Chandrakandan, K. and Balasubramani, N.** (2006). Yield gap analysis among rice growers in North Eastern Zone of Tarnil Nadu, *J. Agric. Situ. India*, **6**(7): 729-733.