"Asymmetric Information And Market Failure In Agriculture Sector"

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Abstract

Agriculture is the main occupation of 80 percent of India's rural population. One of the key elements that contributes to the market failure of agricultural output is asymmetric information. This study demonstrates that a major awareness gap about Minimum Support Price (MSP) among farmers across India is the primary cause of price volatility in crop procurement and associated asymmetric information. In India, the Minimum Support Price (MSP) policy is unaffected by crop prices or information. This is the real issue that plagues all Indian farmers. When it comes to MSP, the majority of Indian farmers lack knowledge asymmetry, which causes issues with what, when, and how much to produce.

Because of this, there is relatively little marketable surplus (output minus consumption) in the crops. Due to information asymmetries between buyers and sellers, the crop market is imperfect and prices fluctuate and the market fails since no party truly benefits from the Minimum Support Price (MSP). Consequently, one of the main reasons for market failure is a lack of knowledge. Farmers should be made aware of the government's minimum support levels, which are based on ground level. They should also be encouraged to invest in their farms and befriend cutting-edge machinery and technologies to increase farm productivity, which in turn raises their net income.

Introduction

In India, agricultural crop prices are naturally unpredictable. This can be attributed to a number of factors, including inadequate market integration, insufficient supply, reliance on the monsoon, ineffective marketing, a communication gap, an inefficient transportation system, asymmetric information, etc. Above all, one of the most important elements contributing to the market failure of agricultural production is information asymmetry. These are the ramifications for variations in crop prices. A situation where some variables are known, such as prices, production costs, government intervention, and others are unknown, such as misinformation, adverse selection uncertainty, unforeseen circumstances, artificial scarcity & political influence, etc., is known as asymmetric information. These factors, both known and unknown, only little affect the market. The certainty of the price fixation has a favourable effect, but the loss in marketable surplus due to unidentified factors has a negative effect. Due to improved knowledge of agricultural pricing, farmers in Punjab, Haryana, Himachal Pradesh, and Western Uttar Pradesh make more money from the sale of their goods than farmers in other parts of India. It has been noted that government-set crop prices in India have a negative impact on supply and demand for agricultural prices because of knowledge asymmetry. Agriculture contributes 21% of the state's GDP, making it a major sector of the economy. 80% of India's rural population works primarily in agriculture. This study has clarified that farmers' information asymmetry is the primary source of price variations. Even though the Indian government set a minimum support price for crops, farmers are not adequately or promptly informed of this fact, preventing them from taking prompt action to address the issue.

Questions For Research

a) How do farmers make decisions in light of the Minimum Supporting Price?

b) How does market failure relate to the Minimum Supporting Price?

c) Are buyers and sellers of kharif and rabi crops aware of the Minimum Supporting Price?

d) How do farmers and the organizations that provide credit relate to one other in terms of information symmetry regarding agriculture credit? (Credit supply and demand).

e) How does the symmetry in crop supply and demand in the agricultural market relate to one another?

f) How do price variations and the difference in supply and demand for MSP crops relate to each other?

Objectives of the study

1. To investigate farmers' knowledge of the minimum support price.

2. To investigate the effects of farmers' information asymmetry regarding the minimum support price on kharif and rabi crop market volatility.

3. To investigate the causes of MSP agricultural price fluctuations and the gap between supply and demand.

4. To investigate how price fluctuations are affected by the availability of an agriculture-credit delivery system.

5. To research how price fluctuations resulting from a low percentage of farmers realizing their prices are affected by access to the agriculture market (mandi).

Hypothesis

a) Information asymmetry on the Minimum Supporting Prices of Kharif crops and market volatility do not significantly correlate.

b) There is no discernible connection between market volatility and knowledge asymmetry regarding the Minimum Supporting Prices of Rabi crops.

Method Of Research

This section's research methodology focuses on tabulation, classifications, and the construction of statistical derivation inferences. Secondary data sources have been used to gather all necessary data. Regression and multiple regression tests have been conducted in accordance with the needs of this study to evaluate the correlation and predictive power of the dependent variables that were used. Regression test findings have been utilized for hypothesis testing. The research is limited to the 14 Kharif and 6 Rabi crops that are covered by Jharkhand's Minimum Support Prices programs, and all findings are based on time series data of particular crops from 2010–11 to 2020–21.

A) Reference Period

Based on data availability, this study's reference period spanned ten years, from 2011 to 2021.

B) Techniques of Data Collection

The whole basis of the study is secondary data that was gathered from various government agencies, including the National Sample Survey Organization (NSSO), the National Institution for Transforming India (NITI) Aayog Report, Census data, Internet searches, libraries, reports in official devices, journals, research papers, magazines, books, case studies, Handbook of Statistics of Indian Economy, Commission for Agricultural Cost and Prices (CACP), Farmers Portal of Ministry of Agriculture and Farmers Welfare, RBI Reports, Agriculture and Food Products Export Development Authority (APEDA), Situation Assessment Survey of Agricultural Households in India, Comptroller and Auditor General (CAG) report, Economic and Political Weekly (EPW), Website of Directorate of Agriculture of Jharkhand, N

C) The Variables

- X1 = Access to food processing centres.
- X2 = Procurement at MSPs.
- X3 = Means to access to information.
- X4 = Access to storage facility.

Data processing and Analysis

A variety of tables, charts, and graphs have been used to categorize and tabulate the gathered data. All of the aforementioned objectives have been examined overall using time series data spanning the previous ten years thanks to the utilization of secondary data.

Table 1 displays the prices set by the government on a year-by-year basis for Kharif crops from 2010 to 2021–22 in rupees per quintal, while Table 2 displays the prices set year-by-year for Rabi crops from 2010 to 2022–22 in rupees per quintal. Table 1 illustrates how the agriculture sector is being promoted by integrating an extra 1,000 APMC Mandis with e-NAM and providing APMCs with access to an agriculture infrastructure fund.

Table-1

MSP- for Kharif Crops (2010-11 to 2021-22 in Rs. per Quintal)

S.NO.	COMMODITY	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
1	Paddy	1000	1080	1250	1310	1360	1410	1470	1550	1750	1815	1868	1940
2	Jawar	880	980	1500	1500	1530	1570	1625	1700	2430	2550	2620	2738
3	Bajra	880	1000	1175	1520	1250	-	1330	1425	1950	2000	2150	2250
4	Maize	880	980	1175	1250	1310	1325	1365	1425	1700	1760	1850	1870
5	Ragi	965	1050	1500	1310	1550	1650	1725	1900	2897	3150	3295	3377
6	Tur (arhae)	3000	3200	3850	1500	4350	4625	5050	5450	5675	5800	6000	6300
7	Moong	3170	3500	4400	4300	4600	4850	5225	5575	6375	7050	7196	7275
8	Urad	2900	3300	4300	4500	4350	4625	5000	5400	5600	5700	6000	6300
9	Cotton	2500	2800	3600	4300	3750	3800	3860	4020	5150	5275	5515	5726
10	Groundnut	2300	2700	3700	3700	4050	4030		4450	5450	5090	5275	5550
11	Sunflower seed	2350	2800	3700	4000	4000	3800	3950	4100	5388	5650	5855	6015
12	Soybean	1400	1650	2200	3700	2500	-	2775	3050	3399	3710	3880	3950

Sources: Ministry of Agriculture and Farmers Welfare, Go. I and CACP.https://pib.gov.in

Table-2

MSP- for Rabi Crops (2010-11 to 2021-22 in Rs. per Quintal)

S.NO.	COMMODITY	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	Wheat	1120	1285	1350	1400	1450	1525	1625	1735	1840	1925	1975	2015
2	Barley	780	980	980	1100	1150	1225	1325	1410	1440	1525	1600	1635
3	Gram	2100	2800	3000	3100	3175	3500	4000	4400	4620	4875	5100	5230
4	Masur	2250	2800	2900	2950	3075	3400	3950	4250	4475	4800	5100	5500
5	Mustard	1850	2500	3000	3050	3100	3350	3700	4000	4200	4425	4650	5050
6	Safflower	1800	2500	2800	3000	3050	3300	3700	4100	4945	5215	5327	5441
7	Toria	1780	2425	2970	3020	3020	3290	3560	3900	4190	4425	4650	-

Source: Ministry of Agriculture and Farmers Welfare, Go. I and CACP. https://pib.gov.in

The price increases for both the Rabi and Kharif crops between 2010 and 2021–2022 are evident in the above table. For instance, over the past ten years, price increases for Jowar, Ragi, Cotton, and Bajra were 211.13 percent, 249.9 percent, and 155.5 percent, respectively. On the other hand, during the same period, the prices of Rabi crops (Table 2), including barley, gram, and safflower, grew by 202.2 percent, 144.4 percent, and 204.4 percent, respectively. The table additionally demonstrates how inflation, cost hikes, and market failure have all led to a slight rise in the price of necessary crops (price fluctuation & loss to farmers). All indications point to one of the biggest losses Indian farmers have ever suffered, given their level of investment and consumption.
The cost of different crops in the Indian market is

I) Lack of awareness among farmers about MSP:-

- X1 = Access to food processing facilities: -

In 2011, there were 4, 16,303 registered farms and 12, 36,000 processing enterprises. However, there were 17, 48,000 processing enterprises and 9, 31, 629 registered farmers as of 2011. It demonstrates that while the number of farmers registered with food processing enterprises has increased, the growth rate is quite modest. It implies that fewer farmers who are registered equate to fewer farmers who are aware.

- X2 = MSP procurement-

According to the data, agricultural households report a high percentage of sales to local markets and a relatively low percentage to government agencies. For example, in 2016, 70.1 percent of paddy crop sales were to government agencies local market and 18.4% to governmental organizations. This demonstrates farmers' lack of knowledge about government purchases at MSPs.

- X3 = Means to access to information-

  Farmers' means of obtaining information on MSP in 2011 were 4% via the Kisan channel and merely 0.2% through newspapers. However, in 2021, only 3.2% of people could obtain price information from newspapers, compared to 22% through Kisan Channel. In comparison to prior years, information has grown, although very slowly.

- X4 = Access to storage facility: -

Out of Jharkhand's 24 districts, Ranchi and East Singhbhum have the greatest farmer access to storage facilities, with 25.06 and 25.06 percent of farmers having access in 2011 and 20.01 and 20.06 percent in 2021 due to COVID-19, respectively. Despite this, the facilities are still in better condition than those in other Jharkhand districts.

II) Access to agricultural credit:-

The overall institutional credit to agriculture increased by almost 21% between 2011–12 and 2019–20, suggesting that recent efforts to improve the flow of credit to the sector have produced improved outcomes. As far as giving agriculture its due credit, the During that time, cooperative banks saw a decline (from over 14% to over 10%), while commercial banks had a significant rise (from around 13% to roughly 21%).

III) Access to agriculture market (Mandi):-

2011 saw 15.28% of agricultural households sell their produce at the farmgate, 55.14% at the village level, and 32.22% at the block level. However, the average price that farmers received for their produce was lower than the price at which it was sold. But in 2020, due to inaccurate information, farmers selling at the farmgate (7.1%), at the village level (42.6%), and at the block level (12.33%) still received a lower price.

Utilizing proper statistical tools, the values of rank correlation, regression, trend, and multiple regressions have been analysed and tested with the aid of data from many sources, including the Economic Survey, NITI Aayog Report, ICAR, NABARD, NSSO, and CACP. In light of the aforementioned issues, the research project focuses on the yet-to-be-explored concept of Market Failure (Y), or {Y=f (X)}, and how information asymmetry (x) with respect to support prices causes it. Since there is no one-size-fits-all solution for Indian agriculture, diverse sets of interventions are needed to address market failures.

Market Failure:-

Market failure is a situation when there is a state of disequilibrium which means quantity of goods or services supplied is not equal to the quantity of goods or services demanded. The market is not always Pareto efficient or Pareto optimal in certain cases.

Price Fluctuation due to Market Failure: -

When vendors and purchasers have unequal or faulty information, prices frequently reflect the true value of the commodities, leading to market failure. For example, asymmetry in seller knowledge causes production costs to vary, whereas a lack of buyer information causes prices to fluctuate. The market failure is mostly caused by this information failure. Only 6% of farmers receive this minimum guaranteed price, according to the Shanta Kumar committee, despite the Reserve Bank of India's pledge to guarantee a 50% return over production costs in 2020–21. This highlights the importance of correct information distribution formed in 2005 and indicated that there is a need to educate those farmers because only 15% of them appear to be aware of the minimum guaranteed price of agricultural commodities, while the other farmers are oblivious of the MSPs set by the government.

Conclusion and Suggestions: -

Due to information asymmetries between buyers and sellers, the crop market is imperfect and prices fluctuate and the market fails since no party truly benefits from the Minimum Support Price (MSP). This indicates that not all of a good's advantages or opportunity costs are reflected in the price of supply or demand. Customers who lack information are more likely to be willing to pay a higher or lower price for the goods since they are unaware of its true benefits. However, asymmetric information on the seller's end indicates that they are prepared to take a price for the product that is either greater or lower than the opportunity cost of producing it. Information failure is thus one of the main

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