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PERCEIVED SWAYS OF CONTRACT FARMING ON EMPLOYMENT GENERATION AND POVERTY ALLEVIATION

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ABSTRACT

This study examines the relationship between the perceived sways of contract farming on employment generation and poverty reduction among smallholders, focusing on socio-demographic factors using Path Analysis. Conducted in the Cooch Behar II block of West Bengal's Cooch Behar district, this research followed an ex-post-facto research design. This cross-sectional study was carried out in the northern district due to the extensive socio-cultural milieu of contract farming of potatoes and other crops. A purposive, multistage random sampling method was used, with 100 contract farmers interviewed from ten selected villages between January and April 2023. Data were collected via personal interviews tabulated in MS Excel and analysed using OPSTAT. Results indicate that "Contract Farming Experience" (X_{04}) had the strongest direct positive effect (0.483) on the dependent variable, while "Family Annual Expenditure" (X_{06}) had the smallest direct effect (-0.334). Among the 19 variables studied, only two- "Contract Farming Experience" (X_{04}) and "Communication Skills" (X_{10})-showed significant effects on employment and poverty outcomes, at 1% and 5% significance levels, respectively. The analysis also revealed that "Family Annual Expenditure" (X_{06}) exerted the highest indirect effect (0.41), while the variable "Economically Active Member" (X_{08}) had the lowest (-0.133). Further, seven substantial indirect effects were mediated through "Communication Skills" (X10), five through "Family Annual Income" (X5), with two indirect influences from "Management Orientation" (X19), "Contract Farming Experience" (X4), and one through "Age" (X1). These findings underscore the role of experience and communication skills in influencing contract farming outcomes for smallholders.

Keywords: *perceived sways, path analysis, cross-sectional study, direct effect, indirect effects*

INTRODUCTION

India's economy remains predominantly agrarian, with agriculture proving resilient during the COVID-19 crisis, unlike other major sectors that faced significant disruptions (Samadder *et al.,* 2024; Patel and Vinaya, 2023). The agricultural sector grew by 03.60 per cent in 2020-21 (Press Information Bureau, 2022), and the Economic Survey 2023-24 projects real Gross Domestic Product growth of 06.50 per cent to 07.00 per cent for 2024-25. This growth reflects the swift post-pandemic recovery, driven by domestic factors despite global uncertainties. However, according to a report it warns that disruptions in supply chains and rising commodity prices could lead to inflationary pressures, affecting monetary policies and capital flows (PIB, 2024). Technological advancements have also revolutionized the production, marketing, and distribution of agricultural goods, increasing the demand for contract farming as a reliable source of raw materials. In contract farming, farmers commit to producing specific quantities and types of agricultural products under forward contracts with designated buyers (Mistry *et al.,* 2018). This approach fosters crop diversification, income growth, and positive effects for local stakeholders, including farm workers (Dijk *et al.,* 2023).

This study aims to evaluate the relationship between perceived sways of contract farming on employment generation and poverty alleviation among smallholder farmers, focusing on some of the socio-demographic variables. Smallholders play a significant role in South Asian economies, contributing to employment, income, food security, and poverty reduction (Kumar *et al*., 2008; Meemken & Bellemare, 2020). While smallholders support the United Nations Sustainable Development Goals (Terlau *et al.,* 2019), they often face poverty, low wages, and limited access to high-value markets due to infrastructure gaps (Koppen *et al*., 2018). Securing market access through contract farming is crucial for rural development and poverty alleviation, with multilateral agencies promoting it as a means to increase income and productivity for smallholders (Vamuloh *et al*.,

2019; Isager *et al.,* 2018).

In India, economic liberalization has expanded contract farming from seed production to perishable goods, making it a dominant mode of raw material procurement and coordination between processors and exporters (Desai *et al.,* 2022 and 2023). Despite this growth, smallholder participation remains limited, with only 01.00-05.00 per cent of smallholders in developing countries involved due to challenges such as poor-quality seeds, lack of trust, and insufficient entrepreneurial skills (Minot & Sawyer, 2016). Successful contract farming requires collaboration between trained smallholders, receptive agribusiness firms, and supportive public policies (Mpongoshe *et al*., 2018). While several studies have explored the economic impacts of agriculture (Kumar & Kumar, 2008; Nguyen *et al*., 2015), few sociological studies focus on contract farming's effects. This research, conducted in Coochbehar, West Bengal, investigates the relationship between socio-demographic variables and the perceived sways of contract farming on employment generation and poverty reduction using Path Analysis.

OBJECTIVE

To perceive sways of contract farming on employment generation and poverty reduction

METHODOLOGY

The ex-post-facto research design was adapted for the current study. According to Tuckman, (1972), the term *ex-post-facto* is: "an experiment in which the researcher examines the effects of a naturalistically occurring treatment after that treatment has occurred rather than creating the treatment itself. The experimenter attempts to relate this after-the-fact treatment to an outcome or dependent measure". This cross-sectional study was conducted in the northern district of West Bengal, Coochbehar, purposively selected for the present study as it represents a diversified contract farming scenario of different crops, especially potatoes, and an abundance of smallholders exploring innovative contract farming opportunities.

The study followed a purposive, multistage, and random sampling procedure. The Coochbehar II block of the Coochbehar district was purposively chosen as the farmers of the area were considered to be highly responsive and expressive, as they were concerned with sustaining their livelihoods. The researcher's familiarity with the region, its officials, and the farmers could ensure the smoothest possible conducting of the study. Among the thirteen gram-panchayats, five-gram panchayats of the Coochbehar II block such as Dhang Dhingguri, Pundibari, Ambari, Marich Bari Kholta, and Patlakhawa were chosen randomly. Random sampling means the selection of all the members of the population with equal probability for inclusion in the research. One village was randomly selected from the Gram Panchayat of Marich Bari Kholta and Pundibari. Two villages were selected randomly from Dhang Dhingguri and Ambari gram panchayats, and four villages were selected randomly from Patlakhawa gram panchayat. Marich Bari, Dhalaguri, Ambari, Dhang Dhingguri, Kachura Kuthi, Uttar Kalarayer Kuthi, Singimari Paschimpar, Chhat Singimari, Khagribari, Kalarayerkuthi Dakshin are the villages selected for this study. So, the total number of villages counts to ten. A list of potato contract farmers was prepared exhaustively with the help of contracting firms, agro-input dealers, vendors, sub-vendors, local people, etc. From the exhaustive list of potato contract farmers in the above-stated gram panchayats, ten contract farmers from all ten villages were randomly selected, summing up to a total of hundred respondents. Some socio-demographic variables were taken into consideration while conducting the research, including personal variables (age, education, family education status, contract farming experience), socioeconomic variables (annual family income, annual family expenditure, land holding, economically active members, personal possession), communication variables (communication skills, extension contact, mass media exposure, extension participation) and psychological variables (economic motivation, risk preference, innovation proneness, achievement motivation, scientific orientation, management orientation) and the dependent variable, perceived sways of contract farming on employment generation and poverty reduction. The data were collected from January 2023 to April 2023 through an interview schedule developed. The data were collected through personal interview methods by conducting farm and home visits. The collected data were tabulated in MS Excel and the relationship modelling of the dependent variable, perceived sways of contract farming on employment generation and poverty reduction with the socio-demographic variables was verified by Path Analysis using OPSTAT, a Statistical Software Package for Agricultural Research Workers.

RESULTS AND DISCUSSION

The correlation coefficient of the data shows the relationship between independent and dependent variables in the presence of all the other variables, which are ordinarily operative in a real-life situation. The relation presented by the correlation study may be modified by different situations, whereby some independent variables may not appear in the environment or they may be masked.

To find the effect of independent variables, both directly as well as through other variables, efforts were

made to apply correlation coefficient values that have been presented earlier for path analysis. All the nineteen independent variables were subjected to path analysis using OPSTAT. The data thus, indicate the partial relationship between the variables. Partial relationship was a contribution made by other variables exercising their influence jointly. It is therefore necessary to study the influence of one variable on another variable both directly as well as through other variables presented in the situation. The result of the path analysis is presented in Table 1.

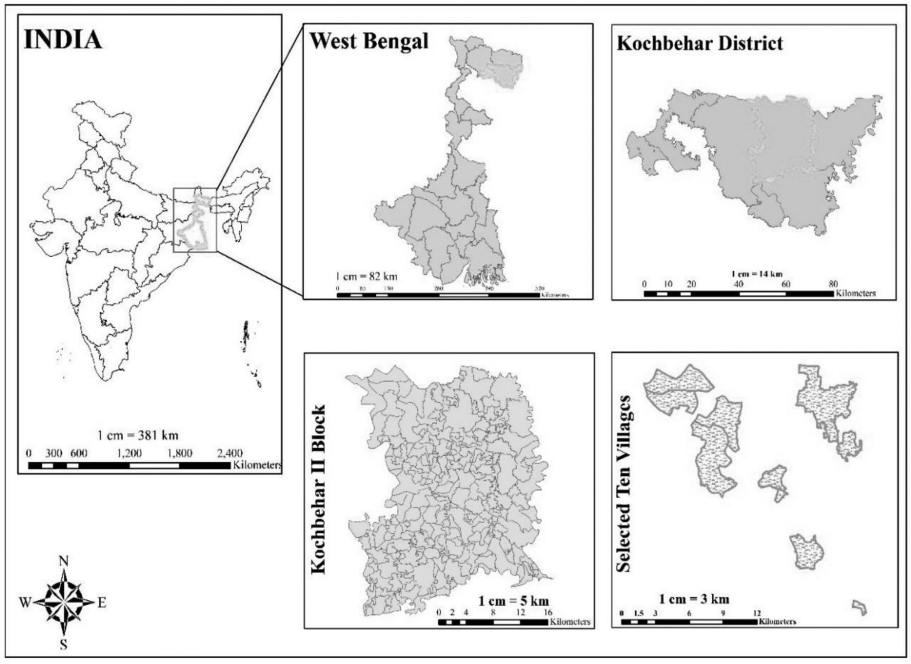

Fig. 1: Research locale

Table 1: Path analysis model on perceived sways of contract farming on employment generation and poverty reduction with thirteen antecedent variables (n=100)

Variable Code	Variables	Total Direct Effect	Total Indirect Effect	Substantial Indirect Effect
(X_{01})	**Age**	0.057	0.163	0.116 (X_{04})
(X_{02})	**Education**	-0.051	-0.050	-0.022 (X_{01})
(X_{03})	**Family Education Status**	0.070	-0.083	0.029 (X_{05})
(X_{04})	**Contract Farming Experience**	0.483**	-0.037	0.050 (X_{05})
(X_{05})	**Family Annual Income**	0.179	0.010	0.134 (X_{04})
(X_{06})	**Family Annual Expenditure**	-0.334	0.410	0.147 (X_{05})
(X_{07})	**Landholding**	0.159	0.008	0.091 (X_{05})
(X_{08})	**Economically Active Member**	0.096	-0.133	0.020 (X_{19})
(X_{09})	**Personal Possession**	-0.007	0.213	0.151 (X_{05})
(X_{10})	**Communication Skills**	0.312*	0.289	0.058 (X_{19})
(X_{11})	**Extension Contact**	0.061	0.148	0.112 (X_{10})
(X_{12})	**Mass Media Exposure**	-0.063	0.009	0.101 (X_{10})
(X_{13})	**Extension Participation**	-0.063	0.165	0.136 (X_{10})
(X_{14})	**Economic Motivation**	0.020	0.054	0.054 (X_{19})
(X_{15})	**Risk Preference**	-0.052	0.087	0.041 (X_{04})
(X_{16})	**Innovation Proneness**	-0.250	0.169	0.108 (X_{10})
(X_{17})	**Achievement Motivation**	-0.005	0.079	0.050 (X_{10})
(X_{18})	**Scientific Orientation**	0.053	-0.112	0.100 (X_{10})
(X_{19})	**Management Orientation**	0.189	-0.049	0.095 (X_{10})

*5% Significance level ** 1% level of significance

Direct effect

The outcome data in Table 1 and Figure 1 tells that the variable Contract Farming experience (X_{04}), (0.483), had exerted a maximum direct positive effect on the "Perceived Effect of Contract Farming on Employment Generation and Poverty Reduction", followed by Communication Skills (X_{10}), 0.053, Management orientation (X_{19}), 0.189, Family Annual Income (X_{05}), 0.179, Landholding (X_{07}), 0.159, Economically Active Member (X_{08}), 0.096, Family Education Status (X_{03}), 0.070, Extension contact (X_{11}), 0.061, Age (X_1), 0.057, Scientific orientation (X_{18}), 0.053, Economic Motivation (X_{14}), 0.020. In so far as the negative direct effect is concerned Achievement motivation (X_{17}), -0.005 has performed with a maximum negative direct effect. Next in line is Personal Possession (X_{09}), -0.007, Education (X_{02}), -0.051, Risk preference (X_{15}), -0.052, Mass Media Exposure (X_{12}), -0.063, Achievement Motivation (X_{17}), -0.063, Innovation Proneness (X_{16}), -0.250 and, the least direct effect value was found to be of the variable Family Annual Expenditure (X_{06}), -0.334. Out of the nineteen variables under the study, only two variables *viz.* Contract Farming Experience, (X_{04}), significant at ** 1% level of significance, and Communication Skills, (X_{10}), significant at *5% level of significance with the "Perceived Effect of Contract Farming on Employment Generation and Poverty Reduction" indicating that variables Contract Farming Experience, (X_{04}) and (X_{10}) is the major causal factor for the predictor variable.

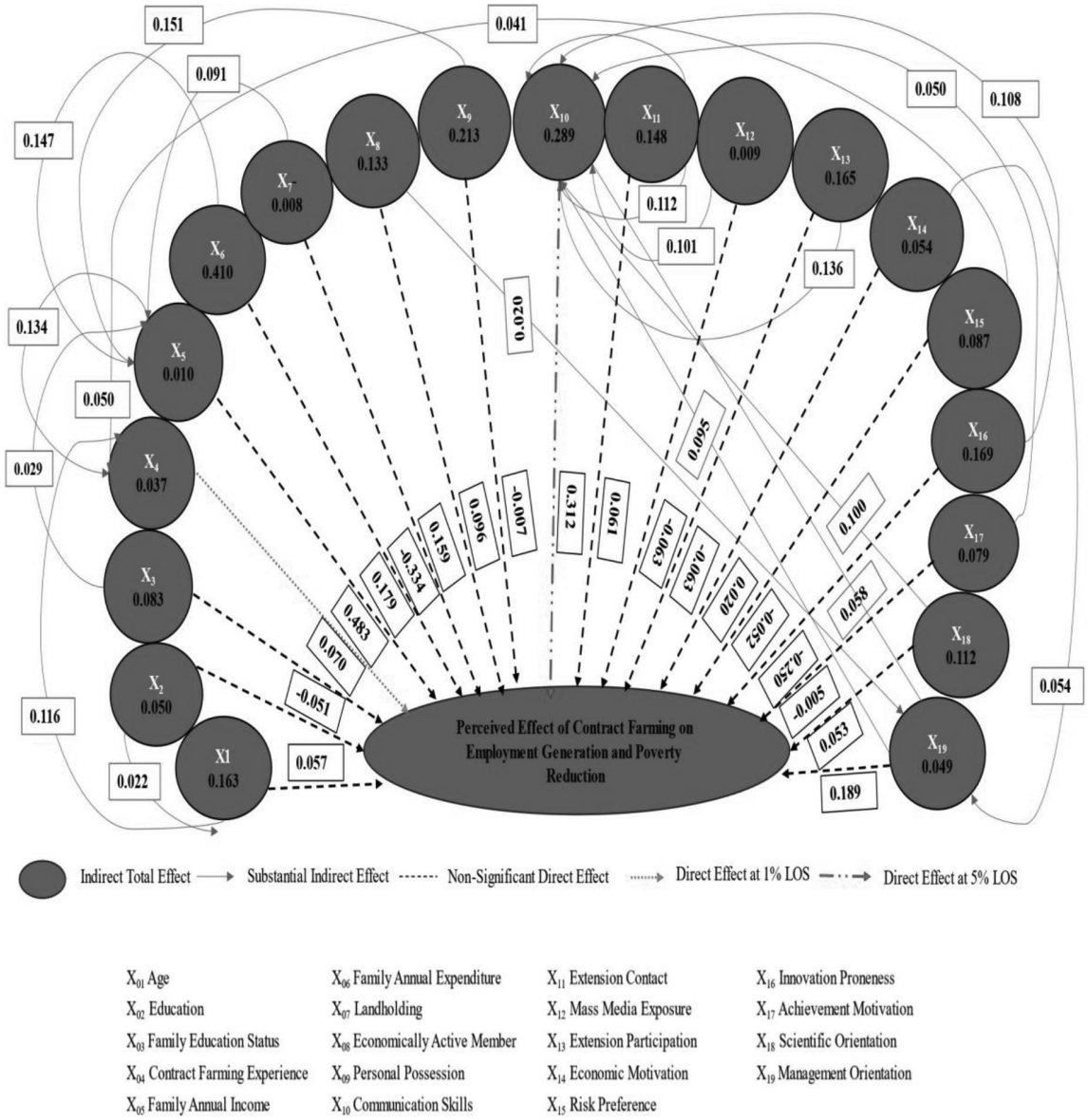

Fig. 2: Path model diagram of perceived sways of contract farming on employment generation and poverty reduction with thirteen antecedent variables

Total indirect effect

It can be observed in Table 1 and Figure 2 that out of a total of nineteen variables, Family Annual Expenditure, (X_{06}), 0.41 had the maximum indirect effect on the "Perceived Effect of Contract Farming on Employment Generation and Poverty Reduction" then followed by Communication Skills (X_{10}), 0.289, Personal Possession, (X_{09}), 0.213, Innovation Proneness, (X_{16}), 0.169, Extension Participation, (X_{13}), 0.165, Age, (X_{01}), 0.163, Extension Contact, (X_{11}), 0.148, Risk Preference, (X_{15}), 0.087, Achievement Motivation, (X_{17}), 0.079, Economic Motivation, (X_{14}), 0.054, Family Annual Income, (X_{05}), 0.01, Mass Media Exposure, (X_{12}), 0.009, Landholding, (X_{07}), 0.008. Whereas Economic Motivation, (X_{14}), had the highest negative indirect effect value of -0.037, followed by Management Orientation, (X_{19}), -0.049, Education, (X_{02}), -0.05, Family Education Status, (X_{03}), -0.083, Scientific Orientation, (X_{18}), -0.112, and the least indirect effect value was found to be of Economically Active Member, (X_{08}), -0.133.

Substantial indirect effect

Data also revealed that out of nineteen significant indirect effects, seven were channelled through the variable Communication Skills (X_{10}), five through the variable Family Annual Income (X_5), two through the variable Management Orientation, (X_{19}), two again routed through the variable, Contract Farming Experience, (X_{04}), and one last routed through the variable Age (X_1).

The first substantial positive indirect effect on the "Perceived Effect of Contract Farming on Employment Generation and Poverty Reduction" was put forth by the variable Age ($X_{01,}$ 0.116) of the potato contract farmers through Contract Farming Experience (X_{04}), followed by Education ($X_{02,}$ -0.022) through Age, (X_{01}), Family Education Status and ($X_{03,}$ 0.029), Contract Farming Experience, ($X_{04,}$ 0.050), through Family Annual Income (X_5). Family Annual Income ($X_{5,}$ 0.134) through Contract Farming Experience, (X_{04}), Family Annual Income ($X_{5,}$ 0.134) through Contract Farming Experience (X_{04}), Family Annual Expenditure, ($X_{06,}$ 0.147), and Landholding, ($X_{07,}$ 0.091), through Family Annual Income (X_5), Economically Active Member, (X_{08}, 0.020), through Management Orientation, (X_{19}), Personal Possession, ($X_{09,}$ 0.151), through Family Annual Income (X_5), Communication Skills ($X_{10,}$ 0.058), through Management Orientation, (X_{19}), Extension Contact, ($X_{11,}$ 0.112), Mass Media Exposure, ($X_{12,}$ 0.101), and Extension Participation, ($X_{13,}$ 0.136), through Communication Skills (X_{10}), Economic Motivation, ($X_{14,}$0.054), through Management Orientation, (X_{19}), Risk Preference, ($X_{15,}$ 0.041), through Contract Farming Experience, ($X_{04,}$), Innovation Proneness, ($X_{16,}$0.108), Achievement Motivation, ($X_{17,}$ 0.050), Management Orientation, ($X_{19,\ 0.095}$) through Communication Skills (X_{10}).

CONCLUSION

The perceived sways of contract farming on employment and poverty reduction in northern West Bengal are shaped by a complex interplay of factors. While contract farming holds promise as a tool for rural development, its success hinges on empowering farmers with experience and knowledge. The findings highlight that contract farming experience is the most significant predictor of perceived positive impacts on employment and poverty reduction. This underscores the need for policies that encourage longer-term contracts and provide opportunities for farmers to learn and adapt to the demands of contract farming. Furthermore, communication skills emerged as another crucial factor, emphasizing the importance of bridging information gaps between farmers and contracting firms. Policy interventions should prioritize farmer training programs that enhance their communication, negotiation, and financial literacy skills, enabling them to engage more effectively in contract farming agreements. Interestingly, family annual expenditure negatively influenced perceived benefits, suggesting that contract farming's sways might be more pronounced among economically vulnerable farmers. This finding calls for targeted support mechanisms, such as access to credit, crop insurance, and fair price guarantees, to mitigate risks and enhance the economic resilience of resource-poor farmers participating in contract farming schemes. While this study provides valuable insights, the indirect effects observed through variables like communication skills, family income, and management orientation highlight the need for a multi-pronged approach.

POLICY IMPLICATIONS

(1) Strengthening extension services: Providing farmers with timely information on market trends, best practices, and contract negotiation.

(2) Promoting farmer collectives: Facilitating collective bargaining power and knowledge sharing among farmers.

(3) Investing in rural infrastructure: Improving transportation, storage facilities, and access to technology to enhance farmers' market access and reduce post-harvest losses.

(4) Ensuring contract transparency and fairness: Establishing clear regulatory frameworks that protect farmers' rights and ensure equitable benefit-sharing within contract farming arrangements.

By addressing these multifaceted challenges and

fostering an enabling environment, contract farming can transition from a mere market linkage mechanism to a powerful engine for inclusive and sustainable agricultural development in India.

CONFLICT OF INTEREST

All the authors have given their consent and approval for carrying out the research work and its timely publication. They have no competing conflict of interest.

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