



Impact of Covid-19 On Performance Of APMCs In the Marathwada Region

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Abstract

The effects of the COVID-19 pandemic can be seen in the agriculture sector in terms of supply chain disruptions and agricultural production. Although the lockdown guidelines exempt farm operations and supply chains, challenges arise of supplying agriculture products in appropriate markets and time. This paper attempts to analyse the impact of COVID-19 lockdown on performance of Agricultural Produce Market Committees (APMCs) in Marathwada region (Maharashtra, India) with special reference to price, arrival and turnover. This study is based on the data collected from the offices of 10 APMCs i.e. Jalna, Aurangabad, Gangakhed, Paithan, Loha, Jalna (Flower), Parbhani, Aurangabad (Vegetable), Ahmedpur, and Latur of Marathwada region and Maharashtra State Agricultural Marketing Board, Pune (Office). The difference in product arrival, prices and turnover of APMCs of Marathwada region before and during COVID-19 were analysed. The analysis of the difference in the product arrival, prices and turnover across markets and crops has shown a mixed response. It has been observed that vegetables market and flowers market have faced a significant decline in product arrival, modal prices and turnover during the pandemic.

Introduction:

Agriculture produce means all produce (whether processed or not) of agriculture, horticulture, animal husbandry, pisciculture and forests as specified in the schedule. The APMCs were established by the State Govt. for regulating the marketing of different kinds of agriculture and pisciculture produce for the same market area or any part thereof. APMCs are intended to be responsible for providing market-led extension services to farmers, ensuring payment for agricultural produce sold by farmers on the same day, promoting agricultural processing including activities for value addition in agricultural produce, Publicizing data on arrivals and rates of agricultural produce brought into the market area for sale etc.

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The novel COVID-19 has impacted the various sectors of economy in India. Few of the recent researches have tried to analyze the implications of COVID-19 pandemics on agricultural productions and supply chain. Ali & Khan (2020) studied the impact of COVID-19 pandemic on agricultural wholesale prices in India in which they have given a comparative analysis across the phases of the lockdown. It has been reported that lockdown has affected the business of agricultural markets due to restrictions in the movement of vehicles and people across the country. The study concludes that the weighted average price across the regions of Jammu and Kashmir has also not been affected due to the lockdown. However, there has been a significant decline in the wholesale prices of the most hydrating perishable fruits and vegetables as compared to other perishable produce. Das et al. (2020) discussed the problems in the selling of perishable products due to lack of market access, transportation stoppage and movement restrictions, prices of perishable products have collapsed and farmers faced very huge losses. Hence, farmers left crops to rot in the field itself. It was also observed that due to the closure of hotels and restaurants during lockdown, bulk demand for vegetables and fruits has dropped down, along with a drop in prices, i.e., 20- 25%. Fruits like mango and jackfruit are mainly harvested and procured during these periods but due to this pandemic, there was no medium for supply. Due to the closure of hotels, events, and religious places, the floriculture sector along with vegetable suppliers witnessed a great loss. Being flowers the most perishable item, they got damaged and rotted on farmer's field. Hence, due to all these problems, there was news of farmers' suicide in many places. Parimalarangan & Baskar (2022) put forth the Issues with agricultural marketing in India such as inadequate transportation facilities, Lack of market Information –, Lack of credit – Long chain of intermediates, Lack of proper storage facilities, Lack of awareness on standardization and grading, Availability of machinery and manpower, Maintaining social distancing and hygiene in markets and small size of operational holdings. They found that the availability of labour, and machinery and their movement was influenced during COVID-2019 due to lockdown and various other restrictions. According to them due to the prevailing situation of Covid, the demand of healthy food has increased recently. Mahesh & Senthilkumar (2020) selected 405 samples for the study. They found that there are various factors influencing the retailers' satisfaction in Thiruvaiyaru town. The marketing variable positively correlates with quality (0.752), price (0.648), transport (0.794) and storage (0.840). The retailer should concentrate on these variables and improve their business based on the impact of the variables.

Objective of the study:

- To understand the impact of COVID-19 on the performance of Agricultural Produce Market Committees (APMCs) in the Marathwada region with special reference to price, arrival and turnover.

Hypothesis:

In light of the above objective, the following hypothesis has been framed:

- Hypothesis (H_0): There is no significant difference in the performance (in terms of product arrival, prices and turnover) of APMCs before and after COVID-19.

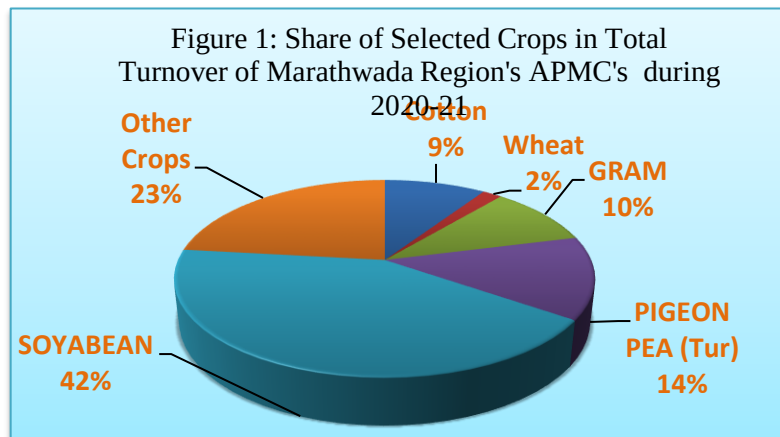
Research Methodology:

The present research work is on the study of the performance of the APMCs in terms of product arrival, prices and turnover in Marathwada Region. There are two divisions of Maharashtra State Agricultural Marketing Board (MSAMB) in Marathwada Region- Aurangabad Division and Latur Division. Under these two divisions, according to MSAMB, Pune (Annual Report, Year 2018-2019) there are 85 (Aurangabad-36+Latur-49) APMCs with main markets and 145 (Aurangabad-65+Latur-80) sub markets working in Marathwada Region. Out of these 10 APMCs of the Marathwada Region were selected for study purpose. The data were collected from the offices of 10 APMCs i.e. Jalna, Aurangabad, Gangakhed, Paithan, Loha, Jalna (Flower), Parbhani, Aurangabad (Vegetable), Ahmedpur, and Latur of Marathwada region. The collected data were analyzed by using **Paired t – test**. The Paired Samples *t* Test compares the means of two measurements taken from the same individual, object, or related units. These "paired" measurements can represent things like, A measurement taken at two different times (e.g., pre-test and post-test score with an intervention administered between the two time points). The purpose of the test is to determine whether there is statistical evidence that the mean difference between paired observations is significantly different from zero. The variable used in this test is known as dependent variable, or test variable (continuous), measured at two different times or for two related conditions or units. The 5% level of significance is considered for all problems.

Results and Discussion:

Figure 1 indicates the share of selected crops in total turnover of Marathwada region's APMC's during 2020-21. For the analysis purpose five important crops viz. soyabean, pigeon pea (tur), gram, cotton and wheat have been taken. The share of these selected five important crops in total turnover during 2020-21 was 77 percent. It can be seen that the share of soyabean crop in total turnover of APMCs of Marathwada region was 42 percent. This share shows the importance of this crop in APMCs turnover. Apart from soyabean in other crops tur, gram and cotton they are having an important share in total turnover of APMCs of Marathwada region. It was observed that the share of three crops viz. soyabean, tur and cotton in total turnover of Aurangabad division's

APMCs was 53 percent. Further, it was observed that the share of three crops viz. soyabean, tur and gram in total turnover of Latur division's APMCs is 78 percent.



Source: Maharashtra State Agricultural Marketing Board, Pune (Office).

ANALYSIS OF CROP ARRIVAL AND AVERAGE/MODAL PRICES:

It has been observed in the study that except for the arrival of wheat there is no significant difference in arrival of cotton, maize, gram, pigeon(TUR) and soybean before (2019-20) and after covid-19 (2020-21) at APMCs of **Aurangabad division**. Since the mean difference of arrival for wheat crops is negative we can say that arrival of only wheat crops has significantly increased after the pandemic. Whereas in case of average/modal prices except the prices of cotton and gram, the prices of wheat, maize, pigeon (TUR) and Soyabean are significantly different after COVID-19 (2020-21) compared to prices before (2019-20) pandemic at APMCs of Aurangabad division. Since mean difference of average/modal prices for wheat and maize crop are positive, we can say that average/modal prices for wheat and maize crop are significantly declined after pandemic and since mean difference of average/modal prices for pigeon (TUR) and Soyabean crops are negative we can say that average/modal prices of pigeon (TUR) and Soyabean crops are significantly increased after pandemic. It has been observed that there is no significant difference in arrival of cotton, Wheat, maize, gram, pigeon (TUR) and soybean before (2019-20) and after COVID-19 (2020-21) at APMCs of **Latur division**. Whereas except for the price of wheat and maize, the prices of cotton, gram, pigeon (TUR) and soybean are not significantly different after COVID-19 (2020-21) compared to prices before (2019-20) pandemic at APMCs of Latur division. Since the mean difference of average/modal prices for wheat and maize crops are positive, we can say that average/modal prices for wheat and maize crops have significantly declined after the pandemic.

ANALYSIS OF TURNOVER:

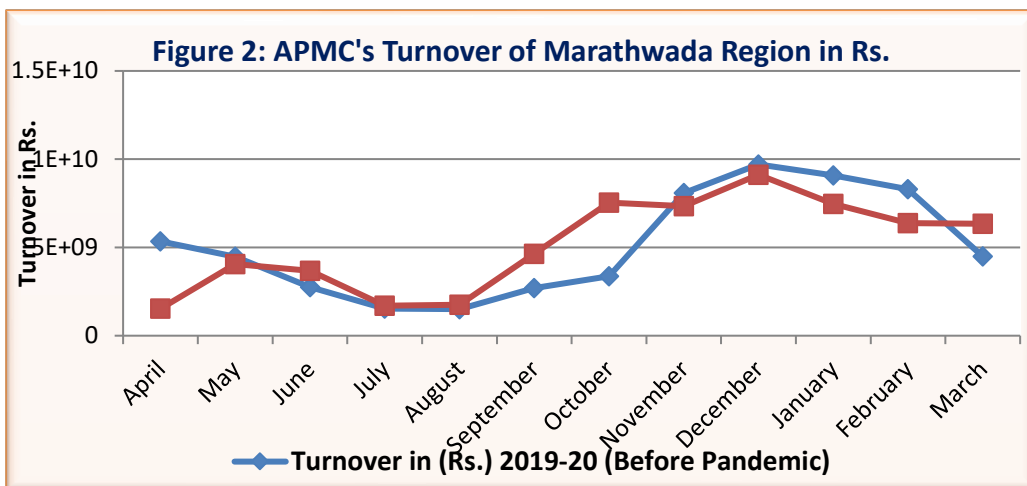
Table 1:

Paired Samples Test for division wise turnover before (2019-20) and after COVID-19 (2020-21)

		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	t	Df	Sig. (2-tailed)
Pair 1	ABT – AFT	397300242	56741332	76187432	1.439	11	.178
Pair 2	LBT – LFT	-412779704	479186668	27004410	-.967	11	.354
Pair 3	MBT – MFT	-15479462	2078386765	99978579	-.026	11	.980

Source: Maharashtra State Agricultural Marketing Board, Pune (Office)

The results of Paired Samples Test for division wise turnover before (2019-20) and after COVID-19 (2020-21) at APMCs of Marathwada region are shown in table 1. In this table Pair 1 to pair 2 shows the results of paired sample test for division wise turnover of all crops before (2019-20) and after COVID-19 (2020-21). It can be concluded that there is no significant difference in turnover of APMCs of Aurangabad division, Latur division and Marathwada region before (2019-20) and after COVID-19 (2020-21). After studying the turnover of individual APMC's it has been observed that the turnover of Ahmedpur, Aurangabad, Gangakhed, Jalna, Latur, Loha, Paithan and Parbhani are not significantly different after COVID-19 (2020-21) compared to turnover before (2019-20) pandemic at above selected APMCs of Marathwada region. So we can conclude that there is no significant effect of pandemic on turnover of selected APMCs in Marathwada.



Source: Maharashtra State Agricultural Marketing Board, Pune (Office)

Figure 2 reveals the monthly turnover of Marathwada region's APMCs (in Rs.). On the basis of paired t-test it has been observed that the pandemic did not have any statistically significant positive or negative impact on turnover of APMC's of Aurangabad division, Latur division and Marathwada region. However looking at monthly turnover of Marathwada region's APMCs (in Rs.) it is observed that after the announcement of national lockdown the Marathwada region's APMCs turnover was significantly lower in the month of April after the pandemic. Further during months of November to February the turnover of Marathwada region's APMCs was lower after the pandemic.

VEGITABLE'S MARKET ANALYSIS

Table 2:

Paired Samples Test for Aurangabad APMC's turnover of Vegetables before (2019-20) and after COVID-19 (2020-21)

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	Onion_B - Onion_A	3737051	20577724	5940277	.629	11	.542

Pair 2	Tomato_B Tomato_A	-	1239618	4066762	1173973	1.056	11	.314
Pair 3	Gralic_B Gralic_A	-	-2287070	2856292	824540	-.277	11	.787
Pair 4	Ladyfinger_B- Ladyfinger_A		968032	970280	280095	3.456	11	.005
Pair 5	Cabbage_B Cabbage_A	-	14594920	1311696	378654	3.854	11	.003
Pair 6	Chile_B Chile_A	-	5880632	7369269	2127329	2.764	11	.018

Source: Agricultural Produce Market Committee (APMC) office, Aurangabad.

After doing **analysis of vegetables market at Aurangabad APMC** it has been observed that except the **arrivals (aavak)** of Onion and Garlic there is significant difference in the arrival of Tomato, Ladyfingers, Cabbage, Chile vegetables after COVID-19 (2020-21) compared to before (2019-20) pandemic at Aurangabad APMC. In other words, we can say that arrivals (aavak) of these vegetables have significantly declined. In the case of average prices, it has been observed that the **prices** of Onion, Tomato, Garlic, Ladyfingers, Cabbage and Chile are not significantly different after COVID-19 (2020-21) compared to prices before (2019-20) at Aurangabad APMC. Whereas, except the **turnover** of Onion, Tomato and Garlic there is a significant difference in the turnover of Ladyfinger, Cabbage, and Chile vegetables after COVID-19 (2020-21) compared to before (2019-20) pandemic at Aurangabad APMC.

FLOWER'S MARKET ANALYSIS:

After doing analysis of flowers market at Jalna APMC it has been observed except the arrival of Shevanti there is no significant difference in the **arrival** of Galanda, Gulab, Zendu and Reshim flowers after COVID-19 (2020-21) compared to before (2019-20) pandemic at Jalna APMC. In case of **average prices** it has been observed that except the price of Reshim there is no significant difference in the prices of Galanda, Shevanti, Gulab, and Zendu flowers after COVID-19 (2020-21) compared to prices before (2019-20) at Jalna APMC. Table 3 shows the results of paired samples test for Jalna APMC's turnover of flowers before (2019-20) and after COVID-19 (2020-21). It was found that except the turnover of Shevanti there is no significant difference in the turnover of Galanda, Gulab, Zendu, Reshim flowers after COVID-19 (2020-21) compared to before (2019-20) pandemic turnover at Jalna APMC flowers market.

Table-3:

Paired Samples Test for Jalna APMC's turnover of flowers before (2019-20) and after COVID-19 (2020-21)

		Paired Differences			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean			
Pair 1	Galanda_B - Galanda_A	-61809	142330	42914	-1.440	10	.180
Pair 2	Shevanti_B - Shevanti_A	-314375	291846	87995	-3.573	10	.005
Pair 3	Gulab_B - Gulab_A	-82068	313995	94673	-.867	10	.406
Pair 4	Zendu_B - Zendu_A	36735	222769	67168	.547	10	.596
Pair 5	Reshim_B - Reshim_A	317107	5192804	1565690	.203	10	.844

Source: Agricultural Produce Market Committee (APMC) office, Jalna.

Conclusion:

On the basis of paired t-test it has been observed that there is no significant difference in the turnover of APMCs of Aurangabad division, Latur division's and Marathwada region before (2019-20) and after COVID-19 (2020-21). However looking at monthly turnover of Marathwada region's APMCs (in Rs.) it is observed that after the announcement of national lockdown the Marathwada region's APMCs turnover was significantly declined in the month of April after the pandemic. Further during months of November to February the turnover of Marathwada region's APMCs was lower after the pandemic. With respect to vegetables market it has been observed that there is significant decline in the turnover of Ladyfinger, Cabbage, and Chile vegetables after COVID-19 (2020-21) compared to before (2019-20) pandemic at Aurangabad APMC. With respect to flowers market it has been observed that except the turnover of Shevanti there is no significant difference in the turnover of Galanda, Gulab, Zendu, Reshim flowers after COVID-19 (2020-21) compared to before (2019-20) pandemic turnover at Jalna APMC flowers market. Further it is observed that storage facilities are not available at large in Marathwada. Fruits and vegetables are need to be stored properly to increase its shelf life, as these products are undergoing respiring, transpiration and ripening process simultaneously. In order to - stop the harassment of the farmers, the marketing committee shall announce 'minimum support price' to each of the produce coming in the APMC yard and the buyers should not be allowed to buy below that fixed price which in turn the farmers will get good amount of reward for their efforts.

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