

## **A Comparative Study on Economy of Some Vegetable Crops in Indian Market During the COVID-19 Pandemic**

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### **Abstract:**

The COVID -19 Pandemic is one of the greatest disasters of the century. It has affected a huge number of populations across the globe. Besides affecting people's health it has also agitated the world economy. The developing countries like India are facing a huge challenge to tackle the present economic turmoil. In this context the fluctuating prices of essential commodities like vegetables and fruits are catalyzing people's hardships. The study focuses on the trend in market prices of some vegetables in India in context of the COVID-19 crisis to find the reasons behind such trend and suggest some plans for their mitigation. Questionnaires were given to the APMC personnel, farmers, wholesalers and retailers either in plane paper or electronically as Google Forms pages. Market surveys were conducted wherever possible. Help of different print and electronic media, online meeting platforms were taken to collect relevant information. The findings revealed that the prices of vegetables dropped greatly in the early days of lockdown but in the latter half it surged up considerably. The reasons behind this were sudden drop in demand because of fear from pandemic outbreak and also because the mass consumers like restaurants, institutions remained shut after the declaration of country wise lockdown. Challenge such as the lack of cheap transport like the railways, closure of 'kisan-mandis', hoarding of commodities, restrictions on import and export, pressure from migrant labourers, disruptions of long supply chains etc. led to the sudden hike in market prices of vegetables. The paper recommended optimising supply chains, empowering smallholder farmers, promoting start-ups and MSME, resorting to digital platforms and understanding the changing consumer behaviour etc. to be some important actions towards a more resilient agri-food system.

**Key Word:** COVID-19; Pandemic; Agricultural economy; Market Price; Vegetables; Digitization; Transport facilities.

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### **I. Introduction**

COVID-19, the greatest pandemic to date, has shaken up human civilization across the globe, taken millions of lives, making it utmost necessary for the nations to enforce total or partial lock-down and restrict international trade and transport, eventually pushing the global economy in the doldrums. The worst victim is the rural agrarian-sector, which is a significant contributor to India's economic growth. From inputs to sales, it magnified the vulnerabilities already present in our agro-ecosystem.

With about 5.4 million total cases that have a daily toll of nearly 92,605 people (20 September 2020), the government of India is at a crucial stage to regulate both COVID cases and economic activities side by side. Looking at the situation- it is almost impossible for the railways to start running local trains because it is the most susceptible one.

In states like Maharashtra, Delhi, Andhra Pradesh, Karnataka, Tamil Nadu, Uttar Pradesh, etc. the situation is far beyond control. In Maharashtra itself, around 1.9 million people have been affected (20.09.2020). The major industrial hubs having shut, the sole forerunner of India's economy during this lock-down is the agricultural sector. Yet due to the lack of cheap transport facility and several other reasons, it is not only the farmers who are facing losses, but the buyers are also passing through tough times as the market prices are shooting up. Especially the prices of vegetables have skyrocketed in states like Maharashtra, Delhi, and West Bengal.

### **II. Material And Methods**

**Study design:** The study involved a descriptive survey research design.

**Target population:** The target population for the study were the buyers and sellers at different wholesale, retail markets and officials at Agricultural Produce Market Committees (APMC) across India.

**Study Duration:** March, 2020 to September, 2020

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**Collection of data:** A market survey was performed in different vegetable markets of North Kolkata (Dumdum-Sinthee and surrounding regions) and South Kolkata (Dhakuria and Ballygunge). Information about price of each vegetable was collected from 20 different sellers in different markets in different time period. In the scenario of a global pandemic, when there is no provision for public transport and strict government restrictions on inter-state travelling, the help of various online platforms like 'Zoom', 'Google meet', 'Google Forms' etc. were taken to collect information from officials at various APMCs in different parts of India. Besides this, different market survey reports released by the government and related information published in various reputed newspapers and journals were also taken into consideration at the time of analysis.

**Instrument for collecting data:** The instrument used in collecting information from buyers, wholesalers and retailers was a structured questionnaire. The questionnaire was split into different sections according to the research objectives.

**Analysis of data:** The data thus obtained was averaged for each vegetable and analysed graphically to find out the trend in different points of time during the COVID crisis. The survey also aimed at finding out the most evident reasons behind the results thus obtained which were analysed to find out ideas for its improvement.

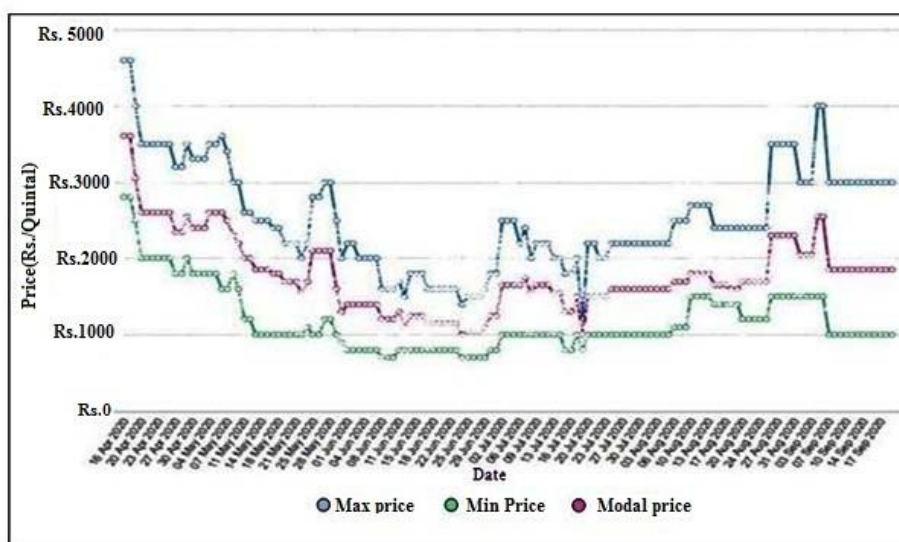
### III. Results And Discussions

April 1 to May 3 may be called as the first half of the lockdown period that includes phases 1 and 2. In phase 1 strict restriction were enforced by the central and state governments. From phase 2 onwards there were differential relaxations. The agricultural sector was exempted from the shackles of strict lockdown prohibitions. In the second half of the lockdown consisting of the 3<sup>rd</sup> and 4<sup>th</sup> phases from 4<sup>th</sup> to 31<sup>st</sup> of May, some of the economic activities were allowed in the 'Green zones'. After that the unlock periods focused on the idea of re-starting economic activities. The food and agricultural markets re-opened just after the first phase of lockdown in most of the states where as the vegetable- prices zoomed up 4<sup>th</sup> phase onwards. Items in the retail market became 30-40% costlier.

In the first part of the lock-down, the prices of vegetables fell up to 75% due to subdued demand, particularly from wholesalers, restaurants, and institutions. At the beginning of the nation wise lock-down, the rules were strict, and the retail markets remained closed so, there was a void in demands that led to the drop in market prices. As per the Azadpur Agricultural Produce Market Committee (APMC), the prices of bottle gourd fell by 75% to Rs.3 per kg and pumpkin and ladies-finger by 60% to Rs 3 and Rs.16 per kg respectively, bitter gourd by 65% to Rs 7 per kg. Brinjal and cucumber dropped by 55% to Rs. 5 per kg. Due to the high expected harvests of Rabi onion, the onion traders had been anticipating sizeable losses.

The Rabi crop of onion in Madhya Pradesh this year was 200% more than the previous. For the closure of international borders and restrictions in exports, this Rabi harvest was supposed to put further pressure on prices. All other business avenues having latched, more people started selling vegetables that increased competition in the market.

While after the 3<sup>rd</sup> phase green chillies are available at a price of Rs.220 -290 per kg; the cost of other vegetables including, the brinjal, pointed gourd, ginger, bitter gourd, and pumpkin are above Rs.80 per Kg. Figure 1.a and 1.b shows the trend in wholesale prices of some vegetables at Azadpur APMC NCT Delhi, during the COVID 19 crisis (agmarknet.gov.in).



**Fig:1.a** Trend in wholesale prices of Bhindi from April to September at Azadpur

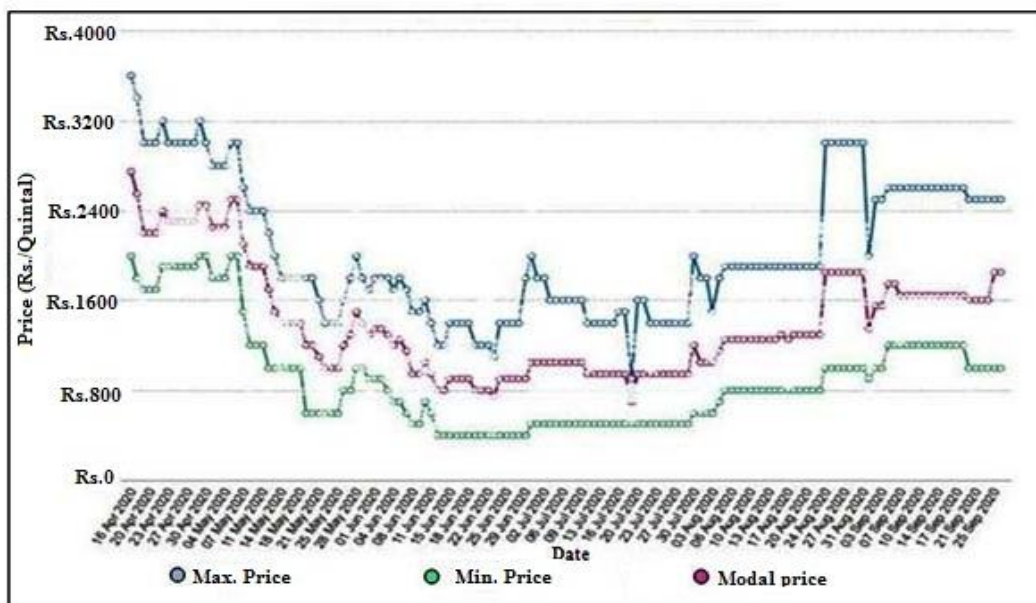


Fig:1.b Trend in wholesale prices of Brinjal from April to September at Azadpur

Analysing the trend of market prices of vegetables in different phases of lockdown and in the phases of ‘unlocks’ is important for understanding the market dynamics following this pandemic<sup>1</sup>. In the study over the market price of vegetables in Kolkata from March to September (Table1) it was found that the highest rise in price was for chilly, about 193% and the lowest for potato about 35.8%. Figure 2 shows the comparative market- prices of some vegetables in March, June and September.

Table no1: Retail price of vegetables in March June and September

Vegetables	Retail price (Rs/Kg)		
	March	June	September
Onion	21.20 ± 0.468	31.20 ± 0.225	38.80 ± 0.225
Potato	26.20 ± 0.337	32.80 ± 0.225	35.60 ± 0.535
Tomato	30.40 ± 0.184	34.40 ± 0.112	70.00 ± 1.451
Ladies finger	16.00 ± 0.400	28.00 ± 0.503	33.00 ± 0.918
Brinjal	15.40 ± 0.112	20.40 ± 0.343	33.40 ± 0.866
Bitter gourd	21.20 ± 0.367	30.00 ± 0.290	48.00 ± 0.562
Chilly	60.00 ± 2.513	124.00 ± 1.835	176.00 ± 3.434
Pumpkin	19.33 ± 0.225	25.60 ± 0.450	38.00 ± 0.562

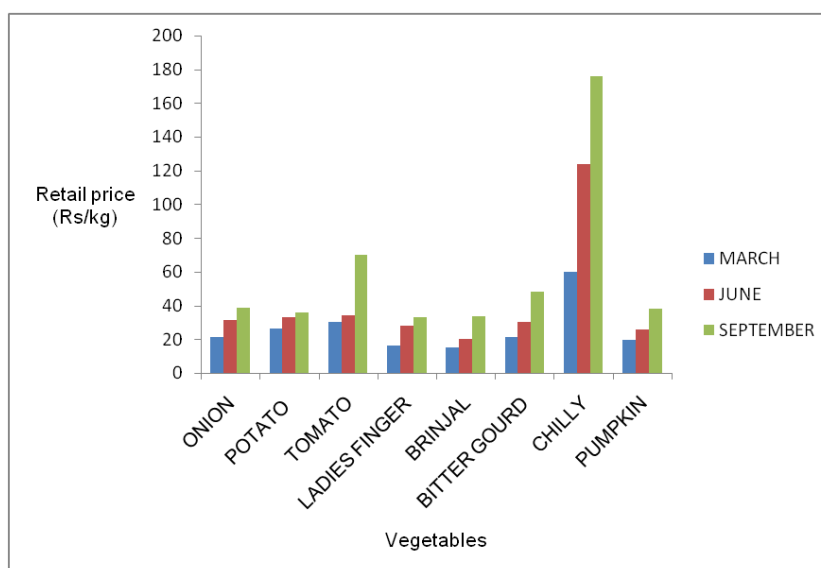


Fig2: The comparative market prices of some vegetables in March, June and September.

Amongst a lot of probable reasons behind this sudden inflation, the pivotal ones are-

#### **No local trains**

Local trains are the primary mode of cheap transport for vegetable retailers. A majority of wholesalers and retail vendors bring their commodities, especially fruits and vegetables, in train compartments from the 'mandis' to the wholesale and retail markets. Due to the suspension of local trains, the wholesalers and retailers are compelled to avail much expensive road-transport for bringing in their commodities. This excess cost of transportation is getting added to the retail price as a result the price; particularly in the retail market is increasing accordingly.

#### **Closure of Kisan-mandis**

Kisan-mandis remained closed for several weeks across at containment zones and Red zones across the nation, so farmers were unable to sell their produce. For lack of communication, they even could not sell it directly to the wholesalers, which created a sudden abyss in the market that hiked the price all of a sudden.

#### **Hoarding of commodity**

In this epoch-making situation, some brokers or market middlemen decided to hoard a good amount of the produce in their godowns, to take advantage of the crisis thus created and sell their commodities at a higher market price only to earn some more profit share.

#### **Restrictions on imports and export**

Every year fruits and vegetables worth around Rs.150.27 billion Indian Rupees (Statisticia, 2020) is imported in India fulfils a good section of India's demand for fruits and vegetables. With the suspension of cross-border trading, the imports of vegetables came to a standstill. Because of the lack of competition from imported fruits and vegetables the prices soared up in the local market<sup>2</sup>. Also to overcome the losses due to lesser export this year the traders tried to draw more profit out of the indigenous market that added to the jeopardy<sup>3</sup>.

#### **Pressure on land from migrant labourers**

From the fears of the adverse impact of lock-down and increasing COVID19 cases in the industrial hubs, the nation has seen a massive reverse migration of skilled and unskilled labourers. These people went back to their villages at the time of Rabi harvest. This excessive labour pressure on land is expected to imbalance the rural labour market, where under-employment and disguised unemployment are persistent problems<sup>4</sup>. Thus, the net income of the farm owners faced a dire challenge, which let them demand a higher price, which magnified through the supply chain to the retail market.

#### **Disruption of supply chain**

In most parts of the country, the agricultural commodities pass through the long supply chains involving multiple stakeholders, before it comes to the consumers' plates. In this fierce pandemic situation, in many places, these supply chains got impeded, that corresponded to the reduction in the regular supply of commodities<sup>5</sup>.

The COVID 19 crisis is transitory, but it has magnified the vulnerabilities already present in the food supply system of India. Taking stock of this issue can help the government to resort to more resilient measures to sustain agriculture and food supply in the post-COVID new-normal era.

#### **Optimizing supply chains**

Mapping and optimizing supply chains is the prime goal for future sustainability. Long supply chains that involve multiple stakeholders are not immune to calamities like pandemic<sup>6</sup>.

#### **Empowering smallholder farmers**

Smallholder farmers are highly vulnerable to crisis due to their limited access to resources, but they are a broad section of our farming community who contribute nearly 2/3rd of our produce. It is really important to incentivize them to overcome such difficult situations like a pandemic.

#### **Governmental control over transport and pricing**

As a part of the disaster management program, governmental agencies should look after roadway transport and implement price regulatory mechanism at the wholesale level to regulate the retail price because directly regulating prices in the retail market becomes direful.

#### **Promoting start-ups, MSMEs and encouraging digital marketing**

This pandemic has changed consumer behaviour drastically. More people are shifting towards digital platforms to buy their daily essentials. The corporate, start-ups or MSMEs (Micro, Small, and Medium Enterprises) play an important role here to prioritize the digital platforms and encourage more and more buyers and sellers to go digital. Provisions to be made for arranging digital auctions for vegetables, fruits, and grains in which, farmers can sell their produce at a price higher than the Minimum Support Price (MSP)<sup>7</sup>.

As Central government recommended, several state governments have temporarily suspended the Agricultural Produce Market Committee (APMC) act and let farmers to sell their produce anywhere<sup>8</sup>. This is expected to provide more flexibility to farmers and minimize restrictions on movement and sale of agricultural commodities.

### **Understanding Consumer Demands**

Like any other business farm it is also important for the government and the farmers to understand the changing consumers' needs during and after the pandemic. People are becoming more health conscious. So emphasis should be given on cultivating nutritious green vegetables, bio-fortified crops and that to be marketed through proper channel to obtain maximum profit by exploiting people's increasing demand. It is high time to prioritise allocations to research on nutrition-sensitive agriculture<sup>9</sup>. Expanding localised production of a various bio-fortified crops should also be a priority of the agricultural extension system.

### **IV. Conclusion**

Amidst the grin, agriculture is the only sector that emerged as the messiah of India's economic growth. Without its robust performance, India's GDP would have crumbled further. Agricultural and allied activities were the sole bright spot amid the dismal GDP performance of other sectors, clocking a growth rate of 3.4 % at constant prices in the first quarter of 2020-21. Even then, the farmers are not getting the right price for their produce and, the inflation is burning holes in consumers' pockets. It is due to improper supply chain management and weak regulatory mechanism. This COVID19 lockdown has exposed several loop holes in our economic policies that, if not taken care, can lead us to the doomsday. Our economy can take a positive turn if lessons that we learnt from the crisis are implemented well in the upcoming times. Agriculture is the backbone of our economic growth and it has proved to be so even in the time of pandemic. So it is crucial to strengthen our agrarian sector further to overcome the challenges faced. Long supply chains are vulnerable to disasters like pandemic as it involves lots of people which also lead to magnification of prices. Espousing the gallop towards digitization that galvanized during the lock-down will unfold new avenues for India's agro-industry. In a nutshell agricultural market reforms, digital solutions to connect farmers to markets, ensuring safety in farms and market, establishment of amicable working conditions and decentralized food system are some of the important things to be revised to make our agri-food system more resilient.

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