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## RESEARCH ARTICLE

# AN ECONOMIC ANALYSIS OF THE RISING TREND AND PATTERN OF E-GREENGROCERIES ON DIFFERENT MANDIS IN, PUNJABI BAGH WEST DELHI

\*Sharon Praise A. Samuel and Dr. Sanjay Kumar

M.Sc. Agricultural Economics, Agricultural Economics Department, Sam Higginbottom University of Agricultural, Technology and sciences, Allahabad, India

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### ABSTRACT

It was undertaken to know the effect of e-commerce on offline vegetable retailers from the period of outbreak of Covid-19 in Delhi. The study compares the costs and returns of retailers at various periods of Lockdown (Pre-Lockdown, Lockdown, Post Lockdown) along with the rising trends of E-greengroceries. The study has undertaken in Punjabi Bagh Block of West Delhi district. By this thesis we can understand, how Covid-19 has affected the local vegetable retailers, who got affected in all ways. Due to covid, then the customers, the digitalization etc. All these brought the local mandi retailer's sales down. From various charts and figures we can observe the shift of people is more toward e-greengroceries rather local retail shopping. All these have affected the retailers. The risen shift of habit of buying vegetables online is mostly initiated from the age group between 20-30 age. E-greengroceries has affected some part of the retail market considering, sanitation, social distancing, offer prices all such trends and attracted the people over local purchases.

#### \*Corresponding author:

Sharon Praise A. Samuel

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## INTRODUCTION

The above tables 4.1 reveal the total number of samples collected from all the selected block for the present study and they are categories according to their Licensing that is Government Authorized Mandi and Unauthorized Mandi. The above tables 2 reveals the total number of market functionaries from all the selected block for the present study and they are categories according to their license in the work area of vegetable selling. The composition of an average size of the Mandis according to age composition their literacy rate and the number of working members from the family is indicated in Table 3. Average size of the different size of Mandis in Government. Authorized and unauthorized Mandi was 70, 80 and 50 respectively. Sample average percentage of Males and Females is 95.0 per cent and 5.0 per cent respectively.

It could also be seen from the table the age composition of different size farm groups belongs to the age composition of different Mandi groups belonging to the age composition below 30 (15 per cent), between 30-40 (43.0 per cent), between 4-50 (23.0 per cent) and above 50 (12.0 per cent) respectively. Table 4 revealed the education status of different size of Mandi groups. Literacy percentage was highest in Govt. Authorized mandis 98.6 per cent followed by Unauthorized Mandi 76.7 per cent. Sample average for different size of groups was 92.0 per cent. From the table it could be seen that illiteracy was highest in unauthorized mandi workers 23.0% followed by Authorized mandi by 22.0%. Sample average for illiteracy in different size of groups was 22.0% respectively. Table 5 revealed the number of members working along in the vegetable business. From the above table we can see that there are mostly 1 member from the family who are working the highest from the other groups by 47.0 per cent followed by 2 members by 28.0 per cent than 3 members with 17.0 per cent and lastly 4 members by 2.0 per cent respectively.

**Table 1. Average size of sellers indifferent retail groups**

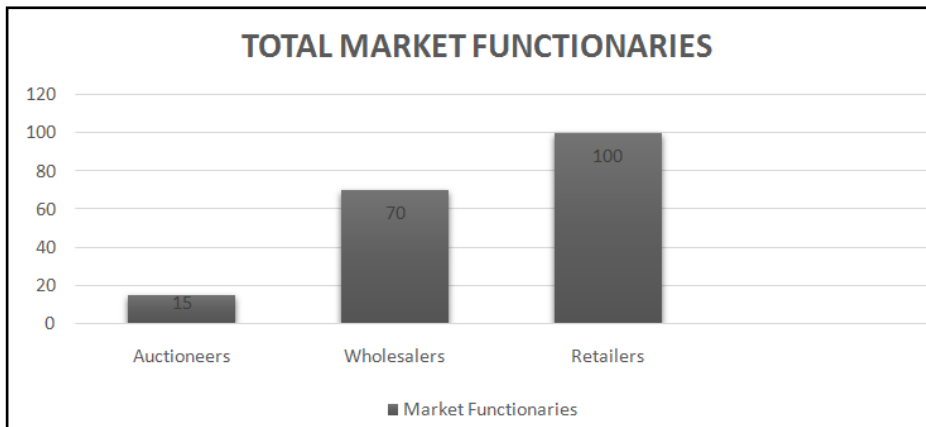
Sr. No.	Particulars	Different groups of Retailers		Sample Size
		Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Unauthorized)	
1.	Total no. Retailers	70	30	100



Description of age and sex composition in different retail groups: Total No. of respondents =100  
 L + UL = 70+30=100

**Table 2. Detail description of the market functionaries in study sample**

Sr. No.	Market Functionaries	Authorization		Average Sample	Total
		Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Unauthorized)		
1.	Auctioneers	10	5	7.5	15
2.	Wholesalers	70	0	35	70
3.	Retailers	70	30	50	100



**Table 3. Detail description of age and sex composition in different size groups**

S. No.	Particulars	Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Un authorized)	Sample Average
1.	Sample Size	70 (100)	30 (100)	50 (100)
2.	<b>Gender</b>			
	Male	70 100	25 83.3	48 (95.0)
	Female	0 0	5 16.7	3 (5.0)
3.	<b>Age Composition</b>			
	20-30	10 (14)	5 (17)	7.5 (15)
	30-40	34 (49)	9 (30)	21.5 (43)
	40-50	15 (21)	8 (27)	11.5 (23)
	50above	7 (10)	5 (17%)	6 (12)

NOTE: Figures in the parenthesis indicates percentage to the column total.

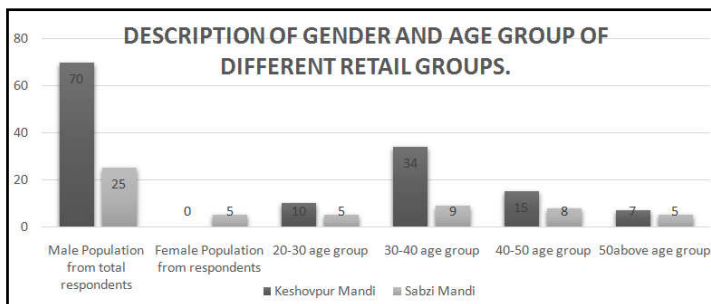


Table 4. Detail description of age and sex composition in different size groups

Table 5. Detail description on the no. of family members working along in mandi business:

S. No.	Particulars	Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Unauthorized)	Sample Average
1.	Illiterate	0 (0.0)	7 (23.3)	3.5 (7.0)
2.	Primary	0 (0.0)	8 (26.7)	4 (8.0)
3.	Senior Secondary	27 (38.6)	7 (23.3)	17 (34.0)
4.	Graduate	31 (44.3)	5 (16.7)	18 (36.0)
5.	Post Graduate	11 (15.7)	3 (10.0%)	7 (14.0)
6.	Total Literacy	69 (98.6)	23 (76.7)	46 (92.0)
7.	Total Illiterate	15 (22)	17 (23)	16 (22.0)

NOTE: Figures in the parenthesis indicates percentage to the column total.

Table 6. Descriptions of the working details at different mandis

S. No.	Particulars	Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Unauthorized)	Sample Average
1.	Weekly Working Days			
	Sample size	7 days (100)	7 days (100)	7 days (100)
	Working Days (official)	6 days (86)	6 days (86)	6 days (86)
	Working Days (unofficial)	1 day (Wednesday) (14)	1 day (Wednesday) (14)	1 day (14)
	Total Working Days	7 days (100)	7 days (100)	7 days (100)
2.	Working Hours			
	Sample size	24 hours (100)	24 hours (100)	24 hours (100)
	Time official hours	7 hours (29)	8 hours (33)	7.5 hours (31)
	Time unofficial hours	4 hours (17)	4 hours (17)	4 hours (17)
	Total Time	11 hours (46)	12 hours (50)	11.5 hours (48)

Note: Figures in the parenthesis indicates percentage to the column total.



Fig.4.6. Description of average working hours and working days

Table 7. Basic Mandi's Statistics Of Keshovpur Mandi And Sabzi Mandi

S. No.	Particulars	Keshovpur Mandi (Gvnt. Authorized)	Sabzi Mandi (Unauthorized)	Sample Total
1.	Total Market Area	11 acres (91.7)	1 acre (8.3)	12 acres (100)
2.	No. of Big Shops	70 (100)	-	70 (100)
3.	No. of Small Shops	250 (89.3)	30 (10.7%)	280 (100)
4.	Size of Big Shops	12'x53' (100)	-	12'x53' (100)
5.	Size of Small Shops	-	5'x4' (100)	5'x4' (100)

NOTE: Figures in the parenthesis indicates percentage to the column total.

Table 8. List of Vegetables Taken In Account With Their Wholesale Price As Per Apmc

Sr. No.	Particulars	Pricing Rs. /Q tls.		
		Minimum	Maximum	Average
1.	Beetroot	195.4	2220.0	1207.7
2.	Bitter Gourd	489.3	3470.0	1979.6
3.	Brinjal	124.6	2350.0	1237.3
4.	Broccoli	2171.3	11250.0	6710.6
5.	Cabbage	140.9	1930.0	1035.4
6.	Capsicum	513.3	4010.0	2261.6
7.	Carrot	185.8	3870.0	2027.9
8.	Cauliflower	296.4	3800.0	2048.2
9.	Colocasia/Arvi	645.0	3750.0	2197.5
10.	Coriander Leaves	1020.5	6670.0	3845.3
11.	Cucumber	182.4	2990.0	1586.2
12.	French Beans	955.3	5490.0	3222.6
13.	Garlic	5312.9	14130.0	9721.4
14.	Ginger	3602.6	9870.0	6736.3
15.	Green Chillies	500.6	4430.0	2465.3
16.	Green Peas	1440.7	8280.0	4860.4
17.	Lady Finger	540.0	3830.0	2185.0
18.	Lemon	887.0	5280.0	3083.5
19.	Methi	529.2	3600.0	2064.6
20.	Mint Leaves	318.6	2590.0	1454.3
21.	Onion	309.0	4120.0	2214.5
22.	Palak	100.1	1820.0	960.1
23.	Potato	105.0	2020.0	1062.5
24.	Pumpkin	78.5	1570.0	824.3
25.	Radish	31.6	1130.0	580.8
26.	Raw Banana	204.7	1780.0	992.4
27.	Sweet Corn	2566.5	7250.0	4908.3
28.	Tinda	823.4	5640.0	3231.7
29.	Tomato	114.6	3370.0	1742.3
30.	Zucchini	326.2	3230.0	1778.1
31.	Jimikand	309.6	2580.0	1444.8

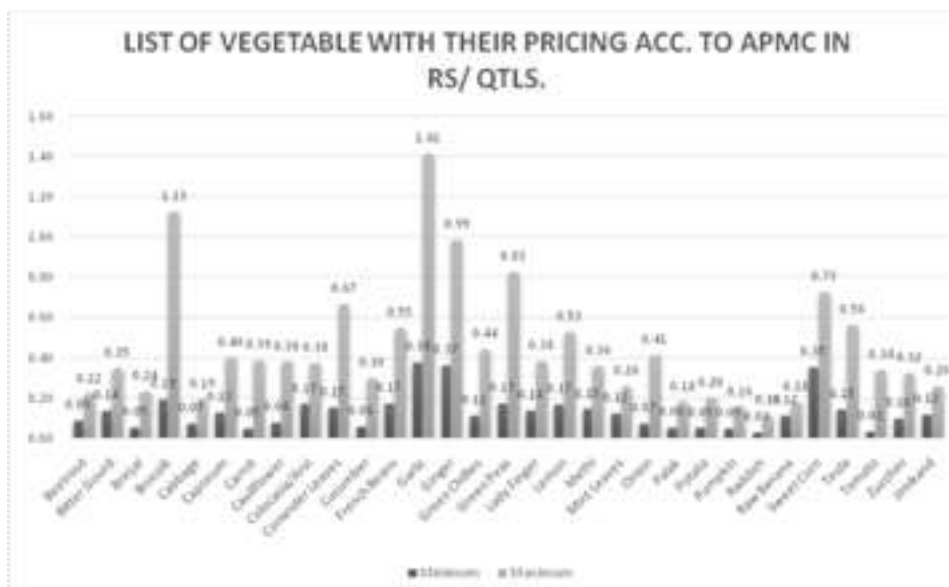


Table 9. Market Trends Of Indian E-Greengroceries (INR 170 Cr indexed at 100 point and INR 370 Cr indexed as 199 point)

Sr. No.	Particulars	Months	Trends	Points
1	Pre lockdown	January	Grocery delivery	100
		February	Initials Months	90
2	Lockdown	March	During lockdown	85
		April	online medium was	82
		May	shut for two months	102
3	Post Lockdown	June	Multi Lng. Options	163
		July	Was introduced.	180
		August	Discounting offers	200
		September	As per festivals	209
		October		252
		November	Within 90min	220
	December	Delivery	199	

(Indexed at 100 points)

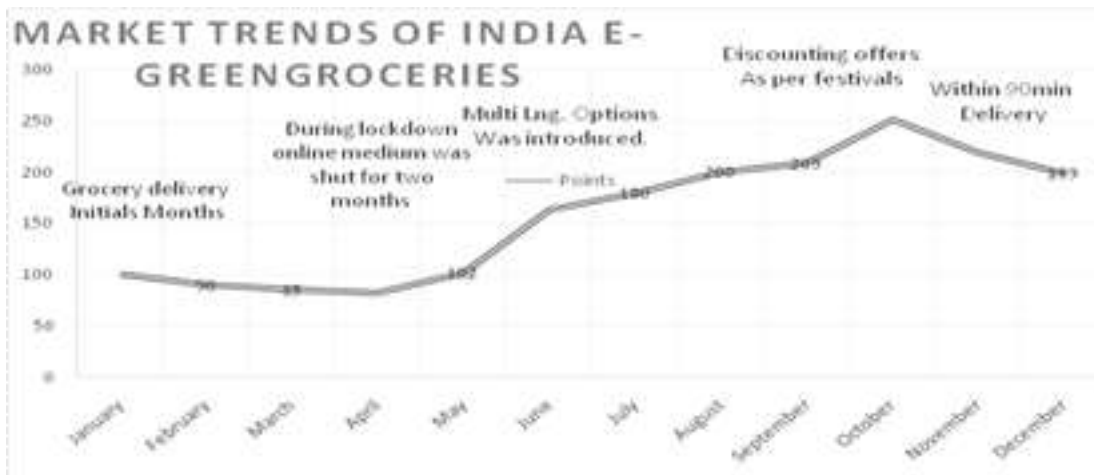


Table 10. greengrocery pricing of different type of retailers (₹/Q Tls)

PARTICULARS	OFFLINE WHOLE-SALE PRICE		OFFLINE RETAIL PRICE		ONLINE PRICE		ONLINE PRICES-WHOLE-SALE PRICE		ONLINE PRICES-RETAIL PRICE	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Beetroot	1300	3800	1900	5700	4300	6300	3000	3800	2400	600
Bitter Gourd	2100	6000	3000	9000	8300	10700	6100	6000	5300	1700
Brinjal	800	4100	1100	6100	11000	17300	10200	4100	9900	11200
Broccoli	2900	19400	4100	29200	9300	11300	6400	19400	5200	-17900
Cabbage	1100	3300	1600	5000	2400	3900	1300	3300	900	-1100
Capsicum	1900	6900	2700	10400	6600	8500	4700	6900	3900	-1900
Carrot	700	6700	1000	10000	4700	6300	3900	6700	3600	-3700
Cauliflower	1200	6600	1600	9900	4600	6100	3400	6600	3000	-3800
Colocasia/Arvi	2600	6500	3600	9700	10400	12300	7800	6500	6800	2600
Coriander Lev.	2300	11500	3200	17300	6700	10100	4400	11500	3500	-7200
Cucumber	900	5200	1300	7800	2900	4800	2000	5200	1600	-2900
French Beans	2600	9500	3700	14200	5900	9100	3300	9500	2200	-5200
Garlic	5700	24400	8000	36600	14800	24600	9100	24400	6800	-12100
Ginger	5500	17000	7700	25600	6800	11600	1200	17000	-1000	-14000
Green Chillies	1700	7600	2400	11500	6400	8900	4700	7600	4000	-2600
Green Peas	2600	14300	3700	21500	10300	13100	7700	14300	6600	-8400
Lady Finger	2100	6600	3000	9900	10300	11900	8200	6600	7300	2000
Lemon	2500	9100	3500	13700	21000	26200	18400	9100	17400	12500
Methi	2200	6200	3100	9300	15300	18100	13100	6200	12200	8800
Mint Leaves	1900	4500	2600	6700	9700	17800	7800	4500	7100	11100
Onion	1100	7100	1600	10700	2000	3400	900	7100	400	-7300
Palak	800	3100	1200	4700	4600	10700	3800	3100	3400	5900
Potato	800	3500	1100	5200	2700	3700	1900	3500	1600	-1500
Pumpkin	800	2700	1100	4100	4500	5700	3700	2700	3400	1600
Raddish	400	2000	600	2900	4000	4700	3500	2000	3400	1700
Raw Banana	1700	3100	2400	4600	12600	15600	10800	3100	10100	10900
Sweet Corn	5400	12500	7500	18800	7500	8900	2100	12500	8700	-9900
Tinda	2200	9700	3100	14600	11600	14000	9400	9700	8500	-700
Tomato	500	5800	700	8700	3000	3800	2500	5800	2300	-5000
Zucchini	1500	5600	2100	8400	8900	15200	7400	5600	6800	6800
Jimikand	1800	4500	2500	6700	6500	8600	4700	4500	4000	1900
							25.8%	72%	36.2%	8%

The above table 6. shows the working days of different Mandi groups were both the groups work for 6 days officially and one day i.e., on Wednesday as an unofficial working day in total both the size groups work for 7 days a week. The table even reveals about the working hours of different groups the Unauthorized mandi working hours 50 per cent is higher than working hours of authorized mandi workers 46 per cent average sample size of different groups is 48 percent. The table 7 reveals about the basic statistics about the different groups of mandis. The highest market is covered by the keshovpur mandi by 11 acres i.e., 91.7 per cent and then sabzi mandi by 1 acre i.e., 8.3 per cent sample total comes to 12 acres. Total number of shops was highest in keshovpur mandi with big shops 70 and small shops with 250 89.3 per cent followed by sabzi mandi had only small shops with 30 i.e. 10.7 per cent. Table 8 shows the number of vegetables took in consideration and their pricing according to the APMC. The min. and max. prices are listed with the average costs. This is the price chart considering which the farmers get the returns of their produce from the APMC who works as a middlemen or wholesaler to the other wholesaler and retailers. ie Beetroot Bitter Gourd, Brinjal, Broccoli, Cabbage, Capsicum, Carrot, Cauliflower, Colocasia/Arvi, Coriander Leaves, Cucumber, French Beans, Garlic, Ginger, Green Chillies, Green Peas, Lady Finger, Lemon, Methi, Mint Leaves, Onion, Palak, Potato, Pumpkin, Radish, Raw Banana, Sweet Corn, Tinda, Tomato, Zucchini and Jimikand at an average of Rs1207.7, Rs.1979.6, Rs.1237.3, Rs.6710.6, Rs.1035.4, Rs2261.6, Rs.2027.9, Rs.2048.2, Rs.2197, Rs.3845.3, Rs.1586.2, Rs.3222.6, Rs.9721.4, Rs.6736.3, Rs.2465.3, Rs.4860.4, Rs.2185.0, Rs.3083.5, Rs.2064.6, Rs.1454.3, Rs.2214.5, Rs.960.1, Rs.1062.5, Rs.824.3, Rs.580.8, Rs.992.4, Rs.4908.3, Rs3231.7, Rs1742.3, Rs.1778.1 And Rs.1444.8 respectively.

The table 9 indicates that it began with total lockdown in March through May, when the online route became a necessity of sorts for infection-weary consumers. The e-greengrocery market traced a steep upward trajectory in these months – spurred on by a growing consumer base and a ballooning set of new players on the supply side. The e-groceries continued their growth in the aftermath of lockdown, as consumers formed a level of familiarity with apps and online platforms. Whatever marginal dip in value followed was offset by the festive season at the end of the year – when online commerce in general went through an unprecedented boom. As a result of Covid-19, hygiene has become a second consideration driver after affordability for these households – such differentiated purchase behavior, would require e-grocery platforms to serve this opportunity through specific tailored offerings. In tab 10 We see the pricing of wholesaler, retailer and the online retail price.

On comparing the data, we can see the comparison between wholesalers and online prices which is 25.8%-72% (max-min) higher than wholesale price whereas when we compare the online prices with retail price it is 36.2%-8% (max-min) higher. We see that online prices are higher in terms of wholesale price and retail price in the market.

### Conclusion

We can see the socio-economic status of the retailers in the study are both Unauthorized and Authorized sellers. Where we observe the majorly educated group are the Authorized sellers of keshovpur, from which maximum are graduate. We can even observe the price list of commodities reaching the mandis according to APMC. We further observe the market trend of e-commerce which sell greengroceries their trend throughout year of 2021 and their growth according to the strategies they acquired. We calculate the percent of offers or discounts companies provide which we see are more than what we pay in the local market.

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