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The Control of Seasonal Price Variations in Some Food Crops for Achieve to Sustainable Economic Development

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Abstract. In order to determine seasonal variations in prices of some food crops, this study was carried out at Iran during 2010. In this experiment were used the four groups of food products that the first group was including tree fruits (orange, apple and pomegranate), the second group was including the kitchen garden fruits (watermelon, melon and cantaloupe), the third group was including greenhouse fruits (banana, strawberry and pineapple) and the fourth group was including vegetables (tomato, potato and onion). Each of the above products price was determined in each season (spring, summer, autumn and winter) and were compared with together by statistical graphs. The results showed that price variations were high in tree fruits, vegetables and kitchen garden fruits than the greenhouse fruits and demand of these products was very dependent on price variations. The product demand increased in the seasonal was decreased product price and it reduced in the seasonal was increased product price. But greenhouse fruits prices were constant in year and also were constant demand for these products in all seasons. The results showed that the greenhouses production and processing food products can keep constant prices of food products in year and to remove the destructive role of brokers.

Keywords: seasonal price variations, food crops, product demand.

1. Introduction

Agricultural commodities have historically exhibited seasonal price movements that are tied to the annual nature of the crop cycle. Crop prices in the cash and futures markets are usually the lowest near harvest due to supply pressure (Deaton and Laroque, 1992). Conversely, they are usually the highest near the end of the marketing year when supplies are less abundant (Black, 1997). Seasonal price movements will vary, however, depending on supply and demand fundamentals. In particular, deviations of actual from expected supplies can have a pronounced impact on seasonal price patterns. During a "small" crop year, the new crop supply falls significantly below what the market expected at the time of planting. During a "large" crop year, the new crop exceeds earlier market expectations. Different seasonal indexes are relevant in these different situations (Chambers and Barley, 1999). The seasonal variation in the production of some farm products and the corresponding changes in prices have been studied by H. C. Taylor and published in Bulletin 209 of the University of Wisconsin Agricultural Experiment Station. By the courtesy of Professor Taylor we are able to reproduce with the diagrams the following passages. The facts here given illustrate interestingly the nature and limits of elasticity of demand for these articles, the problem of time-value in perishable foods, and the influence of cold-storage in equalizing prices throughout the year (Halcrow, 1981). Fresh fruit and vegetables feature on household shopping lists throughout the year. The nutritional value of fresh fruit and vegetables is explained in the Ministry of Health's guidelines, which recommend that we eat five or more servings of these each day (Levin et al., 1989). People who eat five or more servings of fruit and vegetables a day have a wide selection to choose from throughout the year. And while consumers have to contend with seasonal price increases, fortunately these tend to occur at different times of the year for different types of fruit and vegetables (Monroe, 1990). Therefore, the objective of this study was to evaluate the seasonal variation in prices of some food crops in Iran.

2. Material and Methods

In order to determine seasonal variation in prices of some food crops, this study was carried out at the Iran, in 2010. In this experiment were used the four groups of food products that the first group was including tree fruits (orange, apple and pomegranate), the second group was including the kitchen garden fruits (watermelon, melon and cantaloupe), the third group was including greenhouse fruits (banana, strawberry and pineapple) and the fourth group was including vegetables (tomato, potato and onion). Each of the above products price was determined in each season (spring, summer, autumn and winter) and to determine the total of food crops prices, the statistical graphs were compared together. Finally, data were subjected to repeated measure analysis and the graphs were obtained by Excel software.

3. Results and Discussion

The first of this study, the prices of orange, apple, pomegranate, watermelon, melon, cantaloupe, banana, strawberry, pineapple, tomato, potato and onion were determined in the beginning of winter season (at the beginning of January 2009) and the data is shown in the table 1 and were compared with together in figure 1.

Tab. 1: The prices of some food crops at the beginning of January 2009

Tree fruits			Kitchen garden fruits			Greenhouse fruits			Vegetables		
Orange (1 kg)	Apple (1 kg)	Pomegranate (1 kg)	Watermelon (1 kg)	Melon (1 kg)	Cantaloupe (1 kg)	Banana (1 kg)	Strawberry (1 kg)	Pineapple (1 kg)	Tomato (1 kg)	Potato (1 kg)	Onion (1 kg)
0.75 $	1.5 $	0.6 $	1.2 $	1.7 $	1 $	1.3 $	3.5 $	2.5 $	1.2 $	0.6 $	0.8 $
The total of some food crops prices at the beginning of January 2009											
2.85 $			3.9 $			7.3 $			2.6 $		

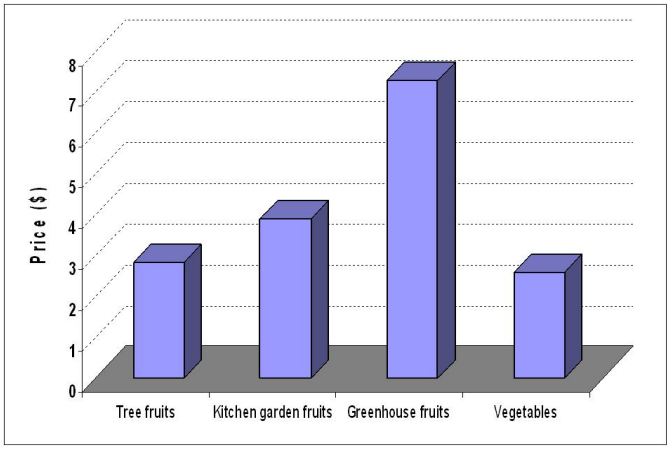

Fig. 1: The total of some food crops prices at the beginning of January 2009

In the next stage, the prices of orange, apple, pomegranate, watermelon, melon, cantaloupe, banana, strawberry, pineapple, tomato, potato and onion were determined in the beginning of spring season (at the beginning of April 2009) and the data is shown in the table 2.

Tab. 2: The prices of some food crops at the beginning of April 2009

Tree fruits			Kitchen garden fruits			Greenhouse fruits			Vegetables		
Orange (1 kg)	Apple (1 kg)	Pomegranate (1 kg)	Watermelon (1 kg)	Melon (1 kg)	Cantaloupe (1 kg)	Banana (1 kg)	Strawberry (1 kg)	Pineapple (1 kg)	Tomato (1 kg)	Potato (1 kg)	Onion (1 kg)
1.6 $	1.2 $	2.5 $	1.4 $	1.8 $	0.9 $	1.35 $	3.76 $	2.5 $	0.8 $	0.5 $	0.6 $
The total of some food crops prices at the beginning of April 2009											
5.3 $			4.1 $			7.61 $			1.9 $		

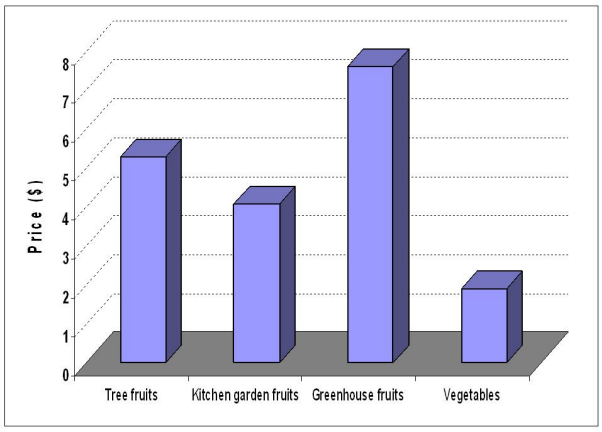

Fig. 2: The total of some food crops prices at the beginning of April 2009

Also, the prices of orange, apple, pomegranate, watermelon, melon, cantaloupe, banana, strawberry, pineapple, tomato, potato and onion were determined in the beginning of summer season (at the beginning of July 2009) and the data is shown in the table 3.

Tab. 3: The prices of some food crops at the beginning of July 2009

Tree fruits			Kitchen garden fruits			Greenhouse fruits			Vegetables		
Orange (1 kg)	Apple (1 kg)	Pomegranate (1 kg)	Watermelon (1 kg)	Melon (1 kg)	Cantaloupe (1 kg)	Banana (1 kg)	Strawberry (1 kg)	Pineapple (1 kg)	Tomato (1 kg)	Potato (1 kg)	Onion (1 kg)
2.5 $	1.2 $	4.5 $	0.6 $	0.7 $	0.6 $	1.2 $	3.4 $	2.47 $	0.3 $	0.4 $	0.6 $
The total of some food crops prices at the beginning of July 2009											
8.2 $			1.9 $			7.07 $			1.3 $		

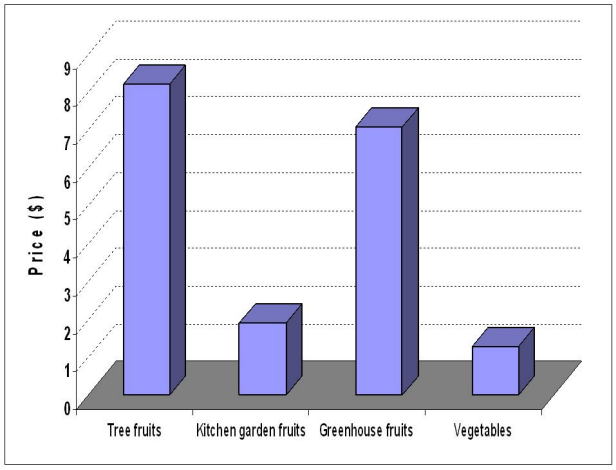

Fig. 3: The total of some food crops prices at the beginning of July 2009

In the final, the prices of orange, apple, pomegranate, watermelon, melon, cantaloupe, banana, strawberry, pineapple, tomato, potato and onion were determined in the beginning of autumn season (at the beginning of October 2009) and the data is shown in the table 4.

Tab. 4: The prices of some food crops at the beginning of October 2009

Tree fruits	Kitchen garden fruits	Greenhouse fruits	Vegetables

Orange (1 kg) 1.4 $	Apple (1 kg) 0.8 $	Pomegranate (1 kg) 1.2 $	Watermelon (1 kg) 0.8 $	Melon (1 kg) 0.9 $	Cantaloupe (1 kg) 0.8 $	Banana (1 kg) 1.35 $	Strawberry (1 kg) 3.42 $	Pineapple (1 kg) 2.48 $	Tomato (1 kg) 1.2 $	Potato (1 kg) 0.8 $	Onion (1 kg) 0.9 $
The total of some food crops prices at the beginning of October 2009											
3.4 $			2.5 $			7.25 $			2.9 $		

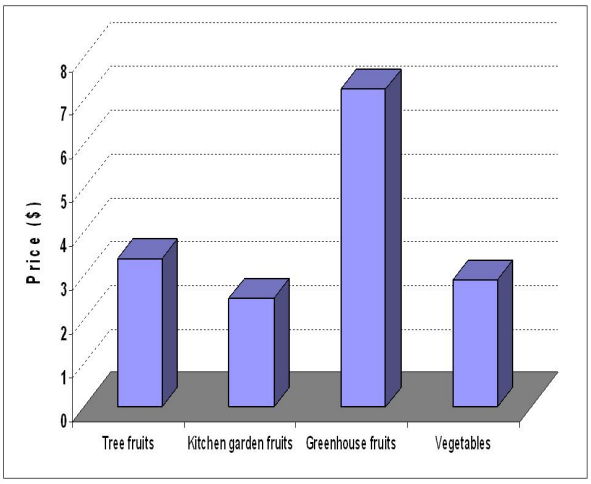

Fig. 4: The total of some food crops prices at the beginning of October 2009

The final results showed that tree fruits prices variations were very much than the kitchen garden fruits, greenhouse fruits and vegetables and the kitchen garden fruits prices variations were very much than the vegetables and greenhouse fruits and also, the vegetables prices variations were very much than the greenhouse fruits. But the greenhouse fruits prices variations were constant in all seasons and it had the low variations in year (Table 5 and Figure 5).

Tab. 5: The seasonal variation in prices of some food crops in 2009

	Tree fruits	Kitchen garden fruits	Greenhouse fruits	Vegetables
Winter	2.85	3.9	7.3	2.6
Spring	5.3	4.1	7.61	1.9
Summer	8.2	1.9	7.07	1.3
Autumn	3.4	2.5	7.25	2.9

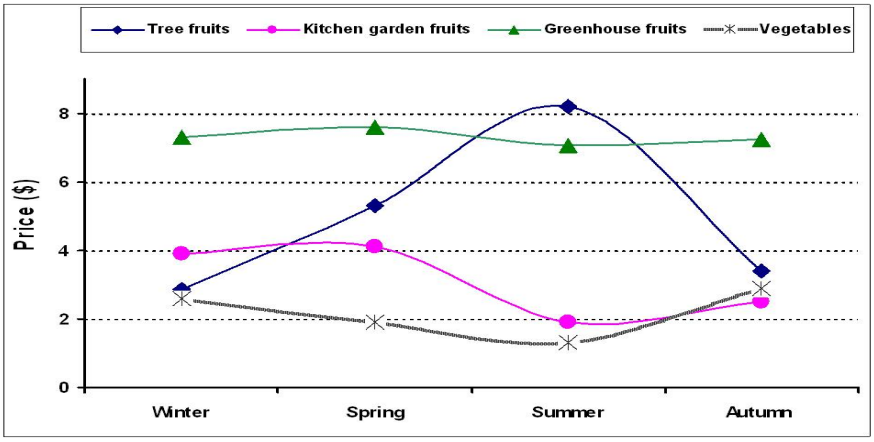

Fig. 5: The seasonal variation in prices of some food crops in 2009

The results of this study showed that the tree fruits had high price variations than the other groups that because it is the perishable and product maintenance costs. Because the prices are to change the demand, so introduce appropriate solution for price controls can help to stabilize demand.

4. Conclusion

The greenhouses production and processing food products can keep constant prices of food products in year and to remove the destructive role of brokers. Consequently, our findings may suggest agricultural economics researchers to consider carefully on estimate of price in different season.

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