Original Research Article

Analysis of Spatio-Temporal Behaviour of Arrivals and Prices in Major Onion Markets of India

ABSTRACT

The present study was an attempt to examine the behaviour of arrivals and prices of onion in major markets of India over the period from 2008 to 2022. Data on monthly wholesaleprices and arrivalsof selected markets was gathered from Agmarknet, Directorate of Marketing & Inspection, Government of India. Six markets were selected purposively,of which one each market was from four top onion producing states (Lasalgaon, Bangalore, Indore and Ahmadabad) and two were from top consuming cities (Mumbai and Delhi). Various statistical measures were used to examine trend, seasonality, and intra and inter-year variationsin onion arrivals and prices in the selected markets. The findings of the trend analysis indicate that all markets experienced a significant increase in both arrivals and prices throughout the study period, except for the Delhi market, which showed a negative trend in arrivals. The seasonality indices reveal that prices tended to be higher from the month of August to January, while they were lower from February to July. Interestingly, an inverse relationship between onion arrivals and prices could not be established.

Keywords: Onion, Prices and Arrivals, Trend, Seasonality, Intra and Inter-year variation

Comment [L1]: kindly add the type of research, data collection instruments and tools, and research procedures

1.INTRODUCTION

Comment [L2]: Kindly add GAP research analysis so that the novelty of this research is clear.

Onion is a vegetable that has garnered the attention of various stakeholders, as it is an essential component of the dietary habits of households throughout the country. Given its integral role in diets across different income groups and its importance as an ingredient in many Indian recipes, any significant price change can have wide-ranging effects [1]. Its significance extends beyond domestic consumption, as it contributes to foreign exchange earnings through increased exports driven by higher production and international demand [2]. The market sensitivity of onions is noteworthy, as it has the potential to create waves in both the trading sector and the political landscape. On certain occasions, the prices of onion exhibit significant fluctuations in domestic markets. This volatility stems from the fact that the demand for onions is relatively inelastic, meaning that even a slight change in its supply can result in substantial price instability within the domestic market. Onions play a significant role in overall inflation, accounting for 0.6% of its weight, and contribute approximately 10% to the overall inflation variation in the vegetable basket. Therefore, any fluctuations in onion prices are of great concern to politicians, policymakers, and experts [1].

In India, the production of onion is primarily concentrated in Maharashtra, which contributes approximately 39% of the total onion production (APEDA, 2022)**.** Consequently, any supply shock experienced in these major onion-producing markets, whether due to excessive rainfall or drought, swiftly reverberates throughout therest of the country's markets [3]**.**Onion stands out as a highly

responsive commodity that has far-reaching implications in both trade and the political sphere. It is the impoverished and lower-middle-class segments of society, along with the middle class, that bears the brunt of price increases. Conversely, during price hikes, farmers may benefit, but their share of the consumer's expenditure remains minimal due to the extensive involvement of intermediaries along the supply chain [4].The onset of the price surge can be traced back to 1998 when there was a significant increase in onion prices due to drought-induced low production in major onion-producing states. Concurrently, there was a heightened demand for Indian onion in the international market. In response to these circumstances, the Government of India implemented a Minimum Export Price (MEP) policy to encourage and regulate onion exports [5].

In India onion is cultivatedin three seasons, viz.Kharif, late Kharif, and Rabi season. Nationally, around 50 – 60% of onion is produced during the Rabi season, while the remaining 40 – 50% isproduced in Kharif and late Kharif seasons. Maharashtra, the largest onion-producing state in India, contributes significantly to Rabi onion production. Rabi onions start arriving in the market from April and have a longer shelf life of 4 to 5 months compared to Kharif onions. They can be consumed until September when Kharif onions start arriving from Karnataka and Andhra Pradesh [6]. To address the scarcity of onions during the off-season, various alternative methods for onion production using sets have been devised. However, the adoption of these technologies by farmers has been limited due to suboptimal yield and challenges associated with the production and storage of standardized sets [7]. The seasonality of production of onion has major impact on its market arrivals and prices. Hence, to examination of the seasonality of arrivals and prices becomes imperative. The extent of seasonality in onion prices is influenced by various factors, including the perishability of the commodity, seasonal consumption pattern, concentration of production during specific seasons, available storage infrastructure and costs, as well as any storage restrictions in place [8]. Therefore, it is crucial for organizations to identify and measure seasonal variations within their market in order to effectively plan and anticipate price fluctuations. To design a policy intervention that guarantees competitive prices for farmers, it is crucial to gain a comprehensive understanding of how price impacts the marketing of the crop [9].

An understanding of the fluctuations in onion arrivals and prices over time will enable the producers and those who deal in onion to effectively allocate resources and engage in profitable business practices. Therefore, present study aims at examining the behaviour of arrivals and prices of onion in selected markets of India.

2. METHODOLOGY

Present study is based on monthly data gathered from six most important onion markets on arrivals (in quintals) and wholesale prices (in Rupees per quintal) and the selected markets were classification into producing markets and consuming markets. From the highest producing states four markets viz. Lasalgaon from Maharashtra, Bangalore from Karnataka, Indore from Madhya Pradesh, and Ahmedabad from Gujarat were selected. On the other hand, Mumbai and Azadpur(Delhi) markets were chosen as representative consuming markets. Necessary data on monthly arrivals and prices for the period of 15 years from January 2008 to December 2022 was collected from website ofAgmarknet, Directorate of Marketing and Inspection, Government of India.

Analytical Framework

To accomplish the goal of the study, a set of statistical techniques was employed as follows;

2.1 Linear Trend

The linear trends of market arrivals and prices of the onion in selected market were examined through the linear trend equation in the form of linear regression as under;

$Y = \alpha + \beta t$

Where,

Y = Market arrival (Quintal) / Prices (Rs./quintal)

α = Intercept coefficient

β = Regression coefficient

t = time variable

2.2 Seasonal Indices

The seasonality in the market arrivals and priceswas examined using multiplicative model of the following type;

$Y_t = T_t \times S_t \times C_t \times I_t$

Where,

Y_t =Market arrival (Quintal) / Prices (Rs./quintal) at time t

T_t= Trend value at time t

S_t= Seasonal fluctuations at time t

C_t= Cyclic fluctuations at time t

I_t= Irregular fluctuations at time t

The ratio to trend method was employed for the construction of the seasonal indices of market arrivals and prices.

2.3 Average Seasonal Price Variation (ASPV)

The average seasonal price variation was computed using the following formula.

$$ASPV = \frac{HSPI - LSPI}{HSPI + LSPI} \times 100$$

Where,

HSPI= Highest seasonal price Indices ,LSPI= Lowest seasonal price Indices

2.4 Inter-Year Variation

The variation in prices and arrivals can occur within same year or between the years. Therefore, to examine the variation between the years inter year variation was calculated using coefficient of variation(CV) in following way;

$$CV = \frac{\text{Stanard Deviation}}{\text{Mean}} \times 100$$

2.5 Intra-Year Price Variation

Extent of intra-year price variation was examined by estimating intra year price rise as follows;

$$IPR = \frac{HSPI - LSPI}{LSPI} \times 100$$

3. RESULTS AND DISCUSSION

Comment [L3]: Kindly broaden the discussion, linking findings and similar previous research, deficiencies, and advantages.

Theresults of study have beendiscussed undertrend analysis, seasonal variation and intraand interyear variationsin arrivals and pricesin major onion markets of India.

3.1Descriptive analysis of onion prices

The analysis of onion prices in selected markets of India, as depicted in Figure 1, indicates significant fluctuations over time, suggesting volatility in the market. This observation also suggests that the selected markets exhibit a high degree of integration, as the price movements are relatively similar across all markets during the study period. Table 1 presents the descriptive statistics, revealing that the average monthly price of potatoes is highest in Mumbai at Rs. 1540/quintal, while the lowest average price is observed in the Indore market at Rs. 1095/quintal. Among the maximum prices recorded for each market, the highest value is found in the Bangalore market, while the lowest minimum price is observed in the Ahmedabad market. The coefficient of variation, as reported in Table 1, indicates a substantial level of variation in monthly prices within each selected market. Indore market exhibits the highest variation among the producer markets, while Mumbai market demonstrates the highest variability among the consumer markets in terms of monthly price fluctuations. Magnitude of skewness indicates that there is an asymmetry in all the market price series.

Table1: Descriptive analysis of onion prices in selected markets of India

Market	Mean (Rs/quintal)	Median (Rs/quintal)	Minimum (Rs/quintal)	Maximum (Rs/quintal)	Standard deviation	CV (%)	Skewness	Kurtosis
Lasalgaon	1405	1048	262	6263	975	69.46	1.85	4.32
Bangalore	1407	1088	339	8488	997	70.86	2.89	1.40
Indore	1095	837	330	3950	781	71.32	2.22	2.22
Ahmedabad	1251	1027	282	4501	789	63.07	1.61	2.73
Mumbai	1540	1181	406	7583	1120	73.73	2.07	5.60
Azadpur	1338	1089	722	6941	894	68.82	1.07	9.70

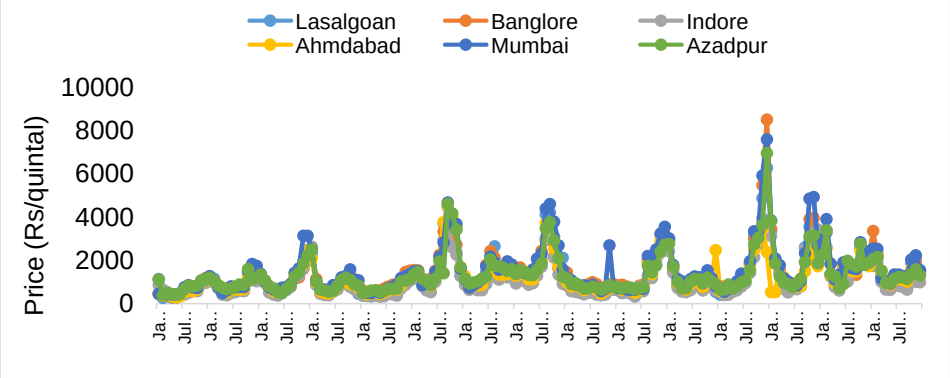

Fig1: Monthly prices series of selected onion markets from Jan 2008 to Dec 2022.

3.2 Trend Analysis

The term "trend" refers to the change observed in the variable of interest over a specific time period. In order to assess the overall pattern of market arrivals and wholesale prices of onion over

the specified time frame in the chosen markets the linear trend model was used to examining the arrivals and wholesale prices of onion.

3.2.1 Trends in market arrivals and prices of onion

Table 2presents the results of trend analysis of onion arrivals and prices in major markets of India. A look on the tableindicates that most of the markets experienced a significant increase in onion arrivals, except in the Azadpur market (Delhi), which exhibited a notable negative trend. The Indore market witnessed the highest increase in arrivals with a magnitude of 2833 quintals per annum, followed by Bangalore, Lasalgaon, Ahmedabad, and Mumbai markets with the magnitudes of 1255.26, 926.56, 340.92, and 191.98 quintals per annum, respectively. In contrast, the Azadpurmarket experienced a decline in onion arrivals with a magnitude of 432.59 quintals per year. The findings of the study are in conformity with findings of the study conducted by [10], in which a negative shift in arrivals of onion in Delhi market was observed afterdelisting it from APMC act. The negative trend in onion arrivals in Azadpur market can also beattributed to emergence of other market centres in the National Capital Region (NCR). Further, among the producing markets Indore market emerged as the market with highest change in arrivals per annum.

Table 2: Trends in arrivals and prices of onion in major markets of India from 2008 – 2022

		Arrivals		Prices	
Sr. No	Market	Intercept	Coefficient	Intercept	Coefficient
1	Lasalgaon	16925.24	926.56***	733.37	76.10**
2	Bangalore	47902.22	1255.26 ^{ns}	781.11	77.52***
3	Indore	2167.72	2833***	678.84	51.94**
4	Ahmedabad	10924.09	340.92 ^{ns}	861.44	48.77*
5	Mumbai	22341.51	191.98^{ns}	887.45	81.10**
6	Azadpur	27056.75	-432.59***	879.83	59.06***

***, **, * denotes significance at 1, 5 and 10 per cent respectively.ns indicates non-significance

The table 1also presents the trends in prices in major onion markets of India from 2008 to 2022. It can be seen that a significant rise in onion prices was witnessed in all the selected markets of India over the study period. Amongst selected markets, Mumbai market demonstrated the highest increase in prices over the study period with a magnitude of Rs.81.1 per quintal per annumfollowed by Bangalore (Rs.77.52/q), Lasalgaon (Rs.76.10/q), Azadpur(Rs.59/q), Indore (Rs.51.94/q), and Ahmedabad (Rs.48.77/q). A substantial increase in priceson per annum basis in the Mumbai market could potentially be attributed to higher demand in the market due to larger consuming population.During the observed period, a notable increase in onion pricesin Ahmedabadmarket was observed among the producing markets, while Mumbai emerged as the consuming market that experienced the higher increasein prices.

3.3 Seasonality Analysis

Seasonal variation refers to the recurring changes in business activity that follows a predictable pattern each year [11]. It is a well-established fact that seasonal variations exist in the arrivals and prices of onion.

3.3.1Seasonal indices of arrivals

Sesonality in onion arrivals of selected markets of India over the period 15 years from 2008 to 2022 is reported in table 3.In the realm of production markets, the most notable indices of arrivals were recorded in case of Bangalore market during the month of October, boasting an impressive index of 188.60. Following closely behind were the Indore market in November with anindex of 182.69 and the Lasalgaon market in January with an index of 163.84. Notably, the arrivals in the Lasalgaon market reached at its highest in January, while it reached at its lowest in October, with index values of 163.84 and 39.32, respectively.Particularly in Maharashtra, onion is grown in three seasons as rabi, kharif and late kharif crops. Rabi crop comes inthe market inthe months of April to July;therefore,the seasonal index of arrivals for Lasalgaon market was in higher during these months.

Table 3: Seasonal indices of onion arrivals in major markets of India (Per cent)

Month	Lasalgaon	Bangalore	Indore	Ahmedabad	Azadpur	Mumbai
January	**163.84**	135.47	105.96	112.88	**86.44**	**114.40**
February	134.93	81.39	65.19	112.57	88.77	100.28
March	85.92	82.30	**62.21**	**118.37**	99.99	109.80
April	77.78	75.45	71.56	113.84	100.89	98.61
May	128.78	71.79	88.49	110.83	103.59	95.19
June	122.33	69.07	113.74	100.75	108.98	95.09
July	109.21	**66.07**	103.22	96.39	97.68	86.17
August	96.63	77.63	81.93	**79.60**	94.01	**85.87**
September	71.40	111.60	83.00	82.64	96.53	113.45
October	58.20	**188.60**	96.20	93.54	93.18	88.66
November	**39.32**	137.68	**182.69**	94.52	**114.59**	103.84
December	112.05	102.96	145.80	84.08	115.35	108.63

In a broader context, it can be deduced that the highest arrivals were observed in the Lasalgaon, Azadpur, Indore, Mumbai, and Bangalore markets, specifically during the period from October to January. Regarding consuming markets, it can be observed that the seasonal pattern of arrivals in the Mumbai market closely resembles with that of the Lasalgaon market with slightly higher arrivals occurring from December to May. Conversely, in the Azadpur market, the highest seasonal index of arrivals aligns with the winter festive season in November, as well as the months from March to June. This trend is relatively consistent with the arrival pattern observed in the case of Indore market. The seasonal indices indicate that Ahmedabad market received higher market arrivals from January to June, whereas lower arrivals during July to December.

3.3.2 Seasonal indices of onion prices

The season indices of wholesale prices of onionindicate the presence of noteworthy seasonal pattern of prices in all the selected markets (table 4). The price indices in theselected markets were observed to be at their lowest levels during the months of March to June, which are aligned with the harvest season of Rabi onion. Indices again indicate that prices began to rise from August to September and reached their highest levels during December and January, coinciding with the winter festive months in the country.In particular markets, Ahmedabad and Mumbai exhibited the highest prices in November, with seasonal indices of 140.76 per cent and 141.89 per cent, respectively, while the lowest prices in both the markets were recorded in the month of May, with the indices of 57.36 per cent and 62.59 per cent, respectively, followed byAzadpur(58.65 per cent) and Indore (52.26 per

cent). Further, Lasalgaon and Azadpurmarkets (both consuming markets) witnessed their highest prices in the month of October with the indices of 146.49 per cent and 139.49 per cent, respectively, while the lowest index of price in the Lasalgaon market was observed in April (53.21 per cent). In case of Bangalore market, the highest prices were observed in December (142.94 per cent) and the lowest in April (57.28 per cent). An intriguing observation arises from the fact that a consistent pattern of seasonality indices was not observed, wherein the occurrence of a harvesting season is invariably followed by a lean season. This is because of difference insowing and harvesting seasons across thecountry. This phenomenon could potentially be attributed to the inadequate storage practices too.

Table 4: Seasonal indices of onion prices in major markets of India (Per cent)

Month	Lasalgaon	Banglore	Indore	Ahmedabad	Mumbai	Azadpur
January	122.26	122.38	146.14	107.03	133.11	118.32
February	89.52	94.78	106.64	89.86	101.75	93.00
March	62.46	68.80	74.44	74.69	72.02	75.77
April	**53.21**	**57.28**	56.52	60.57	63.18	64.00
May	54.94	60.50	52.26	**57.36**	**62.59**	**58.65**
June	73.51	79.32	71.85	73.26	75.65	68.27
July	84.03	92.84	83.39	87.62	84.30	85.60
August	113.41	109.08	99.32	115.89	102.22	110.66
September	124.59	109.71	112.49	123.29	105.28	124.75
October	**146.49**	123.99	127.80	137.92	129.59	139.49
November	145.85	138.38	136.30	**140.76**	**141.89**	**136.47**
December	129.73	**142.94**	132.85	131.76	128.41	125.02

It can be interpreted that the highest prices were recorded between October and December (lean season), while the lowest prices were observed between April and May (peak season). Interestingly, this pattern does not align with the commonly observed inverse relationship between market arrivals and prices in most agricultural commodities. This suggests that onion prices are significantly influenced by various factors such as EXIM (export-import) policies, speculative activities, demand scenarios, and more.

3.4 Inter–yearvariation and Intra-year price varation

The variations, both inter-years as well as intra-year in agricultural prices, in general and vegetable prices, in particular, over time are common phenomenon. The coefficients of variation onion arrivals given in Table 5 indicate a significant degree of inter –year variation in arrivals in all the selected markets. The table reveals that producing markets exhibited higher level of fluctuations in arrivals compared to consuming markets. Notably, Indore and Lasalgaon markets experienced wide variations in arrivals exceeding 50% in 9 and 8 instances out of 15, respectively. Conversely, consuming markets viz. Azadpur and Mumbai experienceda nominal variation in onion arrivals from 2008 to 2022. These findings suggest a consistentand stable supply of onions in Azadpur and Mumbai markets, whereas the producing markets exhibited more pronounced volatility in onion arrivals. Table 5 illustrates the inter-year fluctuations in onion prices within selected markets. The Lasalgaon and Indore markets experienced a wide price fluctuation exceeded 50% during 8 years out of 15 years analysed. Similarly, Mumbai, Azadpur and Bengaluru markets witnessed a price variation exceeded 50% during 5 years, while the Ahmedabad market showed such variation only during 4

years. Moreover, in the year 2019 the price variation reached to its peak across all markets, ranging from the lowest at 61.81% in case of Bangalore to the highest at 97.37% in the Azadpur market. The findings of the study are aligned with that of study conducted by [12].

Table 5 presents intra-year price rise (IPR) and average seasonal price variation (ASPV) for onions in selected markets of India. A perusal of the table indicates that the lowest intra- year price rise was observed in Mumbai, stood at 55.89%, while the highest was recorded in case of Indore market with a magnitude of 64.24%. The intra-year price rise across all markets ranged from 55% to 65%. Furthermore, the values of average seasonal price variation (ASPV) varied between 77.56% in case of Mumbai market and 93.42% in case of Lasalgaon market.

Table 5: Intra-year price variation and average seasonal price variation of onion prices

Market	LSI	HIS	IPR	ASPV
Lasalgaon	53.21	146.49	63.68	93.42
Ahmedabad	57.36	140.76	59.25	84.20
Azadpur	58.65	136.47	57.03	79.77
Indore	52.26	146.14	64.24	94.64
Mumbai	62.59	141.89	55.89	77.56
Bangalore	57.28	142.94	59.93	85.57

Note: LSI = Low Seasonal Indices, HIS = High seasonal Indices, IPR = Intra Year Price Rise, ASPV = Average Seasonal Price Variation

The findings indicate that the magnitude of price fluctuations within the producing markets was greater than that observed within the consuming markets, both in terms of intra-year and average seasonal prices variation.

Table 6: Inter-year variability in onion arrivals in selected markets of India, (2008 to 2022)

Year	Lasalgaon		Bangalore		Indore		Ahmedabad		Azadpur		Mumbai	
	Mean (Qunital)	CV (%)	Mean (Qunital)	CV (%)	Mean (Qunital)	CV (%)	Mean (Qunital)	CV (%)	Mean (Qunital)	CV (%)	Mean (Qunital)	CV (%)
2008	20561.07	58.27	29550.58	43.18	8887.84	51.07	9529.20	20.51	23466.58	17.74	21729.58	10.94
2009	24362.96	29.67	30948.58	92.11	11053.90	82.11	11629.80	17.26	26812.57	21.55	24336.83	9.70
2010	17427.54	41.37	42686.25	41.15	13927.45	55.84	11534.25	15.12	25308.98	18.26	23309.84	8.47
2011	15269.97	31.64	52699.50	46.01	19670.56	78.12	12082.23	12.54	26173.33	22.68	17975.00	43.23
2012	26994.07	32.30	53474.08	35.71	19336.65	44.98	13149.88	11.22	27737.84	10.32	21270.58	6.42
2013	20384.58	65.46	63702.33	61.70	16212.32	40.78	12556.25	29.76	23879.99	20.66	24725.81	90.43
2014	22203.52	53.03	75056.25	40.61	17246.36	37.89	13460.18	15.19	23391.41	14.90	21837.82	15.65
2015	20544.83	71.16	115310.00	116.69	17600.49	79.84	13645.23	21.51	24136.78	18.27	24726.33	15.63
2016	19616.00	65.78	76161.92	64.18	20212.62	20.19	16754.17	11.09	24401.13	6.09	23804.75	24.41
2017	33272.92	52.18	52697.58	33.95	20121.30	36.27	16724.44	15.37	24040.71	10.95	31987.75	9.78
2018	23874.00	47.57	66001.00	37.06	38589.11	58.71	17554.63	9.36	23099.33	12.78	32168.00	9.18
2019	26788.58	53.16	57920.00	37.69	33658.58	94.88	15968.99	16.76	22608.85	9.93	30370.42	17.08
2020	23573.08	67.17	50396.92	12.21	23461.43	67.25	8772.33	39.59	17736.58	24.77	13887.17	50.70
2021	32439.50	27.88	50009.42	30.37	37823.48	73.35	14677.61	37.52	19304.25	15.89	21984.42	12.64
2022	37753.50	31.00	52549.92	16.66	74668.03	44.84	16813.68	8.73	21842.14	17.42	24046.58	17.67

CV- Coefficient of variation

Table 7: Inter-year variability in the prices of onion in selected markets, (2008 to2022)

Year	Lasalgaon		Bangalore		Indore		Ahmedabad		Azadpur		Mumbai	
	Mean (Rs./q)	CV (%)	Mean (Rs./q)	CV (%)	Mean (Rs./q)	CV (%)	Mean (Rs./q)	CV (%)	Mean (Rs./q)	CV (%)	Mean (Rs./q)	CV (%)
2008	580.42	52.48	559.08	47.44	630.58	29.02	647.83	38.38	589.50	38.03	716.58	38.01
2009	892.58	40.75	888.83	33.47	771.50	38.57	1024.25	42.41	906.33	32.05	968.42	26.68
2010	1070.67	47.40	1130.17	48.90	958.08	51.95	1339.67	63.89	1030.25	52.02	1100.08	47.21
2011	873.92	54.64	883.25	47.06	814.75	71.19	1113.25	44.96	1039.25	47.01	987.5	50.52
2012	581.25	47.60	691.42	40.52	506.25	45.28	730.25	36.31	830.33	39.27	722.33	29.63
2013	2159.00	59.94	2228.50	57.14	1645.58	58.04	2307.17	57.43	2025.17	43.01	2175.67	57.57
2014	1250.25	27.20	1231.33	24.10	999.33	28.45	1439.33	31.12	1390.25	38.44	1395.75	24.72
2015	2065.83	52.74	1912.00	46.84	1564.00	51.97	2378.42	49.21	1950.83	29.92	1980.92	42.61
2016	763.25	20.69	719.42	17.70	539.42	24.18	831.42	19.81	899.17	21.44	784.67	21.45
2017	1289.58	72.27	1310.08	68.08	1105.08	67.87	1495.92	70.25	1478.42	61.24	1258.5	55.8
2018	1104.83	53.00	1280.25	53.53	940.33	54.53	1321.75	43.24	1164.50	51.60	1175.33	45.91
2019	2107.42	87.08	1553.58	61.81	1532.92	82.12	2381.00	91.52	2344.75	97.37	1879.92	84.39
2020	2035.75	61.38	1251.67	47.14	1732.08	59.97	2281.25	63.08	1934.33	52.91	1831.17	53.13
2021	1880.58	34.52	1747.75	26.46	1643.75	39.90	2143.08	35.52	1939.92	33.60	1927.58	24.93
2022	1476.83	31.29	1387.17	31.54	1031.25	37.98	1596.92	34.85	1495.58	43.89	1379.75	26.81

CV- Coefficient of variation

CONCLUSION

All the selected markets experienced a significant increase in both arrivals and prices over the study period, except Azadpurmarket, which showed a negative trend in arrivals. Further, among producing markets, the Bangalore market recorded a notable increase in prices, while among the consuming markets the Mumbai market experienced the higher price rise. A clear cut seasonal pattern of prices was observed with an upswing between the months of August and January and a down swing between February and July in both producing and consuming markets. Interestingly, no definite inverse relationship could be established between onion arrivals and prices in any of the markets. Non-existence of inverse relationship between arrivals and prices is attributed to multiple harvesting seasons in diverse producing areas.A high degree of inter-year variation in onion arrivals and prices was exhibited in producing markets as compared to consuming markets. The intra-year price variation and average seasonal price variations also confirmed the phenomenon. The overall pattern is a reflection of inefficient marketing practices, which hamper the interest of both producers and consumer. In view of the welfare of consumers and producers measures to discourage activities causing inefficiency in the marketing system coupled with provision of better infrastructural facilities is need of hour. The fluctuations in market arrivals and prices may be better addressed by promoting the formation of farmer cooperatives or associations to strengthen the collective bargaining capacity of small-scale producers and improve their market accessibility.

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