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Price Flexibility and Seasonal Variations of Major Vegetables in Sindh Pakistan

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Abstract

Vegetable cultivation is the most important strategy to reduce poverty as well as to overcome food security problems due to small landholdings and sufficient labour force availability in the rural areas of Pakistan. The results showed that the demand was almost elastic for potato, tomato and onions while there was flexible price trend appeared in the production. Prices on agricultural products are mostly determined by supply and demand. The results of the study showed that erratic price fluctuations both cyclical and seasonal are observed every year. The effect of over-all economic fluctuations are overlaid on a pattern of good and bad harvests, so that an analysis of the effect of a fall in demand on price and output must take account of variations in crop size due to solely the weather. Price fluctuation of these four vegetables is its seasonal character. In the post-harvest period the prices are considerably at lower side whereas in the lean season these are quite high. Thus, from the farmers' point of view they are denied of reasonable prices for their produce during post-harvest period on the consumer's side they are to pay high prices during lean season. Hence, while making a policy towards prices of the vegetables Government should increase the supply in the market by import that commodity from other markets or neighboring countries in non-harvesting seasons as well as the area and production may also increase by using new technology, high yielding seed varieties.

Keywords: Vegetable; Prices; Flexibility; Seasonal variations; Commodity; Sindh

Introduction

In Pakistan, more than 63 varieties of vegetables distributed in 44 genera, are grown on large scale and consumed as summer and winter vegetables comprising mainly potatoes, gourds, tomatoes, cucumbers, ladyfingers, turnips, cabbages, brinjal, cauliflowers etc. These vegetables are popular for their freshness, taste and nutritive value. Mostly, vegetable cultivation is concerted around the populous cities due to no difficulty of input and output market and accessibility of unskilled labour force for performing various farm practices, such as weeding, hoeing etc. Pakistan includes of five provinces namely Sindh, Punjab, Baluchistan, Khyber Pakhtunkhwa and Gilgit-Baltistan. Out of five provinces, Punjab province is not only the most densely inhabited but it has also the productive lands appropriate for cultivation of big varieties of fruits, crops and vegetables. It has a geographical area of 79.61 million acres and takes up 30.96 million acres of cultivated area. It has a total cropped area of 57.34 million acres, making 71.53 percent of the total cropped area of Pakistan. As far as vegetable cultivation is fretful, area under vegetable cultivation is 252000 hectares [1].

After growing at a steady rate in the last decade, Pakistan's vegetable exports have suffered volumetric year-on-year decrease of 40.4% in 2011-12. The drop in vegetable exports is a consequence of natural disasters, unfair profiteering by middlemen and a change in supply and demand dynamics in the foreign markets. The significant drop in vegetable exports is mainly because the onion crop was destroyed by floods. Pakistan fetched $180.2 million by exporting edible vegetables in fiscal 2011-12. Their exports increased at 39% annually between 2007 and 2011, as per the World Trade Organization (WTO). Notably, the rise in the country's vegetable exports between 2010 and 2011 alone was a staggering 122%. Export of vegetables from Pakistan. Vegetables offer good value in terms of nutrients and therefore, less developed countries, especially South Asian States have vegetable dietary habits. Hence these poor countries grow and consume much more vegetables for their main food requirements. Pakistan has greater opportunities, being a centre for vegetable production and can export fresh and canned vegetables in most of the Asian countries to earn foreign exchange. At present, mostly the growers depends on imported seeds, but it is true that many jobs farm of labourers, could be created by growing vegetables for seed production, seed trade and export business may also increase, which reduce annual import costs on vegetable seeds. Farmers prefer to grow vegetables due to short plantation duration and it is considered as the low delta crop. The vegetables can play great role in boosting the economy of the country, due to the fact that this sector has not been explored to earn more income through exports to other countries.

Pakistan has a potential to export these products with trade liberalization under the system of World Trade Organization. Production of vegetables is beneficial; nonetheless, it labor demanding. Thus, it provides income support especially to small farmers and employment opportunity for landless laborers in rural areas. Production functions of onion, tomato and chilies are quite complex since different inputs with different combinations are used. The differences across farms in use of various factors of production and various combinations of factors of production cause changes in crop yields. The input use level and combinations are different across farms and regions resulting in different yields. Furthermore, there is a wide gap in yields of experimental stations and farmer fields indicating the suboptimal use of inputs. Vegetables produced in different zones by

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using different production technologies during different seasons are traded across regional markets of Pakistan in order to meet consumer demand across the country. Eighty percent of vegetable production in Pakistan is marketable [2-7] (Table 1).

In agriculture the demand for any crop does not play important role in determining the price. The demand for any crop remains inelastic while supply is highly elastic. That is why high variations in the supply of the Cropwell create variability in its price. The price flexibility analysis reveals that the relation of price ad production of gram and mung was positive it may be because these are that major pulses of their respective season also having the high demand. While of masoor and mash it was negative. The supply (Production) of gram increases its current year's price was also increases [6,8-13]. A 10 percent increase in the production of gram increase the price of gram the 9.8 percent in the same production season. Hence price response elasticity in case of gram was elastic closed to unitary elastic. In case of own price elasticity of masoor is highly elastic. A 10 percent increase in the in the production of masoor decrease will cause a decline of 17.7 percent in its price. In case of mung the own price elasticity is highly elastic because due to 10 percent increase in the production in mung that will bring increase in its price by 12.4 percent. Price response elasticity in case of mash is inelastic [3] (Table 2).

Objectives

I. To estimate the price flexibility of different vegetables.

II. To observe the part of various factors towards the price flexibility at different productivity levels.

III. To determine the simple average approach seasonality of different vegetables.

IV. To suggest some policy measures based on the results of the study.

Methodology

Primary purpose of this chapter is to explain various tools and techniques in the selection of sample, collection, analysis and interpretation of data relating to research. Intend of this study was to investigate the existing price flexibility and seasonal variations in prices of vegetables in District Hyderabad Sindh [14-19]. Planned strategy was used to study the area, type and number of respondents without which it would be an ineffective effort. Therefore, it is essential to define variables included in the research to make it more scientific and objective.

Selection of the research study

To measure the price flexibility and the seasonal variation in prices of vegetables, the analysis covers major city of Hyderabad Sindh [20-22]. The area was selected due to their major contribution in the economy of Sindh. Hyderabad city has a larger contribution in the production of Onion, Potato and Tomato has the biggest markets in the Sindh province.

Data collection

For this study, secondary data of monthly prices and quantity data was collected from market of onion, tomato and potato of last two years (2012 and 2013). Data were collected from various sources including, vegetable market committee Hyderabad, Government of Sindh and vegetable wholesale market Hyderabad Sindh [21, 23].

Theoretical framework

This section is devoted to the theoretical description of the different price flexibility approaches and seasonality methods with special reference.

Particulars	Onion		Tomato		Potato	
	Area	Production	Area	Production	Area	Production
	Hectares	Tonnes	Hectares	Tonnes	Hectares	Tonnes
Pakistan	147.6	1939.6	52.3	529.6	159.4	3491.7
Sindh	63.2	861.5	14.6	114.8	0.4	3.9
Punjab	44.7	367.9	6.7	87.8	148.1	3339.9
KPK	11.0	181.3	12.6	113.2	8.9	118.2
Baluchistan	28.7	328.9	18.4	213.8	2.0	29.7

Source: Fruit, vegetable and condiments statistics Government of Pakistan for the year 2013

Table 1: Area and production of different vegetables in Pakistan.

Months	Unit	Year 2012			Year 2013		
		Potato	Onion	Tomato	Potato	Onion	Tomato
January	100Kg	1054.00	2939.00	4902.00	2100.00	1700.00	5700.00
February	100Kg	1066.00	1955.00	2625.00	1900.00	2400.00	5100.00
March	100Kg	1098.00	1194.00	2515.00	1800.00	4100.00	4700.00
April	100Kg	1450.00	1094.00	1912.00	1900.00	4800.00	4000.00
May	100Kg	2700.00	1012.00	788.00	1900.00	4500.00	5000.00
June	100Kg	2325.00	877.00	1643.00	2000.50	3600.00	7200.00
July	100Kg	2734.00	1373.00	1643.00	2500.00	3800.00	7700.00
August	100Kg	2996.00	1905.00	3033.00	2100.00	5500.00	7500.00
September	100Kg	2670.00	2435.00	3856.00	2400.00	4800.00	6600.00
October	100Kg	2677.00	3495.00	5585.00	3500.00	4600.00	5900.00
November	100Kg	2370.00	3871.00	5247.00	5700.00	5000.00	5500.00
December	100Kg	1128.00	2687.00	4159.00	3700.00	3700.00	3300.00

Source: Secondary data on price for Hyderabad Wholesale Market

Table 2: Average monthly wholesale prices of different vegetables prices in Rs. Per 100 Kg in Hyderabad 2012-13.

Price flexibility

Although the relationships among estimated demand and supply coefficients have been examined at length, the link between the direct price flexibility and elasticity of demand has not been discussed explicitly in the literature although often mentioned in passing; this particular relationship remains a source of confusion. In order to clarify it, only a little matrix algebra and some economic theory are needed. It is shown here that, under rather general conditions, the reciprocal of the direct price flexibility (often estimated in econometric work) is the lower absolute limit of the corresponding direct price elasticity [24,25]. Price elasticity of demand is concerned with the responsiveness of consumers in the quantities they will produce in response to a price change. But the price forecaster is frequently concerned with the volatility that might be expected in prices as result of a change in the quantity of product made available for sale. Since elasticity measures the quantity response to a price change, the inverse of elasticity would measure the responsiveness of price to a quantity change. Price flexibility is the term used to describe the inverse of the elasticity relationship (Table 3).

$$\textit{Price flexibility (PF)} = 1/\ \frac{\%\,\text{change in Q}}{\%\,\text{change in P}} = \frac{1}{\text{E}}$$

Seasonal Variations

Crop prices tend to follow a general season pattern, which is a function of relative changes in supply and demand as the marketing year progresses. Generally, crop prices set their seasonal low at harvest followed by a post-harvest rally. Postharvest rallies occur because the supply of the crop is fixed and consumption gradually uses up that supply, causing prices to rise. Seasonality is a phenomenon that occurs over one production cycle for crops this is generally twelve months. Seasonal forces are different from cyclical or trend forces. A seasonal is one special type of cycle [10,16]. A cycle is a continuous and self-sustaining price pattern which can occur over any length of time. Although there is some evidence of cycles influencing livestock markets, there is little evidence other than of a "technical analysis" nature of other cycles affecting crops. Major market shocks (droughts, embargoes, dramatic policy events, etc.,) can cause crop prices to behave in a "contra-seasonal" manner. Consequently, some analysts separate out years that had a special "condition" and build seasonal that consist only of those years.

The simple average approach

To calculate a seasonal price indexed based on a simple average calculation; we would simply array the prices by months for each of the crop years, calculating a two year average price for each month and for the entire period. Thus using the two year annual average price as a base, we could construct our index by dividing each two year average monthly price by the overall two year average [3,7]. The resulting index would be interpreted as the expected monthly percentage deviation that might be expected from the average price. Thus, an index value of any for January would suggest that we would normally expect January prices in any vegetable year to be 3 percent higher than the season average price.

In order to glean some estimate how dependable our seasonal index might be, we could construct a range or "zone" of seasonal instability. This range of instability is calculated in the case of the simple average index by dividing the price for each month of a marketing year by the annual average price for that year, and then selecting the high and low values for each month as the limits of the range of seasonal instability.

The simple average approach to measuring price seasonality can be modified to at least partially compensate for the limitations observed simply by calculating the real price for any given month during a crop year as a percentage of the season average price for the year. Once the individual monthly percentages have been calculated, the simple average percentage for each month can be calculated as an index of price seasonality.

Results

The production of any agricultural crop/vegetable is subject to the congenial soil structure, climatic conditions, social organization, availability of resources and favorable marketing condition both in factor and product markets. The general objective of the study was to identify the price flexibility with the changes in the prices of potato, onion, tomato and how seasonal can be used to identify the timing of a market's major turning points and to predict the magnitude of price changes at the sample farms in District Hyderabad Sindh.

Price flexibility of potato

Table 3 shows the price elasticity and price flexibility coefficient for potato. In the month of February if there is 4 percent increase in the quantity made available would be associated with a 9.5 percent reduction in price. There is a lot of variation in the prices of potato

Months	Monthly Average Price (Rs.per 100 KG)	Monthly Average Supplied Quantity (Tones)	Price Elasticity	Price Flexibility Coefficient
Jan.	950	4588	-	-
Feb.	917	4710	-0.76	-1.30
Mar.	1000	3964	-1.74	-0.57
Apr.	983	4025	-0.90	-1.10
May	1700	3740	-0.097	-10.30
Jun	2142	3250	-0.50	-1.98
July	2567	3020	-0.35	-2.80
Aug	3917	2775	-0.15	-6.48
Sept	2725	2930	-0.18	-5.44
Oct	2458	3095	-0.57	-1.73
Nov	2483	3155	1.9	0.52
Dec	1283	3445	-0.19	-5.24

Source: Secondary data on price for Hyderabad market

Table 3: Price elasticity and price flexibility coefficient for potato in Hyderabad 2012.

due to larger fluctuation in the prices. Price flexibility coefficient is at his higher level at -10.30 where there is a big difference in the prices of April and May. In the month of May there is highest price flexibility with a value of 10.30. There is only one point when the prices of potato are inflexible in the month of November

Figure 1 explains that in the second month of 2013 there is some price flexibility in the prices of onion again the same results related to the last year but in the early month of year 2013 the price flexibility shows less variation. After the month of February the variation is higher. According to the results the price flexibility in the month of May is -9.7 which is the highest value in the whole year but then suddenly in the month of June the value of price flexibility is much less.

Price flexibility of onion

Table 4 shows the price elasticity and price flexibility coefficient for onion. In the early month of the prices of onion are not much higher but as time passes the prices go higher because of the non-harvesting time of the onion. The export to different countries brings significant impact on prices in local market. The augmented supplies tend to keep prices in the domestic market low thereby offering an opportunity for export. Therefore, onion exports are mainly undertaken during this period, predominantly from Sindh crop.

Figure 2 explains that in the second month of 2013 there is some price flexibility in the prices of onion. The highest variation is seen in the price of onion is between the month of October and November which is Rs.3292/100 Kg to Rs.5883/100 Kg because of the non-harvesting season of the onion. The value of price flexibility coefficient is higher during this time period with a value of -3.01 which means that if 1 percent change in the quantity supplied is available may cause 3.01 percent change or reduction in the price. The value of coefficient is lower in the month of June which is the peak time of harvesting. Only in the month of December the value of coefficient is positive which means the prices are inflexible in that month.

Price flexibility of tomato

Table 5 shows the price elasticity and price flexibility coefficient for Tomato. In growing season of tomatoes the prices are less but as the season passed the prices are going higher and higher gradually. From January to May the prices are slowly increases but in the month of June the prices increased rapidly but in the whole year highest average price of tomato are seen in the month of August. So as the price is higher in August the quantity supplied in the market of tomato is less in the whole year. It is observed that prices are lowest during May when Tomato is supplied from Punjab and highest during August and September when it is supplied from N.W.F.P.

The prices tend to normal when supply starts from Sindh. Figure 3 explains that in the second month of 2013 there is some price flexibility in the prices of tomato. Price elasticity of demand for tomato for whole year is inelastic which means the price flexibility coefficient in flexible in the whole year. The interpretation for the price flexibility in the month of February is that if there is 1 percent increase in the quantity made

Months	Monthly Average Price (Rs.per 100 KG)	Monthly Average Supplied Quantity (Tones)	Price Elasticity	Price Flexibility Coefficient
Jan.	1883	75	-	-
Feb.	1733	68	-2.25	-0.44
Mar.	1967	71	-1.80	-0.55
Apr.	2367	58	-0.54	-1.84
May	1858	63	-0.23	-4.16
Jun	1467	72	-3.39	-0.29
July	1550	53	-1.00	-0.99
Aug	2150	39	-1.04	-0.95
Sept	3000	41	-0.51	-1.93
Oct	3292	48	-1.18	-0.84
Nov	5883	60	-0.33	-3.01
Dec	4167	40	0.53	1.85

Source: Secondary data on price for Hyderabad market

Table 4: Price elasticity and price flexibility coefficient for onion in Hyderabad 2012.

Months	Monthly Average Price (Rs.per 100 Kg)	Monthly Average Supplied Quantity (Tones)	Price Elasticity	Price Flexibility Coefficient
Jan.	1217	75	-	-
Feb.	1417	68	-0.56	-1.76
Mar.	1358	71	-1.05	-0.94
Apr.	1774	58	-0.59	-1.67
May	1508	63	-0.57	-1.73
Jun	1433	72	-2.86	-0.34
July	2975	53	-0.24	-4.07
Aug	4683	39	-0.46	-2.17
Sept	4033	41	-0.36	-2.70
Oct	3883	48	-4.59	-0.21
Nov	2933	60	-1.02	-0.97
Dec	4208	40	-0.76	-1.30

Source: Secondary data on price for Hyderabad market

Table 5: Price elasticity and price flexibility coefficient for tomato in Hyderabad for 2012.

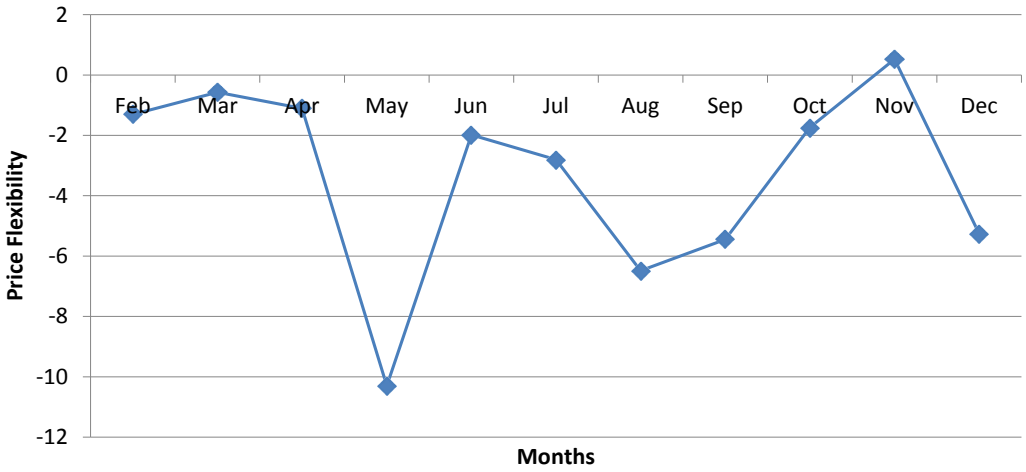

Figure 1: Price elasticity and price flexibility of potato in Hyderabad 2013.

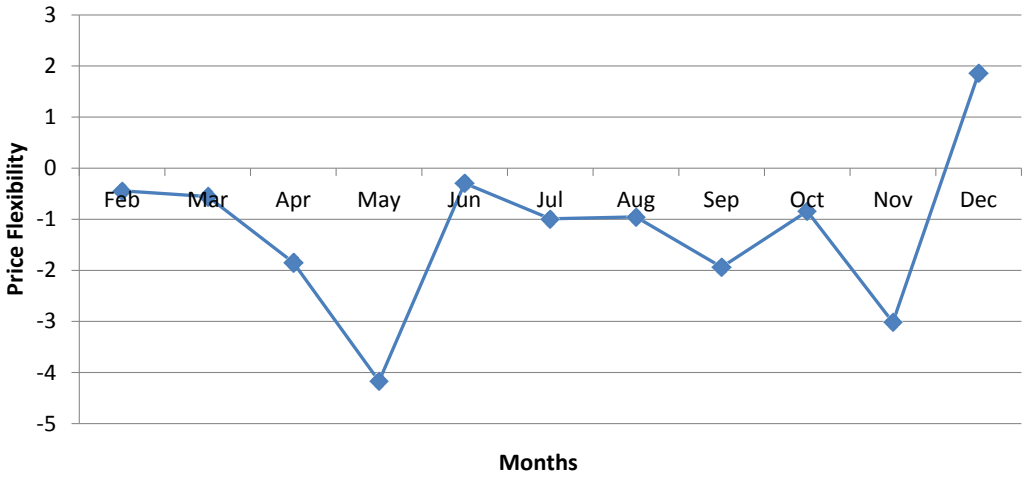

Figure 2: Price elasticity and price flexibility of onion in Hyderabad 2013.

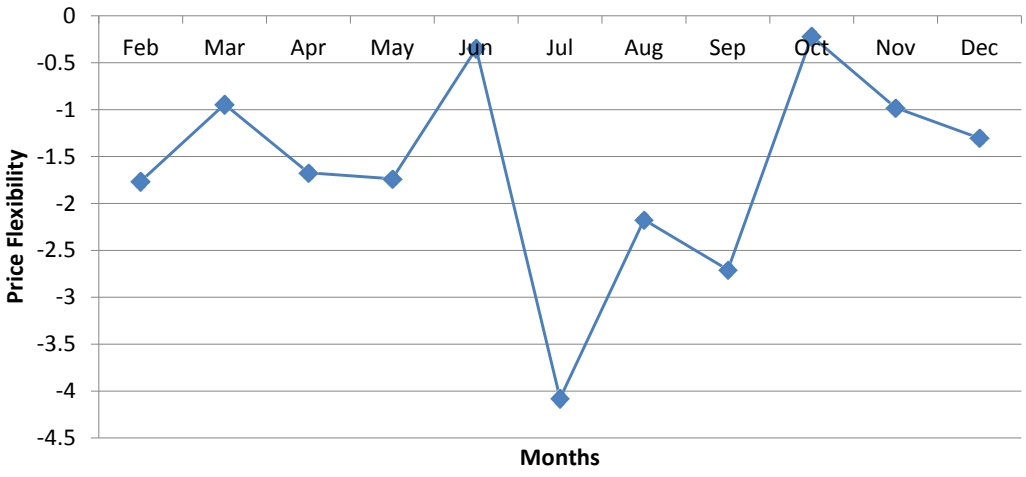

Figure 3: Price elasticity and price flexibility of Tomato in Hyderabad 2013.

available would be associated with a 1.76 percent reduction in price. The highest variation in the price flexibility is between the month of July and August. In the month of July the price flexibility coefficient has the highest value of -4.07 which means if there is 1 percent increase in the quantity made available than it would cause 4.07 percent reduction in the price. The lowest value is between the month of June and July where there is less difference between the prices of tomatoes.

Seasonality of vegetables

Table 6 shows the monthly average price data over the period of 2012 and 2013. The result shows in the same table. The prices of potato vary in both years which cause the variation in the seasonal index. The average price of both years is lowest in the month of February because of the harvesting season of this crop while the prices at its peak with a value of Rs. 4091 in the month of Nov when there is a non-harvesting season.

The simple average approach for onion

Table 6 shows the monthly average price data over the period of 2012 and 2013. The result shows in the same table. The prices of onion vary in both years which cause the variation in the seasonal index. The average price of both years is lowest in the month of February because of the harvesting season of this crop while the prices at its peak with a value of Rs. 4435 in the month of Nov when there is a non-harvesting season.

The simple average approach for tomato

Table 6 shows the monthly average price data over the period of 2012 and 2013. The result shows in the same table. The prices of tomato vary in both years which cause the variation in the seasonal index. The average price of both years is lowest in the month of May because of the harvesting season of this crop while the prices at its peak with a value of Rs. 5742 in the month of Oct when there is a non-harvesting season (Tables 7 and 8).

Conclusion and Suggestions

In Agriculture, any analysis of output and prices must take into account the special role played by variations in harvests. The effect of over-all economic fluctuation is overlaid on a pattern of good and bad harvests, so that an analysis of the effect of a fall in demand on price and output must take account of variations in crop size due solely to weather. The introduction of tunnel technology and hybrid seed are required to enhance yield and lengthen the production period. The value addition in vegetables can help to even out its prices. Harvest and post-harvest management can also bring positive changes. The vegetable marketing system in Sindh in particular and Pakistan in general is not efficient. Poor marketing system causes considerable losses. These losses become more prominent in perishable vegetables. Suitable standards and latest technologies are needed at various levels of marketing to improve functioning of the system. Vegetable export potential to different countries causes of unstable vegetable prices, along with ways to reduce price instability and economic assessment of the potential for the processing of vegetables should be explored.

Month	Potato Prices		2 year average price for each month.	2 year annual average price	Seasonal Index
	2012	2013			
Jan.	950	2100	1525	2212	76.25
Feb.	917	1900	1408	2212	70.40
Mar.	1000	1800	1400	2212	70.00
Apr.	983	1900	1441	2212	70.70
May	1700	1900	1800	2212	90.00
Jun	2142	2000	2071	2212	103.55
July	2567	2500	2573	2212	128.65
Aug	3917	2100	2508	2212	125.40
Sept	2725	2400	2562	2212	128.10
Oct	2458	3500	2676	2212	133.80
Nov	2483	5700	4091	2212	204.55
Dec	1283	3700	2491	2212	124.55

Table 6: Simple average seasonal index for potato.

Month	Onion Prices		2 year average price for each month.	2 year annual average price	Seasonal Index
	2012	2013			
Jan.	2939	1700	2319	3057	65.95
Feb.	1955	2400	2177	3057	108.85
Mar.	1194	4100	2647	3057	132.35
Apr.	1094	4800	2947	3057	147.35
May	1012	4500	2756	3057	137.80
Jun	877	3600	2238	3057	111.90
July	1373	3800	2586	3057	129.30
Aug	1905	5500	3725	3057	186.25
Sept	2435	4800	3617	3057	180.85
Oct	3495	4600	4047	3057	202.35
Nov	3870	5000	4435	3057	221.75
Dec	2687	3700	3193	3057	159.65

Table 7: Simple average seasonal index for onion.

Month	Tomato Prices		2 year average price for each month.	2 year annual average price	Seasonal Index
	2012	2013			
Jan.	4902	5700	5301	4420	265.05
Feb.	2625	5100	3867	4420	193.35
Mar.	2515	4700	3607	4420	180.35
Apr.	1912	4000	2956	4420	148.25
May	788	5000	2894	4420	144.70
Jun	1643	7200	4421	4420	221.05
July	1643	7700	4671	4420	233.55
Aug	3033	7500	5266	4420	263.30
Sept	3856	6600	5228	4420	261.40
Oct	5585	5900	5742	4420	287.10
Nov	5247	5500	5368	4420	268.40
Dec	4159	3300	3729	4420	186.45

Table 8: Simple average seasonal index for tomato.

In this study, an attempt has been made to develop relationship between prices and the quantity supplied to the market. The present study estimated the price flexibility and the seasonal variation in the prices of potato, tomato and onion in Hyderabad market which tells us the trend of prices during the two years monthly 2012 and 2013 data of price. Weather conditions, as an example cans cause wide variations in the quantities of agricultural products produced from year to year. Changes in the level of supply in a market characterized by an inelastic demand lead to disproportionate price level changes. Thus, price levels in agriculture tend to be unstable over the short-term. Fluctuations in the demand for specific foods and fluctuations in the demand for different quality levels of food shift in relation to price level changes related to supply changes in an inelastic market. Similarly, supply conditions in foreign markets where demand also is inelastic affect the demand for agricultural products produced in a domestic market. In many countries, agricultural policies are based on quantitative analysis of agricultural production system. Different types of quantitative analyses are performed and these include measuring scale economies, producers' responsiveness to product and input price variation and the relative efficiency of resource use. Therefore, there is a need to conduct such kinds of studies focusing on issues relating to policy options. However, the sector needing dire attention is the vegetable sector, since this sector possesses a lot of opportunities to flourish. The present study was planned to estimate price flexibility and the seasonal variation in the prices vegetables on the basis of their price s and the quantity supplied to the market in Lahore district. On the basis of this study, following suggestions are made for the selected vegetables in Lahore to boost up vegetable production for the decrease in the prices.

If there is price hike due to the failure of the targeted crop or have low crops than in short run import these vegetables from the neighboring countries; India and Iran or increase the supply from the other markets of different provinces. If the prices are low in the harvesting season in this area than I purposed to enhance the time period or to produce the short day varieties. Per acre yield of these vegetables in this area is very less as compared to the other regions of the country for this purpose I suggest to improve the farm management practices leading to better quality and more yields. For this new high yielding varieties may be evolved and also use the balanced fertilizers along with micronutrients.

In the case of high price fluctuations we would have to collect and disseminate the market information. For this purpose the policy makers must forecast the prices of vegetables according to the estimates. Agriculture marketing crops reporting service timely release of area and the production estimation and be prepare for the future values.

If the production is low than I suggest three ways to increase vegetable production in Pakistan

a) By increasing cropped area under vegetable cultivation

b) By developing new technology and

c) By using available resources efficiently.

Third option is the most suitable because this option does not require more area and development of new technology. Balanced use of inorganic nutrients in vegetable production needs the attention of vegetable growers to enhance per acre yield substantially. In spite of the application of large quantities of pesticides on vegetables, insect pests were not well controlled and they were causing lot of damages to the vegetable crops. This shows that vegetable growers have poor knowledge about vegetable pests and diseases. Application of irrigation is another production aspect requiring the immediate attention. Growers should irrigate their vegetable fields appropriately, since these vegetables are water loving and quality of output depends on irrigation. Canal water deficiencies forced the vegetable growers to irrigate their vegetables with sewage water resulting in low and poor quality yield. When the production is high than definitely supply of these vegetables is high in Lahore than ultimately the prices are low in the market.

Small farmers were ignored by the extension services. Since the vegetable growers possess small land holdings, therefore, they are not provided the extension services. This suggests that the extension services should be expanded to vegetable growers especially the Onion, potato and tomato growers and this will help in increasing in the production. Thus it is the time for the extension workers to revise their policies and to focus on minor crops as well including vegetables. Training of extension staff in vegetable growing practices is the most important step needing careful attention of the concerned authorities. According to Fraser and Cordina, "it is all very well having best practice described by an extension officer on a farm visit, but being able to observe directly best-practice farming techniques will enhance the learning experience".

Vegetable export potential to different countries causes of unstable vegetable prices, along with ways to reduce price instability and economic assessment of the potential for the processing of vegetables should be explored.

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