

Effectiveness of Minimum Support Price for Major Pulse Crops in Gujarat State

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Abstract

The minimum support price (MSP) plays an important role in determining the acreage under the crop and provide incentive to the farmers for more production of crops. Pulse are the important crops grown in Gujarat state which influenced by the MSP. The present investigation aimed to study the effectiveness of MSP for major pulse crops in Gujarat state. For this purpose, two major pulses viz. Gram and Tur selected and the secondary data on MSP, FHP, cost of production, area and production collected for the period 2001-02 to 2021-22 from published reports of GoI. The analysis of data was done by using exponential trend equation, linear regression equation and the gap between MSP and FHP found out by calculating MAPD and MAND. The results of study showed that the percentage production, yield, cost of production, FHP and MSP of Tur and Gram in Gujarat state increased during the study period except area under Tur. The area, production, yield, cost of production, FHP and MSP of Tur and Gram increased significantly over the period under study except the area under tur declined significantly. The lagged cost of production, FHP and MSP showed non-significant effect on the area and production of Tur while lagged MSP of Gram significantly affected on the area and production of Gram in Gujarat state during the study period. During last decade from 2011-12 to 2021-22 the MSP for Tur and Gram were higher than FHP in Gujarat state. The years with positive deviation found with higher frequency than the negative deviation in FHP and MSP for tur and Gram. Thus, it was observed that the price policy for Tur and Gram in Gujarat state was effective during the period 2001-2010 while onward 2011 the effectiveness of price policy was less. This situation indicated the need for effective procurement system of pulses in the state at MSP which provide support to the farmers and encourage them to take more production of pulses.

Key words: MSP, Pulses, Gap analysis, Tur, Gram

Pulses are the primary source of protein in daily diet for the large vegetarian population of India. As the pulse crops naturally fix the atmospheric nitrogen, they play important role in maintaining the soil health and reduce the use of synthetic nitrogenous fertilizers. India is one of the largest producers of pulse crops in the world. During year 2023-24 total pulses production of India was 242.46 lakh tons which was 7.29% of the total food grain production in the country [3]. Despite being the largest producer, India still importing huge quantity of pulses to meet its domestic demand [11]. Uttar Pradesh, Andhra Pradesh, Tamil Nadu and Maharashtra are the leading states in pulses production in India. Gujarat is one of the states which contribute 6.88% of total pulse production in India [2]. Tur, Urad, Mung and Gram are the pulses cultivated in Gujarat state. Among the pulses Gram and Tur are the major crops had highest area under cultivation in Gujarat state. During 2024-25, the area under Gram and Tur was 8.50 lakh ha and 2.65 lakh ha, whereas the production was 18.40 lakh tonnes and 11.62 lakh tonnes, respectively [4].

Minimum Support Price (MSP) is the basic component of Agricultural Price policy in India. It aimed to provide the

remunerative price to the farmer for his produce and make available the produce to consumer at reasonable rate through PDS. MSP fixed by Government of India on the recommendation of CACP to protect the farmer producer against excessive fall in price during bumper production years [9]. Since last few years government increasing the MSP of many crops to encourage the farmers to cultivated more area under those particular crops. Higher MSP motivate the farmers to cultivate more area under the particular crop. Large fluctuations in market prices of agricultural commodities observed during last decade. This fluctuation in prices ultimately affect the consumer as well as producer.

Most of the farmers in our country are small and marginal who have not retention capacity. Therefore, they sell their produce in the market immediately after harvest and may fetches low price for their produce. Farmers with small size of holding who cannot do huge investment and have relatively very small marketed surplus fail to get the adequate benefits of minimum support price policy of the Government [6]. Under such situation the farm harvest price and cost of production of crop affect and determine the acreage of that crop for next year.

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Various studies showed that the MSP of different crops including pulses determine the acreage under that crop. Dhawan and his co-workers found that lagged MSP have made positive and significant impact on change in cropping pattern in the Punjab state [6]. Mehla and his co-workers found that the increase in MSP over the previous year brought additional area under food crops [8]. Considering these points, the present investigation was undertaken to examine the effectiveness of price policy with special reference to pulse crops in Gujarat state with following objectives.

1. To analyze the trend and percentage change in MSP, FHP, cost of production, area and production of major pulse crops
2. To examine the impact of MSP, FHP and cost of production on area and production of major pulse crops.
3. To examine the gap between MSP and FHP of major pulse crops.

MATERIALS AND METHODS

Data collection

The present study was carried by collecting the secondary data on Minimum Support Price (MSP), Farm Harvest Price (FHP), cost of production, area and production of major pulse crops in Gujarat state for the period from 2001-02 to 2021-22. On the basis of highest area and production the major pulse crops viz. Gram and Tur were selected for study purpose. The data was collected from the official website of Directorate of Economics and Statistics, GoI and GoG.

Analysis of data

The data collected was analyzed through simple average and percentage to arrive at meaningful conclusions.

To study the trend and growth in MSP, FHP, cost of production, area and production of major pulse crops in Gujarat state Compound Annual Growth Rate (CAGR) was estimated by fitting the exponential trend equation.

$$Y = ab^t$$

Where;

Y = MSP, FHP, cost of production, area and production of major pulse crops

a = intercept,

b = regression coefficient

t = time variable in year

Annual compound growth rate (CGR) was worked by the formulae:

$$CGR = (\text{antilog } b - 1) * 100$$

The significance of CGR was tested with help of correlation coefficient (r) by using 't' test.

To examine the impact of MSP, FHP and cost of production on area and production of major pulse crops linear regression equation was used. The previous year's MSP, FHP and cost of production generally influence the Producer farmers' decision on acreage allocation for the current year.

$$Y = a + bX_{-1}$$

Where;

Y = area and production of major pulse crops

bX_{-1} = MSP, FHP and cost of production of major pulse crops taken in per quintal at (t-1)th period

a = intercept,

b = regression coefficient

To examine the gap between MSP and FHP of major pulse crops, the deviation of FHP from MSP was worked out divided into positive and negative deviations to examine whether market prices ruled higher or lower over the minimum support prices [1], [8]. The negative deviations reflected ineffectiveness of MSP policy for producers.

$$MAPD \text{ or } MAND = 1/n \sum |FHP_i - MSP_i|$$

Where;

MAPD = Mean absolute positive deviation,

MAND = Mean absolute negative deviation,

These deviations were adjusted with MSP in order to examine the degree of their deviation from the MSP. The formulae used for the adjusted mean negative/positive deviation was as follows:

$$AMPD \text{ or } AMND = 1/n \sum (|FHP_i - MSP_i| / MSP_i) * 100$$

Where;

AMPD = Adjusted mean positive deviation

AMND = Adjusted mean negative deviation

RESULTS AND DISCUSSION

Percentage change in area, production, yield, cost of production, FHP and MSP of major pulses

From (Table 1), it was observed that the percentage production, yield, cost of production, FHP and MSP of Tur in Gujarat state increased during the study period except area under Tur which declined over the period. In case of Gram percentage area, production, yield, FHP and MSP increased over the base period.

Table 1 Percentage change in area, production, yield, cost of production, FHP and MSP of major pulses

Year	Area	Production	Yield	Cost of production	FHP	MSP
Tur						
2005-06	79.36	147.59	185.97	104.70	108.74	106.06
2010-11	83.27	145.94	175.13	154.57	229.21	227.27
2015-16	69.03	150.70	218.12	318.54	313.54	350.38
2021-22	74.27	153.10	206.04	405.35	376.81	477.27
Gram						
2005-06	255.80	464.34	181.26	-	108.41	119.58
2010-11	357.43	734.56	205.05	-	144.62	175.00
2015-16	232.38	371.69	159.64	-	213.29	291.67
2021-22	2243.38	7725.37	343.78	-	275.46	435.83

Figures in percentage over the base year 2001-02

CAGR for area, production, yield, cost of production, FHP and MSP of major pulses

It was found that the production and yield of Tur increased significantly during the study period in Gujarat state and worked out to 1.40% per annum and 2.55 % per annum respectively (Table 2). The significant increase in production may be attributed to significant increase in yield of Tur. The area of Tur declined significantly over the period of time. Similar results were recorded in recent study and they found

that the growth in cost of production, FHP and MSP of Tur in Gujarat state found positive and significant and worked out to 10.4% per annum, 7.67% per annum and 10.00% per annum, respectively [5]. This showed that as compared to cost of production the MSP raised equally over the period rather than FHP, which showed less growth in Gujarat state. In another study it was recorded that the growth rates of MSP for Tur and Gram crops were higher than the growth rates of FHP in Maharashtra during the period 1990 to 2020 [14].

Table 2 CAGR for area, production, yield, cost of production, FHP and MSP of major pulses

Particular	Tur	Gram
Area	-1.05 **	9.20***
Production	1.40**	14.17***
Yield	2.55***	5.35***
Cost of production	10.24***	-
FHP (Farm Harvest Price)	7.67***	6.09***
MSP (Minimum Support Price)	10.00***	8.67***

** & *** indicate significant at 5% and 1% level of significance

In case of Gram the Compound Annual Growth Rate (CAGR) for area, production and yield increased significantly and worked out to 9.20%, 14.17% and 5.35%, respectively (Table 2). This showed that the increase in production of Gram may attributed due increase in area rather than increase in yield in Gujarat. These results has been in conformity with the similar study who reported that CGR of area, production and yield of

gram was positive and significant during the period 2001-02 to 2016-17 in Gujarat [5]. The growth in FHP and MSP of Gram in Gujarat state was worked out to 6.09% per annum and 8.67% per annum, respectively. In another study it was found that the MSP of Gram in India increased significantly during 1996-97 to 2018-19. The growth in FHP was less as compared to growth in MSP [7].

Table 3 Impact of cost of production, FHP and MSP on area and production of Tur

Particular	R ²	SE	a	b
Area				
Cost of production				0.0351
FHP (Farm Harvest Price)	0.25	344.70	2822.47	-0.0304
MSP (Minimum Support Price)				-0.3800
Production				
Cost of production				0.0426
FHP (Farm Harvest Price)	0.31	419.57	2017.52	0.2337
MSP (Minimum Support Price)				-0.4647

Table 4 Impact of FHP and MSP on area and production of Gram

Particular	R ²	SE	a	b
Area				
FHP (Farm Harvest Price)				-1.1012
MSP (Minimum Support Price)	0.46	1845.29	-3.8016	2.1073**
Production				
FHP (Farm Harvest Price)				-2.5982
MSP (Minimum Support Price)	0.53	3636.57	-1172.42	4.4853**

Impact of cost of production, FHP and MSP on area and production of Tur and Gram

The impact of lagged cost of production, FHP and MSP on area and production of Tur presented in (Table 3). In case of area under Tur in Gujarat state, the values of R² for cost of production, FHP and MSP was found 0.25, indicated that the variation in area of Tur had less impact of lagged cost of production, FHP and MSP during the study period. The value of regression coefficient of lagged cost of production, FHP and MSP on area under Tur was found non-significant and negative, implied that the lagged cost of production, FHP and MSP of Tur had not significantly affected the area under Tur in Gujarat state over the period of time.

Data depicted in (Table 3) further revealed that the values of R² was 0.46% and 0.53% for area and production of Gram, implied that the 46% of variation in area and 53% of

variation in production of Gram in Gujarat state was due to the independent variable i.e. lagged MSP during the study period. The regression coefficient of MSP for area and production of gram was 2.1073 and 4.4853, respectively, which was positive and significant a 5% level of probability, implied that the lagged MSP of Gram significantly affected on the area and production of Gram in Gujarat state during the study period. The recent study showed that the impact of MSP on area and production of different food crops in Hararyana was positive [10].

Gap between FHP and MSP of major pulses in Gujarat

Data presented in (Table 5) showed the gap between FHP (Farm Harvest Price) and MSP (Minimum Support Price) of Tur and Gram in Gujarat state during the period 2001-02 to 2021-22. It was observed that the gap between FHP and MSP of Tur and Gram was positive for the decade 2001-2002 to

2010-11 implied that the FHP were higher than the MSP during the said period while onward from 2011-12 to 2021-22 it was negative i.e. the FHP were less than the MSP during this period. Thus, during last decade (2011-12 to 2021-22) the price policy

for Tur and Gram in Gujarat state was not effective when compared with the earlier decade (2001-2002 to 2010-11). For effective implementation of MSP, actual procurement needed to support the farmers.

Table 5 Gap between FHP and MSP of major pulses in Gujarat

Year	Gap for Tur	Gap for Gram
2001-02	224	418
2002-03	313	358
2003-04	360	151
2004-05	229	181
2005-06	279	319
2006-07	570	540
2007-08	512	1087
2008-09	0	452
2009-10	0	300
2010-11	539	240
2011-12	-169	-195
2012-13	-78	458
2013-14	-52	-250
2014-15	491	211
2015-16	216	-49
2016-17	10	944
2017-18	-1545	-558
2018-19	-875	-778
2019-20	-940	-785
2020-21	-663	-859
2021-22	-482	-773

Table 6 Deviation of FHP vis-à-vis MSP of major pulses in Gujarat

	Deviation	Tur	Gram
Positive deviation	MAPD (Rs / Quintals)	340.27	435.31
	AMPD (Adjusted mean positive deviation)	19.18	23.21
	Frequency	11	13
	Percentage	52.38	61.90
Negative deviation	MAND (Rs / Quintals)	-600.50	-530.87
	AMND (Adjusted mean negative deviation)	-10.90	-9.62
	Frequency	8	8
	Percentage	38.09	38.09
No deviation	Frequency	2	0
	Percentage	9.53	0

Deviation of FHP vis-à-vis MSP of major pulses in Gujarat

The effectiveness of MSP policy for Tur and Gram in Gujarat state is presented in (Table 6) by showing the deviation of FHP vis-à-vis MSP for these crops. Tur experienced 11 times positive deviation, 8 times negative deviations and two times no deviation during the last 21 years i.e. from 2001-02 to 2021-22. This implied that the average FHP of Tur was equal to or more than MSP during 52.38 % period under study while 38.09% period has FHP less than MSP. The MAPD for Tur was Rs. 340.27 per quintal during most of the year under study indicated that the impact of price policy was positive during these years and the FHP remains above the MSP for Tur which encourage the producer for cultivation of Tur.

Gram experienced 13 times positive deviation, 8 times negative deviations and 2 times no deviation during the last 21 years i.e. from 2001-02 to 2021-22. This implied that the average FHP of Gram was equal to or more than MSP during 61.90 % period under study while 38.09% period has FHP less than MSP. The MAPD for Gram was Rs. 435.31 per quintal during study period. The MAND for Tur and Gram found higher than the MAPD, showed that the gap between the FHP and MSP was higher in some years. The price policy for Tur and Gram was effective during the period 2001-2010 while

onward 2011 the effectiveness of price policy was less. The study conducted in Haryana state showed the positive deviation for Gram during the study period showing effectiveness of price policy for Gram [8]. Another researcher reported that during recent years, MSP for pulses primarily provide only price signal, and the farm gate prices always below the MSP which cause the ineffectiveness of price policy of government [13]. To avoid this situation the procurement operation should be organized whenever required through different agencies to ensure that the price does not fall below the level i.e. MSP [12].

CONCLUSION

The results of study showed that the percentage production, yield, cost of production, FHP and MSP of Tur and Gram in Gujarat state increased during the study period except area under Tur. The area, production, yield, cost of production, FHP and MSP of Tur and Gram increased significantly over the period under study except the area under tur declined significantly. The lagged cost of production, FHP and MSP showed non-significant effect on the area and production of Tur while lagged MSP of Gram significantly affected on the area and production of Gram in Gujarat state during the study period.

During last decade from 2011-12 to 2021-22 the MSP for Tur and Gram were higher than FHP in Gujarat state. The years with positive deviation found with higher frequency than the negative deviation in FHP and MSP for tur and Gram. Thus, it was observed that the price policy for Tur and Gram in Gujarat

state was effective during the period 2001-2010 while onward 2011 the effectiveness of price policy was less. This situation indicated the need for effective procurement system of pulses in the state at MSP which provide support to the farmers and encourage them to take more production of pulses.

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