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Assessment of the impact of e-mandi on marketing efficiency

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Abstract

Agriculture sector is an intricate part of Indian economy. The contribution to GDP is about 17 per cent in 2017-18 and employment to over 54.6 per cent of the population. Electronic National Agriculture Market (NAM) is a platform on India electronic trading gateway which arranges the current Agricultural Marketing Produce Committee (APMC) mandis to make a unified national market for agricultural products. In e-NAM produce can be sold directly at a national platform with higher producer's share in consumer's rupee. Lesser the involvement of middlemen higher is the marketing efficiency. APMC Varanasi is one of the largest Pahariya e-mandi in Uttar Pradesh was selected purposively. This study analyzed the marketing efficiency of tomato, lady finger, ridge gourd and brinjal and found that marketing efficiency was higher for all the studies crops when sold through e-NAM. It is concluded that the analysis of marketing efficiency for the above vegetables crops shows that the implementation of e-NAM has improved the marketing efficiency. This is due to fact that the role of middlemen has been reduced significantly by selling produce through e-NAM system.

Keywords: APMC, e-NAM, marketing efficiency

1. Introduction

Agriculture sector is an intricate part of Indian economy. The contribution to GDP is about 17 per cent in 2017-18 and employment to over 66 per cent of the population. The food grain production has increased from 51 MT in 1950-51 to 277 MT from an area of 122 million hectares in 2017-18 (<http://www.indiastat.com>). The vegetables production has increased from 87 MT in 1950-51 to 181 MT in 2017-18 (<http://www.indiastat.com>). Thus, Agriculture assumes an important role in India's economy by improving the income of the rural households. The quick development has helped in Indian farming imprint at worldwide level. India pose most extreme creation of different agrarian products like paddy, wheat, beats, ground nut, organic products, vegetables, tomato, bean, potato, cucumber, cabbage, sugarcane, tea, jute, cotton, tobacco leaves, and so forth.

National Agriculture Market (NAM) is a platform on India electronic trading gateway which arranges the current APMC mandis to make a unified national market for agricultural products. NAM Portal Provide a solitary window service for all APMC affiliated information and services. This integrates commodity arrival & prices, purchase & sell trade offers, among different administration. While agriculture produce deliver keep on happening through mandis, an online market reduces transaction costs and information asymmetry. Small Farmer's Agribusiness Consortium (SFAC) is the pilot promoter of NAM, SFAC is a Nodal agency of Department of Agriculture, Cooperation and Farmers' Welfare (DAC&FW) under Ministry of Agriculture and Farmer Welfare. SFAC through open tender selects a Strategic Partner (SP) to develop, employ and continue the e- NAM platform. SFAC appliance NAM with the technical support of SP and budgetary afford support from DAC&FW.

With this foundation, the examination was directed on e-NAM system in Pahariya e-mandi in Varanasi area of Uttar Pradesh to know its impact on marketing efficiency of e NAM system among the stakeholders. Thus, the study was carried out with the objective to assess the impact of e-mandi on marketing efficiency

2. Methodology

2.1 Selection of study area

In order to examine the functional aspects, the perception of the market functionaries and stake holders about the e-NAM system and the arrival pattern in the e- tendering system in APMCs, the research study was conducted in Varanasi district of Uttar Pradesh state. Uttar Pradesh was purposively selected as it is largest producer of food grains and most imperative state from a financial perspective in India.

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2.2 Description of the study area

Uttar Pradesh is the fourth largest state in India with a geographical area of 243,286 km² (93,935 sq. mi.). It is situated between 23°52'N and 31°28'N latitudes and 77°3' and 84°39'E longitudes.

Varanasi is also one of 75 districts in the Indian state of Uttar Pradesh. Consisting a total of 8 blocks and 1329 villages in this district. Varanasi district extending between 25°10'30''N and 25°35'15''N and 82°40'50''E and 83°12'18''E lies in eastern Uttar Pradesh. Physio graphically it lies in the middle Ganga plains. The district occupies an area of 1,526 square kilometers River Ganga is the principal river of the district. Geologically the district is composed of Gangetic alluvium formed by the deposition of the sediments brought by River Ganga and its tributaries. Agriculture is the most important sector for economic development of the state. It contributes the highest share of about 33% to the total income of the state.

2.3 Sampling procedure

The government has declared 100 APMC as e-NAM in Uttar Pradesh. APMC Varanasi is one of the largest e-mandi in Uttar Pradesh was selected purposively. Primary data were collected from the respondents by personal interview method with the help of pre-structural schedule. Simple random sampling technique was utilized to choose the respondents. A sample of 30 farmers, 20 traders and 05 mandi officials were selected random from APMC totaling 55 samples.

2.4 Analytical tools and Techniques employed

Analysis of marketing efficiency before and after e-NAM is done by using Acharya's Modified measure of Marketing Efficiency (MME). Marketing efficiency is essentially the

degree of market performance. It is the competence with which a market structure performs its designated function. The Acharya's Modified measure of Marketing Efficiency (MME) is as follows:

$$MME = PF / (MC + MM)$$

Where,

PF= Prices received by the farmer

MC = Marketing costs

MM = Marketing margins

3. Results

Impact of e-NAM on marketing efficiency

Marketing activities and the intensity or the degree of market performance reveals about marketing efficiency. Marketing cost indicate the extent of cost incurred in the movement of a commodity from the producer to the consumer. Market margin refers to the difference between the price paid and received by a given marketing intermediary in the marketing of a commodity such as wholesaler, retailer etc. Assessment and impact of e-NAM has been positive on marketing efficiency of agricultural commodities.

Marketing efficiency has been worked out for tomato, lady finger, Ridge gourd and brinjal separately.

3.1 Marketing efficiency of tomato-

Varanasi is a vegetable belt and majority of farmers grow vegetables in this area. As tomato is a major vegetable in food table its efficiency was worked out. The findings are presented in table 1 below.

Table 1: Marketing Cost, Margin and Efficiency of Tomato

| Sr. No. | Particulars | Pre e-NAM 2016-17 | Post e-NAM 2017-2018 |
|---------|--|-------------------|----------------------|
| 1 | Farmer Selling Price | 600 | 800 |
| 2 | Marketing cost of Farmer | 82.79 | 82.79 |
| 3 | Farmer Received Price | 517.21 | 717.21 |
| 4 | Marketing cost of Whole seller | 56.69 | - |
| 5 | Wholesaler Selling Price | 900 | - |
| 6 | Wholesaler Received Price | 843.31 | - |
| 7 | Market Margin of Whole seller | 243.31 | - |
| 8 | Marketing Cost of Retailer /Consumer Price | 65.29 | 256.48 |
| 9 | Retailer Price/Consumer Price | 1400 | 1500 |
| 10 | Market margin of Retailer | 434.71 | 0 |
| 11 | TMC (2+4+8) | 204.77 | 339.27 |
| 12 | TMM (7+10) | 678.02 | 0 |
| | Efficiency 3/ (11+12) | 0.58 | 2.11 |

Source: Calculated by author from Pahariya mandi Varanasi

Marketing efficiency has been worked out and presented in table 1 for tomato crop. It is revealed from table 1, that the total marketing cost Pre e-NAM and Post e-NAM was Rs. 204.77 and 339.27 respectively. The higher marketing margin intercepted by market intermediaries during Pre e-NAM resulted in the poor efficiency of marketing of tomato. Thus, this shows that the market for Tomato is more efficient in Post e-NAM system rather than Pre e-NAM system. Signifying that the implementation of the e-NAM has improved the efficiency of tomato marketing. Anticipated reason may be the reduction in role of middle men in selling of the produce. This means the agenda of the scheme to curtail the role of middle men is working effectively and is in

favor of the farmers. Thus, increasing the returns from selling the produce through e-NAM. This suggests that the coverage about the e- tendering should be increased as the system is increasing the efficiency of market.

3.2 Marketing efficiency of Ladyfinger

Marketing efficiency has been worked out and presented in table 2 for Ladyfinger crop. It is revealed from table 2, that the total marketing cost Pre e- NAM and Post e-NAM was Rs. 226.83 and 351.16 respectively. The higher marketing margin intercepted by market intermediaries during Pre e-NAM resulted in the poor efficiency of marketing of Ladyfinger.

Table 2: Marketing Cost, Margin and Efficiency of Ladyfinger

| Sr. No. | Particulars | Pre e-NAM 2016-17 | Post e-NAM 2017-2018 |
|---------|---|-------------------|----------------------|
| 1 | Farmer Selling Price | 1000 | 1300 |
| 2 | Marketing cost of Farmer | 82.79 | 82.79 |
| 3 | Farmer Received Price | 917.21 | 1217.21 |
| 4 | Marketing cost of Whole seller | 65.37 | - |
| 5 | Wholesaler Selling Price | 1400 | - |
| 6 | Wholesaler Received Price | 1334.63 | -- |
| 7 | Market Margin of Whole seller | 334.63 | - |
| 8 | Marketing Cost of Retailer/Consumer Price | 78.67 | 268.37 |
| 9 | Retailer Price/Consumer Price | 2000 | 2200 |
| 10 | Market margin of Retailer | 521.33 | 0 |
| 11 | TMC (2+4+8) | 226.83 | 351.16 |
| 12 | TMM (7+10) | 855.96 | 0 |
| | Efficiency 3/ (11+12) | 0.84 | 3.4 |

Source: Calculated by author from Pahariya mandi Varanasi

Thus, this shows that the market for Tomato is more efficient in Post e-NAM system rather than Pre e-NAM system. Signifying that the implementation of the e-NAM has improved the efficiency of Ladyfinger marketing. Anticipated reason may be the reduction in role of middle men in selling of the produce. This means the agenda of the scheme to curtail the role of middle men is working effectively and is in favor of the farmers. Thus, increasing the returns from selling the produce through e-NAM. This suggests that the coverage

about the e-tendering should be increased as the system is increasing the efficiency of market.

3.3 Marketing efficiency of ridge gourd-

Marketing efficiency has been worked out and presented in table 3 for Ridge gourd crop. It is revealed from table 3, that the total marketing cost Pre e- NAM and Post e-NAM was Rs. 250.91 and 352.77 respectively. The higher marketing margin intercepted by market intermediaries during Pre e-NAM resulted in the poor efficiency of marketing of Ridge gourd.

Table 3: Marketing Cost, Margin and Efficiency of Ridge Gourd

| Sr. No. | Particulars | Pre e-NAM 2016-17 | Post e-NAM 2017-2018 |
|---------|---|-------------------|----------------------|
| 1 | Farmer Selling Price | 1200 | 1400 |
| 2 | Marketing cost of Farmer | 85.32 | 85.32 |
| 3 | Farmer Received Price | 1114.68 | 1314.68 |
| 4 | Marketing cost of Whole seller | 70.01 | - |
| 5 | Wholesaler Selling Price | 1700 | - |
| 6 | Wholesaler Received Price | 1629.99 | - |
| 7 | Market Margin of Whole seller | 429.99 | - |
| 8 | Marketing Cost of Retailer/Consumer Price | 95.58 | 267.45 |
| 9 | Retailer Price/Consumer Price | 2500 | 2700 |
| 10 | Market margin of Retailer/Consumer Price | 704.42 | 0 |
| 11 | TMC (2+4+8) | 250.91 | 352.77 |
| 12 | TMM (7+10) | 1134.41 | 0 |
| | Efficiency 3/ (11+12) | 0.80 | 3.73 |

Source: Calculated by author from Pahariya mandi Varanasi

Thus, this shows that the market for Tomato is more efficient in Post e-NAM system rather than Pre e-NAM system. Signifying that the implementation of the e-NAM has improved the efficiency of Ridge gourd marketing. Anticipated reason may be the reduction in role of middle men in selling of the produce. This means the agenda of the scheme to curtail the role of middle men is working effectively and is in favor of the farmers. Thus, increasing the returns from selling the produce through e-NAM. This

suggests that the coverage about the e-tendering should be increased as the system is increasing the efficiency of market.

3.4 Marketing efficiency of brinjal

Marketing efficiency has been worked out and presented in table 4 for brinjal crop. It is revealed from table 4, that the total marketing cost Pre e-NAM and Post e-NAM was Rs.229.02 and 346.54 respectively. The higher marketing margin intercepted by market intermediaries during Pre e-NAM resulted in the poor efficiency of marketing of brinjal.

Table 4: Marketing efficiency of brinjal

| Sr. No. | Particulars | Pre e-NAM 2016-17 | Post e-NAM 2017-2018 |
|---------|---|-------------------|----------------------|
| 1 | Farmer Selling Price | 800 | 1000 |
| 2 | Marketing cost of Farmer | 87.67 | 87.67 |
| 3 | Farmer Received Price | 712.33 | 912.33 |
| 4 | Marketing cost of Whole seller | 67.89 | - |
| 5 | Wholesaler Selling Price | 1400 | - |
| 6 | Wholesaler Received Price | 1332.11 | -- |
| 7 | Market Margin of Whole seller | 532.11 | - |
| 8 | Marketing Cost of Retailer/Consumer Price | 73.46 | 258.87 |

| | | | |
|----|--|---------|--------|
| 9 | Retailer Price/Consumer Price | 2000 | 2100 |
| 10 | Market margin of Retailer/Consumer Price | 526.54 | 0 |
| 11 | TMC (2+4+8) | 229.02 | 346.54 |
| 12 | TMM (7+10) | 1058.65 | 0 |
| | Efficiency 3/ (11+12) | 0.55 | 2.63 |

Source: Calculated by author from Pahariya mandi Varanasi

Thus, this shows that the market for Tomato is more efficient in Post e-NAM system rather than Pre e-NAM system. Signifying that the implementation of the e-NAM has improved the efficiency of brinjal marketing. Anticipated reason may be the reduction in role of middle men in selling of the produce. This means the agenda of the scheme to curtail the role of middle men is working effectively and is in favor of the farmers. Thus, increasing the returns from selling the produce through e-NAM. This suggests that the coverage about the e- tendering should be increased as the system is increasing the efficiency of market.

4. Discussion

Agricultural markets are close to perfect competition since there are large number of sellers and buyers who sell homogenous products. And perfect market are considered most efficient markets. But when it comes to reality, the cartel formation among buyers, dominance of middlemen, and imperfect flow of market information leads to inefficiency in marketing and increase in price spread. In order to curtail the role of middlemen government of India introduced electronic national agricultural market (e-NAM). In e-NAM produce can be sold directly at a national platform with higher producer's share in consumer's rupee. Lesser the involvement of middlemen higher is the marketing efficiency. This study analysed the efficiency of marketing of tomato, lady finger, ridge gourd and brinjal and found that e-NAM has the potential to increase the marketing efficiency. If implemented without loop holes, it can result in betterment of the farmers.

5. Conclusion

The analysis of marketing efficiency for the above vegetables crops shows that the implementation of e-NAM has improved the marketing efficiency. This is due to fact that the role of middlemen has been reduced significantly by selling produce through e-tendering system. This leads to recommendation that the coverage of more farmers should be brought within the ambit of e-NAM so that they can get higher returns from selling their produce without involving middlemen.

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