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RESEARCH ARTICLE

Evolving Entrepreneurial Trajectory in Odisha through Farmer Producer Organisations : A New Farm Economy

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ABSTRACT

Indian farming is passing through a new normal phase of the entrepreneurial revolution and Farmer Producer Organisations (FPOs) have been in this direction a dynamic pivotal for around a decade only. Rural poverty in Odisha has been a concern for the last few decades and this has been a barrier to achieving inclusive growth across the terrains of the farm economy. Albeit a boost up has been there for the rural economy across Odisha, it is still far from achieving its target as realized by the Government. Making FPO a main stage for revolutionizing the farm economy, it needs to undergo a process of market orientation, technological editing, and generating smart responses for climate change at the micro-level. With this background, the consequent variable, entrepreneurial communication behavior and a set of 24 independent variables were selected for the study. A purposive sampling method was followed to select the state, district, block, and FPOs. To conduct the study, one hundred (100) respondents were chosen from two FPOs, fifty (50) from each FPO in the Ranpur block of Nayagarh district of Odisha, using the snowball sampling method. A structured interview schedule and a pilot survey were used to gather the data. Coefficient of correlation, multiple regression analysis, stepwise regression analysis, and path analysis were the statistical techniques used for data analysis. The correlation coefficients found that the number of fragments of land were showcasing a higher correlation with entrepreneurial communication behavior. Seven out of twenty-four independent variables were retained in the last step of the step-down regression analysis.

Key words: *Entrepreneurial communication; Farmer producer organization (FPO); Institutional innovation; Marketed surplus.*

The business ecosystem for Farmer Producer Organizations (FPOs) is undergoing a revolutionary change to make a farmer a successful entrepreneur rather than a crop grower only. This is perhaps a metamorphosis that needs change in the setup of farming and ecology of the innovation process, starting from incubation to branding of green produces into gold commodities. The FPOs are right now offering flamboyant experimental sociology and the discipline of extension science can enjoy a journey into the ecology of experimental sociology. After the COVID-19 pandemic, the term "new normal" in the context of businesses refers to the novel business practises that have developed in reaction to the pandemic. (*Mckinsey and Company, 2020*) FPOs have immense potential to deliver an organized chain of services and networks involving various stakeholders associated with agriculture and allied sectors. FPOs are executing public-private partnerships, entrepreneurial innovations, business strategies, branding, and socialisation to reshape and upgrade agriculture's commercial sector. FPOs are the befitting platform for states like Odisha, West Bengal, Bihar, UP, Andhra Pradesh, Punjab, and Tamil Nadu towards transforming the agricultural production process into a global business entrepreneurship in creating job and income opportunities for millions.

The social ecology of entrepreneurial communication is comprised of the agricultural production process, technology support, input and credit delivery methods, and decision support systems. (*Roy and Acharya, 2021*). However, farmers' lack of awareness of modern production methods and poor adoption behavior resulted

in low productivity, no surplus for processing and value addition, and hence less profit from agriculture. (*Venkattakumar and Narayanaswamy, 2022*). Thus, it is crucial to provide enough in-depth knowledge of agricultural product processing, value addition, storage, and ICT use for marketing products. (*Chauhan et al., 2021*) In farmer-based organisations, it was discovered to be important to give farmers access to credit, organised production inputs, enhanced market access, timely provision of production inputs, custom-based processing, and credit inventory system for maximum profit. (*Quaye* et.al., *2010*) For this to occur, it is also important to note that farmers' participation in FPOs is significantly associated with education, farming experience, landholding size, access to the Internet, distance to the nearest market, medium level of social participation, extension contact, and transportation facility. (*Gurung and Choubey, 2022*) Shared knowledge and experiences in production-based rice activities, building capacity, and developing financial skills with colleague farmers, farm families, and farm workers were the outcomes of training programs in Farmer based organizations. (*Osei* et.al., *2010*) One of the important constraints identified among FPO members was the lack of effective communication between office bearers and members. (*Mahapatra et al., 2023*) It was also found that due to farmers' lack of understanding of the FPO business model and their inability to raise money to carry out activities and offer services to their members. (*Navya et al., 2022* ; *Srikar et al., 2022*) Also, 'less knowledge of how to strengthen FPO' was found to be a most severe technical constraint as perceived by the farmers. (*Yadav et al., 2022*) It is vital that FPOs are aware of the use of e-commerce platforms for a range of agricultural activities, such as purchasing inputs, buying produce in bulk, accessing market data, or carrying out crop management processes. (*Pendyala* et.al., *2022*) This will be possible when farmer members actively indulge in communication behaviour. In the context of a retail chain, communication access has a substantial impact on client purchasing behaviour and seller performance. (*Acharya & Banik, 2020*) It has also been reported that the education level, group leadership, group communication, adherence to regulations, group engagement, and team spirit of FPOs were all significant and positively correlated with their overall performance. (*Amitha* et al., *2021*) People's views towards their FPO and cooperation were found to be significant factors in strengthening group stability inside a high-performing FPO. (*Gorai* et al., *2022a*) Interaction with members on a regular basis gives crucial information about what is happening in the FPO, fosters a positive attitude towards the group, and makes it possible to assimilate anyone departing from the FPO's main ideas and activities. (*Gorai* et al., *2022b*) With this background, this study has the following specific objectives:

i. To study the entrepreneurial communication behavior of FPO members by estimating the inter and intra level of interaction between sets of predicted and predictor variables as selected in the study.
ii. To generate policy at micro-level for farmers upskilling and upgradation of the entrepreneurial communication behavior of study.

METHODOLOGY

Ex post facto research design was followed to perform the study. The research was conducted in two Farmer Producer Organisations (FPOs) in Odisha's Ranpur block in Nayagarh district. The Ranpur block is situated between 20.0631° N and 20°03'47.2"N latitudes and between 85°20'34.8"E and 85.3430° E longitudes. For the study, the state, district, block, and 2 FPOs, performing with high levels of performance, were selected using purposive sampling method. A total of one hundred (100) respondents have been selected from two FPOs, fifty (50) from each FPO, using the snowball sampling approach. Due to Covid-19 situation, it was not possible to go for typical random sampling method. Thus, the researcher has to ask the identified respondent for further cross-referencing as to whether there was no incident of covid in the target respondents. The data have been collected through a pilot survey and structured interview schedule. The Assistant Agriculture Officer of Ranpur block and a few members of Odisha Livelihood Mission aided the researcher during data collection. The variables chosen for this study were operationalized and measured as - I) Independent variables II) Dependent variables.

The independent variables selected for the study were age (x_1), education (x_2), no. of enterprise (x_3), year of enterprise (x_4), training exposure (x_5), family size

(x_6), mean family education (x_7), material possessed (x_8), size of holding (x_9), size of homestead land (x_{10}), size of cultivated land (x_{11}), size of land under irrigation (x_{12}), no. of fragments (x_{13}), crop yield (x_{14}), livestock yield (x_{15}), cropping intensity (x_{16}), income (x_{17}), family expenditure (x_{18}), marketable surplus (x_{19}), marketed surplus (x_{20}), family labour (x_{21}), no. of male workers (x_{22}) no. of female workers (x_{23}) and dependency ratio (x_{24}). The data relating to independent variables were recorded and processed through suitable empirical measurement. On the other hand, the dependent variable selected for the study was Entrepreneurial Communication behavior (y). The dependent variable entrepreneurial communication behaviour was measured in terms of calculating their frequency by multiplying categories of communication flow out, communication flow in, and communication interactive processes with the number of persons and institutions involved respectively. (*Roy and Acharya, 2021*) Suitable operationalization and quantification of variables aided the researcher in obtaining correct conclusions. With the help of IBM SPSSv26.0, the following statistical tools have been used to carry out the study viz, Correlation coefficient, Multiple regression analysis, Step-wise regression analysis, and Path analysis.

RESULTS AND DISCUSSION

Co-efficient of correlation between entrepreneurial communication behaviour and 24 independent variables: Table 1 presents the coefficients of correlation between entrepreneurial communication behavior (y) and 24 dependent variables (x_1-x_{24}). It has been found that the following variables viz. age (x_1), marketable surplus (x_{19}) and marketed surplus (x_{20}) of FPO members are having a negative but significant correlation with the dependent variable. The variables number of enterprise (x_3), mean family education (x_7), materials possessed (x_8), size of holding (x_9), size of cultivated land (x_{11}), size of land under irrigation (x_{12}), number of fragments (x_{13}), crop yield (x_{14}), livestock yield (x_{15}), income (x_{17}), no. of male workers (x_{22}) and no. of female workers (x_{23}) have recorded positive significant correlation with the dependent variable.

The coefficient of correlation reveal that younger respondents are possessing higher entrepreneurial communication behavior. It has also been found that the bigger the number of enterprises a farmer has, the greater the necessity for more information to continue his enterprise effectively. As a result, there is a large and positive relationship between the number of enterprises (x_3) and entrepreneurial communication behavior. It has also been documented that the larger the possession of lands, the broader the source of information and exposure to information is, and this is how this significant and positive link is validated. Furthermore, the coefficient of correlation demonstrated that the higher the family education, the more diverse the entrepreneurial communication and information-sharing behavior. At the same time respondents having higher crop yield (x_{14}) and livestock yield (x_{15}) along with higher income (x_{17}) have exhibited strong association to entrepreneurial communication behavior. It is also discernible that the independent variables, marketable surplus (x_{19}), marketed surplus (x_{20}), no. of male workers (x_{22}) and no. of female workers (x_{23}) have been intrigued with the consequent variable. These have been associated with the FPO members' exposure to and use of various sources of information. Similar studies found that younger respondents have recorded higher and better entrepreneurial communication among themselves (*Battu et al., 2022*, *Kharmudai et al., 2018*) and annual income were determinant factors that influenced the

Table 1. Coefficient of Correlation (r): Entrepreneurial Communication behavior (y) Vs. 24 Independent Variables

Independent variables	'r' Value
Age (x_1)	-0.208*
Education (x_2)	0.126
Number of enterprise (x_3)	0.337**
Year of enterprise (x_4)	0.246
Training exposure (x_5)	0.136
Family size (x_6)	0.100
Mean family education (x_7)	0.272**
Materials possessed (x_8)	0.427**
Size of holding (x_9)	0.239*
Size of homestead land (x_{10})	0.055
Size of cultivated land (x_{11})	0.259**
Size of land under irrigation (x_{12})	0.298**
Number of fragments (x_{13})	0.505**
Crop yield (x_{14})	0.302**
Livestock yield (x_{15})	0.232*
Cropping intensity (x_{16})	-0.181
Income (x_{17})	0.213*
Family expenditure (x_{18})	0.053
Marketable surplus (x_{19})	-0.339**
Marketed surplus (x_{20})	-0.278**
Family labour (x_{21})	0.021
No of male workers (x_{22})	0.541**
No of female workers (x_{23})	0.321**
Dependency ratio (x_{24})	0.076

Table 2. Multiple Regression Analysis: entrepreneurial communication behavior (y) vs. 24 Causal Variables

Variables	Reg. Coef. B	SEB	Beta	t value
Age (x_1)	0.026	0.122	0.026	0.215
Education (x_2)	-0.033	0.124	-0.033	-0.263
No. of enterprise (x_3)	0.108	0.131	0.108	0.826
Year of enterprise (x_4)	-0.001	0.093	-0.001	-0.006
Training exposure (x_5)	-0.007	0.127	-0.007	-0.053
Family size (x_6)	0.048	0.104	0.048	0.461
Mean family edu. (x_7)	0.116	0.086	0.116	1.359
Materials possessed (x_8)	0.349	0.097	0.349	3.589
Size of holding (x_9)	-0.491	0.535	-0.491	-0.917
Size of homestead land (x_{10})	0.109	0.068	0.109	1.599
Size of cultivated land (x_{11})	0.409	0.556	0.409	0.736
Size of irrigated land (x_{12})	0.124	0.112	0.124	1.102
No. of fragments (x_{13})	0.226	0.096	0.226	2.369
Crop yield (x_{14})	0.166	0.086	0.166	1.936
Livestock yield (x_{15})	0.067	0.070	0.067	0.961
Cropping intensity (x_{16})	-0.025	0.077	-0.025	-0.329
Income (x_{17})	-0.050	0.076	-0.050	-0.658
Family expenditure (x_{18})	-0.092	0.077	-0.092	-1.202
Marketable surplus (x_{19})	-0.048	0.083	-0.048	-0.579
Marketed surplus (x_{20})	-0.131	0.093	-0.131	-1.418
Family labour (x_{21})	-0.114	0.089	-0.114	-1.285
No. of male workers (x_{22})	0.488	0.095	0.488	5.117
No. of female workers (x_{23})	0.005	0.084	0.005	0.062
Dependency ratio (x_{24})	-0.081	0.071	-0.081	-1.150

R^2 : 72.20%; The standard error of the estimate: 0.606

performance of FPOs (*Vedasri et al., 2022*.

Multiple regression analysis of entrepreneurial communication behaviour and 24 independent variables: Table 2 presents the full model of regression analysis between exogenous variable Entrepreneurial Communication behavior (y) vs. 24 causal variables. It has been revealed that 24 causal variables together have contributed 72.20 percent of variance in consequent variable Entrepreneurial Communication behavior (y). The findings imply that the chosen factors are functionally useful to estimating respondents' entrepreneurial behaviour.

Step-wise regression analysis of entrepreneurial communication behaviour and 24 independent variables: Table 3 presents stepdown regression analysis. It is discernible that the following variables, no. of male workers (x_{22}), number of fragments (x_{13}), materials possessed (x_8), marketed surplus (x_{20}), crop yield (x_{14}), family labour (x_{21}) and size of homestead land (x_{10}) have been retained at the last step. It suggests that fragmentation is more than simply the physical

Table 3. Stepwise Regression Analysis: Entrepreneurial communication behavior (y) Vs. 24 Causal Variables (x_1-x_{24})

Variables	Reg. coef. B	SEB	Beta	t value
No of male workers (x_{22})	0.531	0.072	0.531	7.368
Materials possessed (x_8)	0.434	0.067	0.434	6.474
Marketed surplus (x_{20})	-0.171	0.060	-0.171	-2.851
Number of fragments (x_{13})	0.215	0.073	0.215	2.956
Crop yield (x_{14})	0.181	0.065	0.181	2.791
Family labour (x_{21})	-0.146	0.064	-0.146	-2.280
Size of homestead land (x_{10})	0.119	0.059	0.119	2.007

R^2 : 68.70% ; SE of the estimate: 0.580

splitting of land masses. Additionally, it describes how the FPO members behave in terms of their communication style and behavior. Land fragmentation contributes to farmers' energy and financial deficits. In order to improvise entrepreneurial communication behavior by the FPO members, the prime concerns were to improve crop yield and provide proper assistance to male workers of the FPO. The R^2 value being 68.70 per cent, these 7 variables have together contributed to 95.15 per cent of 72.20 per cent total variance of explicated variables to vindicate their distinctive contribution in characterizing entrepreneurial communication behavior. Similar studies have reported that no. of fragments have been found to have elicit their determining and critical contribution to the dependent variable, Entrepreneurial communication behavior (*Roy & Acharya, 2021*).

Path analysis of entrepreneurial communication behaviour and 24 independent variables: Table 4 evinced that the variable size of holding (x_9) have got highest indirect effect of as much as 9 exogenous variables to impact on the consequent variable. It interacts in a cause-and-effect manner. A farmer's predisposition for surplus generating agriculture may increase if they own a larger amount of land. No. of fragments (x_{13}) has exerted the highest total effect. It demonstrates how the fragmentation of land resources has a substantial impact on farmers' ability to access various information sources and meet their demands. The residual effect been 0.31, it is to conclude that even with the combination of 24 exogenous variables, 31 per cent variance in dependent variable could not be explained. This suggests the inclusion of more numbers of relevant and consistent variables for this framework of study. A similar study conducted in Bulgaria have revealed that the fragmentation of land has a significant effect on the sustainable

Table 4. Path Analysis: Decomposition of total effect into direct, indirect and residual effect: entrepreneurial communication behaviour (y) Vs. 24 exogenous variables (x_1-x_{24})

Variables	Total Effect	Direct Effect	Indirect Effect	Highest Indirect Effect
Age (x_1)	-0.208	0.025	-0.233	-0.131 (x8)
Education (x_2)	0.126	-0.030	0.156	0.114 (x8)
Number of enterprise (x_3)	0.337	0.108	0.229	0.208 (x8)
Year of enterprise (x_4)	0.246	-0.001	0.247	-0.214 (x9)
Training exposure (x_5)	0.136	-0.010	0.146	-0.137 (x9)
Family size (x_6)	0.100	0.046	0.054	0.087 (x8)
Mean family education (x_7)	0.272	0.116	0.156	0.096 (x22)
Materials possessed (x_8)	0.427	0.349	0.078	-0.098 (x22)
Size of holding (x_9)	0.239	-0.492	0.731	0.409 (x11)
Size of homestead land (x_{10})	0.055	0.109	-0.054	-0.033 (x22)
Size of cultivated land (x_{11})	0.259	0.412	-0.153	-0.488 (x9)
Size of land under irrigation (x_{12})	0.298	0.123	0.175	-0.379 (x9)
Number of fragments (x_{13})	0.505	0.225	0.280	0.244 (x22)
Crop yield (x_{14})	0.302	0.166	0.136	0.114 (x8)
Livestock yield (x_{15})	0.232	0.067	0.165	-0.087 (x9)
Cropping intensity (x_{16})	-0.181	-0.025	-0.156	0.101 (x9)
Income (x_{17})	0.213	-0.051	0.264	0.077 (x8)
Family expenditure (x_{18})	0.053	-0.091	0.144	0.162 (x22)
Marketable surplus (x_{19})	-0.339	-0.050	-0.289	-0.08 (x8)
Marketed surplus (x_{20})	-0.278	-0.132	-0.146	-0.103 (x9)
Family labour (x_{21})	0.021	-0.112	0.133	-0.082 (x9)
No of male workers (x_{22})	0.541	0.488	0.053	-0.127 (x9)
No of female workers (x_{23})	0.321	0.005	0.316	0.283 (x22)
Dependency ratio (x_{24})	0.076	-0.081	0.157	0.073 (x13)

Residual effect: 0.31; Highest Indirect Individual effect: x_9 (9)

development of rural areas for which the efficiency of resource usage has to be maximized through land consolidation and territorial planning (*Todorova and Lulcheva, 2006).*

CONCLUSION

The present study recommends a change in entrepreneurial trajectory since the beginning of the formation of the foundation of FPOs to earn company status through branding. It elicits the fact that the size of cultivated land, size of homestead land, no. of male workers, number of enterprises, materials possessed, and marketed surplus are of immense application to make the FPOs a performing business organization to serve the basic needs of the participating farmers and beyond. FPO is an innovative approach to achieving company status and access to company shares by the farmers who are the owner of small and fragmented holdings. This is a challenging job, yet it can revolutionize the whole of India's farm economy. The hard evidence suggests that unless small farm capability, market accessibility, and livelihood are being interwoven and docked into the mainstream national economy, our nation cannot make a swashbuckling growth for the nation and the rest part of the world as empirical evidence.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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