AN EMPIRICAL STUDY ON SOCIOECONOMIC FACTORS AFFECTING PRODUCER'S PARTICIPATION IN COMMODITY MARKETS IN INDIA

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ABSTRACT

India is an agricultural country, and agricultural goods and trade are vital to its economy. It has been decades since India's small and marginal farmers' pricing risk was reduced through better agricultural marketing. A futures market was created to stabilize prices, decrease poverty, and promote economic growth. Investors can use future derivatives to protect their cash market positions. Agricultural commodities futures market has yet to garner considerable producer participation. Overarching purpose is to explore socio-economic aspects determining producer participation in Indian commodity markets. Futures markets were created to help farmers manage their risks. However, producers in emerging markets like India are unable to actively participate in futures markets. For risk management and trading in commodity markets, this study seeks to uncover socioeconomic characteristics that influence producer decisions in India. It examines the policy framework required to promote commodities markets in India. The study used convenience sampling. 150 persons were interviewed using structured questions. A logit model revealed the primary determinants impacting commodity futures adoption in the area. This was done using the SPSS statistical software. It tries to identify institutional, socioeconomic, and farmer involvement factors that hinder or promote farmer participation in futures markets in India and Abroad.

Keywords: Commodity, Futures, NCDEX, FMC, Logit.

INTRODUCTION

Trading futures contracts has been increasingly popular in recent decades in agriculture-based countries like India. The futures market has attracted a lot of investor attention due to its significance in price hedging. Decades of policy have focused on improving agricultural markets and lowering price risk for India's small and marginal farmers despite the government's efforts to strengthen smallholder market ties and maintain prices, the benefits have been limited, particularly in terms of price risk management. Farmers are underrepresented in derivatives markets. Agricultural futures markets can help farmers make educated planting decisions and decrease market risk. In reality, farmers make planting decisions based on last year's prices rather than expected harvest prices. Policymakers, on the other hand, regard it as a black box and a primary cause of inflation (Gulati et al., 2017). ITC-ABD, a major aggregator and exporter of Indian agricultural commodities, uses these exchange platforms to hedge price risk. A questionnaire survey, semi-structured interviews, and focus groups were utilized to gather information from tomato producers about their price risk management practices. The value chain is market-governed, with no vertical or horizontal integration activities (Shula, 2020). The

study's overarching goal is to investigate the socio-economic factors affecting producer's participation in commodity markets.
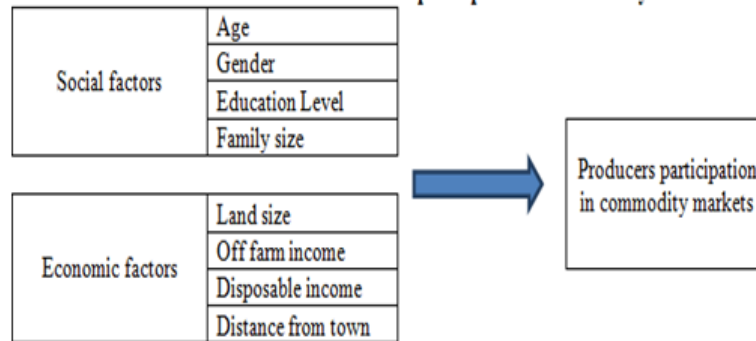
Background of the Study

Futures markets were formed in India to help farmers and provide options to hedge through participation. However, manufacturers in emerging economies have been seen to be unable to directly participate in futures market systems. Agri-futures has been on a roller coaster ride since its establishment in 2003, and its primary beneficiary has not realized the rewards. Farmers' engagement in commodities markets has been low, and risk reduction tools for sharing ITC-ABDs trading technique have been provided to Indian farmers. Hedging serves as a substitute for a farmer with a high risk aversion, and the benefits of hedging are described as certainty equivalent income gain, which is positively associated to natural disasters (Ranganathan & Ananthakumar, 2014). Giving FPOs the ability to trade in commodity markets can benefit both parties, and it may assist farmers make cropping decisions based on future year's pricing rather than prior year's prices. This will weaken the grip of middlemen and traders, ultimately increasing the income of agricultural families (Hindu, 2020). In-depth discussions with Mr. Siva Kumar, Divisional Chief Executive of ITC Ltd.'s agricultural division, yielded insights and perspectives on growing farmers' participation in commodities derivatives trading and comprehending ITC's hedging tactics. He discussed risk mitigation services for Indian farmers, as well as ITC-ABD trading tactics (Rajib, 2015). The Forward Market Commission was recently replaced as a commodity market regulator by the Securities and Exchange Board of India SEBI (Ghosh & Dey, 2015).

Theoretical Framework

The most prevalent vanilla derivatives are forward, futures, and options contracts. Exotic derivatives are more complex derivatives. A Forward Contract is a contract in which the buyer and seller agree to provide an asset at a future date. These are OTC contracts that are tailored to specific requirements such as price, quality, and delivery terms. A standard agreement can include size, maturity, trading method, and delivery terms. Contracts sold on exchanges require both parties to pay a margin. Unlike futures, an option contract offers the buyer the right but not the responsibility to buy (call option) or sell (put option) a strike price or exercise price.

In 1875, the Bombay Cotton Association Ltd. established India's first commodity futures exchange. Various objects could be traded in future exchanges. In 2003, the government abolished the restriction on futures trading and recognized three electronic trading exchanges as national multi commodity exchanges: NMCE, MCX, and NCDEX. Commodity trading has grown rapidly since then. Indian Commodity Exchange Limited (ICEX), Ace subsidiary and ware trade Limited (ACE), and Universal Commodity Exchange (UCX) are also active in India (UCE). It will be statistically analyzed from January 2015 to January 2020 (Figure 1).

Social factors	Age
	Gender
	Education Level
	Family size

Economic factors	Land size
	Off farm income
	Disposable income
	Distance from town

Producers participation in commodity markets

Source: Literature review by author

FIGURE 1
SOCIO ECONOMIC FACTORS OF PRODUCER'S PARTICIPATION IN COMMODITY MARKETS

LITERATURE REVIEW

The study examined scholarly literatures on producer participation in various markets from reputable national and international sources. The logit model was used to identify various socioeconomic factors that influence farmers' decisions to adopt farm forestry in commodities business. Structured questionnaires were used to interview 200 persons. The primary determinants impacting farm forestry adoption by households on farms surveyed in the district were identified using a logit model. At the 0.05 level of significance, the logit analysis discovered that respondents, age, and land size were all significant. Formal education is required to the farmers and value of farm forestry should be taught to farmers. Farmers above the age of 55 should be prioritized because they determine the majority of family decisions. (Lwayo & Maritim, 2003).

Farmers' participation in India's futures markets was explored by identifying elements that limit or potentially promote farmer participation in futures markets, such as institutional, socioeconomic, and farmer participation behavior (direct and indirect) (Dey et al., 2019). The decision of smallholder farmers to participate in the agro-processing industry, as well as the extent to which they participate, was investigated in the Gauteng Province using a double-hurdle model to examine the factors that influence the decision to participate in agro-processing as well as the level of participation. According to the findings, only 19 percent of smallholder farmers are involved in the agro-processing industry. The studies also demonstrated that educational level, land tenure, agro-processing training, and knowledge all have a beneficial impact on participation decision. (Khoza et al., 2019). It is found that farmer's revenue, their crop choices, long term investment decisions and their short term labour allocation is impacted significantly by volatile harvest price movements (Dercon, 1996; Hill, 2009; 2010). Farmers control price risk with the help of FPOs. Over the last ten months, over 25000 small and marginal farmers have successfully hedged their crops using the NCDEX trading platform. Women in Rajasthan's Bundi area organized an FPO with 2,300 members and used future marketplaces to sell produce at a greater price than wholesale markets gave two months later. Due to concerns about speculation and inflation, the trading of pulses and rice has not followed this trend. Pravesh Sharma, former head of the Small Farmers' Agribusiness Consortium, which was entrusted with creating FPOs and connecting them to markets, believes that future and forward markets for a

range of commodities should be authorized and vigorously pushed. (Bera, 2020). The number of small and marginal farmers engaged in the agro processing business is minimal, which could be attributed to a number of factors, including a lack of access to agro processing-related training and knowledge, as well as the distance to it. Farmers' engagement in the agro-processing business is influenced by socioeconomic factors, demographic features, agricultural characteristics, and support services. (Khoza et al., 2019). Market institutions such as public warehousing and commodities exchanges, as well as their combined use, can aid in immediate and long-term marketing decisions. It enables manufacturers, customers, and traders to create their own business strategies. (Kozár & Fodor, 2006).

The Heckman two-stage selection model was used to examine the factors influencing small rice farmers' decisions to participate in the agriculture market, with a focus on Myothit Township in Myanmar's Magway region. The decision to participate in the rice market was influenced by a variety of characteristics such as household age, family size, education, total rice output, livestock ownership, farmers association membership, distance to market, access to extension services, and market knowledge. (Kyaw et al., 2018). Large FPOs play a critical role in risk management via derivatives. According to Kapil Dev, Head Products and Business Development NCDEX, FPOs must be consolidated and awareness raised among these FPOs to participate in future and spot trading. Around 300 FPOs have registered with NCDEX, and 100 are trading on the exchange. He noted that there are numerous challenges on the ground because FPOs represent farmers. FPOs and farmers do not have a clear picture of future markets.(Panel discussion in commodity markets, NCDEX 2020). A case study on coriander hedging with future contracts based on the experience of P.C. Kannan & Co., Madhya Pradesh, India's largest coriander exporter, who used future contracts to stabilize cash flows and enhance company. Commodity futures allow exporters to offer an acceptable price and, as a result, set a contract for export in a competitive market. (Hedging in commodity futures A COHERENT APPROACH TO CORPORATE RESILIENCE Case Study of P.C Kannan & Co., n.d.)

METHODOLOGY

The study is analytical and descriptive in nature. A structured questionnaire is used to collect data from primary sources from a sample of 150 producers. Producers are here defined as people involved in the agri-value chain of agriculture commodities such as farmers, aggregators, millers, traders, and others who may be interested in commodity markets. A survey was conducted in Karnataka state by producers involved in a variety of crops using a blend of judgement and convenient sampling method. MS Excel and IBM SPSS 20 were used as statistical software. Data was also collected by secondary sources through journals, paper publications and websites.

Research Objectives

The purpose of this research is to identify various socioeconomic variables that influence producers' decisions to participate in commodity markets for risk management and trading in India.

1. To identify the Socio-economic factors affecting producer's participation in commodity markets.
2. Give suitable measures producer's participation can be improved in commodity markets in India.

Statistical Tests

The respondents' level of commodity market adoption in India (adopters or non-adopters) was separated into number of groups, and a contingency table was generated for each socioeconomic component. The data from the contingency table was analyzed using the chi-square statistic. The data from the contingency table was analyzed using the chi-square statistic. The following is the formula: The usage of chi-square assists in identifying whether two variables in a population are independent or dependent. It was employed in the analysis to see whether the explanatory factors differed between adopters and non-adopters (Table 1).

Table 1 DESCRIPTION OF DEPENDENT AND INDEPENDENT VARIABLES				
Participation in Commodity markets	Yes		No	
Binary Variable	1		2	
Independent Variables -Social factors				
Age(years)	<21	21-40	41-60	>60
Ordinal Variable	1	2	3	4
Gender	Male		Female	
Binary Variable	1		2	
Education Level	Uneducated	Matriculate	Intermediate	Graduate	Postgraduate and above
Ordinal Variable	1	2	3	4	5
Family size	<4	4 to 6	7 to 9	>10
Binary Variable	1	2	3	4
Independent Variables -Economic Factors				
Land size	<1 Ha	1-2 Ha	2-10 Ha	>10 H	Nil
(Ordinal Variable)	1	2	3	4	5
Off farm income	Yes	No			
(Binary Variable)	1	2			
Disposable income	<2 Lacs/annum	2-5 Lacs/annum	5-10 Lacs/annum	10-15 Lacs/annum	>15 Lacs/annum
Binary Variable	1	2	3	4	5
Distance from near town	Scale data				

Source: Literature review

The logit model was chosen because it accurately reflected the empirically observed state of commodity markets on any given form. Such findings reflect a binary variable, adoption or non- adoption. This 'adoption behavioural model' with dichotomous (or binary) dependent variables can be used as a conceptual framework to investigate variables related to adoption. The use of logit, which provides maximum likelihood estimates, eliminates the majority of the issues associated with linear probability models and provides estimators (Engelman, 1981; Gujarati, 1988).

Limitations of the Study

The research has certain limitations the study aims to understand the producer's participation in commodity markets by conducting field surveys and results are dependent on

Survey responses, sampling errors and other issues which are involved with questionnaire. Time is the constraint as we have limited time to complete this research (Table 2).

DATA ANALYSIS

Table 2 FREQUENCY DISTRIBUTION OF RESPONSE GIVEN BY PRODUCERS				
Gender of Respondents	Male		Female	
Response	142(95.9)		6(4.1)	
Participation in Commodity markets	Yes		No	
Response	89(60.1)		59(39.9)	
Awareness on price risk management	Yes		No	
Response	78(42.7)		70(57.3)	
Trainings by NCDEX	Yes		No	
Response	94(63.5)		56(36.5)	
Age	<21(years)	21-40 (years)	41-60(years)	>60(years)
Response	3(2)	81(54.7)	58(39.2)	6(4.1)
Education Level	Uneducated	Matriculate	Intermediate	Graduate	Postgraduate and above
Response	21(14.2)	0	31(20.9)	96(64.9)	0
Land size	Nil	<1 Ha	1-2 Ha	2-10 Ha	>10 H
Response	0	61(41.2)	16(10.8)	54(36.5)	17(11.5)
Awareness on commodity markets	<1 years	1 to 3 years	4 to 6 years	7 to 9 years	>10 years
Response	31(20.9)	53(35.8)	34(23)	10(6.8)	20(13.5)
Source of information on commodity markets	Fellow farmer	Extension Agent	NCDEX Agent	Dealer	Media
Response	18(12.2)	18(12.2)	50(33.8)	8(5.4)	26(17.6)

*Source: SPSS output, Questionnaire analysis by Researcher; *Response percentage in parenthesis*

Interpretation: Majority of respondents was farmers and traders and have land size less than 2 hectares. This is because majority of Indian farmers are small and marginal farmers. Most of them were males of age 21-60 years who were graduates. This shows literacy rate is good in Karnataka.

Respondents are aware about commodity markets from 1-3 years and have similar trading experience but respondents they have not attended any trainings on commodity markets. Producers of Karnataka are aware about price risk management approaches of commodity markets. Majority of respondents got information about commodity markets from NCDEX agent, media, fellow farmers and extension agents.

RESULTS AND DISCUSSION

Agriculture product marketing is crucial to attaining the overall aims of sustainable agriculture, food security, and poverty alleviation, particularly among rural smallholder farmers.

This study discovered that various socioeconomic parameters, such as the age of the household member who administers the farm, had a positive significant link with a person's ability to work in the market. It also has an impact on one's ability to adapt to new ideas and changes. Gender, education, family size, and the decision to adopt producers all showed a non-significant association, according to the logit model. Distances from town and non-farm income were major variables in commodity market participation, although land size and disposable income were not. After taxes, disposable income is the amount of money accessible to the household for spending. Money accumulated from various sources and used for both home needs and savings is covered.

CONCLUSION

This study provides techniques for increasing market participation and smallholder income in India. To reduce poverty, food security and economic development in Karnataka, the public sector must establish and implement balanced policies for small-scale producers. Agricultural management has recently been challenged by new scenarios such as novel variety creation and rapid ICT and IOT development. Rather than just boosting output, it is critical to consider how much extra value may be created. Other socioeconomic and technological elements that influence farmer participation in the market, as well as innovative aspects that influence added value, should be investigated in future research.

REFERENCES

Bera, S. (2020). Farmers are using futures contracts to counter price risks. *Livemint*, 1-14.

BMDP Statistical Software 1981. (Ed. Dixon, W.J.), Berkely: University of California Press, 330-346.

Dercon, S. (1996). Risk, crop choice, and savings: Evidence from Tanzania. *Economic Development and Cultural Change, 44*(3), 485-513.

Dey, K., Gandhi, V.P., & Debnath, K. (2019). *Farmers' participation in India's*

Engelman, L. (1981). PLR: Stepwise Logistic Regression.

Ghosh, N., & Dey, K. (2015). Opportunities and challenges of regulatory convergence in India's financial sector: The case of the SEBI'FMC merger. *Economic and Political Weekly*, *50*(36), 64–70.

Gujarati, D.N.(1988). Basic Econometrics. McGra

Gulati, A., Chatterjee, T., & Hussain, S. (2017). Agricultural commodity futures: Searching for Potential Winners. *ICRIER Working Paper 349, 349.*

Hill, R.V. (2009). Using stated preferences and beliefs to identify the impact of risk on poor households. *The Journal of Development Studies, 45*(2), 151-171.

Hill, R.V. (2010). Liberalization and producer price risk: Examining subjective expectations in the Ugandan coffee market. *Journal of African Economies, 19*(4), 433-458.

Hindu, A. (2020). Linking farmers with futures market can benefit both. *The Publishing pvt ltd, the Hindu*, 8–10.

Khoza, T.M., Grany M Senyolo, Mmbengwa, V.M., & Soundy, P. (2019). Socio-economic factors influencing smallholder farmers' decision to participate in agro-processing industry in Gauteng province, South Africa. *Cogent Social Sciences*, 5(1).

Kozár, L., & Fodor, L. (2006). Price Risk Management by Futures Markets and Public Warehousing. Acta Agraria Debreceniensis, (24), 58–65.

Kyaw, N.N., Ahn, S., & Lee, S.H. (2018). Analysis of the factors influencing market

participation among smallholder rice farmers in Magway Region. Central Dry Zone of Myanmar. *Sustainability, 10*(12), 4441.

Lwayo, M.K., & Maritim, H.K. (2003). Socio-economic factors affecting farmers ' decisions to adopt farm forestry: an application of multivariate logistic analysis in Busia District, Kenya. In *World Forestry Congress* (pp. 1–7).

NCDEX. (2020). SIES-FPJ: Farmer price risk can be best addressed through large FPOs & commodity exchanges. *Https://Www.Freepressjournal.In/*, 1–8. Retrieved from https://www.freepressjournal.in/business/sies-fpj-farmer-price-risk-can-be-best-addressed- through-large-fpos-commodity-exchanges

Oram, P.A. (1988). Moving towards sustainability; Building the agroecological framework. *Environment: Science and Policy for Sustainable Development, 30(9), 14-36.*

Rajib, P. (2015). Indian agricultural commodity derivatives market-In conversation with S Sivakumar, Divisional Chief Executive, Agri Business Division, ITC Ltd. *IIMB Management Review, 27*(2), 118–128.

Ranganathan, T., & Ananthakumar, U. (2014). Does hedging in futures market benefit Indian farmers? *Studies in Economics and Finance, 31*(3), 291–308.

Shula, A.M. (2020). Price Risk Management among SmallScale Tomato Farmers- A case of Mwalumia area in Chongwe district of Zambia, *Copyright © Anthony Mulenga Shula 2020. All Rights Reserved PRICE RISK M ...* (Issue September) [Van Hall Larensten, University of applied sciences]. *Sustainability (Switzerland), 10*(12).