
A Study on Supply Uncertainty Affecting the Supply Chain of Paddy in Odisha

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Abstract

The quantum of procurement is directly linked with the commitments of the public distribution system. But so long as there is partial or informal rationing, procurement will account for only a small share of marketable surplus. Data were collected from the farmers of villages belonging to Bargarh, Sambalpur, Kendrapada and Cuttack. Sample size covered was 250 from which 190 are the farmers, 40 millers and 20 government officials who are involved in paddy supply chain of Odisha. Supply uncertainty deals with the supply of right quality and right quantity of paddy in the whole process of supply chain from procurement till it reaches common people through PDS. This supply of paddy depends on factors such as production, fair average quality, rainfall, price and infrastructure which directly influence the system of supply chain of paddy in Odisha.

Keywords : Procurement, Supply Uncertainty, PDS, Fair Average Quality

1.0 Introduction

Agriculture sector is the prime mover of state economy of Odisha. Paddy, being the major food grain has a great impact in the agricultural scenario. The marketing of paddy is a burning issue in the state like Odisha as it has to pass through too many middlemen such as commission agents, wholesalers, millers cum wholesalers, retailers in the chain of distribution. There middlemen take a lion share of profit and consequently the price goes up abnormally. Hence, as a measure to avoid profiteering by the middlemen, our Government is bound to evolve a sound food policy of keeping the price always under control and maintaining adequate stock position to meet the rice requirements of people under public distribution system. Also the Government is bound to effect a sound marketing system to enable the producers to get a fair price for their produce by eliminating the inherent defects prevalent in agricultural marketing such as lack of organizations, forced sales, presence of superfluous middlemen, multiplicity of market charges, multiplicity of weights and measures and malpractices of markets. Thus, it becomes important to study about monopoly procurement system and its success in achieving its objectives. The quantum of procurement is directly linked with the commitments of the public distribution system. But, so long as there is partial or informal rationing, procurement will account for only a small share of marketable surplus. Total elimination of intermediaries

and full scale state trading in food grains coupled with nationalization of rice flour mills is likely to produce optimum result. Indiscriminate procurement in open market is self defeating as it will encourage inflation and price rise. It is largely agreed that procurement has to be done by way of a compulsory levy. Whether this levy should be on producers or on traders and the prices at which food grains ought to be procured are the points on which there is no unanimity in sight.

Aspects of public distribution, ways and means were to be evolved to neutralize the deficit state from the surplus state either from central pool or by procurement. In this respect, not satisfactory progress has been made as indicated by the fact that still the per capita availability between surplus and deficit states varies widely.

2.0 Background of the Research

Quasem (1979) finds that government procurement program of paddy benefited the intermediaries more than the farmers because of the mechanism of procurement proved little incentive to farmers for selling at the procurement centers. The study indicates that all size groups sell paddy immediately after harvest; about half of them buy back in the lean-season at a higher price.

M.S.Jairath (2008) has conducted a study on rural infrastructure viz. Grameen Bhandaran Yojana (Rural

godown) and analyzed the extent of spread of constructed rural godown , investment made, subsidy distributed , regional imbalances in construction of rural godowns , the availability of rural godowns, utilization pattern and benefits extended to rural economy , wastage reduction and price gain to farmers and suggested that benefits of rural godowns should be extended to small farmers and farmers of hilly and desert areas and the growing imbalance among the regions, districts and states in the construction of rural godowns should be checked.

Akter (1990), finds that both net sellers and net buyers benefit from a buffer stock scheme with either a constant mean price or a modestly increasing price over the paddy season. Net buyers as well as consumers are losers from a stabilised price higher than average price over the paddy season.

Maurice R. Landes and Mary E. Burfisher (2009) examined the performance of India's agricultural marketing system and analyzed the economy wide implications of improved marketing efficiency system in India and concluded that greater investment in agricultural markets and efficiency in production can enhance agricultural supply chains potential to enhance agricultural growth.

Mohammad J. Alam, (2015) Price appears to be a significant signal for influencing stockholding behavior of farming households. Farm income as well as annual household income of the participant farmers increased by 4.03 and 3.03 per cent, respectively as they sold their certain amount of paddy to procurement centers. The procurement program supports farmers indirectly through market mechanism as market price and procurement price are positively associated.

3.0 Objectives of the Study

1. To identify the supply uncertainty factors which affect the supply chain of paddy in Odisha
2. To study the impact of the factors on channel partners in the supply chain of paddy in Odisha

4.0 Method of Study

4.1 Research design

The study is exploratory in nature. Survey method was adopted to carry out the objectives of the study. Both primary and secondary data were used in the study

4.2 Data Collection

Data were collected from the farmers of villages belonging to Bargarh, Sambalpur, Kenrdapada and Cuttack sample surveys using structured, pre-tested interview schedules, The total sample size covered was 250 selected through convenience non-random sampling technique. Secondary data were collected from a wide spectrum of sources including Websites of various organizations.

4.3 Data Collection Tool

The study was conducted at the micro level for observation of procurement of paddy. Several visits were made to the field to interact with the farmers with the help of a structured questionnaire.

4.4 Population of the Study

The population of the study constitutes 250 from which 190 are the farmers, 40 millers and 20 government officials who are involved in paddy supply chain in Odisha.

4.5 Analysis and Interpretation of Data

The data thus collected were classified, tabulated, analysed and interpreted with the help of tables, graphs and pie charts.

Supply uncertainty is related to the unpredictability of the delivery of raw or packed materials in time in the right amount or according to the right specifications (van derVorst 2000). In this study, the supply side is the paddy rice from rice producers or merchants to rice millers, and milled rice from rice millers to government for PDS. Government fixes the target for procuring the paddy from farmers by considering the average production of 3-4 previous years. Accordingly, farmers also have to sell their paddy in the mandi and it is to be processed by the millers and the same is to distribute to the beneficiaries through different schemes. The supply uncertainty deals with the supply of right quality and right quantity of paddy in the whole process of supply chain of paddy that is the procurement from the farmer, processing by millers and once again milled rice made available to the government agency for PDS. So when proper supply of paddy is there, the flow of supply chain becomes very smooth and easy. The procurement of paddy from farmers becomes much more effective when the farmers sell their paddy in the mandis with prescribed quantity and quality according to government circular without any distress sell. Millers after getting those procured paddy milled it without any delay and according to the regulations of government. After milling the millers give the milled paddy in proper time and with proper FAQ so that government can smoothly distribute the rice to the beneficiaries through PDS. So supply of paddy plays a very vital role in supply chain of paddy in Odisha. This supply of paddy depends on the following factors such as production, FAQ, rainfall, price, storage infrastructure.

5.0 Production

The production of paddy helps in setting the target for government to procure the paddy from the farmers. When the production is more, the government procures paddy as per target and even more when the production is quiet high in order to maintain market stability of paddy and meeting the target of PDS. The quantum of procurement is directly linked with the commitments of the public distribution system. But, so long as there is partial or informal rationing, procurement will account for only a small share of marketable surplus which is directly related to production.

Table : 1 Production of Paddy in Odisha (IN 000MT)

Years	Quantity
2005-06	6859
2006-07	6825
2007-08	7541
2008-09	6813
2009-10	6917
2010-11	6828
2011-12	5807
2012-13	9497
2013-14	7613

Source : Odisha Economic Survey14-15

Table 2 : Production Affecting Supply in Supply Chain

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total
Farmers	—	—	—	—	45 (23.6%)	62 (31.5%)	83 (43.6%)	190
Millers	—	—	—	11(27.5%)	1(2.5%)	24(60%)	4(10%)	40
Government officials	—	—	—	—	2(10%)	2(10%)	16(80%)	20

Source : Field Survey

Table 2 explains that production of paddy plays an important role in the supply uncertainty which affects the supply chain of paddy. Out of the sample size of 250, 103 number of respondents strongly agree, 88 respondents agree and 48 respondents slightly agree about the fact that the production affects the supply chain directly which consists of around 41%,35% and 20% respectively. 83 farmers strongly agree about this relation as they very well know that every production of good quantity paddy is important for mitigating the supply uncertainty and 24 numbers i.e. 60% of millers agree that production has the impact on supply chain.

5.1 Fair Average Quality

Damaged, sprouted and weevilled grains should not exceed 4%. As per the specification. government of India and communicated to State Government, about wide publicity of Fair Average Quality (FAQ) Specifications among the farmers in order to ensure that they get due price for their produce and rejection of the stocks. Procurement of paddy is ensured by OSCSC Ltd. strictly in accordance with above Fair Average Quality (FAQ) specifications.

Table 3 : Schedule of Specification for Common and Grade “a” Paddy.

Sl. No	Refractions	Maximum Limit (%)
1.	For F Foreign matter a) Inorganic b) Organic	1.0 1.0
2.	Damaged, discoloured, sprouted and weevilled grains	5.0 *
3.	Immature, Shrunken and Shrivelled grains	3.0
4.	Admixture of lower class	6.0
5.	Moisture content	17.0

Source : OSCSC

Table 4 : Fair Average Quality(FAQ) Affecting the Supply in Supply Chain

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total
Farmers	—	—	—	—	12(6.3%)	46(24.2%)	132(69.7%)	190
Millers	—	—	—	—	—	4(10%)	36(90%)	40
Government officials	—	—	—	—	—	2(10%)	18(90%)	20

Source : Odisha Economic Survey 14-15

Table 3 shows the influence of FAQ with the supply uncertainty in the supply chain of paddy in Odisha. Table-3 and chat interprets that 186 no. of total respondents i.e. 74.4% of the whole sample agree that FAQ has impact on supply chain of paddy. 69.7% farmers strongly agree with the fact. Whereas 46 farmers and 36 millers agree and strongly agree that FAQ should be maintained which is 46% and 90 % of their respective sample respectively.

5.2 Rainfall

The annual normal rainfall of the State is 1451.2 mm with irregular distribution. More than 80% of precipitation is received during the period from mid-June to September. Rainfall pattern is highly unpredictable in timing, amount and distribution and therefore, the state suffers either from drought or flood. Odisha agriculture depends much on monsoon rains. Normal distribution of rainfall influences crop yield, failure of rain in drought years causes scarcity, while excess rainfall causes flood which ultimately hampers the supply chain of paddy.

Table 5 : Rainfall Affecting the Supply in Supply Chain

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total
Farmers	—	—	—	—	10(5.2%)	26(13.6%)	154(81%)	190
Millers	—	—	—	—	—	—	40(100%)	40
Government officials	—	—	4(20%)	—	—	13(65%)	3(15%)	20

Source : Field Survey

Data in Table 6 signify that 154 farmers gave their opinion that rainfall affects the supply chain a paddy as it directly has the impact on supply uncertainty. When this question is asked to the millers, all the millers strongly agree about the fact as if the rainfall occurs in field in the procurement system the FAQ deteriorate at the time of procurement which also prevail in the processing as well as they find difficult to maintain it while delivering to government agencies. Also if in the time of storage the rainfall occurs it also deteriorate the quality of rice. Around 15% of government officials slightly disagree as they feel that it can be managed by millers in case of storage.

5.3 Price

The majority of the produce of the farmers was sold in

the village itself at a much less price, invariably to their creditors and private traders at an unfavorable time and terms. Unethical trade practices like under cover system, open auction system, private agreement and close tender system reacted very badly against the interest of the agriculturists. Therefore, as measures of combating frequent Famines and food problem, removing the defects of agricultural marketing, mainly eliminating middlemen's share and malpractices, assuring farmers fair price for their produce and consumers to get fair produce for the price, securing control over demand and supply of food grains and also improving the needs of economic development, Government decided to directly procure the paddy from the producers. in Minimum Support Price (MSP)

Table 6 : Price Affecting the Supply in Supply Chain

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total
Farmers	—	—	—	—	—	102(53.6%)	88(46.4%)	190
Millers	—	—	—	—	—	—	—	0
Government officials	—	5(25%)	—	—	—	13(65%)	2(10%)	20

Source : Field Survey

Data in table 6 point out that millers are not involved so there is no responses from miller side. In pricing related to procurement of paddy is around 102. of out of total agreed and 88 farmers strongly agreed that pricing definitely have an impact in supply uncertainty. Both the selling price i.e MSP and the payment period put impact on the farmers for selling their paddy in government. mandies and market. Around 65 % of government officials agreed to it as the pricing has impact on supply of paddy but 25 % of government. officials also disagree about

this as they stated that the MSP is given when the paddy are in proper FAQ which is fixed by government. and regarding the payment it is being given by account payee cheque as per government. guidelines.

5.4 Storage Infrastructure

As per OSAMB, there are regulated Markets having 53 principal market yards and 375 sub market yards, in total 428 market yards operating under regulated market committees in 194 blocks of the state. There are 576

temporary market yards for paddy procurement functioning under Market Committees. Paddy is procured at MSP at RMC markets, PACS by procurement agencies. In many of the markets due to lack of infrastructure and dedicated staff at market level for conducting open auction, this method of sale is non-existent, and hence, affecting the process of price discovery process. Though Government. has made it

mandatory to have the basic facilities in the procurement centre such as, plenty of space for unloaded paddy adequate storage, protection from unusual rainfall ,threshing or cemented floors to spread the paddy to reduce the moisture content, security arrangement for paddy stocked in the floor and shelter for the distant farmers are necessary.

Table 7 : Storage Infrastructure Affecting the Supply of Paddy in Supply Chain

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree	Total
Farmers	—	—	29(15.2%)	—	17(8.9%)	58(30.5%)	86(45.3%)	190
Millers	—	—	7(17.5%)	—	13(32.5%)	9(22.5%)	11(27.5)	40
Government officials	—	3(15%)	4(20%)	—	5(25%)	—	8(40%)	20

Source : Field Survey

The data in table 7 reveals that around 45.3%,30.5% of farmers i.e 86 &58 numbers of farmers out of total strongly agreed and agreed respectively but 29nos. of farmers slightly disagree that storage infrastructure is essential for supply of paddy in the supply chain. In case of millers 32.5% millers slightly agree about the relation of infrastructure with supply chain of paddy. In this context many gives their opinion that. The farmers were suffering huge loss due to lack of adequate storage and protection from unusual rain. If the paddy is lacking basic FAQ standard it needed to be stored over night till its back to the prescribed standard. To avoid such loss the farmers preferred to dispose the paddy at a price less than MSP rather than getting back at huge transport cost. Incase asked the farmers found difficulty in drying the paddy due to lack of space and store it due inadequate storage facility. They have to wait for their turn without any proper shelter in the mandi. There was also lack of security arrangement in the market yard, mandi or in the temporary procurement centers. Some miller also states that the storage house are not sufficient to store the milled rice as government. delay in uplifting the process paddy which also affect the milling process and finally the supply-chain of paddy.

6.0 Suggestions

The government. should discourage the hand in globe between the mill owners and the procurement officials to benefit themselves at the cost of farmers by of purchasing at lower price than MSP by the mill owners. The farmers should not be put to heavy lock due to heavy discount on account of deficiency in FAQ and should not be pushed to the mercy of mill owners /agents. The government. should take adequate care for storage for indisposed paddy, threshing floor for reduction of moisture content, protection of paddy from unusual rain and night shelter of the farmers

7.0 Conclusions

The particulars of norms of FAQ which was prevailing or newly modified of paddy are not followed as both the government has to maintain the FAQ while procuring from farmer and the miller have to maintain the same FAQ while delivering to either FCI or OSCSC. .There is lack of adequate storage facilities, threshing floor, security arrangement in collection centers which break the flow

of supply chain as the farmers have to dry their produce and store them.

The farmers were unable to know the MSP advance and came to know from hear say only.

Rainfall destroy the paddy or deteriorate the quality of paddy either if there is improper storage or in production period which also hampers in the supplying of the quality paddy .Instead of getting back the paddy to house the farmers prefer to dispose of their stock to mill owners or agents at a price less than MSP to avoid costs involved in twice transportation. The millers are not able to meet their target in time as the government is not able to collect the processed rice from miller in time due to lack in storage infrastructure. The farmers should be indicated well in advance the quantity of paddy to be brought to the centre for procurement at MSP.

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