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EVALUATION OF THE IMPACT OF PRICE REGULATION ON FRUIT AND VEGETABLE MARKETING IN JORDAN

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EXECUTIVE SUMMARY

The purpose of this document is to recommend ways to improve marketing efficiency.

The purpose of this paper is to review the available data on prices of selected Jordanian fruits and vegetables, to perform price analyses of these products, and to recommend ways to improve marketing efficiency.

The extreme conditions under which intervention in the pricing system for fruits and vegetables was initiated no longer exist.

Intervention in fruit and vegetable prices in Jordan was initiated under extreme conditions which no longer exist. It is, therefore, necessary to review the program by investigating its current impacts and searching for ways to improve or eliminate it.

The enforcement of price controls is based on control of the gross margin at the retail level.

Price controls are effected by regulation of the gross margin at the retail level. Every day an upper and a lower retail price level is announced, based on the wholesale price of the day before. Summary wholesale prices are determined through observation of the prices of individual transactions carried out at a wholesale market.

Price controls at the retail level have had major impacts on fruit and vegetable marketing:

It appears that the retail price control policies have had major impacts on the marketing of fruits and vegetables in Jordan. These include: 1) the obstruction of the development of a well defined system of quality grades and standards, affecting both the quality of the product supplied to the market and the range of commodities available to the consumer, and 2) the distortion of prices at both the wholesale and retail levels of the marketing chain, through the lack of an effective price discovery mechanism and the existence of market manipulation.

Neither producers nor retailers are encouraged to sort and grade commodities.

The price control program is one major factor inhibiting the development of modern sorting and grading practices in Jordan. The market signals which the producers of fruits and vegetables receive do not motivate them to improve the quality of the produce which they are sending to the market. This includes improvements in production practices as well as harvesting, handling, grading and transportation. Without a pricing system which permits price differentiation according to strict quality standards, the fruit and vegetable producer will not make the effort or investment required to effect the change. Similarly, retailers have no reason to pay higher prices for higher quality products, since they can legally sell everything at the upper retail price anyway. Actually, there is an incentive for retailers to hide the higher quality produce to be sold illegally at an even higher price to trusted customers who want, and are willing to pay for, that higher quality.

No common pattern across commodities seems to exist in the determination of summary wholesale prices or gross margins.

Based on a review of the available price data, it appears that the Retail Price Committee determines the upper retail price of the products without employing any standard procedure. For the products selected for use in the present study, neither the relationship between the mean transaction prices and the common wholesale prices nor the relationship between the common wholesale prices and the upper retail prices showed any standard pattern. The committee is apparently using its subjective reading of the prices and quantities being transacted in the wholesale market.

The Retail Price Committee manipulates wholesale prices through the setting of retail prices.

There is a high degree of dependence of the wholesale price of a commodity for any given day on the published upper retail price of the previous day. Efforts of the Retail Price Committee to manipulate wholesale prices through the setting of retail prices, does not allow the market forces of supply and demand to operate freely, and sends erroneous signals to market participants.

The importance of the role of price controls in the domestic market depends of the coercive power of the state.

Retail price control could be playing an important role in determining the trend of domestic prices. The importance of this role depends on the coercive power of the state to effectively enforce the controls through prosecution. Effort to evade these controls may be increasing the costs of merchants who both export and sell domestically. However, the inference from the seasonal adjustment analysis is that the control of retail prices, based on wholesale prices, may not be affecting the inter-temporal determination of prices between harvests. The wholesale price seasonality reflects different scarcity levels within the year.

There is a close linkage between Jordanian domestic prices and the prices in the Gulf States for imported Jordanian products.

In the analysis of the Gulf States markets, Scobie and Youngblood showed that there is a close linkage between the Jordanian domestic prices and the Saudi Arabian prices for imported Jordanian commodities. The relative price movements were in the same direction, although the magnitudes differ substantially at times.

However, the lack of linkage with larger international markets results in missed opportunities for Jordanian producers.

The greater the physical distance between the two markets, the more important will be the weight of the domestic market in the formation of the domestic price. The trend cycle analysis for the wholesale prices in Jordan and the United Kingdom, show an increasing

price trend in the UK and stable prices in Jordan. Jordanian producers have not been receiving a price in accordance with what could have been obtained under a totally free trade situation. Since the Jordan Dinar was overvalued during this period, the difference in trends would have been even more pronounced under a freer exchange rate regime. The divergence between U.K. and Jordan prices during the period studied, indicates a separation between those two markets. Nominal prices in Jordan were stagnant, while in the U.K. nominal prices were increasing. For Jordan this represents a discrimination against producers but in favor of consumers.

The price liberalization trial of 1985-86 was not sufficiently long to allow the market to react to the new policies.

The period covered by the price liberalization experiment in 1985-86, was not sufficiently long to test the policies. Findings of a study by Tweeten, el.al., suggest that the fear of high retail prices and margins was not founded. Had the policy been permitted to continue, the negative effects observed during this period would have been negated by the forces of the market.

Removal of retail price controls would have a positive impact on consumers.

The extent to which the welfare of the consumer would be impacted by the removal of the retail price control program for fruits and vegetables is of major concern. Given the large number of fruit and vegetable retailers in the Kingdom, it would be unlikely that price gouging would be long lived. The shear numbers of retail establishments would disallow collusion. The avenue would be opened for the entry of new retail establishments. There could exist in the market a full range of products for all consumers. The low-income consumer would have available to him a grade of produce within his range of purchasing

power, and other consumers would have the option to purchase, and the retailer the option to sell, higher grades of produce at prices which he is willing to pay and which the retailer would be legally allowed to charge.

The net results of retail price controls are exactly opposite of those intended.

The net result of the retail price control program is that its effects are exactly the opposite of those which were intended. Consumers have a narrower range of selection and pay higher prices for the produce they purchase, farmers provide less product to the market and receive a lower price for those commodities than they would under a free market pricing arrangement, wholesalers and exporters are permitted to manipulate the market to their advantage, and retailers are not effectively controlled as to the marketing margins which they charge.

Several recommendations are provided to eliminate the distortional effects, improve the price discovery mechanism and to promote international trade.

The following recommendations result from the foregoing analysis:

To improve marketing efficiency:

a) Eliminate the retail price control program for all fruit and vegetable commodities.

b) Permit direct shipment by producers to retail establishments in Amman and other major cities.

To improve the price discovery function at the wholesale market level:

a) Accelerate the completion of the design and implementation of a system of grades and standards.

b) Accelerate the completion of the design and implementation of the Market News Service for fruits and vegetables.

c) Reorganize the central wholesale markets.

To promote orderly interchange with world market forces and prices:

a) Designate the AMO Quarterly Import and Export Plan as the only regulation governing the international trade of fruits and vegetables.

b) Terminate the state monopoly on the import of the "shortage commodities".

c) Institute an import price band.

CHAPTER 1

INTRODUCTION

The government of Jordan has stated its intentions, as part of its commercial policy reform program, to liberalize international trade regulations and create an atmosphere to facilitate the expansion of exports of Jordanian products around the world. Concurrently, adjustments are planned in the existing system of import bans and customs tariffs for many commodities. The successful implementation of these reforms, along with the expected results of the overall macro-economic adjustment program, should have wide ranging implications for the prospects of growth in the exports of fruits and vegetables and on the comparative advantage both of Jordanian producers and Jordanian exporters Youngblood and Scobie concluded that "if the real exchange rate is maintained at its 1989 level, the real value of (horticultural) exports could grow by about 30 percent in the next five years." [1] They also stated that, on the other hand:

> "If the public sector deficit remains high, and were this to be combined with a policy of holding the nominal exchange rate fixed at levels not sustainable in the longer term, then it is entirely conceivable that the level of vegetable exports could decline by more that 50 percent in the next five years." [2]

The Government of Jordan has chosen clearly to move toward a **market determined** exchange rate, at least for the time being. That should permit exports of horticultural products to grow. The stated policy of the government is to "open the economy to the international market" and to gradually eliminate market controls and subsidies. It is,

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1 Scobie, Grant M. and Curtis E. Youngblood, *Horticultural Exports from Jordan: Prices, Policies and Prospects*, Agricultural Marketing Development Project, Amman, January 1990., p. vii.

2 *Ibid.*

therefore, important to determine whether movement toward market determined prices for fruits and vegetables in Jordan could produce an additional economic benefit.

The Youngblood-Scobie projections of 30 percent real export growth in the next 5 years were based on the assumption that conditions affecting production and marketing of fruits and vegetables would remain unchanged. Their analysis assumes no improvements in either production or marketing efficiency and that current government policies of acreage controls (Cropping Pattern) and retail price controls remain in effect. If average production costs could be reduced, by higher yields for example, and marketing costs could be reduced by the **removal of government controls, the fostering of competition** and the **adoption of more efficient marketing practices**, then real exports could grow at an even higher rate.

A linear programming analysis, based on actual costs of production, has indicated that the acreage control (Cropping Pattern) program has been a costly policy, reducing farmer incomes by about JD 80 million per year, and restricting potential exports by at least that same amount.[3] Bessler and McCarl in that report conclude that both farmers and the national economy would benefit if the cropping pattern program were eliminated, **permitting farmers to plant that acreage of vegetables which will be most profitable in response to supply and demand conditions in the domestic and international market.**

The focus of this study is the analysis of another of the government's economic control policies, the retail price control program for fruits and vegetables. The purpose is to determine whether this policy creates economic distortions and reduces marketing efficiency. Efficiency in a marketing system can be evaluated through an investigation of the price discovery mechanism. The hypothesis to be tested, in this sense, is that intervention in the price discovery process for fruits and vegetables in Jordan does not permit the marketing system to function in an efficient manner. If this can be shown, we would conclude that the retail price control program should be eliminated for these commodities.

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[3] Bessler, David A., and Bruce A. McCarl, *An Assessment of the Economic Impact of the Jordanian Agricultural Cropping Pattern,* Agricultural Marketing Development Project, Amman, 1989.

Historical Perspective

Price intervention for the agricultural products is widespread in Jordan. The current regime of price controls was initiated in 1968. Al-Zu'bi reported that,

> "We were unable to find any official document that included either the reason or purpose of this regulation. We met some of the Ministry's of Supply officials who assured us that the adoption of the pricing system was not based on a specific study. .... We assume that the Government adopted the system as a result of the sharp rise in the prices of fruits and vegetables. This view is ... supported by the issuance of the 1968 Regulation which followed the 1967 War, when the East Bank hosted thousands of Palestinian refugees and lost the West Bank production of vegetables and fruits. As a result, demand increased while the quantities of displayed commodities decreased, causing a rise in prices. Further, we could support our view by referring to the method by which the retail price is fixed; the profit margin and the expense margin deemed suitable by the retail price committee, are added to the common wholesale price (when the role of the producer and middlemen has ended and that of the retailer has begun). This implies that **the purpose of pricing is to protect the customer from the retailer's high profit margin.**"[4] [Emphasis added.]

One can conclude, therefore, that the price control program was not initiated in response to any specific economic study, but as a political response to the sharp rise in prices following the 1967 War and the loss of product supplies from the West Bank.[5] It was not possible to find any government document stating the purpose of government price controls. It appears that the original purpose was to protect consumers against high prices. Conversations with the responsible government agency representatives seem to indicate that even they are unsure of the current purposes of the program, except that

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4 Al-Zu'bi, Akef, "**A Preliminary Study on the Pricing of Vegetables and Fruits in Jordan and Prospects of Developing It.**" Agricultural Marketing Organization, Amman, July 1987. [Translation from Arabic.] p.5-6.

5 *Ibid.* p. 5.

"retailers must be prevented from charging unfairly high prices to consumers". [6] After twenty-one years, it is reasonable to question whether changing circumstances might have altered the rationale for the controls and whether in reality there is a genuine economic reason to maintain the program of retail price controls on fruits and vegetables.

Overview of Current Operation

Price controls are enforced by the state through price edicts and judicial coercion, or directly exercised through control of the quantities available in the market, principally by means of having a monopoly on the imports of controlled products or through domestic procurement of products. Practically all food products bought at a retail store are subject to price controls. Typically, prices are announced for an undetermined time period and are specified for the several levels of the marketing chain. However, the Jordanian fruit and vegetable price control program is different. It is based on free wholesale prices, and price decrees are issued each day dictating new retail prices.

Every day a two-tier retail price (often referred to as "upper" and "lower" retail prices) is announced, based on the summary wholesale prices of the previous day. The base wholesale prices are determined through observation of the individual commodity transactions carried out at a wholesale market. Intervention in fruit and vegetable prices is in the form of the control of the gross margin at the retail level. A letter from the Minister of National Economy on June 15, 1968, created a pricing committee which was to be composed of representatives of the Ministries of Supply and Agriculture and the Manager of the Wholesale Market in Amman. [7] Later a representative of the Agricultural Marketing Organization was added. That letter, the only written instructions ever provided to the committee, also specified that a retail margin of 30 to 40 percent should be added to the daily wholesale price of fruits and vegetables. The members of the current price committee in Amman freely admit that the margin added to retail prices varies from 10 to 100 percent. The full text explaining the method employed by the Committee, as described by Al-Zu'bi, is contained in Annex C. The Committee is convinced that retail prices today will be a major determinant of wholesale prices tomorrow. Therefore, when

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6 *Ibid.*, p. 6.

7 *Ibid.*

they wish to "raise the price as an assistance to the producer", they apply a somewhat higher margin when prices are "too low". On the other hand, when they wish to "protect the consumer", they apply a somewhat lower margin when prices are "too high".

Retailers are required not to sell above the published "upper" level. The "lower" retail price, is the level above which retailers are not permitted to sell **second** quality products. However, it has no effective relevance for price control purposes, since the products normally are not sorted and sold by grades at the retail level. The quality differentials that originated in the consignments of the farmer and that were maintained at the wholesale level, very likely will not show up at the retail store. Customers can choose the individual fruits or vegetables they will buy at (or near) the upper price from the exposed supply of the retailer. The retailer may blend the different types of produce to obtain an average quality to be sold at the controlled price, or he may display on the counter one quality of product while reserving the higher priced, better quality for regular, trusted customers who want to pay more than the upper price for the premium quality. The enforcement procedures of the state price control scheme, ignores the quality differences altogether.

For the so-called shortage commodities (apples, potatoes, onions, and garlic), price controls are announced based on quantity control by means of a state monopoly on their imports.

Purpose and Scope of the Study

In order to better understand this intervention mechanism, we are interested in knowing the details of its operation and the extent of its effectiveness, and its impact on producers, wholesalers, retailers and consumers. The purpose of this paper is to view each of these criteria in turn and to make recommendations on ways to improve the efficiency of the marketing system for fruits and vegetables in Jordan. The paper is divided into four sections. **Chapter 2** describes operation of the wholesale price discovery mechanism, the procedure to fix the retail prices for fruits and vegetables, including a statistical analysis of the relationship between wholesale and retail prices, and a description of the role of the AMO in marketing regulation. **Chapter 3** is an evaluation of the impacts of the price control program on prices and exports. **Chapter 4** evaluates the economic justification and effectiveness of the price control mechanism. Finally, **Chapter 5** presents a series of conclusions and recommendations resulting from the study.

CHAPTER 2

OPERATION OF PRICE REGULATION

Prior to entering into an analysis of the effectiveness and impact of the price control program on the marketing of fruits and vegetables in Jordan, it is necessary to insure a common point of departure. This chapter contains a brief review of the price discovery mechanism, including the procedure employed in the fixing of retail prices and the participation of the AMO in the regulation of the marketing system.

Wholesale Price Discovery

In general Jordanian fruit and vegetable producers may sell their produce directly to an exporter or they may consign their products to a commission agent for sale in one of the domestic markets. In the latter case, produce is sent to one of the wholesale markets in trucks consigned to a particular agent. Each truck is registered at the market entrance, and a declaration is made as to its cargo to a wholesale market officer. This declaration is for the purpose of statistical records and to ensure payment of the market user fees. The registration papers of the truck are held by the officer of the wholesale market until the fees are paid. Commission agent representatives are required to sell at auction each lot of the produce of each farmer to exporters, retailers, and other merchants, who may prepare the product for export shipment or may resell it later either on the premises or in the city. The price and total value of the transaction agreed to between the agent and the buyer are recorded in an invoice for the farmer [8] Price discovery is slow due to the fact that several auctions of the same type of product could be occurring simultaneously at the stalls of different agents.

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[8] A similar marketing scheme for fruits and vegetables was observed by the author in the New Delhi wholesale market.

The invoice provided to the farmer at the time of the sale reflects two deductions which are made from the total value of the transaction: a) a 3-5 percent fee is deducted for the services of the commission agent and, b) a 2 percent fee is charged for the market authority. The commission agents also may be empowered by the farmer to deduct freight charges and payments on loans. Additionally, the buyer is obliged to pay 2 percent of the total value of the transaction to the market authority, bringing the wholesale market use fee to a total of 4 percent of the value of the transaction.

A consignment of a farmer may be divided into lots according to degrees of product quality within the total shipment. This is done to try to obtain a higher market price for the better quality lots. [9]. The separation of produce is not done according to a nationally accepted grade classification, but does reflect quality differences that discriminating merchants take into account. The AMO has instituted standards for the packing and marketing of fruits and vegetables, [10] including box types, residues and topping, among other requirements. Grades, however, have not been established. The practice of packing produce in polypropylene boxes is widespread; the boxes, sized depending on the produce type, have been used since 1977, before AMO standards were introduced. A recent decision by the Minister of Agriculture ended the mandatory use of these boxes for certain products.

The recently completed AMO study of the wholesale markets in Jordan evaluates the pricing efficiency and competitiveness of these markets, by investigating the selling environment (marketing rules, auction procedures, selling periods), the transparency of the transactions carried out at the markets, the retail price fixing process, and the structure and conduct of the markets (concentration, fictitious auctions, conflicts of interest) within the Jordanian marketing scheme. [11] A second phase of the study will look at the operational (technical and managerial) efficiency of the markets.

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9 Ilker, Yilmaz. *Demonstration Extension Program and Post-harvest Training.* Jordan Agricultural Marketing Development Project, Tactic Briefs Nos. 16 and 29, Amman, June 1989.

10 Agricultural Marketing Organization (AMO). *Regulation No, 1 of 1987: Packing and Marketing of Fresh Vegetables and Fruits.* AMO. Amman, 1987.

11 Harrison, Kelly M., et.al. *Performance Evaluation of Fruit and Vegetable Wholesale Markets in Jordan.* Agricultural Marketing Development Project, Amman, 1989.

Retail Price Control

During the early afternoon of each market day the **Retail Price Committee** is assembled to decide on the representative prices for each product or product class for the day and to determine the price levels to be permitted at the retail level on the subsequent day. The committee is composed of representatives from Ministry of Agriculture (MOA), Ministry of Supply (MOS), the Wholesale Market Authority, and the AMO. The committee members agree on the lower, higher, and "most common" price for the transactions for each commodity for each day; they then add a "reasonable" gross margin to these prices in order to determine the **"upper"** and **"lower"** prices at which retailers will be permitted to sell these commodities. Retailers who are discovered to be selling above the upper level, risk being prosecuted and fined.

"Upper" and "lower" retail prices are established for virtually all fruits and vegetables on a daily basis (prices for Friday, a wholesale market holiday, are valid for Saturday). Prices are published for four different locations: Amman/Zarqa, Irbid, Salt, and Karak. Arab language newspapers carry a list of 65 products, while the list in the English language newspaper includes only 29 commodities. These are the following:

1.	Apple, Golden	2.	Apple, Kashabi
3.	Apple, Sukkari	4.	Apricot
5.	Banana, Standard	6.	Banana, Mukammar
7.	Beans	8.	Cabbage
9.	Carrots	10.	Cauliflower
11.	Cherry	12.	Corn
13.	Cucumbers	14.	Eggplant
15.	Garlic	16.	Grapes, Standard
17.	Grapes, Red	18.	Lemon, Yellow
19.	Lemon, Green	20.	Marrow, Large
21.	Marrow, Small	22.	Okra
23.	Orange	24.	Onion
25.	Pepper, Hot	26.	Pepper, Sweet
27.	Potato	28.	Tomato
29.	Watermelon		

Determination of the Upper Retail Price

One research question, then, is to investigate the patterns used by the Retail Price Committee in arriving at the controlled prices. Two basic questions arise in this relation. First, we would like to test the extent to which the summary (common, high and low) wholesale prices as reported by the wholesale market authority (a portion of which are theoretically used by the Retail Price Committee) are representative of the actual transactions which occurred on that day. Second, we are interested in knowing to what extent the recorded high, common, and low summary wholesale prices of the transactions of the day explain the upper and lower retail prices announced for the subsequent day.

Summary Wholesale Prices. In order to approach the first of these questions, we used the actual daily transactions data for five selected vegetables and fruits (eggplant, cucumber, tomato, grapes and lemons) to analyze the extent to which they can be used to explain the common wholesale prices.[12] Let P^{k}_{itj} = price observations, where:

i	=	1,2,...,m	(the fruit or vegetable)
t	=	1,2,...,T	(time period: day, month)
j	=	1,2,...,n	(transactions for the day)
k	=	h,c,l; U,L	(ACWM's high, common, low; control retail Upper, Lower)

We then consider the following regression equation:

$$(1) \qquad P^{c}_{it} = a + b\, P^{mean}_{it}$$

$$\text{where } P^{mean}_{it} = \frac{1}{n} \sum_{j=1}^{n} P_{itj}$$

and, where P_{itj} is the Price paid in the jth transaction for the ith commodity on the tth day.

To estimate the regression equations, we were able to use daily data from ACWM on common wholesale prices and the records of individual transactions. The econometric

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[12] The data used in the statistical analysis in this report are listed in the tables in Annex C.

results (See Table 1.), indicate that the degree to which the ACWM's "representative" common wholesale prices are related to the weighted mean prices of actual transactions which took place at the market, as recorded by the ACWM inspectors, vary considerably. The regression coefficients range from a low of 0.600, in the case of eggplant, to a high of 1.276 in the case of grapes. All the t-values, with the exception of that for the intercept for the estimated regression equation for lemons, are significant or highly significant at the 0.95 level. Here, we will not present a detailed explanation of the meaning of each of the estimated equations. It is sufficient to mention that, on average, the equations generally perform well in explaining the relationship between the two variables.

The important point to note from this analysis, however, is that **there does not seem to be a common pattern among the coefficients**. The Retail Price Committee seems to be placing considerable emphasis on the subjective readings of the members of the prices being transacted in the wholesale market. The weighted averages of the transaction prices for the commodities used in our analysis, do not take into account quality differences among the lots of products, while the Retail Price Committee may be considering them in deciding on a "common" price for the transactions of the day.

Additionally, it is necessary to note that the scope of transaction prices used by the Retail Price Committee is limited. The committee meets at approximately one o'clock each day. At that time they have available to them information on only a portion of the transactions which have occurred up to that time and, obviously, on none of the transactions which are yet to take place later in the day. It is apparent, therefore, that on any given day, for any given commodity, the committee cannot react to the complete circumstances of the market, regardless of how good an 'average' job they are doing.

Upper Retail Price. The second of our questions was related to the whether the Retail Price Committee follows a standard pattern in arriving at the controlled prices for commodities. To approach this question, we will analyze the relationship between the upper retail price and the common wholesale price for a number of commodities.

According to Al-Zu'bi, the Retail Price Committee sets the upper retail price for fruits and vegetables by calculating a margin, including the marketing margin to deliver the commodity to consumer and the retailer's profit margin, according to their experience. [13]

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[13] Al-Zu'bi, Akef, *Op.cit.*, p. 8.

Table 1. Linear Regression between Daily Common Wholesale Price and the Weighted Mean of the Transaction Prices, Selected Crops, Amman Central Wholesale Market, 1988-1989.

PRODUCT Year	Inter-cept	t Value	Coeffi-cient	t Value	R^2	Degrees Freedom
EGGPLANT 1988/89	0.029	4.85	.600	5.13	.27	67
CUCUMBER 1988	0.013	2.00	.948	19.95	.89	49
TOMATO 1988	0.007	3.63	1.096	75.20	.95	294
GRAPES 1988	0.053	1.59	1.276	4.99	.35	43
LEMONS 1988	0.003	0.29	1.174	19.48	.89	45

Source: Agricultural Marketing Organization (AMO) from records from the Amman Central Wholesale Market (ACWM).

Notes:

1) Common wholesale price is the most representative price as determined each day by the Retail Price Committee at the ACWM.

2) The weighted mean uses the quantity transacted at each price as weight.

3) Regressions are based on daily data, excluding days for which a common price was not reported.

4) The months for which data was made available to conduct this study were:
   - Eggplant : 1988 (January and May); 1989 (May).
   - Cucumber : 1988 (January and June).
   - Tomato : 1988 (All months); 1989 (May).
   - Grapes : 1988 (July and October).
   - Lemons : 1988 (January and July).

In estimating its value, the committee takes into account that this price, including the estimated common price, should exceed the registered maximum registered wholesale price by 10 to 30 fils. In order to test this idea, we estimated a linear regression equation for tomatoes, using data for the period 1988 and May 1989, of the following nature:

$$(2) \quad P^{U}_{it} = a + b P^{c}_{i,t-1} + c (P^{H}_{i,t-1} - P^{c}_{i,t-1})$$

where P^{U}_{it} and $P^{c}_{i,t-1}$ are the same as in the previous section,

and $P^{H}_{i,t-1}$ = the registered high wholesale price for commodity i on day t-1.

The estimated equation resulted in an adjusted R^2 term of 0.968, indicating that the variation in the two independent variables explains about 97 percent of the variation in the dependent variable. The t-values for all three estimated parameters - the intercept, the lagged common wholesale price and the difference between the lagged high wholesale price and the lagged common wholesale price - were highly significant at the 0.95 level. We can then interpret the equation as stating that the upper retail price set by the committee for tomatoes for tomorrow is a function of today's common wholesale price, plus a fixed amount of 32 fils, plus 0.105 times today's common wholesale price, plus 0.335 times the difference between today's high wholesale price and today's common wholesale price.

Although the equation seems to fit the data well and do a good 'average' job of estimating, when the parameters are applied to the data, the deviations between the estimated values and the observed values of the upper retail price vary considerably, ranging from 50 fils less than the observed price to 126 fils more than that price. We can conclude from this that the Retail Price Committee did not employ standard relationships of the type indicated by Al-Zu'bi in setting retail prices of tomatoes during these periods. Even though similar analysis was not performed for other commodities, we theorize that this conclusion would hold.

Another approach to the question is to compare the upper retail price directly to the common wholesale price of the prior day. Using the same notation as in the previous section, we will consider the following regression equation:

$$(3) \quad P^{U}_{it} = a + b P^{c}_{i,t-1}$$

That is, the Upper retail Price for commodity i on day t equals a fixed value a, plus a multiple b of the common wholesale Price for that commodity on day t-1.

In running the regressions, we were able to use daily data from the Amman Central Wholesale Market (ACWM) for eight commodities: eggplants, green beans, sweet peppers, cucumbers, squash, tomatoes, grapes and lemons. The econometric results indicate that there existed varying degrees of correlation between announced common wholesale prices of the wholesale market authority, and the controlled upper retail prices for the five commodities studied. (See Table 2.)

The results of the regression analysis for the products studied are interesting, but not surprising. In the case of tomatoes, where we had more than a year of daily prices, one could interpret that the implicit rule of the Retail Price Committee might have been to obtain the upper retail price for the next day, by adding 16.5 percent (obtained from the regression coefficient of 1.165) to the common wholesale price, plus 35 fils (obtained from the intercept of the linear regression of 0.035). Here we obtained an R^2 term of 0.96, [14] indicating that 96 percent of the raw variance in the dependent variable "upper retail price" is explained by the variance in the independent variable "common wholesale price". The causality in this statement is established through logical deduction from the theory. The t values of both the intercept and the regression coefficient indicate that these estimates are significant at the 0.95 level, and that we can reject the null hypotheses, $H_0 = 0$.

The results of the linear regressions for the other seven commodities are not very different. In all cases the regression coefficients are positive, the t-values for the estimated statistics are significant at the 0.95 level, and the R^2 terms are sufficiently high to indicate a good fit, with the possible exception of eggplant and grapes.

For cucumbers, in which the estimated regression equation resulted in an intercept of 0.035 and a regression coefficient of 1.141, the upper retail price is estimated by the common wholesale price of the previous day plus a factor of 0.141, plus 35 fils. The estimated regression equation is:

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[14] The R^2 statistic measures the percentage of raw variance which the regression line explains. It represents the algebraic difference between 1 and $(s_{Y.X}/s_Y)^2$.

Table 2. Linear Regression between the Upper Retail Price and the Common Wholesale Price from Prior Day, Selected Crops, Amman, 1988-1989.

PRODUCT Year	Inter-cept	t Value	Coeffi-cient	t Value	R^2	Degrees Freedom
EGGPLANT						
1988/89	0.044	5.04	1.090	7.71	.47	66
SWEET PEPPER						
1988-89	0.061	3.79	1.049	17.12	.80	74
GREEN BEANS						
1988-89	0.052	3.70	1.121	21.06	.86	69
CUCUMBER						
1988	0.035	6.84	1.141	32.68	.96	47
TOMATO						
1988	0.035	19.34	1.165	89.94	.96	293
SQUASH						
1988/89	0.036	8.74	1.146	31.46	.93	74
GRAPES						
1988	0.063	1.85	1.095	6.94	.52	42
LEMONS						
1988	0.052	4.67	1.084	19.06	.89	42

Source: Agricultural Marketing Organization (AMO) from records from the Amman Central Wholesale Market (ACWM).

Notes:

1) Upper retail price is the maximum price retailers can charge to customers; it is published by the MOS.
2) Common wholesale price is the most representative price as determined each day by the Retail Price Committee at the ACWM.
3) Regressions are based on daily data, excluding days for which a common wholesale price was not reported.
4) The months for which data was made available to conduct this study were:
   - Eggplant : 1988 (January and May); 1989 (May).
   - Sweet Peppers : 1988 (January and June); 1989 (June).
   - Green Beans : 1988 (January and May); 1989 (June).
   - Cucumber : 1988 (January and June).
   - Tomato : 1988 (All months); 1989 (May).
   - Squash : 1988 (January and June); 1989 (June).
   - Grapes : 1988 (July and October).
   - Lemons : 1988 (January and July).

4) $P^{U}_{it} = 0.035 + 1.141 * P^{c}_{i,t-1}$

Again, the t-value of both estimates are significant at the 0.95 level. The R^2 statistic of 0.96 reflects that 96 percent of the variance in the upper retail price is explained by the variance in the common wholesale price of the previous day.

The R^2 term for the estimated regression equation for squash was 0.93. The equation indicates that the upper retail price is approximated by adding to the common wholesale price of the previous day a factor of 0.146 of that price, plus 36 fils. The t-values of both the intercept and the regression coefficient are significant at the 0.95 level.

The estimated regression equation for lemons indicates that the upper retail price is approximated by the common wholesale price of the previous day, plus a factor of 0.084 (regression coefficient of 1.084), plus 52 fils (intercept of 0.052). The t-values of both these estimates are significant at the 0.95 level. The R^2 term for the estimated equation for lemons was 0.89, indicating that 89 percent of the variance in the upper retail price is explained by the variation in the common wholesale price of the previous day.

The estimated regression equations for green beans and sweet peppers resulted in R^2 terms slightly lower than those discussed to this point (0.86 and 0.80, respectively), however both are still significant. The estimated equations for these two commodities are:

5) $P^{U}_{it} = 0.052 + 1.121 * P^{c}_{i,t-1}$ Green beans

6) $P^{U}_{it} = 0.061 + 1.049 * P^{c}_{i,t-1}$ Sweet peppers

In the case of grapes, the estimated regression equation indicates that the upper retail price results from multiplying the common wholesale price of the previous day by a factor of 1.095 (the regression coefficient), and adding 63 fils (intercept of 0.063). Once more we observe t-values for both of these estimates which are significant at the 0.95 level. The R^2 term for the estimated equation for grapes was 0.52, indicating that just over half (52 percent) of the variance in the upper retail price is explained by the variation in the common wholesale price of the pervious day.

The estimated regression equation for eggplant resulted in an R^2 term of 0.47, the lowest of the commodities studied. This means that 47 percent of the variance in the upper retail price is explained by variation in the common wholesale price of the previous day. Nevertheless, the t-values of both the intercept and the regression coefficient are significant at the 0.95 level, allowing us to reject the null hypotheses, $H_0 = 0$. Again, the regression coefficient is greater than unity, indicating a positive margin between the upper retail price set by the Retail Price Committee and the pervious day's common wholesale price. In this case we could deduce that the upper retail price for eggplant, as set by the Retail Price Committee, is approximated by the common wholesale price of the previous day, plus a factor of 0.090 (regression coefficient of 1.090), plus 44 fils (intercept of 0.044).

The major conclusion which can be drawn from this analysis is that **there does not appear to be a common pattern for the gross margin across commodities** (at least those studied), lending support to the idea that the Retail Price Committee does not have a standard formula for setting the upper retail prices. Furthermore, a stated major aim of the committee is that of "stabilizing" the wholesale price of commodities through the fixing of retail prices. [15] As stated in the Introduction, the members of the Retail Price Committee in Amman freely admit that the margin added to the wholesale prices in order to arrive at the upper retail prices varies from 10 to 100 percent. This is supported by the fact that all the regression coefficients (b) are greater than one, and that they vary from a low of 1.049 for sweet peppers to a high of 1.165 for tomatoes. This implicitly introduces distortions into the price determination mechanism, in many cases negating in varying degrees the forces of supply and demand. The extent to which this is true in the Jordanian market for fruits and vegetables is difficult to quantify. But perhaps a more important question would be to ask whether the Retail Price Committee should be in this business, a question which we will attempt to address in a later section of this study.

Market Regulation by the Agricultural Marketing Organization (AMO)

Beyond that type of market regulation which was mentioned in the introductory section of this chapter, the AMO participates actively in the determination of trade regulations for the commodities under its mandate. Current regulations are issued by AMO under the

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[15] Al-Zu'bi, Akef, *Op.cit.*, p. 9.

authority granted it by Law No. 15 of 1987, [16] and by subsequent Cabinet decisions. These trade regulations form a part of the overall commercial policy of the Government of Jordan and have an important impact on the supply side of marketing system for fruits and vegetables.

The Board of Directors of the AMO issues a quarterly **Import and Export Plan**, updating the regulations for international trade and for the domestic marketing of the fruits and vegetables. The quarterly Plan is reviewed monthly by a committee composed of representatives of MOA, MOS, the Agricultural Marketing and Processing Company (AMPCO), and AMO to determine for which products imports or exports should be prohibited or permitted in that month. With the signature of the Minister of Agriculture, those decisions become effective.

Exports are permitted free of duties for all fruits and vegetables. Two documents are required in order to effect these transactions: a) a **quality certificate** issued by the AMO, indicating the that shipment satisfies the current marketing regulations, such as packaging material, weight and ripeness, among others, and b) an **export license** granted to exporters by AMO.

On the import side, the AMO indicates which fruit and vegetable commodities can and cannot be imported, and, in the case of those for which imports are permitted, when they can be imported. Typically, AMO groups products in four categories:

a) Products for which imports are completely prohibited (except as in c) below). This includes most fruits and vegetables.

b) Products which may be imported under State monopoly (a function given to AMPCO by Cabinet Decisions). The monopoly right is exercised by AMPCO for the so-called "shortage commodities": apples, onions, garlic, and potatoes. However, the Cabinet decided in early 1989, that onions and garlic could be imported by private traders, if and when they are granted a permit by the AMO.

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[16] Agricultural Marketing Organization (AMO). *Law and Functions - 1988.* AMO, Amman, 1988.

c) Conditional imports of certain products. Some government institutions can obtain import licenses for prohibited commodities, under international import agreements or Cabinet decisions: AMPCO, Royal Jordanian, [17] or the various branches of the Military (or their authorized suppliers).

d) Commodities with uncontrolled imports. Only dates and sage (meramyia, a herb) were included in this category.

Having obtained an import license, the importer is required to pay the following:

a) a license fee to AMO of JD 1.000 per metric ton;

b) customs tariff, if applicable (See Table 3.); and

c) a four (4) percent ad valorem fee to the Ministry of Commerce.

This, then, contributes to the supply side controls of the price determination for fruits and vegetables in the marketing system.

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[17] In June 1989, for example, Syrian pear imports were permitted in order to allow Royal Jordanian Airlines to convert Syrian currency which it was holding into Jordanian Dinars, obtained by AMPCO from the sales of pears.

Table 3. Jordan: Customs Tariff for Selected Fruits and Vegetables, January 1989.

Trade Regime:	Fruit or Vegetable	Tariff
State imports only:	apples	
	potatoes	0
Private imports:	onions	0
	garlic	0
Prohibited imports:	strawberries	
	tomatoes	23
	cucumbers	23
	eggplant	23
	squash	23
	watermelon	23
	green beans	23
	peppers, hot	23
	peppers, sweet	23

Source: World Bank. "Towards an Agricultural Sector Strategy." 1989, p. 37.

Notes:

a) A levy of 17.2% is applied to the import of items subject to duty; items not dutiable are subject to a 7.2 % tax.

CHAPTER 3

IMPACT ON PRICES AND EXPORTS

It is difficult to ascertain the impacts of the price control mechanism at the retail level using common data collection methodologies. First, to ask the retailer about the practices he uses to circumvent price controls, may not produce straightforward answers. Second, no government office collects actual prices paid by consumers, which could be used to compare with the controlled prices announced daily. Here we concentrate our analysis on the wholesale prices of fruits and vegetables and their relation to retail prices and the manner in which this impacts on the domestic and export markets for these commodities.

Previous Experience with Price Liberalization

In December of 1985, the Government of Jordan enacted a regulation to eliminate the price control program. The rationale used to justify this action was that it was the wish and insistence of several farmers to reach a fundamental solution to the marketing constrictions which the agricultural sector was facing at that time and which had led to the exposure of farmers to heavy financial losses due to the drop in the prices of their products in the central markets. [18] However, on March 3, 1986, three months later, the Government retracted the regulation, stating that the removal of retail price restrictions had not achieved the purpose for which it was issued, that of assisting the farmer with his marketing and financial problems, and that only the retailers had benefited from the move.

[18] Al-Zu'bi, Akef, *Op.cit.*, p. 16.

Tweeten, Jiron and Rassas reported on a study which was conducted of the liberalization period.[19] The major findings of the analysis were summarized as follows:

1. Wholesale prices decreased during the liberalization period in comparison with similar previous periods. However, the decrease reflected an increase in the quantities of fruits and vegetables sold at the ACWM during that period.

2. Retail prices increased for some commodities but decreased for most fruits and vegetables. More important, a basket representing the main fruits and vegetables consumed in Jordan was less expensive during the liberalization period.

3. Although price liberalization resulted in a higher retail margin, the new margin was not unreasonably higher than the controlled margin. Moreover, due to the high level of competition at the retail level, this margin would have adjusted downward, had the experiment been allowed to continue.

4. Price controls had adverse effects on both high- and low-income consumers. Merchants were, for fear of being fined, reluctant to sell high quality produce to consumers who were willing to pay for it, and attempted to sell lower quality produce at the ceiling price. Consequently, Jordanian consumers were faced with a situation where high-quality produce was in short supply and lower-quality produce sold at prices higher than they would have been under a free price system.

5. Pricing according to quality would have helped the export market by sending signals to farmers on the need to learn superior harvesting, grading and packing techniques.

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[19] Tweeten, Luther, Rolando Jiron and Bechir Rassas, *Analysis of Selected Agricultural Policies Affecting Production and Marketing of Fruits and Vegetables in Jordan.*, Agricultural Policy Analysis Project, Amman, January 1988. pp. B-3 to B-7.

These conclusions, according to Tweeten, et. al,. suggest that [the removal of retail price controls] would benefit high- and low-income consumers alike, and send price signals on quality to producers with resulting beneficial effects on the export market. The findings also suggest that the fear of high retail prices and margins associated with the elimination of retail price controls does not appear to be founded. [20]

How it could have been expected that within a three-month period the marketing system could sort out the new signals and even begin to react to them is incomprehensible. In the first place, the production cycle for the majority of the fruit and vegetable commodities is considerably longer than three months. It would not have been possible, even if the correct signals were being sent and if they were being interpreted properly, for the producers to have had sufficient time to effect the necessary adjustments in their operations. On the other hand, it could be considered a natural phenomenon, with retail price controls having been eliminated after a period of strict control during almost twenty years, that commodity prices at that level would be increased by the retailers in an effort to "test" the market. However, it would be equally expected that, given the necessary time to react to the new situation and the effects of strong competition among the large number of retailers which exists in the Kingdom, the retail price level would have stabilized at some reasonable margin above the prevailing wholesale price. In either of these cases, it could hardly be supposed that three months is a sufficient period of time to test such a major change in price policy.

Efficiency in the Marketing System

An efficient marketing system is one in which accurate and timely information is shared between the producers of commodities and/or services and those who are the final consumers of those commodities. This includes maintaining equally informed all intermediate economic units within the system. Only through the existence and effective implementation of such a communication apparatus can the system hope that the correct market signals will be communicated, thereby permitting equally the production, the marketing and the consumer activities to operate at maximum efficiency.

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20 *Ibid.*

Anytime an individual, or a small group of individuals, operating with less than clearly specified procedures and less than complete overall market information, is permitted to influence the operation of the price determination process, a situation is created in which distortions can be introduced easily. The lack of clearly specified procedures gives the operatives the leeway for interpretation and alteration of the methods - bending without breaking the rules. This leads to the generation of signals within the marketing system which are confounding to others. The implementation of these procedures without the benefit of complete market information will result in nothing less than chaos.

Quality Improvements at the Farm Level

Under the present system of controlled retail prices, and its impact on the price formation activity at the wholesale level, the market signals which the producers of fruits and vegetables are receiving are ones which do not motivate them to improve the quality of the produce which they are sending to the market. This includes improvements in production practices as well as harvesting, handling, grading, transportation. Without a pricing system which permits price differentiation according to strict quality standards - one which provides a premium for consistent high quality produce - the fruit and vegetable producer will not make the effort or investment required to effect the change.

Price Discrimination at the Retail Level

The price control program is one major factor inhibiting the development of modern sorting and grading practices in Jordan. It is impossible to impose effective grading through government regulation alone. There must be some economic incentive for the farmer to adopt the costly practices of sorting and grading. In other words, there must be some price differentiation between the higher quality and the lower quality products. As noted earlier, under the current price control program, retailers have no reason to pay higher prices for higher quality products, since they can legally sell everything at the upper retail price anyway. Actually, there is an incentive for retailers to hide the higher quality product to be sold illegally at an even higher price to trusted customers who want, and are willing to pay for, that higher quality.

In interviews with a stratified sample of fruit and vegetable retailers, eighty-two percent reported that the "fixed retail price of these commodities affects their buying practices. [21] Approximately 68 percent of the retailers interviewed responded that they would pay higher prices for better quality produce, while some 57 percent said that product grading would permit them to better fulfill the demands of their customers and would increase the speed of their sales. Another 18 percent indicated that price differentials based on grades would assist them in gaining more customers and increasing their returns. Then it could be concluded that the removal of price controls at the retail level would create an atmosphere within which retailers would be able and willing to implement a system of grades and standards for fruits and vegetables.

Services Offered by Wholesalers and Commission Agents

Harrison, et.al., offer an extensive analysis of the services provided by wholesalers and commission agents within the marketing system of the Kingdom. [22] In the survey conducted in that study, the commission agents indicated that they provided the following services to the market participants:

- services to farmers:
    - 29 percent said they provided credit;
    - 28 percent provide market information;
- services to retailers:
    - 11 percent re-sell some products for the retailers;
- services to exporters;
    - about 30 percent buy products on behalf of exporters;
    - 16 percent provide exporters with market information;

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21 *Ibid*, p. 100.

22 Harrison, K. M., et.al., *Op.cit.*, pp. 45-49, 93-97.

- 15 percent provide especially high quality products;
- nearly 90 percent provide credit to exporters; 25 percent collect in one month, 25 percent in two to four weeks and 44 percent after one week.

These results indicate that the major portion of the services provided by commission agents is to exporters. Other participants in the marketing system receive only minimal services. However, this study did not evaluate the impact that the existence of the retail price control program is having on the provision of services.

The basic problem here seems to be one of concentration (lack of competition). Since there are such a small number of commission agents operating in the wholesale markets in the Kingdom, there is no incentive for them to do any more than provide a few basic services. The case of the exporters is somewhat different, due to the fact that there are, also, only a few of them - sometimes the commission agent and the exporter is the same person. The effect of the removal of the retail price controls, without a major restructuring of the wholesale market organization, will be limited.

Consumer Welfare

The extent to which the welfare of the consumer is being impacted by the retail price control program for fruits and vegetables is of major concern. As mentioned in previous section of this study, one (if not the only) reason for the initiation of the program was to protect the consumer from unscrupulous retailers who would, given the chance, apply unreasonably high margins to the products they sell. Here we can cite three points.

First, given the large number of fruit and vegetable retailers in the Kingdom, it would be unlikely that price gouging which might occur at a point in time should price controls be lifted, would be long lived. (The experiment of 1985, as mentioned previously, was not sufficiently long to test this theory.) The shear numbers of retailer establishments would disallow collusion. Consumer action and the desire of the retailer to maintain (or achieve) his market share would force prices to a level consistent with reasonable marketing margins.

Second, the freeing of controls for the price discovery mechanism at the retail level and the resultant increase in competition among retailers would open an avenue for the entry

of new establishments at the retail level. Tweeten, et.al., report that, during the period between December 1985 and February 1986, there were 300 new retail establishments in business.[23] This would indicate that the position of the consumer would be improved under a system which did not include price controls at the retail level.

Last, the issue of product quality can be mentioned once again. In previous sections we have discussed the fact that the retail price control program is a disincentive to the development and implementation of grades and standards. If it is accepted that this is the case and if the price control program for fruits and vegetables would be eliminated, the consumer would benefit in two ways. First, the low income consumer would have available to him a grade of produce which would be within his range of purchasing power. Second, other consumers would have the option to purchase, and the retailer the option to sell, higher grades of produce at prices which the consumer is willing to pay and at which the retailer is legally allowed to charge. There could exist in the market a full range of products for all consumers.

Export Promotion Efforts

The price control program is very likely a major barrier to expanded exports to the Gulf States and to Europe. Until a very few years ago, Jordanian producers and exporters were able to compete effectively in the Gulf States markets with a very undifferentiated product, i.e., farmers harvested everything in the field at a particular moment, packed everything in styrofoam containers, putting the small immature or damaged product on the bottom, and sent it to the wholesale market or directly to the Gulf States exporters. Under the favorable conditions of the 1970's and the early 1980's, when Jordan's production costs were falling and the demand of consumers in the Gulf States was increasing, there was little effective competition for Jordanian products. Buyers in the Gulf States had little choice but to accept the situation. However, these conditions have changed. Jordanian vegetable exports, the major portion of which go to the Gulf States, decreased by about 30 percent between 1983 and 1987.[24] Jordan export products now face strong competition from the products of countries, especially Turkey, whose

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[23] Tweeten, Luther, Rolando Jiron and Bechir Rassas. *Op.cit.*, p. B-5.

[24] Harrison, Kelly M., et.al., *Op.cit.*, p. 20.

exporters ship a uniformly mature, high quality product based on modern sorting, grading and packing techniques. Their competition will eventually force Jordanians to modify their practices or continue losing their market share.

International Price Linkages

In this section an attempt is made to examine the linkages between domestic prices and those in the international market. In order to accomplish this, we would normally employ time series data related to the wholesale prices in Jordan and to the cif prices in the importing country. To the best of our knowledge the series of cif prices for the major importers of Jordanian fruits and vegetables (the Gulf States) either do not exist or can only be obtained from national sources which are not readily available. Scobie and Youngblood, therefore, used data on the value and quantities of tomatoes (historically Jordan's highest valued export) traded between Jordan and Saudi Arabia (historically one of the largest importers of Jordanian fruits and vegetables) to compute implicit prices. [25] They imputed the cif price in riyals per kilogram from the Saudi Arabian import statistics and the fob price ex-Jordan of tomatoes destined for Saudi Arabia from Jordanian trade data, expressed in fils per kilogram, for the period 1981 through 1987. In taking the ratio of these two implicit prices [fob Jordan (fils/kg) / cif Saudi Arabia (riyals/kg)], they calculated the implied exchange rate of fils per riyal, the implied exchange rate at which the trade was taking place. Scobie and Youngblood state that, if there exists a close degree of price linkage, then one would expect that the implied exchange rate should vary little from the actual rate. They showed this to be the case, concluding that over this period there were no significant deviations from the expected pattern of price linkages between the two countries. In their attempt to link the cif and fob prices back to the wholesale prices in Amman, they computed the annual percentage changes in each of these three prices. The results indicated, in general, that the relative price movements were in the same direction, although the magnitudes differ substantially at times. [26]

Another approach to this type of analysis would be to relate the domestic wholesale price series to that of a market which represents the larger international market. For this

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25 Scobie, Grant M., and Curtis E. Youngblood, *Op.cit.*, January 1990., pp.15 -16.

26 *Ibid.*

purpose the Jordanian monthly wholesale price series for the period from 1985 to 1989, is used here to analyze the relation to a similar series from the United Kingdom. The UK is used to represent the international prices.

The series were analyzed using a seasonal adjustment procedure. [27] Seasonal adjustment is based on the assumption that seasonal fluctuations can be measured in the original time series, and separated from trend, cyclical, and irregular fluctuations. The seasonal factor is the intra-year variation that is repeated constantly, or in an evolving fashion, from year to year. The trend cycle includes variation due to the long term trend, business cycle, and other cyclical factors. The irregular component is the residual variation.

The procedure applies a centered 12-month moving average to the original series to provide estimates of the trend cycle curve, removing seasonal and irregular variation. The seasonal component is obtained by dividing the original series by the trend cycle values. These steps are performed in three iterations, each of which provides estimates of the seasonal, trend cycle, and irregular component of the series, and makes refined estimates of extreme values in the irregular components. The procedure then produces final estimates of the seasonal component, seasonally adjusted series, trend cycle, and irregular components.

The price comparison was done for eggplant, squash, cucumber, and tomato. For these four commodities, we could obtain complete series for both Jordan and the UK. The United Kingdom prices were converted to Jordanian Dinars (JD) using the official exchange rate in terms of JD's per British Pound (£). This rate was obtained as the product of the JD/US$ rate and the US$/£ rate, as published by the International Monetary Fund. No attempt was made to deduct the cost of transportation from Jordan to the United Kingdom because of lack of reliable data. We first studied the seasonal component of the series, and then the analysis focused on the trend cycle component of the two price series.

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[27] This was the US Bureau of the Census X-11 procedure as described in SAS Institute Inc. "SAS/ETS User's Guide, Version 6, First Edition, Cary, NC, 1988, pp.523-545.

Seasonal Factors

The seasonal factor is the intra-year variation that is repeated from year to year. It is the result of the division of the seasonally adjusted series of prices by the trend cycle, as obtained from the SAS/X11 procedure, after adjusting for extreme values of the irregular component of the series. The seasonal indicators could be used to design storing and exporting strategies.

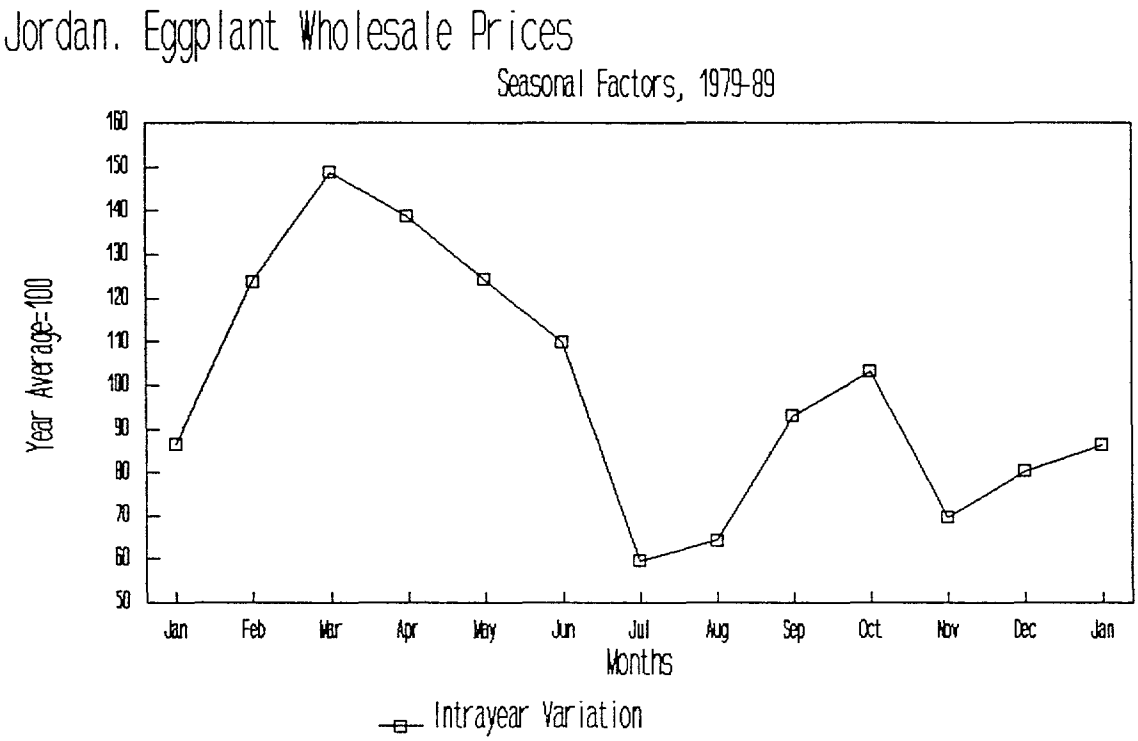
Figures 1, 2, 3 and 4 present the seasonal factors of the nominal wholesale price for eggplant, squash, cucumber and tomato, respectively, in Jordan. The Jordan indicators are based on monthly data for the 1979-89 period. The results for Jordan clearly show a drop in wholesale prices in the summer months and indicate the presence of a distinct annual pattern of price variation. For eggplant, squash and cucumber, the seasonal pattern seems to indicate a second large harvest during November and December.

The inference from this analysis is that retail price controls, based on wholesale prices, are not affecting the temporal determination of prices between harvests. Trying to maintain stable prices year-round could be very costly, as it would require expensive storage of commodities by the state. The wholesale price seasonality reflects different scarcity levels during the year. The controlled retail price, then, would vary within the year, following the wholesale pattern.

Trend Cycle

Figures 5, 6, 7 and 8 present the trend cycle of the nominal wholesale price for eggplant, squash, cucumber and tomato, respectively, in both the United Kingdom and Jordan for the period from 1985 to 1989. For this four-year period the figures tend to suggest a different trend cycle for the two countries: increasing in the United Kingdom and stable in Jordan. This difference is statistically significant (see Table 4) for the period considered. A log linear regression of the trend cycle curves and a time variable shows that the coefficients (which can be interpreted as rates of increase) are small and not significant in the case of Jordan, while they are significant for the case of the United Kingdom. There is very little trade between the two countries in the commodities analyzed, but the United Kingdom could be considered the common point of reference for Jordanian competitors within the European market.

Figure 1

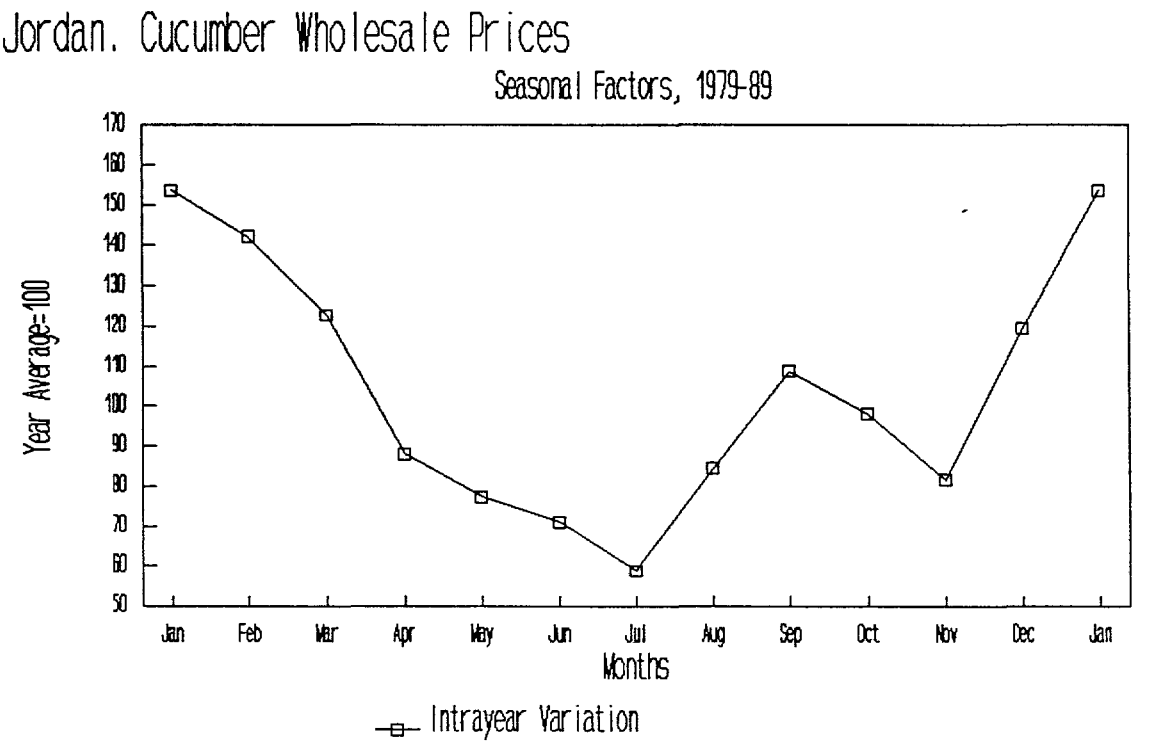


Source: AMD and ACMN
Procedure X11 on Nominal Prices.

Figure 2

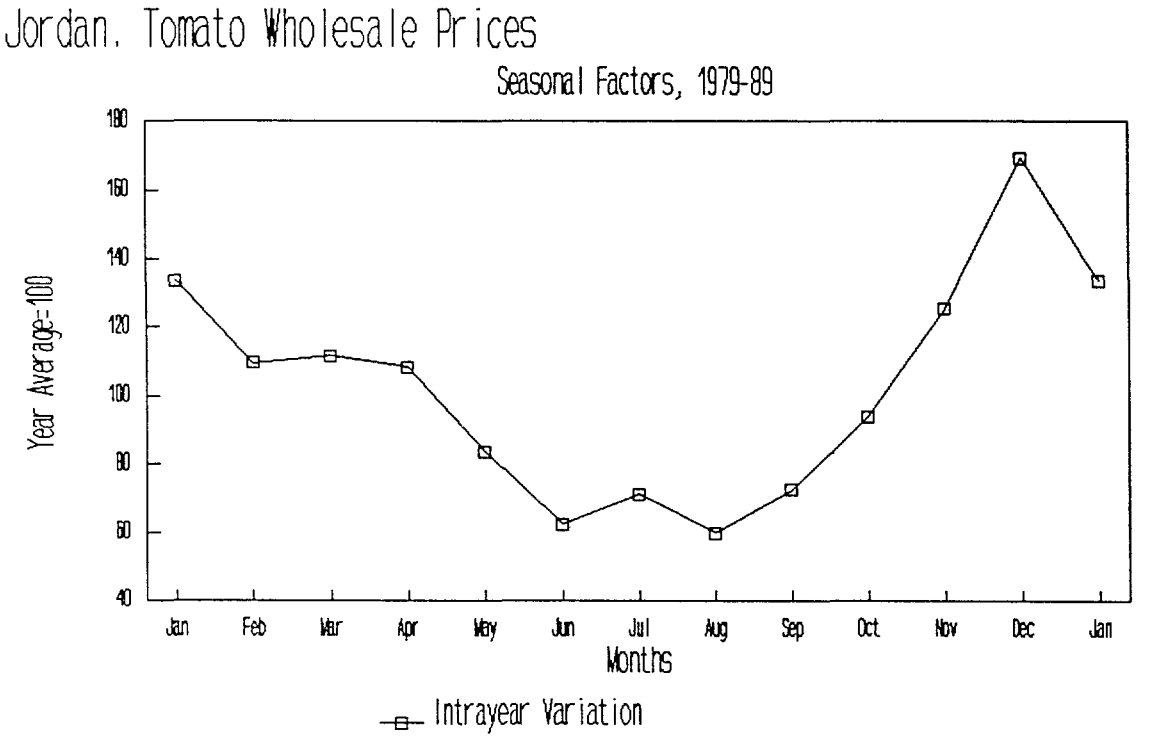
Source: AMD and ACMN
Procedure X11 on Nominal Prices.

Figure 3



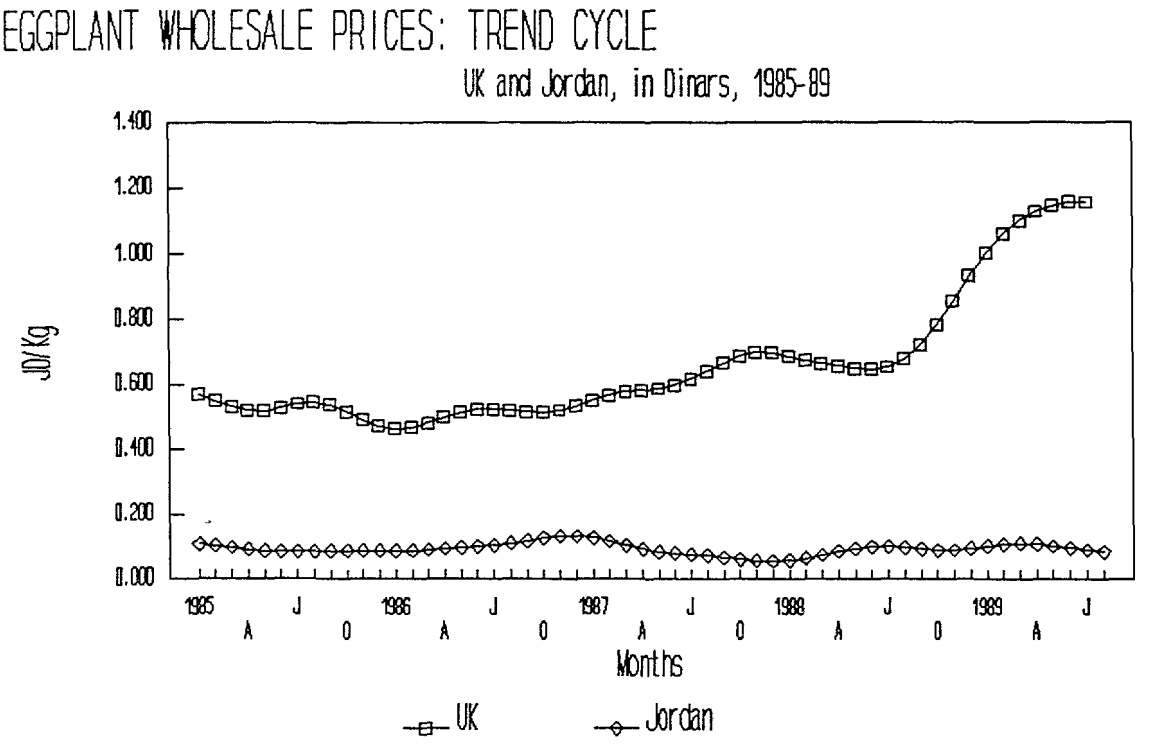
Source: AMD and ACMN
Procedure X11 on Nominal Prices.

Figure 4



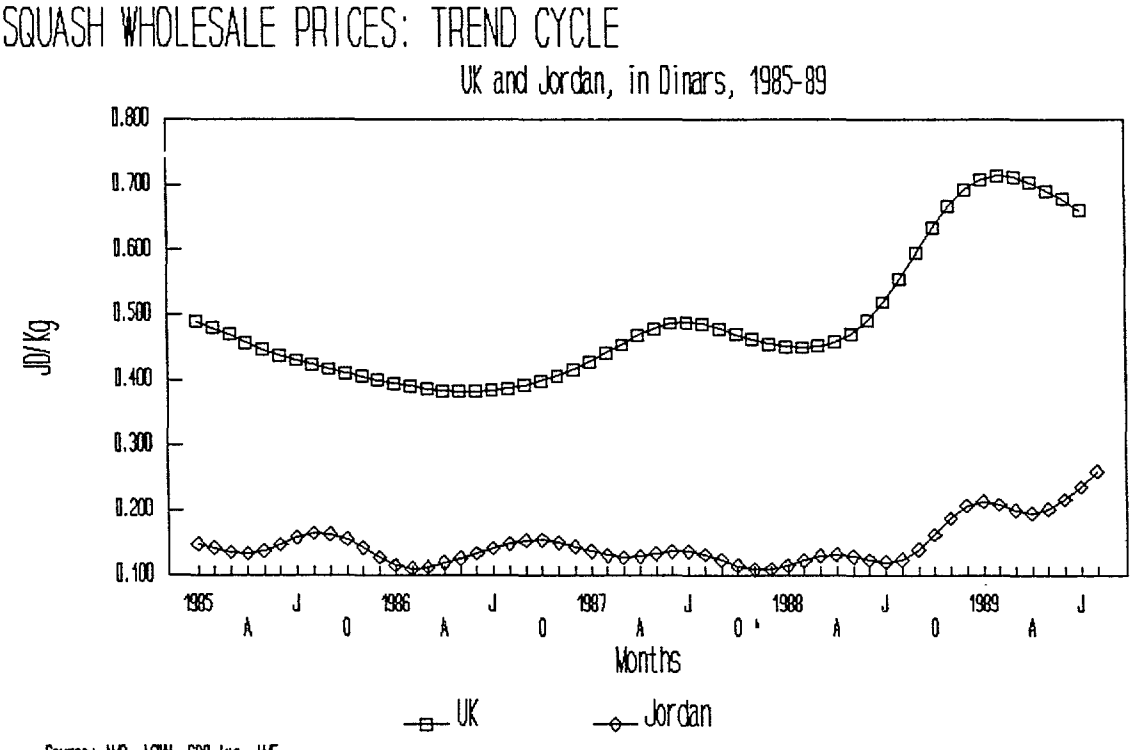
Source: AMD and ACMM
Procedure X11 on Nominal Prices.

Figure 5



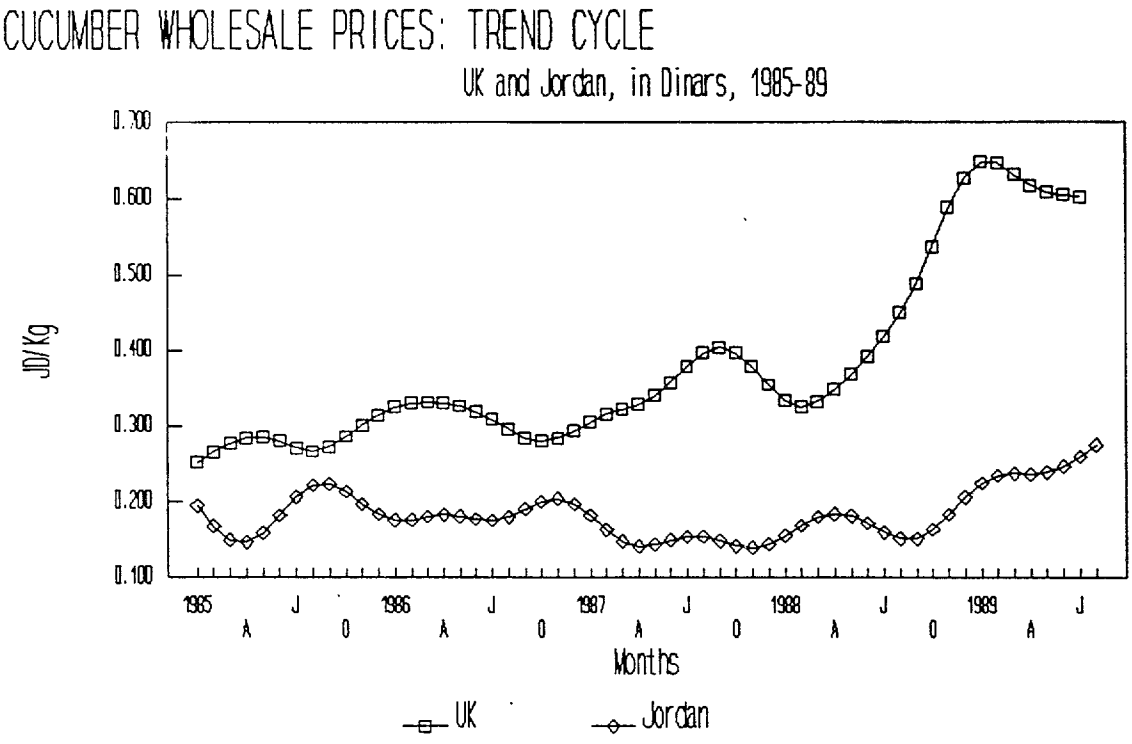
Source: AMD, ACMI, SDR Inc, IMF
UK prices in Dinars at the Official Exchange Rate.

Figure 6



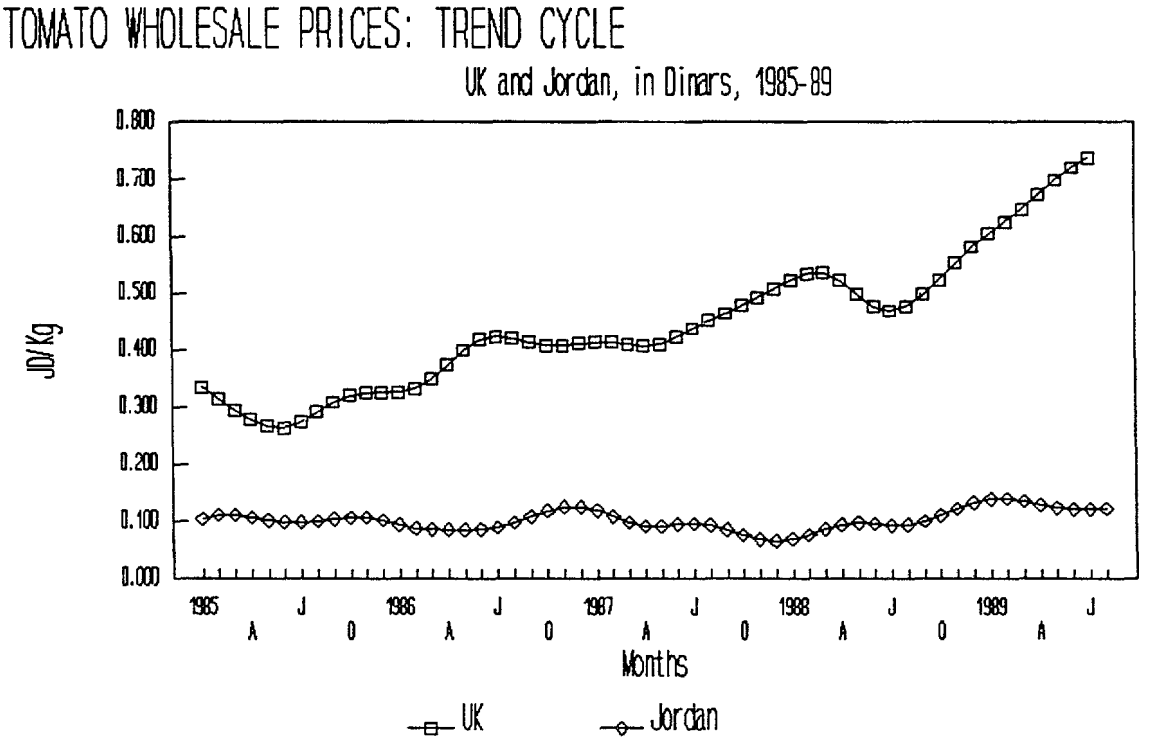
Source: AMD, ACMM, SDR Inc, IMF
UK prices in Dinars at the Official Exchange Rate.

Figure 7



Source: AMD, ACMM, SDR Inc, IMF
UK prices in Dinars at the Official Exchange Rate.

Figure 8



Source: AMD, ACWM, SDR Inc, IMF
UK prices in Dinars at the Official Exchange Rate.

Table 4. Log-Linear Regression between Wholesale Prices and a Time Variable, Jordan and United Kingdom, Selected Crops, 1985-1989.

PRODUCT Year	Inter-cept	t Value	Coeffi-cient	t Value	R^2	Degrees Freedom
JORDAN:						
Eggplant	-2.308	23.93	-.024	0.80	-.01	53
Squash	-2.072	22.46	0.043	1.51	0.02	53
Cucumber	-1.764	21.94	0.015	0.61	-.01	53
Tomato	-2.305	26.99	0.004	0.15	-.01	53
UNITED KINGDOM:						
Eggplant	-1.013	10.18	0.182	5.84	0.38	53
Squash	-1.060	12.69	0.105	4.04	0.22	53
Cucumber	-1.699	17.81	0.224	7.52	0.51	53
Tomato	-1.612	23.32	0.251	11.58	0.71	53

Source: Agricultural Marketing Organization (AMO) from records from the Amman Central Wholesale Market (ACWM); SDR, Inc. for UK prices; IMF for exchange rates.

Notes:

1) Jordan: prices are the "common" wholesale price, the most representative price as determined each day by the Retail Price Committee at the ACWM.

2) UK: prices are weighted averages of the first week of each month for six major wholesale markets, all grades and all suppliers, transformed in Jordan Dinars using the product of the US$/£ and JD/US$ rates.

The Jordanian producers have not been receiving a price in accordance with what could have been obtained under completely free trade conditions. The Jordan Dinar was overvalued in this period.[28] This tends to suggest that the difference in trends would have been more pronounced under a freer exchange rate regime, or that the Jordanian producers faced far lower prices than indicated by the regressions.

The "law of one price" maintains that the foreign price of a commodity, once adjusted for differential exchange rates, will be equal to the domestic price of the commodity, plus an adjustment for transportation costs. This "law" is, for the most part, a long range phenomenon, due to the fact that in the short run transportation and other impediments to commodity arbitrage prevent the law from taking effect.

The divergence between United Kingdom and Jordan prices seems to indicate the existence of a separation between these two markets. Jordan prices are stagnant, while in a relevant market reference for Jordan exports, the United Kingdom, prices are increasing significantly in nominal terms. This represents a discrimination against producers, but in favor of consumers. The separation of the two markets may be due to obstacles to arbitrage: difficulties of transportation, non-competitive trade, administrative and quantitative restrictions on trade, and price control.

The lack of adequate and economical transportation facilities could make the arbitrage operations impossible. The export markets could be controlled by traders with privileged access to storage and transportation facilities. The exporter also may be getting the higher foreign price, but may not be passing the price on to producers. They sell in the profitable foreign market but buy in a wholesale market highly influenced by domestic demand and at a price that is formed partly by purchases of retailers fully exposed to prosecution for retail price control violations. The further separated the two markets are, the larger is the weight of the domestic market in the formation of the domestic price. In highly integrated markets, Jordanian prices would tend to follow the international prices.

The regulation of exports and marketing through licenses, may make export transactions more difficult and expensive. The implicit state role becomes one of regulating exports not promoting them. The contention is that exports reduce domestic availability and, therefore exercise upward pressure on prices. In this sense, retail price control could be

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[28] Youngblood, Scobie, and El-Hurani, *Op.cit.*, August 1989, p. 31.

playing an important role in determining the trend of domestic prices. However, the relative importance of this role depends on the coercive power of the state to effectively enforce the controls through prosecution. Efforts at the evasion of the controls may be increasing the costs of both the merchants that export and of those that sell domestically.

Opinion of the Marketing System Participants

In the survey previously mentioned, retailers listed a number of additional reasons for supporting the idea of the elimination of retail price controls. These included:

- [Price controls] restricts freedom in public auction and causes confusion.
- Pricing is based on the [wholesale] selling price and not on quality.
- Floating of prices creates competition among retailers. It is necessary [especially] if the [quantities offered in the market] diminishes.
- Pricing does not give the real price or a fair profit for the farmer or retailer.
- Floating of prices encourages the farmer to grade his goods, and quality determines the price, thus resulting in competition among farmers.

In a similar survey conducted among commission agent of the wholesale markets of Amman, Irbid and Zarka, more than twenty-five percent of the agents interviewed stated that retail price controls should be eliminated. This point is interesting due to the fact that the wholesalers generally are thought to benefit from the currently configured price control program. Their argument included:

- [Price determination] should be based on quality and classification.
- It serves neither the consumer nor the trader.
- Pricing restricts competition.
- Creates a lack of arbitrage among the different wholesale markets.

An additional twenty-five percent of the commission agents indicated that, if continued, the price policy apparatus should undergo major revisions. In general, both the interviewed retailers and commission agents hold a less than positive view of the effects of the price control program.

The net result is that the price control program has exactly the opposite of its intended effects. Consumers pay higher prices and farmers provide less product to the market and receive a lower price than they would under a free market pricing arrangement.

CHAPTER 4

ECONOMIC JUSTIFICATION AND EFFECTIVENESS

It seems that until recently no one has objectively questioned the need or current economic justification for price controls on fruits and vegetables nor the effectiveness of this program in achieving its designed objective. As mentioned in the Introduction, the price control program was adopted in 1968, to serve as a "means of controlling the profit margin of retailers, to maintain prices within the limits of the consumers' capabilities." [29] Al-Zu'bi, however, reported that the Retail Price Committee, additionally, attempts to set retail prices in order to influence wholesale prices to, "help the producer". Regardless of the fact that it is not possible for the committee to attend to both of these objectives simultaneously, assuming that it would be feasible to attempt either at a specific point in time, we will view each in turn.

Economic Justification

The current situation in the retail market for fruits and vegetables does not support the continuation of a price control program based on the justification of, "protecting the consumer from the retailer's high profit margin." The implied price gouging can occur only in the presence of collusion among the participants in that level of the marketing chain. Collusion at the retail level among the vendors of fruits and vegetables in Jordan is highly unlikely. In Amman alone, there are about 1650 retail shops which sell fruits and vegetables. [30] Of these, some 950 specialize exclusively in fruits and vegetables (green grocers), about 650 are small grocery stores selling a limited line of fruits and vegetables in addition to other food items, and 36 are "supermarkets" which sell fruits and vegetables

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29 Al-Zu'bi, Akef, *Op.cit.*, p. 1.

30 Harrison, Kelly M., et.al., *Op.cit.*, p. 60.

as well as a broad line of other consumer goods. If one were to add to these numbers the number of those establishments in the rest of Jordan, (outside the municipality of Amman), it would be reasonable to conclude that the retail level of the fruit and vegetable market in Jordan is highly competitive and, further, that there is no indication of the existence of the conditions necessary for price collusion.

In contrast to the above stated purpose of the price control program, Al-Zu'bi reports that his observation of the procedures employed by the Retail Price Committee not infrequently varied from the stated methodology, fixing retail prices of some commodities at levels as much as 100 percent above the prevailing wholesale price for the pervious day. We could question the degree to which "protection of the consumer" is being considered when the marketing margin allowed exceeds the percentage specified in the published guidelines, especially by so much.

Al-Zu'bi reported that members of the committee, when questioned about the high margins, indicated that, "they raised the [retail] price for the consumer in order to raise the wholesale price in the following days, as an assistance to the producer."[31] He further indicated that, "This stems from their solid conviction, throughout their experience, that there is a direct correlation between wholesale price and the consumer price."[32] This observation is not unreasonable, since it has been observed that no retail buyer in the wholesale market is willing to begin his purchases on a given day until he has reviewed the control prices published in that days newspaper, and which "are based" on the wholesale prices of the previous day.

We can examine the extent to which the controlled retail price impacts the wholesale price discovery for the following day through the use of a linear regression equation relating the common wholesale price of tomatoes (daily data for the period 1988 and the month of May 1989) to the upper retail price. (The lagged upper retail price was not used, due to the fact that it is the retail price that was set for today that effects the wholesale prices of today.) The estimated equation which resulted was:

$$7) \qquad P^{c}_{t} = -0.014 + 0.637 * P^{U}_{t-1}$$

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31 Al-Zu'bi, Akef, *Op.cit.*, p. 9.

32 *Ibid.*

where P^{c}_{t} is the Common Wholesale Price on day t and P^{U}_{t-1} is the Upper Retail Price on day t-1. The adjusted R^2 term for the equation was 0.9383, indicating a high degree of explanatory significance. The t-value for both of the estimated parameters were significant at the 0.095 level. One might conclude from this that there is a high degree of dependence of dependent variable (today's common wholesale price) on the independent variable (today's published upper retail price) for tomatoes. A similar degree of dependence could be shown for other products.

One should not take this result to be abnormal or uniquely characteristic of a market system in which a retail price control program is being implemented. Furthermore, there will almost always be this type of dependence where the best (if not only) source of published market information is that related to the retail price. The question is, then, the degree to which the Retail Price Committee is manipulating wholesale prices through the setting of retail prices and, therefore, disallowing the market forces of supply and demand to operate freely.

If the Retail Price Committee, in setting retail prices at levels which allow 'excess' profits for the retailer, are trying to assist producers, it can be shown that in the long run they are doing just the opposite. These artificially high prices transmit to the producer an erroneous message related to the relative supply-demand conditions of the market. In response, the producer will continue to send the same, or even larger, quantities of the commodity to be sold in the market on the following day. This will drive the wholesale prices even lower and increase the retail marketing margins by an even larger amount (or require that the retail prices for the following day be adjusted drastically downward). Therefore, the higher retail prices will not result, necessarily, in higher wholesale prices, but will often cause decreases due to the larger quantities of produce being offered.

Effectiveness

One would be interested in knowing the extent to which the retail price control mechanism is effective in preventing retailers from selling above the upper limit. Here we should discuss the issues of enforceability and relevance.

Enforceability. Enforceability refers to the power of the government to make the price control be obeyed. The control of quantity (in the form of stocks or import monopoly) can

contribute to the capacity of the government to enforce price controls to the extent that it owns part of the supply which is to be sold at the controlled prices. Standing ready to sell at the controlled price, the government can enforce the price while its supply lasts. We know this is not the case in Jordan for fruits and vegetables, with the exception of apples. Enforcement is, therefore, concentrated in the coercive power of the state, as exercised in the prosecution of violations.

Relevance. Relevance refers to whether or not the price limits are actually binding constraints on the profit potential of retailers. Certainly a retail gross margin of 16 percent for tomato (Table 1) over the common wholesale price could be very restrictive, since it has to cover handling, transportation, retailing, and other sales expenses, plus fixed costs. The gross margins are smaller for the other crops analyzed (Table 1). The gross margin may be acting as binding constraints and, hence, may represent a relevant management problem with which retailers need to deal.

The issue is complicated because the controlled price is unique while there are varying levels of quality of a commodity. A retailer who bought high quality produce at a price higher than the "common" wholesale price would suffer an even smaller gross margin or would be compelled to charge a price higher than the legal upper retail price. To avoid prosecution, he may not display this high quality produce on his shelves, reserving it for trusted customers, or he may require "tied-in" purchases or blend the different qualities to obtain one that can be sold at a price in compliance with the controlled price. All these would result directly in the unproductive use of resources.

The net result of forcing high quality produce underground would be to make quality discrimination more expensive. The quality grades would be undefined at the retail level and disconnected from the grades into which the farmers classify the produce. In the end there would be no incentives to separate produce according to quality standards. Such a situation would affect not only the quality of the produce available to the average consumer, but also the export potential of the commodities since quality grades are an integral part of international markets. From this we can conclude that, under the supposed purpose for the initiation of the retail price control program and the current conditions which exist in the retail sector of the market for fruits and vegetables in Jordan, there is no longer an economic justification for its continuation. Further, the current mechanism for enforcing price controls is not effective.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The retail price control program of Jordan was instituted during a period of abnormal market conditions, i.e., the sharp rise in the prices of fruits and vegetables which followed the 1967 War, when the East Bank hosted thousands of Palestinian refugees and the Kingdom lost the West Bank production of vegetables and fruits. The extreme conditions of that period no longer exist in the Jordan.

The stated rationale for the implementation of the program was to protect the consumer. The program has evolved to a point where those who are in the position of managing it, are attempting to do so in a manner such as to "help" participants at a number of levels within the marketing system. A program which was designed to regulate marketing margins at the retail level cannot be employed effectively as a regulator of prices and margins at other levels of the chain. The distortionary effects introduced in this effort produce erroneous market signals at all levels of the system.

There does not seem to be a common pattern employed in the procedures used to arrive at the "summary" wholesale prices or the controlled retail prices. The Retail Price Committee seems to place considerable emphasis on the subjective readings by the members of the prices being transacted in the wholesale market. The scope of transaction prices used by the Retail Price Committee is limited. The committee cannot react to the complete circumstances of the market, regardless of how good an 'average' job they are doing.

There does not appear to be a common pattern for the gross margin across commodities, lending support to the idea that the Retail Price Committee does not have a standard formula for setting the upper retail prices. Furthermore, a stated major aim of the committee is that of "stabilizing" the wholesale price of commodities through the fixing of retail prices. Artificially high prices set by the Retail Price Committee to "assist the producer" transmit to the producer an erroneous message related to the relative supply-demand conditions of the market. In response, the producer will continue to send the same, or even larger, quantities of the commodity to be sold in the market on the following day. This will drive the wholesale prices even lower and increase the retail marketing margins by an even larger amount (or require that the retail prices for the following day be adjusted drastically downward). This implicitly introduces distortions into the price determination mechanism, in many cases negating in varying degrees the forces of supply and demand.

The Board of Directors of the AMO issues a quarterly Import and Export Plan, updating the regulations for international trade and for the domestic marketing of the fruits and vegetables. The quarterly Plan is reviewed monthly to determine for which products imports or exports should be prohibited or permitted in that month. With the signature of the Minister of Agriculture, these decisions become effective. Exports are permitted free of duties for all fruits and vegetables. Two documents are issued by the AMO in order to effect these transactions: a) a quality certificate and, b) an export license. Neither of these documents are used to effectively control the quantity of produce exported. Imports of fruits and vegetables, particularly the "shortage" commodities, are permitted only through the government-controlled import company. This results in many market inefficiencies, including those related to the customary bureaucratic red tape of government agencies.

Currently there is a large number of fruit and vegetable retailers in the Kingdom. Liberalization of retail prices would probably cause the number of retailers to increase. It is reasonable to conclude that the retail level of the fruit and vegetable market in Jordan is highly competitive and, further, that there is no indication of the existence, or potential for the creation, of the conditions necessary for price collusion.

The issue of regulated prices is complicated because the controlled price is unique while there are varying levels of quality of a commodity. In order to avoid prosecution, a retailer who handles high quality produce may not display it on his shelves, reserving it for trusted

customers, or he may require "tied-in" purchases or blend the different qualities. The net result of forcing high quality produce underground would be to make quality discrimination more expensive. The quality grades are undefined at the retail level and disconnected from the grades into which the farmers classify their produce. There are no incentives to separate produce according to quality standards. Such a situation affects not only the quality of the produce available to the average consumer, but also the export potential of the commodities.

The net result of the retail price control program is that its effects are exactly the opposite of those which were intended. Consumers have a narrower range of selection and pay higher prices for the produce they purchase, farmers provide less product to the market and receive a lower price for those commodities than they would under a free market pricing arrangement, wholesalers and exporters are permitted to manipulate the market to their advantage, and retailers are not effectively controlled as to the marketing margins which they charge.

Recommendations

The foregoing analysis permits outlining some recommendations for addressing a series of marketing reforms which could improve the efficiency of the current system, while considering the objectives of the government to improve the economic position of the producer, to provide quality produce at reasonable prices to the Jordanian consumer, and to create an atmosphere to facilitate the expansion of the export of Jordanian products around the world. The suggestions are oriented to improve the price discovery function in the wholesale markets, to eliminate the distortional effects of price fixing on marketing efficiency, and to promote orderly interchange with world market forces and prices.

1. To improve marketing efficiency:

    a) **Eliminate the retail price control program for all fruit and vegetable commodities.** This action is a prerequisite to the implementation of an overall reform program for the fruit and vegetable marketing system in the Kingdom. The liberalization of retail prices for these commodities will permit non-distortionary

marketing signals to be transmitted throughout the system, allowing each level within the production-marketing-consumer chain the opportunity to maximize his benefits.

b) **Permit direct shipment by producers to retail establishments in Amman and other major cities**, without necessarily passing by the central wholesale markets. This, in combination with an adequate Market News Service (See recommendation 2.b.), will allow the producer the opportunity to increase his profits without raising the price of the produce at the retail level.

2. To improve the price discovery function at the wholesale market level:

a) Accelerate the completion of the design and implementation of a **system of grades and standards** to allow price discrimination among different qualities of produce. As a result of this action the producer and the market will be permitted to respond to the desires of the buyer (wholesaler, retailer, consumer or exporter) in providing, at a price related to the existing demand, a product which fulfills the needs and is within the economic limitations of each of them.

b) Accelerate the completion of the design and implementation of the **Market News Service** for fruits and vegetables, currently underway in the Agricultural Marketing Organization. This will improve the quality and timeliness of market information to all participants in the system, permitting them, in combination with the system of grades and standards, to more effectively react to the current market conditions. An integral part of the Service should be the posting of information on a public blackboard in the wholesale markets to show prices and quantities of the latest transactions for each commodity.

c) **Reorganize the central wholesale markets**, including the regulations governing the licencing and operations of the commission agents, in order to eliminate the distortionary effects, as recommended in the study of the wholesale market by Harrison, et.al.

3. To promote orderly interchange with world market forces and prices:

   a) **Designate the AMO Quarterly Import and Export Plan as the only regulation governing the international trade of fruits and vegetables**. This implies the elimination of the requirement for prior approval by AMO for fruit and vegetables exports, reducing both government expenditures and exporter costs on apparently unnecessary bureaucratic red tape and allowing a more liberal interaction between domestic and international market forces.

   b) **Terminate the state monopoly on the import of the "shortage commodities"**, and allow private imports during certain months of the year which have been predetermined and published in the AMO Quarterly Import and Export Plan. Due to the profit maximization (or cost minimization) motives, private enterprise is always more efficient than those in the public sector.

   c) **Institute an import price band** designed to stabilize domestic prices around a predetermined range, but limiting the state intervention to the levying of a variable tariff on imports. This method of price stabilization is used successfully in Chile. [33] Annex A provides an example of a price band on the imports of apples and onions.

The successful implementation of these reforms, along with the results of the recently initiated macro-economic adjustment program (the effects of which are already being felt), should have wide ranging implications for both the domestic and the international markets. The quantity and quality of produce available to the Jordanian consumer and the real prices which the consumer pays will be improved. The returns to the producer of fruits and vegetables will be more in line with production costs and the supply-demand conditions of the market. Retailers will continue to be permitted reasonable marketing margins. These will be controlled through healthy competition among the large numbers of establishments which exists at this level of the marketing chain. The quality of produce

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[33] Quezada, Norberto. *Chile: Wheat Domestic Price Stabilization with a Price Band on Imports*, Sigma One Corporation, Research Triangle Park, NC, USA, October 1989.

will be improved at all levels of the chain, influenced by the market signals transmitted by the concomitant implementation of an advanced system of grades and standards. There will be improved prospects of growth in the exports of fruits and vegetables and on the comparative advantage both of Jordanian producers and Jordanian exporters.

Implementation Strategy

The implementation phase for these recommendations will obviously involve a substantial period of time. It is felt that, once the decision is made, a date for the elimination of retail price controls should be set three to six months into the future. During this period, under the coordination of the Agricultural Marketing Organization, the concerned government agencies would launch an extensive extension-education program designed to inform all participants in the marketing system as to the timing of the implementation phase, the effects on the market that are expected to result from the new policy, and the ways in which members of each level of the marketing chain can cope with the revised policies.

An integral part of the strategy is the completion of the design and implementation of the Market News Service for fruits and vegetables. It is imperative that all participants in the marketing system have access to high quality information on a timely basis. It must be insured that the Service responds to the true needs of the participants, that the information is presented in a form that they can understand and employ in making their marketing decisions, and that it reaches all of them in a timely manner. In the absence of an information system with these minimal characteristics, neither the proposed, nor any market system strategy will function effectively or efficiently.

It is proposed that a thorough evaluation of the impacts of the implementation of the recommended policy changes be conducted one year after the date on which the retail price controls are lifted. It is felt that a minimum of one year will be required for the participants in the marketing system to have made the necessary adjustments in response to the market signals produced by the new policies. Further systematic evaluation should be accomplished on a periodic basis to monitor the longer term reactions of the market.

ANNEX A

JORDAN. IMPORT PRICE BAND FOR APPLES MARKETING YEAR 1989/90

The price band mechanism is designed to allow free imports of the commodity, subject to a variable tax, in order to try to restrict domestic price fluctuations to a predetermined margin. The expected results are twofold. Domestic prices are stabilized, but forced to follow the medium term tendency of international prices. Domestic producers then would receive prices that reflect the trading opportunities of Jordan, contributing to a more efficient allocation of resources.

International Prices and Quality References

1) Obtain the monthly prices for the 60 months from January 1984 to December 1988, from a country port and quality of relevance to Jordan's trade in apples (Fig. A.1).

2) Adjust the FOB prices to December 1988, using the external inflation index relevant to Jordan's trade.

Determine a Price Band in FOB Terms

3) Order the adjusted FOB prices in ascending order.

4) Discard 25 percent of the highest and lowest values. Observations 1-15 and 46-60 of the ordered series are the discarded extreme values. The remaining observations define the FOB band.

Importation Costs

5) Determine the typical structure of importation costs from the foreign port to Jordan. An imprecise estimate is given in Table A.1. The cost figures include a 7.2 percent CIF tariff on non-dutiable items (Table 3 of main text).

6) Determine the formula to relate each FOB price to a corresponding importation cost (IC). In this example, this results as:

$$IC = 72.02 + 1.1651 * FOB \text{ (Table A.1)}.$$

Determine the Import Price Band

7) From the FOB price band determined previously, use the formula to obtain the import price band in terms of importation cost (Table A.2 and Fig. A.1).

Obtain Specific Levy and Tariff Reduction (Fig. A.2)

8) Calculate a specific duty as a function of declared FOB cost, such that the duty-paid importation cost would be as least as high as the floor of the price band. When the importation cost is within the band, the specific levy is zero.

9) Calculate a tariff reduction such that, if the importation cost were to result in a range above the ceiling of the price band, the government would return to the importer part or all the tariff charges previously made. When the charges are exhausted, the ceiling of the price band would start to increase, unless the government decided to subsidize imports of that commodity.

Announcements

The import price band, and the accompanying levies and tariff reductions, should be announced before the start of the marketing year in order to reduce uncertainty on the part of the producers.

Table A-1. Jordan: Apples - Importation Cost to Determine Import Price Band for the Marketing Year 1989-90.

Item	Variable	Unit (US$/mt)		Multiplier Factor	Multiplier Base
Price, FOB	FOB				
Freight	F	45.00			
Insurance	i			0.50%	FOB+F
Price, CIF	CIF			1.005	FOB+F
Unload, freight to Plant	U	15.00			
Customs Misc. Costs	M	4.00			
Tariff, ad valorem	v			7.20%	CIF
Letter of Credit, opening	c			0.50%	CIF
Financing	f			3.75%	CIF
Credit Tax	t			0.50%	CIF
Customs Agent Honoraria	h			0.50%	CIF
Losses (3.0 percent)	s			3.00%	
Importation Cost	IC	72.02	+	1.1651	FOB

Source: Calculated by author.

Identities

$$CIF = (FOB+F)*(1+i)$$

$$y = v+c+f+t+h$$

$$IC = (CIF*(1+y)+U+M)/(1-s)$$

$$= ((FOB+F)*(1+i)*(1+y)+U+M)/(1-s)$$

$$= ((1+i)*(1+y)*F+U+M + (1+i)*(1+z)*FOB)/(1-s)$$

Table A-2. Jordan: Import Price Band, by Tariff, Marketing Year 1989-90.

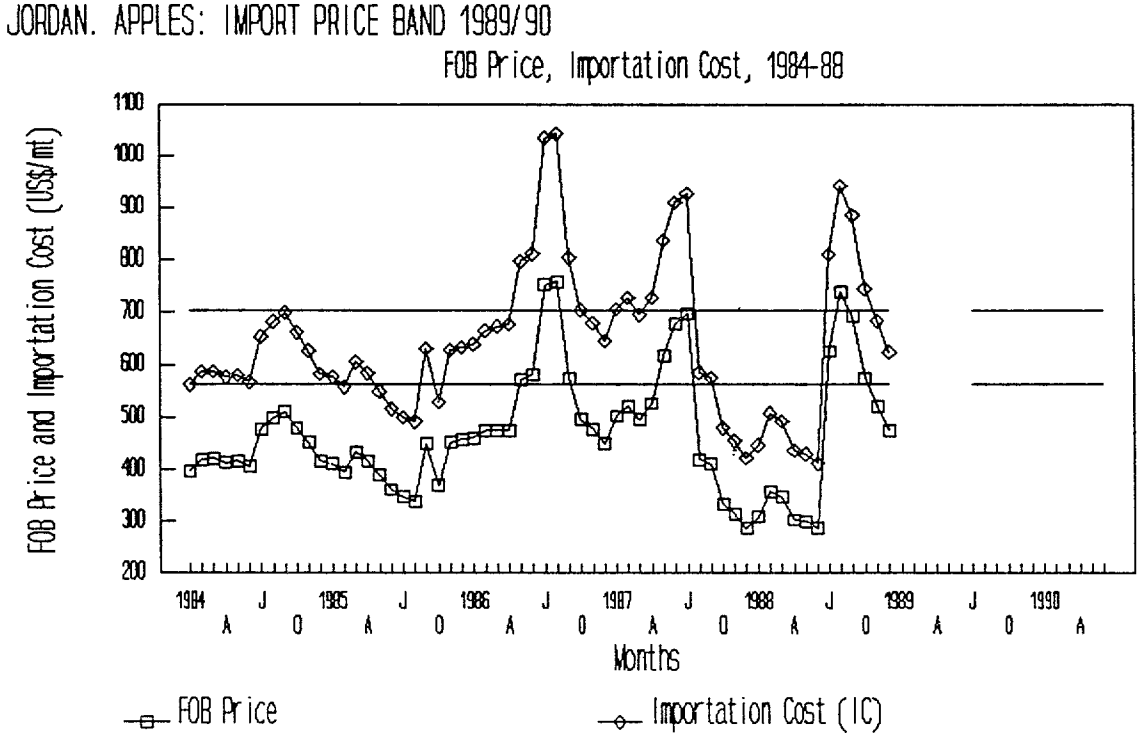
Product		Price Band Based on: 1984-88 World Prices			
			CIF Tariff:		
		FOB	0%	7.2%	23%
			IC		
		US$/mt			
APPLES					
	Floor	420	527	561	637
	Ceiling	542	660	704	800
ONIONS					
	Floor	221	271	289	328
	Ceiling	344	400	427	486

Source: Calculated by the author.

The Import Cost (IC) is a function of the FOB price and the tariff. For the 7.2% tariff, the conversion is the following:

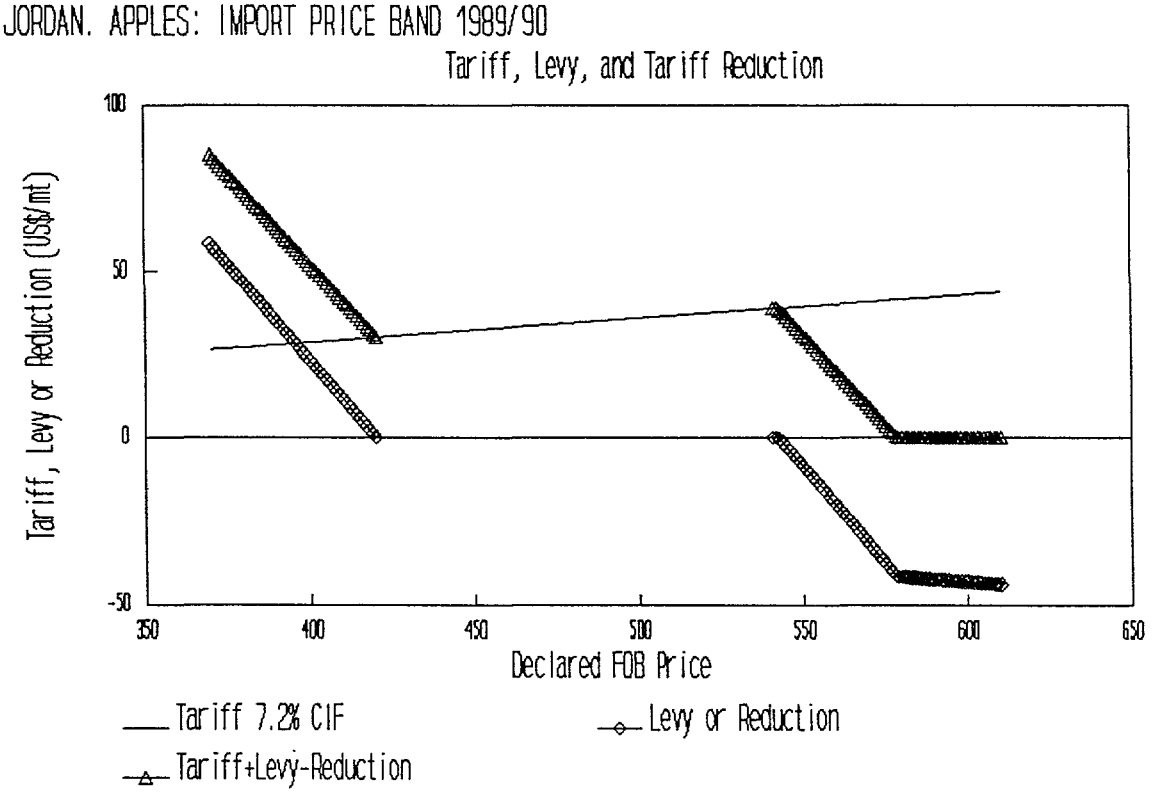
For apples: IC = 72.02 + 1.1651 * FOB
For onions: IC = 38.32 + 1.1307 * FOB

Figure A.1



Source: USDA, ERS, "Fruit and Tree Nuts", March 1989.
Note: Apple prices, fresh market, U.S. growers.

Figure A-2


JORDAN. APPLES: IMPORT PRICE BAND 1989/90
Tariff, Levy, and Tariff Reduction
Tariff, Levy or Reduction (US$/mt)
100
50
0
-50
350
400
450
500
550
600
650
Declared FOB Price
Tariff 7.2% CIF
Levy or Reduction
Tariff+Levy-Reduction

ANNEX B

DATA TABLES

TABLE B-1. PRICES AND QUANTITIES OF CUCUMBERS IN AMMAN, JORDAN, SELECTED MONTHS, 1988

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
01	01/01/88	0.230			0.153	.
02	02/01/88	0.230	0.200	0.240	0.175	114
03	03/01/88	0.250	0.190	0.220	0.159	89
04	04/01/88	0.250	0.170	0.200	0.162	73
05	05/01/88	0.230	0.180	0.210	0.171	58
06	06/01/88	0.250	0.200	0.240	0.161	57
07	07/01/88	0.260	0.200	0.230	0.168	79
08	08/01/88	0.260	.	.	0.189	.
09	09/01/88	0.260	0.200	0.230	0.162	93
10	10/01/88	0.260	0.170	0.210	0.177	76
11	12/01/88	0.240	0.200	0.230	0.188	90
12	13/01/88	0.250	0.170	0.200	0.172	79
13	14/01/88	0.230	0.170	0.210	0.157	132
14	15/01/88	0.230	.	.	0.158	.
15	16/01/88	0.230	0.130	0.180	0.158	184
16	17/01/88	0.210	0.140	0.170	0.146	109
17	18/01/88	0.200	0.140	0.180	0.149	85
18	19/01/88	0.200	0.150	0.200	0.154	66
19	20/01/88	0.210	0.150	0.200	0.157	66
20	21/01/88	0.210	0.170	0.150	0.161	56
21	22/01/88	0.220	.	.	0.167	.
22	23/01/88	0.220	0.170	0.210	0.175	101
23	24/01/88	0.220	0.180	0.210	0.188	82
24	25/01/88	0.230	0.200	0.230	0.198	72
25	26/01/88	0.250	0.180	0.210	0.192	66
26	27/01/88	0.250	0.170	0.210	0.175	94
27	28/01/88	0.250	0.190	0.220	0.185	82
28	29/01/88	0.250	.	.	0.191	.
29	30/01/88	0.250	0.170	0.220	0.184	140
30	31/01/88	0.230	0.170	0.200	0.172	129

TABLE B-1. PRICES AND QUANTITIES OF CUCUMBERS IN AMMAN, JORDAN, SELECTED MONTHS, 1988 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
31	01/06/88	.	0.140	0.170	0.131	163
32	02/06/88	0.200	0.150	0.190	0.133	128
33	03/06/88	0.220	.	.	0.130	.
34	04/06/88	0.220	0.130	0.170	0.120	208
35	05/06/88	0.200	0.130	0.150	0.120	165
36	06/06/88	0.180	0.130	0.180	0.122	153
37	07/06/88	0.180	0.120	0.140	0.115	152
38	08/06/88	0.170	0.100	0.130	0.102	174
39	09/06/88	0.160	0.110	0.130	0.101	167
40	10/06/88	0.150	.	.	0.091	.
41	11/06/88	0.150	0.100	0.140	0.091	244
42	12/06/88	0.150	0.100	0.130	0.089	170
43	13/06/88	0.150	0.100	0.130	0.094	160
44	14/06/88	0.150	0.110	0.140	0.107	127
45	15/06/88	0.170	0.100	0.130	0.097	159
46	16/06/88	0.150	0.100	0.130	0.097	161
47	17/06/88	0.150	.	.	0.124	.
48	18/06/88	0.150	0.100	0.140	0.094	155
49	19/06/88	0.150	0.100	0.120	0.092	225
50	20/06/88	0.150	0.100	0.120	0.099	120
51	21/06/88	0.140	0.090	0.110	0.098	125
52	22/06/88	0.130	0.090	0.120	0.089	146
53	23/06/88	0.130	0.100	0.120	0.080	198
54	24/06/88	0.140	.	.	0.078	.
55	25/06/88	0.140	0.080	0.120	0.075	285
56	26/06/88	0.130	0.090	0.120	0.079	167
57	27/06/88	0.130	0.110	0.130	0.087	135
58	28/06/88	0.140	0.100	0.130	0.095	124
59	29/06/88	0.140	0.100	0.120	0.086	145
60	30/06/88	0.140	0.100	0.120	0.083	164

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

TABLE B-2. PRICES AND QUANTITIES OF EGGPLANTS IN AMMAN, JORDAN, SELECTED MONTHS, 1988 AND 1989.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
01	01/01/88	0.080	.	.	0.033	.
02	02/01/88	0.080	0.040	0.060	0.033	90
03	03/01/88	0.080	0.040	0.050	0.031	39
04	04/01/88	0.070	0.040	0.070	0.033	60
05	05/01/88	0.080	0.050	0.070	0.033	46
06	06/01/88	0.090	0.040	0.050	0.031	25
07	07/01/88	0.080	0.040	0.060	0.036	53
08	08/01/88	0.080	.	.	0.035	.
09	09/01/88	0.080	0.060	0.090	0.033	86
10	10/01/88	0.100	0.030	0.040	0.034	55
11	11/01/88	0.080	0.050	0.060	0.033	66
12	12/01/88	0.080	0.040	0.050	0.035	77
13	13/01/88	0.080	0.040	0.060	0.033	41
14	14/01/88	0.080	0.050	0.080	0.033	27
15	15/01/88	0.080	.	.	0.035	.
16	16/01/88	0.080	0.040	0.050	0.038	62
17	17/01/88	0.070	0.050	0.060	0.041	41
18	18/01/88	0.070	0.050	0.060	0.043	30
19	19/01/88	0.080	0.050	0.060	0.038	50
20	20/01/88	0.080	0.030	0.050	0.028	64
21	21/01/88	0.070	0.060	0.090	0.028	52
22	22/01/88	0.100	.	.	0.033	.
23	23/01/88	0.100	0.040	0.060	0.030	69
24	24/01/88	0.090	0.060	0.070	0.028	53
25	25/01/88	0.090	0.050	0.070	0.035	53
26	26/01/88	0.090	0.060	0.080	0.039	40
27	27/01/88	0.100	0.050	0.070	0.044	37
28	28/01/88	0.100	0.060	0.070	0.042	34
29	29/01/88	0.100	.	.	0.042	.
30	30/01/88	0.100	0.050	0.070	0.038	70

TABLE B-2. PRICES AND QUANTITIES OF EGGPLANTS IN AMMAN, JORDAN, SELECTED MONTHS, 1988 AND 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
31	31/01/88	0.090	0.070	0.100	0.049	57
32	01/05/88	0.130	.	.	0.067	.
33	02/05/88	0.130	0.090	0.110	0.062	62
34	03/05/88	0.130	0.080	0.100	0.054	86
35	04/05/88	0.130	0.070	0.100	0.053	52
36	05/05/88	0.130	0.090	0.110	0.061	43
37	06/05/88	0.130	.	.	0.067	.
38	07/05/88	0.130	0.060	0.080	0.062	123
39	08/05/88	0.110	0.080	0.110	0.057	58
40	09/05/88	0.120	0.070	0.090	0.053	63
41	10/05/88	0.120	0.070	0.090	0.042	65
42	11/05/88	0.100	0.060	0.080	0.039	74
43	12/05/88	0.100	0.050	0.070	0.047	37
44	13/05/88	0.100	.	.	0.051	.
45	14/05/88	0.100	0.050	0.060	0.048	127
46	15/05/88	0.090	0.050	0.070	0.053	64
47	18/05/88	0.090	.	.	0.065	.
48	19/05/88	0.090	.	.	0.051	.
49	20/05/88	0.090	.	.	0.046	.
50	21/05/88	0.090	0.030	0.050	0.050	151
51	22/05/88	0.080	0.060	0.080	0.051	73
52	23/05/88	0.090	0.060	0.080	0.063	45
53	24/05/88	0.090	0.060	0.080	0.066	47
54	25/05/88	0.100	.	.	0.061	.
55	26/05/88	0.100	0.110	0.200	0.064	62
56	28/05/88	0.120	0.070	0.140	0.076	127
57	29/05/88	0.120	0.080	0.220	0.082	78
58	30/05/88	0.130	0.090	0.200	0.087	73
59	31/05/88	0.130	0.070	0.120	0.078	82
60	01/05/89	0.170	.	.	0.065	.

TABLE B-2. PRICES AND QUANTITIES OF EGGPLANTS IN AMMAN, JORDAN, SELECTED MONTHS, 1988 AND 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
61	02/05/89	0.170	0.080	0.100	0.050	69
62	03/05/89	0.140	0.070	0.100	0.043	83
63	04/05/89	0.120	0.060	0.080	0.057	81
64	05/05/89	0.100	.	.	0.091	.
65	08/05/89	0.100	.	.	0.063	.
66	09/05/89	0.100	0.080	0.110	0.046	119
67	10/05/89	0.100	0.040	0.180	0.037	110
68	11/05/89	0.100	0.050	0.070	0.035	105
69	12/05/89	0.100	.	.	0.049	.
70	13/05/89	0.100	0.040	0.070	0.041	129
71	14/05/89	0.090	0.050	0.150	0.045	61
72	15/05/89	0.120	0.060	0.160	0.047	58
73	16/05/89	0.100	0.070	0.170	0.044	88
74	17/05/89	0.150	0.050	0.120	0.041	58
75	18/05/89	0.130	0.070	0.160	0.050	62
76	20/05/89	0.140	0.060	0.180	0.055	91
77	21/05/89	0.150	0.080	0.200	0.052	80
78	22/05/89	0.165	0.080	0.170	0.053	75
79	23/05/89	0.160	0.060	0.140	0.055	66
80	24/05/89	0.135	0.060	0.100	0.059	66
81	25/05/89	0.155	.	.	0.071	.
82	26/05/89	0.155	.	.	0.056	.
83	27/05/89	0.155	0.050	0.180	0.068	118
84	28/05/89	0.140	0.050	0.200	0.068	99
85	29/05/89	0.135	0.070	0.200	0.085	48
86	30/05/89	0.155	0.100	0.200	0.076	39
87	31/05/89	0.155	0.100	0.220	0.097	32

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

TABLE B-3. PRICES AND QUANTITIES OF GRAPES IN AMMAN, JORDAN, SELECTED MONTHS, 1988.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
01	01/07/88	0.600	.	.	0.120	.
02	02/07/88	0.600	0.300	0.400	0.142	24
03	03/07/88	0.550	0.300	0.400	0.116	35
04	04/07/88	0.500	0.300	0.400	0.157	31
05	05/07/88	0.450	.	.	0.145	43
06	06/07/88	0.460	0.300	0.350	0.144	31
07	07/07/88	0.420	0.300	0.340	0.135	35
08	09/07/88	0.400	0.250	0.300	0.114	47
09	10/07/88	0.370	0.200	0.250	0.112	44
10	11/07/88	0.370	0.150	0.200	0.112	62
11	12/07/88	0.300	0.200	0.270	0.117	58
12	13/07/88	0.300	0.220	0.270	0.112	67
13	14/07/88	0.300	0.200	0.250	0.101	69
14	15/07/88	0.300	.	.	0.173	.
15	16/07/88	0.300	0.200	0.250	0.111	81
16	17/07/88	0.280	0.130	0.210	0.087	83
17	18/07/88	0.260	0.160	0.180	0.089	107
18	19/07/88	0.220	0.160	0.220	0.095	107
19	20/07/88	0.220	0.180	0.230	0.086	100
20	21/07/88	0.260	0.180	0.220	0.104	86
21	23/07/88	0.260	.	.	0.130	.
22	26/07/88	0.260	.	.	0.121	.
23	27/07/88	0.260	.	.	0.104	.
24	28/07/88	0.260	0.140	0.180	0.096	68
25	29/07/88	0.260	.	.	0.130	.
26	30/07/88	0.260	0.150	0.200	0.095	62
27	31/07/88	0.260	0.180	0.220	0.088	61
28	01/10/88	0.250	0.160	0.200	0.148	226
29	02/10/88	0.230	0.220	0.280	0.130	9
30	03/10/88	0.230	0.180	0.440	0.108	156

TABLE B-3. PRICES AND QUANTITIES OF GRAPES IN AMMAN, JORDAN, SELECTED MONTHS, 1988 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
31	04/10/88	0.230	0.170	0.200	0.140	9
32	05/10/88	0.230	0.200	0.240	0.126	119
33	06/10/88	0.250	0.180	0.220	0.133	134
34	07/10/88	0.240	.	.	0.108	.
35	08/10/88	0.240	0.200	0.230	0.105	174
36	09/10/88	0.240	0.200	0.230	0.125	9
37	10/10/88	0.260	0.200	0.250	0.146	153
38	11/10/88	0.260	0.200	0.250	0.134	97
39	12/10/88	0.260	0.200	0.250	0.131	68
40	13/10/88	0.270	0.220	0.270	0.138	96
41	14/10/88	0.270	.	.	0.143	.
42	15/10/88	0.270	0.190	0.230	0.126	215
43	16/10/88	0.260	0.220	0.250	0.154	35
44	17/10/88	0.280	0.190	0.210	0.122	48
45	18/10/88	0.260	0.230	0.350	0.148	24
46	19/10/88	0.280	0.220	0.390	0.147	34
47	20/10/88	0.280	0.200	0.360	0.188	4
48	21/10/88	0.280	.	.	0.147	.
49	22/10/88	0.280	0.230	0.260	0.134	119
50	23/10/88	0.300	.	.	0.168	.
51	24/10/88	0.300	0.220	0.550	0.147	98
52	25/10/88	0.300	0.250	0.300	0.134	63
53	26/10/88	0.300	0.260	0.540	0.154	67
54	27/10/88	0.300	0.350	0.500	0.138	68
55	28/10/88	0.300	.	.	0.147	.
56	29/10/88	0.300	0.220	0.500	0.166	90
57	30/10/88	0.320	.	.	0.157	.
58	31/10/88	0.340	0.400	0.500	0.211	50

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

TABLE B-4. PRICES AND QUANTITIES OF LEMONS IN AMMAN, JORDAN, SELECTED MONTHS, 1988.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
01	01/01/88	0.150	.	.	0.081	.
02	02/01/88	0.150	0.080	0.110	0.074	237
03	03/01/88	0.130	0.070	0.090	0.069	115
04	04/01/88	0.120	0.080	0.110	0.069	115
05	05/01/88	0.130	0.100	0.110	0.081	70
06	06/01/88	0.130	0.090	0.110	0.083	75
07	07/01/88	0.130	0.080	0.100	0.081	61
08	08/01/88	0.130	.	.	0.081	.
09	09/01/88	0.130	0.080	0.100	0.077	177
10	10/01/88	0.130	0.090	0.110	0.076	61
11	11/01/88	0.140	0.090	0.120	0.080	100
12	12/01/88	0.140	0.090	0.110	0.082	106
13	13/01/88	0.150	0.090	0.120	0.083	4
14	14/01/88	0.140	0.100	0.110	0.076	101
15	15/01/88	0.140	.	.	0.083	.
16	16/01/88	0.140	0.080	0.100	0.083	202
17	17/01/88	0.130	0.090	0.120	0.088	65
18	18/01/88	0.140	0.080	0.110	0.087	2
19	19/01/88	0.140	0.090	0.110	0.083	78
20	20/01/88	0.140	0.100	0.130	0.078	2
21	21/01/88	0.150	0.090	0.120	0.077	126
22	22/01/88	0.140	.	.	0.073	.
23	23/01/88	0.140	0.090	0.120	0.074	123
24	24/01/88	0.140	0.090	0.120	0.075	63
25	25/01/88	0.150	0.090	0.110	0.076	148
26	26/01/88	0.140	0.100	0.120	0.075	91
27	27/01/88	0.140	0.090	0.110	0.075	124
28	28/01/88	0.140	0.100	0.120	0.077	98
29	29/01/88	0.140	.	.	0.087	.
30	30/01/88	0.140	0.090	0.110	0.078	188

TABLE B-4. PRICES AND QUANTITIES OF LEMONS IN AMMAN, JORDAN, SELECTED MONTHS, 1988 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
31	31/01/88	0.140	0.100	0.110	0.079	87
32	01/07/88	0.380	.	.	0.020	.
33	02/07/88	0.380	0.350	0.380	0.260	17
34	03/07/88	0.420	0.400	0.450	0.277	18
35	04/07/88	0.450	0.350	0.450	0.319	29
36	05/07/88	0.450	0.350	0.500	0.219	26
37	06/07/88	0.420	0.300	0.450	0.224	37
38	07/07/88	0.400	0.220	0.450	0.210	20
39	09/07/88	0.340	0.240	0.400	0.217	15
40	10/07/88	0.320	0.250	0.300	0.107	21
41	11/07/88	0.320	0.230	0.300	0.239	15
42	12/07/88	0.320	0.250	0.300	0.255	20
43	13/07/88	0.350	0.280	0.300	0.249	15
44	14/07/88	0.350	0.250	0.320	0.262	19
45	16/07/88	0.350	0.300	0.340	0.261	28
46	17/07/88	0.360	0.310	0.330	0.252	26
47	18/07/88	0.360	0.290	0.310	0.198	34
48	19/07/88	0.350	0.240	0.300	0.180	29
49	20/07/88	0.320	0.240	0.280	0.189	22
50	21/07/88	0.300	0.250	0.300	0.217	23
51	23/07/88	0.340	.	.	0.250	.
52	26/07/88	0.340	.	.	0.285	.
53	27/07/88	0.340	.	.	0.259	.
54	28/07/88	0.340	0.300	0.370	0.276	27
55	29/07/88	.	.	.	0.239	.
56	30/07/88	.	0.300	0.360	0.236	36
57	31/07/88	.	0.250	0.350	0.238	29

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
01	01/01/88	0.170	0.100	.	0.102	355
02	02/01/88	0.170	0.110	0.150	0.088	236
03	03/01/88	0.170	0.110	0.140	0.092	245
04	04/01/88	0.170	0.120	0.140	0.092	193
05	05/01/88	0.170	0.110	0.140	0.095	198
06	06/01/88	0.170	0.120	0.140	0.090	238
07	07/01/88	0.170	.	0.160	0.092	.
08	08/01/88	0.180	0.120	.	0.101	407
09	09/01/88	0.180	0.100	0.150	0.080	258
10	10/01/88	0.180	0.100	0.130	0.084	339
11	11/01/88	0.170	0.120	0.130	0.083	331
12	12/01/88	0.160	0.100	0.140	0.082	169
13	13/01/88	0.170	0.100	0.100	0.084	322
14	14/01/88	0.160	.	0.140	0.078	.
15	15/01/88	0.160	0.070	.	0.082	499
16	16/01/88	0.160	0.070	0.110	0.069	222
17	17/01/88	0.150	0.080	0.100	0.075	248
18	18/01/88	0.140	0.070	0.110	0.075	283
19	19/01/88	0.140	0.070	0.110	0.063	293
20	20/01/88	0.140	0.070	0.110	0.060	299
21	21/01/88	0.130	.	0.090	0.059	.
22	22/01/88	0.130	0.060	.	0.056	420
23	23/01/88	0.130	0.070	0.090	0.062	234
24	24/01/88	0.130	0.080	0.110	0.068	227
25	25/01/88	0.130	0.090	0.100	0.073	235
26	26/01/88	0.130	0.080	0.110	0.073	216
27	27/01/88	0.140	0.100	0.110	0.066	253
28	28/01/88	0.140	.	0.130	0.069	.
29	29/01/88	0.150	0.080	.	0.073	483
30	30/01/88	0.150	0.090	0.110	0.060	384

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
31	31/01/88	0.140	.	0.110	0.052	.
32	01/02/88	0.140	0.060	0.100	0.047	389
33	02/02/88	0.140	0.070	0.100	0.044	332
34	03/02/88	0.130	0.060	0.080	0.045	169
35	04/02/88	0.110	0.060	0.090	0.046	248
36	05/02/88	0.100	.	.	0.047	.
37	06/02/88	0.100	0.070	0.100	0.048	443
38	07/02/88	0.110	0.070	0.090	0.045	313
39	08/02/88	0.110	0.050	0.060	0.043	272
40	09/02/88	0.100	0.050	0.080	0.038	275
41	10/02/88	0.080	0.050	0.070	0.036	272
42	11/02/88	0.080	0.040	0.050	0.037	224
43	12/02/88	0.080	.	.	0.057	.
44	13/02/88	0.080	0.050	0.080	0.041	263
45	14/02/88	0.080	0.040	0.060	0.043	253
46	15/02/88	0.080	0.060	0.080	0.049	189
47	16/02/88	0.080	0.060	0.070	0.053	179
48	17/02/88	0.090	0.070	0.080	0.054	152
49	18/02/88	0.100	0.060	0.100	0.060	136
50	19/02/88	0.110	.	.	0.074	.
51	20/02/88	0.110	0.080	0.110	0.060	315
52	21/02/88	0.120	0.060	0.110	0.051	300
53	22/02/88	0.120	0.070	0.090	0.054	263
54	23/02/88	0.110	0.080	0.110	0.057	215
55	24/02/88	0.120	0.080	0.110	0.058	138
56	25/02/88	0.120	0.070	0.100	0.066	83
57	26/02/88	0.120	.	.	0.073	.
58	27/02/88	0.110	0.070	0.100	0.065	354
59	28/02/88	0.120	0.070	0.110	0.065	263
60	29/02/88	0.120	0.070	0.090	0.066	160

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
61	01/03/88	0.120	0.080	0.110	0.068	210
62	02/03/88	0.120	0.080	0.100	0.069	284
63	03/03/88	0.120	0.080	0.110	0.062	221
64	04/03/88	0.120	.	.	0.068	.
65	05/03/88	0.120	0.080	0.100	0.064	350
66	06/03/88	0.120	0.080	0.100	0.056	341
67	07/03/88	0.120	0.090	0.110	0.057	299
68	08/03/88	0.130	0.070	0.100	0.060	181
69	09/03/88	0.120	0.070	0.100	0.060	164
70	10/03/88	0.120	0.070	0.090	0.059	232
71	11/03/88	0.120	.	.	0.064	.
72	12/03/88	0.120	0.060	0.080	0.046	349
73	13/03/88	0.110	0.080	0.110	0.050	280
74	14/03/88	0.110	0.070	0.080	0.059	164
75	15/03/88	0.100	0.080	0.130	0.073	157
76	16/03/88	0.110	.	.	0.072	.
77	17/03/88	0.150	0.110	0.140	0.082	184
78	18/03/88	0.110	.	.	0.089	.
79	19/03/88	0.150	0.110	0.140	0.080	289
80	20/03/88	0.160	0.120	0.160	0.081	187
81	21/03/88	0.180	0.130	0.160	0.088	204
82	22/03/88	0.180	0.130	0.160	0.106	122
83	23/03/88	0.180	0.130	0.170	0.109	188
84	24/03/88	0.200	0.170	0.190	0.130	131
85	25/03/88	0.220	.	.	0.150	.
86	26/03/88	0.220	0.150	0.200	0.142	224
87	27/03/88	0.230	0.180	0.230	0.158	181
88	28/03/88	0.220	0.190	0.240	0.181	174
89	29/03/88	0.260	0.250	0.310	0.209	109
90	30/03/88	0.280	0.200	0.250	0.201	111

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
91	31/03/88	0.280	0.220	0.270	0.201	120
92	01/04/88	0.280	.	.	0.260	.
93	02/04/88	0.280	0.230	0.260	0.199	206
94	03/04/88	0.280	0.250	0.320	0.185	110
95	04/04/88	0.280	0.210	0.270	0.194	119
96	05/04/88	0.280	0.280	0.340	0.203	93
97	06/04/88	0.340	0.240	0.340	0.213	100
98	07/04/88	0.320	0.210	0.250	0.236	86
99	08/04/88	0.300	.	.	0.225	.
100	09/04/88	0.300	0.220	0.260	0.187	176
101	10/04/88	0.280	0.200	0.260	0.166	178
102	11/04/88	0.260	0.150	0.220	0.158	118
103	12/04/88	0.250	0.180	0.220	0.178	110
104	13/04/88	0.250	0.230	0.290	0.194	94
105	14/04/88	0.270	0.220	0.280	0.214	144
106	15/04/88	0.280	.	.	0.240	.
107	16/04/88	0.280	0.240	0.280	0.212	158
108	17/04/88	0.300	0.270	0.330	0.237	160
109	18/04/88	0.340	0.320	0.370	0.285	130
110	19/04/88	0.400	0.340	0.400	0.292	123
111	20/04/88	0.430	0.320	0.350	0.240	152
112	21/04/88	0.400	0.240	0.300	0.229	122
113	22/04/88	0.370	.	.	0.210	.
114	23/04/88	0.370	0.220	0.300	0.199	199
115	24/04/88	0.320	0.260	0.300	0.208	131
116	25/04/88	0.320	0.240	0.280	0.216	119
117	26/04/88	0.320	0.240	0.300	0.220	107
118	27/04/88	0.320	0.280	0.320	0.231	121
119	28/04/88	0.340	0.290	0.340	0.226	125
120	29/04/88	0.350	.	.	0.232	.

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
121	30/04/88	0.350	0.280	0.350	0.218	243
122	01/05/88	0.360	.	.	0.203	.
123	02/05/88	0.360	0.200	0.270	0.169	219
124	03/05/88	0.300	0.150	0.200	0.126	281
125	04/05/88	0.220	0.100	0.150	0.093	368
126	05/05/88	0.170	0.090	0.130	0.085	379
127	06/05/88	0.150	.	.	0.098	.
128	07/05/88	0.150	0.080	0.100	0.079	617
129	08/05/88	0.140	0.080	0.110	0.070	420
130	09/05/88	0.130	0.070	0.100	0.053	457
131	10/05/88	0.120	0.050	0.070	0.040	465
132	11/05/88	0.100	0.050	0.070	0.045	365
133	12/05/88	0.090	0.050	0.060	0.051	268
134	13/05/88	0.090	.	.	0.054	.
135	14/05/88	0.090	0.050	0.070	0.048	605
136	15/05/88	0.090	0.050	0.070	0.039	437
137	18/05/88	0.090	.	.	0.050	.
138	19/05/88	0.090	.	.	0.037	.
139	20/05/88	0.090	.	.	0.040	.
140	21/05/88	0.090	0.040	0.060	0.039	665
141	22/05/88	0.090	0.050	0.070	0.045	410
142	23/05/88	0.090	0.050	0.070	0.046	307
143	24/05/88	0.090	0.050	0.080	0.042	403
144	25/05/88	0.090	.	.	0.038	.
145	26/05/88	0.090	0.040	0.060	0.035	446
146	28/05/88	0.080	0.050	0.070	0.045	402
147	29/05/88	0.080	0.040	0.060	0.049	316
148	30/05/88	0.080	0.050	0.070	0.053	335
149	31/05/88	0.090	0.060	0.080	0.040	472
150	01/06/88	0.090	0.050	0.070	0.035	411

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
151	02/06/88	0.090	0.050	0.070	0.039	336
152	03/06/88	0.080	.	.	0.056	.
153	04/06/88	0.080	0.050	0.070	0.047	351
154	05/06/88	0.090	0.050	0.070	0.055	311
155	06/06/88	0.090	0.060	0.080	0.049	395
156	07/06/88	0.100	0.050	0.060	0.045	396
157	08/06/88	0.080	0.050	0.060	0.038	337
158	09/06/88	0.080	0.050	0.070	0.048	241
159	10/06/88	0.080	.	.	0.080	.
160	11/06/88	0.080	0.060	0.080	0.058	449
161	12/06/88	0.100	0.060	0.080	0.063	302
162	13/06/88	0.100	0.070	0.090	0.063	396
163	14/06/88	0.100	0.070	0.100	0.069	328
164	15/06/88	0.110	0.070	0.100	0.063	361
165	16/06/88	0.110	0.080	0.090	0.066	317
166	17/06/88	0.120	.	.	0.073	.
167	18/06/88	0.120	0.060	0.080	0.065	478
168	19/06/88	0.100	0.080	0.100	0.072	396
169	20/06/88	0.120	0.080	0.100	0.072	366
170	21/06/88	0.120	0.080	0.100	0.066	364
171	22/06/88	0.100	0.080	0.100	0.060	324
172	23/06/88	0.120	0.060	0.090	0.064	305
173	24/06/88	0.120	.	.	0.077	.
174	25/06/88	0.120	0.080	0.110	0.074	406
175	26/06/88	0.130	0.100	0.120	0.085	247
176	27/06/88	0.140	0.100	0.120	0.098	283
177	28/06/88	0.150	0.130	0.150	0.120	211
178	29/06/88	0.160	0.140	0.160	0.118	243
179	30/06/88	0.180	0.120	0.150	0.114	293
180	01/07/88	0.170	.	.	0.125	.

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
181	02/07/88	0.170	0.100	0.140	0.094	475
182	03/07/88	0.160	0.120	0.140	0.077	382
183	04/07/88	0.160	0.090	0.130	0.071	333
184	05/07/88	0.150	0.110	0.130	0.081	315
185	06/07/88	0.150	0.080	0.110	0.069	351
186	07/07/88	0.130	0.070	0.100	0.068	273
187	08/07/88	0.120	.	.	0.072	.
188	09/07/88	0.120	0.070	0.100	0.065	404
189	10/07/88	0.120	0.060	0.090	0.052	389
190	11/07/88	0.120	0.060	0.080	0.051	349
191	12/07/88	0.100	0.070	0.090	0.052	281
192	13/07/88	0.110	0.060	0.090	0.052	292
193	14/07/88	0.110	0.070	0.100	0.051	305
194	15/07/88	0.120	.	.	0.057	.
195	16/07/88	0.120	0.050	0.070	0.047	480
196	17/07/88	0.100	0.050	0.060	0.041	393
197	18/07/88	0.090	0.040	0.050	0.035	382
198	19/07/88	0.080	0.030	0.050	0.032	335
199	20/07/88	0.070	0.040	0.050	0.031	323
200	21/07/88	0.070	0.050	0.060	0.043	239
201	22/07/88	0.080	.	.	0.062	.
202	23/07/88	0.080	.	.	0.060	.
203	26/07/88	0.080	.	.	0.051	.
204	27/07/88	0.090	.	.	0.037	.
205	28/07/88	0.090	0.040	0.050	0.036	355
206	29/07/88	0.090	.	.	0.053	.
207	30/07/88	0.090	0.050	0.070	0.059	330
208	31/07/88	0.090	0.060	0.080	0.054	248
209	01/08/88	0.100	0.060	0.090	0.053	251
210	02/08/88	0.110	0.060	0.080	0.045	234

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
211	03/08/88	0.110	0.040	0.060	0.035	242
212	04/08/88	0.090	0.050	0.080	0.039	281
213	05/08/88	0.090	.	.	0.066	.
214	06/08/88	0.090	0.050	0.070	0.050	367
215	07/08/88	0.100	0.060	0.080	0.058	256
216	08/08/88	0.100	0.060	0.080	0.054	280
217	09/08/88	0.100	0.060	0.080	0.046	324
218	10/08/88	0.100	0.040	0.060	0.042	272
219	11/08/88	0.080	.	.	0.051	.
220	12/08/88	0.080	.	.	0.059	.
221	13/08/88	0.080	0.060	0.080	0.054	330
222	14/08/88	0.090	.	.	0.059	.
223	15/08/88	0.090	0.060	0.090	0.053	285
224	16/08/88	0.090	0.050	0.070	0.051	330
225	17/08/88	0.090	0.050	0.070	0.046	318
226	18/08/88	0.090	0.050	0.080	0.048	275
227	19/08/88	0.090	.	.	0.060	.
228	20/08/88	0.090	0.060	0.080	0.057	336
229	21/08/88	0.090	0.070	0.090	0.060	255
230	22/08/88	0.100	0.060	0.080	0.066	208
231	23/08/88	0.100	0.070	0.100	0.063	302
232	24/08/88	0.120	0.060	0.090	0.057	343
233	25/08/88	0.110	0.060	0.090	0.054	358
234	26/08/88	0.110	.	.	0.066	.
235	27/08/88	0.110	0.070	0.090	0.052	363
236	28/08/88	0.110	0.060	0.090	0.054	335
237	29/08/88	0.120	0.070	0.100	0.056	307
238	30/08/88	0.120	0.060	0.090	0.054	309
239	31/08/88	0.110	0.060	0.080	0.049	304
240	01/09/88	0.110	0.060	0.080	0.051	276

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
241	02/09/88	0.110	.	.	0.067	.
242	03/09/88	0.110	0.070	0.090	0.054	333
243	04/09/88	0.110	0.070	0.090	0.061	242
244	05/09/88	0.110	0.060	0.090	0.063	287
245	06/09/88	0.110	0.070	0.090	0.059	294
246	07/09/88	0.110	0.070	0.090	0.055	277
247	08/09/88	0.120	0.080	0.090	0.061	232
248	09/09/88	0.120	.	.	0.067	.
249	10/09/88	0.120	0.080	0.090	0.070	342
250	11/09/88	0.140	0.080	0.110	0.090	238
251	12/09/88	0.150	0.100	0.120	0.080	380
252	13/09/88	0.140	0.060	0.090	0.056	429
253	14/09/88	0.120	0.070	0.090	0.047	427
254	15/09/88	0.110	0.060	0.090	0.047	315
255	16/09/88	0.110	.	.	0.087	.
256	17/09/88	0.110	0.070	0.100	0.061	371
257	18/09/88	0.120	0.080	0.100	0.059	332
258	19/09/88	0.120	0.060	0.090	0.051	370
259	20/09/88	0.120	0.060	0.090	0.044	348
260	21/09/88	0.100	0.070	0.090	0.044	270
261	22/09/88	0.100	0.070	0.090	0.053	215
262	23/09/88	0.100	.	.	0.074	.
263	24/09/88	0.100	0.070	0.100	0.055	355
264	25/09/88	0.120	0.080	0.100	0.059	266
265	26/09/88	0.120	0.060	0.090	0.056	303
266	27/09/88	0.140	0.070	0.090	0.051	330
267	28/09/88	0.120	0.070	0.090	0.044	344
268	29/09/88	0.120	0.060	0.080	0.043	318
269	30/09/88	0.100	.	.	0.056	.
270	01/10/88	0.100	.	.	0.043	.

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
271	02/10/88	0.090	0.060	0.080	0.047	462
272	03/10/88	0.090	0.050	0.070	0.048	286
273	04/10/88	0.100	0.050	0.080	0.054	242
274	05/10/88	0.100	0.060	0.090	0.050	245
275	06/10/88	0.100	0.060	0.080	0.048	261
276	07/10/88	0.110	0.060	0.090	0.062	265
277	08/10/88	0.110	.	.	0.061	.
278	09/10/88	0.130	0.080	0.110	0.064	335
279	10/10/88	0.130	0.080	0.110	0.070	248
280	11/10/88	0.130	0.090	0.110	0.065	208
281	12/10/88	0.130	0.080	0.110	0.062	273
282	13/10/88	0.130	0.080	0.100	0.059	320
283	14/10/88	0.130	.	.	0.088	.
284	15/10/88	0.130	0.080	0.100	0.064	348
285	16/10/88	0.130	0.090	0.120	0.070	273
286	17/10/88	0.130	0.080	0.110	0.065	271
287	18/10/88	0.140	0.110	0.120	0.066	256
288	19/10/88	0.150	0.090	0.120	0.067	249
289	20/10/88	0.150	0.090	0.120	0.063	280
290	21/10/88	0.150	.	.	0.093	.
291	22/10/88	0.150	0.090	0.110	0.075	386
292	23/10/88	0.150	.	.	0.081	.
293	24/10/88	0.150	0.110	0.130	0.083	329
294	25/10/88	0.160	0.100	0.130	0.076	275
295	26/10/88	0.160	0.100	0.130	0.073	240
296	27/10/88	0.160	0.100	0.140	0.093	199
297	28/10/88	0.170	.	.	0.141	.
298	29/10/88	0.170	0.130	0.160	0.114	325
299	30/10/88	0.180	0.150	0.180	0.115	263
300	31/10/88	0.200	0.140	0.180	0.110	271

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
301	01/11/88	0.200	0.150	0.180	0.092	331
302	02/11/88	0.200	0.120	0.160	0.086	255
303	03/11/88	0.180	0.120	0.160	0.093	264
304	04/11/88	0.180	.	.	0.123	.
305	05/11/88	0.180	0.120	0.160	0.094	370
306	06/11/88	0.170	0.130	0.160	0.110	250
307	07/11/88	0.170	0.140	0.150	0.113	232
308	08/11/88	0.180	0.150	0.180	0.110	218
309	09/11/88	0.200	0.130	0.180	0.119	187
310	10/11/88	0.200	0.140	0.170	0.133	197
311	11/11/88	0.200	.	.	0.198	.
312	12/11/88	0.200	0.240	0.270	0.160	333
313	13/11/88	0.280	0.170	0.220	0.152	242
314	14/11/88	0.250	.	.	0.147	.
315	15/11/88	0.250	0.180	0.230	0.164	179
316	16/11/88	0.250	0.200	0.260	0.199	89
317	17/11/88	0.280	0.280	0.320	0.236	85
318	18/11/88	0.350	.	.	0.290	.
319	19/11/88	0.350	0.250	0.350	0.287	162
320	20/11/88	0.350	0.280	0.370	0.272	80
321	21/11/88	0.400	0.250	0.380	0.261	95
322	22/11/88	0.400	0.280	0.360	0.240	110
323	23/11/88	0.380	0.260	0.320	0.244	86
324	24/11/88	0.380	0.320	0.360	0.225	112
325	25/11/88	0.380	.	.	0.333	.
326	26/11/88	0.380	0.250	0.330	0.229	176
327	27/11/88	0.360	0.250	0.350	0.230	129
328	28/11/88	0.380	0.250	0.350	0.238	128
329	29/11/88	0.400	0.280	0.350	0.286	99
330	30/11/88	0.400	0.270	0.370	0.282	125

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
331	01/12/88	0.400	0.350	0.390	0.259	149
332	02/12/88	0.420	.	.	0.276	.
333	03/12/88	0.420	0.240	0.340	0.242	253
334	04/12/88	0.380	0.270	0.350	0.236	148
335	05/12/88	0.380	0.240	0.350	0.251	160
336	06/12/88	0.270	0.240	0.320	0.216	161
337	07/12/88	0.350	0.280	0.330	0.221	120
338	08/12/88	0.350	0.290	0.320	0.206	207
339	09/12/88	0.350	.	.	0.263	.
340	10/12/88	0.350	0.290	0.320	0.219	302
341	11/12/88	0.350	0.250	0.290	0.211	192
342	12/12/88	0.350	0.250	0.310	0.218	108
343	13/12/88	0.330	0.250	0.270	0.184	139
344	14/12/88	0.310	0.230	0.260	0.190	164
345	15/12/88	0.280	0.190	0.240	0.215	180
346	16/12/88	0.260	.	.	0.244	.
347	17/12/88	0.260	0.250	0.270	0.197	330
348	18/12/88	0.280	0.210	0.230	0.190	221
349	19/12/88	0.260	0.200	0.240	0.207	183
350	20/12/88	0.260	0.190	0.250	0.198	130
351	21/12/88	0.260	0.220	0.250	0.204	120
352	22/12/88	0.260	0.200	0.270	0.214	218
353	23/12/88	0.280	.	.	0.219	.
354	24/12/88	0.280	0.250	0.280	0.212	343
355	25/12/88	0.300	0.220	0.270	0.229	84
356	26/12/88	0.280	0.280	0.350	0.243	136
357	27/12/88	0.350	0.270	0.300	0.224	65
358	28/12/88	0.340	0.250	0.280	0.220	153
359	29/12/88	0.320	0.280	0.320	0.224	209
360	30/12/88	0.340	.	.	0.232	.

TABLE B-5. PRICES AND QUANTITIES OF TOMATOES IN AMMAN, JORDAN, 1988 AND SELECTED MONTHS 1989 - Continuation.

OBS	DATE OF TRANSACTION	UPPER RETAIL PRICE (JD/KG)	ACWM COMMON PRICE (JD/KG)	ACWM HIGH PRICE (JD/KG)	TRANS-ACTION WEIGHTED MEAN PRICE (JD/KG)	ACWM QNTY MKTD (MT)
361	31/12/88	0.340	0.250	0.280	0.197	466
362	30/04/89	0.200	.	.	0.110	.
363	01/05/89	0.140	.	.	0.087	.
364	02/05/89	0.140	0.080	0.100	0.098	367
365	03/05/89	0.120	0.070	0.100	0.119	269
366	05/05/89	0.120	.	.	0.147	.
367	06/05/89	0.120	.	.	0.120	.
368	08/05/89	0.120	.	.	0.104	.
369	09/05/89	0.120	0.070	0.100	0.069	669
370	10/05/89	0.120	0.070	0.100	0.082	362
371	11/05/89	0.110	0.070	0.090	0.103	247
372	12/05/89	0.110	.	.	0.121	.
373	13/05/89	0.110	0.080	0.100	0.113	392
374	14/05/89	0.120	0.070	0.090	0.088	325
375	15/05/89	0.110	0.070	0.100	0.098	292
376	16/05/89	0.120	0.070	0.110	0.094	297
377	17/05/89	0.120	0.070	0.100	0.102	189
378	18/05/89	0.120	0.070	0.100	0.120	184
379	20/05/89	0.120	0.090	0.110	0.137	343
380	21/05/89	0.130	0.100	0.120	0.155	239
381	22/05/89	0.140	0.100	0.120	0.136	341
382	23/05/89	0.140	0.090	0.130	0.113	390
383	24/05/89	0.140	0.070	0.100	0.101	388
384	25/05/89	0.120	.	.	0.106	.
385	26/05/89	0.120	.	.	0.114	.
386	27/05/89	0.120	0.080	0.110	0.097	427
387	28/05/89	0.110	0.070	0.090	0.101	243
388	29/05/89	0.100	0.060	0.080	0.110	231
389	30/05/89	0.100	0.070	0.090	0.116	216
390	31/05/89	0.100	0.070	0.080	0.112	256

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

Table B-6. Price and Quantity Data for Amman Jordan - Squash, January and June 1988, and June 1989.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
01/01/88	0.12	.	.
02/01/88	0.12	0.10	66
03/01/88	0.13	0.07	58
04/01/88	0.12	0.08	54
05/01/88	0.12	0.09	40
06/01/88	0.13	0.09	39
07/01/88	0.13	0.09	47
08/01/88	0.13	.	.
09/01/88	0.13	0.09	89
10/01/88	0.13	0.09	49
11/01/88	0.13	0.09	68
12/01/88	0.14	0.11	57
13/01/88	0.15	0.09	60
14/01/88	0.14	0.07	50
15/01/88	0.13	.	.
16/01/88	0.13	0.08	126
17/01/88	0.13	0.09	68
18/01/88	0.13	0.09	67
19/01/88	0.14	0.09	50
20/01/88	0.14	0.09	48
21/01/88	0.13	0.09	42
22/01/88	0.13	.	.
23/01/88	0.13	0.08	77
24/01/88	0.13	0.10	60
25/01/88	0.14	0.11	48
26/01/88	0.15	0.10	47
27/01/88	0.15	0.10	50
28/01/88	0.15	0.10	60
29/01/88	0.15	.	.
30/01/88	0.15	0.11	184
31/01/88	0.15	0.10	43
01/06/88	0.18	0.14	52
02/06/88	0.19	0.14	50
03/06/88	0.20	.	.
04/06/88	0.20	0.13	85
05/06/88	0.20	0.09	72
06/06/88	0.18	0.12	68
07/06/88	0.18	0.12	54
08/06/88	0.18	0.11	79
09/06/88	0.18	0.11	65
10/06/88	0.16	.	.
11/06/88	0.16	0.06	121
12/06/88	0.12	0.07	88
13/06/88	0.11	0.06	62
14/06/88	0.10	0.08	60
15/06/88	0.13	0.06	70
16/06/88	0.12	0.08	60
17/06/88	0.12	.	.
18/06/88	0.12	0.06	87
19/06/88	0.12	0.06	89
20/06/88	0.10	0.04	57
21/06/88	0.08	0.07	53
22/06/88	0.10	0.07	56
23/06/88	0.11	0.06	70
24/06/88	0.11	.	.
25/06/88	0.11	0.06	88
26/06/88	0.11	0.07	40
27/06/88	0.11	0.06	42
28/06/88	0.11	0.08	23
29/06/88	0.13	0.11	61
30/06/88	0.14	0.10	44
01/06/89	0.14	0.10	68
02/06/89	0.15	.	.
03/06/89	0.15	0.10	91
04/06/89	0.16	0.14	49
05/06/89	0.20	0.14	62
06/06/89	0.20	0.13	46
07/06/89	0.18	0.10	64
08/06/89	0.18	0.13	50
09/06/89	0.17	.	.
10/06/89	0.17	.	.
11/06/89	0.17	0.13	72

Table B-6. Price and Quantity Data for Amman Jordan - Squash, January and June 1988, and June 1989 - Continuation.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
12/06/89	0.18	0.12	48
13/06/89	0.17	0.16	49
14/06/89	0.20	0.12	36
15/06/89	0.18	0.14	55
16/06/89	0.19	.	.
17/06/89	0.19	0.14	86
18/06/89	0.20	0.13	32
19/06/89	0.20	0.18	31
20/06/89	0.25	0.18	25
21/06/89	0.25	0.21	32
22/06/89	0.28	0.18	42
23/06/89	0.26	.	.
24/06/89	0.26	0.20	58
25/06/89	0.25	0.18	25
26/06/89	0.24	0.20	29
27/06/89	0.25	0.16	24
28/06/89	0.24	0.16	22
29/06/89	0.24	0.16	31
30/06/89	0.22	.	.

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

Table B-7. Price and Quantity Data for Amman Jordan - Sweet Pepper, January and June 1988, and June 1989.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)	DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
01/01/88	0.12	.	.	06/06/88	0.35	0.30	23
02/01/88	0.12	0.04	28	07/06/88	0.35	0.27	10
03/01/88	0.12	0.07	16	08/06/88	0.34	0.35	12
04/01/88	0.10	0.07	19	09/06/88	0.38	0.34	4
05/01/88	0.12	0.09	16	10/06/88	0.42	.	.
06/01/88	0.13	0.05	15	11/06/88	0.42	0.35	13
07/01/88	0.12	0.06	24	12/06/88	0.45	0.35	9
08/01/88	0.12	.	.	13/06/88	0.45	0.30	13
09/01/88	0.12	0.07	40	14/06/88	0.40	0.35	13
10/01/88	0.12	0.08	45	15/06/88	0.45	0.28	8
11/01/88	0.12	0.07	45	16/06/88	0.38	0.35	8
12/01/88	0.12	0.09	21	17/06/88	0.00	.	.
13/01/88	0.13	0.07	9	18/06/88	0.00	0.33	5
14/01/88	0.12	0.07	20	19/06/88	0.42	0.38	13
15/01/88	0.12	.	.	20/06/88	0.45	0.34	7
16/01/88	0.12	0.06	45	21/06/88	0.42	0.38	6
17/01/88	0.10	0.06	23	22/06/88	0.45	0.30	4
18/01/88	0.11	0.06	22	23/06/88	0.40	0.30	9
19/01/88	0.10	0.09	17	24/06/88	0.40	.	.
20/01/88	0.14	0.08	27	25/06/88	0.40	0.32	20
21/01/88	0.14	0.07	28	26/06/88	0.36	0.25	10
22/01/88	0.13	.	.	27/06/88	0.34	0.30	10
23/01/88	0.13	0.07	28	28/06/88	0.40	0.28	8
24/01/88	0.12	0.08	13	29/06/88	0.37	0.35	6
25/01/88	0.13	0.06	15	30/06/88	0:44	0.30	8
26/01/88	0.12	0.10	18	01/06/89	0.32	0.40	9
27/01/88	0.14	0.11	14	02/06/89	0.40	.	.
28/01/88	0.14	0.12	7	03/06/89	0.40	0.45	23
29/01/88	0.16	.	.	04/06/89	0.45	0.40	14
30/01/88	0.16	0.08	26	05/06/89	0.52	0.30	11
31/01/88	0.14	0.14	19	06/06/89	0.45	0.30	19
01/06/88	0.28	0.22	11	07/06/89	0.45	0.40	7
02/06/88	0.30	0.24	7	08/06/89	0.45	0.30	21
03/06/88	0.32	.	.	09/06/89	0.50	.	.
04/06/88	0.32	0.28	16	10/06/89	0.48	.	.
05/06/88	0.32	0.25	7	11/06/89	0.48	0.25	19

Table B-7. Price and Quantity Data for Amman Jordan - Sweet Pepper, January and June 1988, and June 1989 - Continuation.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
12/06/89	0.48	0.32	15
13/06/89	0.42	0.30	16
14/06/89	0.42	0.35	9
15/06/89	0.42	0.48	21
16/06/89	0.45	.	.
17/06/89	0.55	0.40	30
18/06/89	0.55	0.40	23
19/06/89	0.55	0.25	33
20/06/89	0.40	0.24	38
21/06/89	0.35	0.35	8
22/06/89	0.45	0.30	21
23/06/89	0.45	.	.
24/06/89	0.45	0.25	33
25/06/89	0.35	0.30	18
26/06/89	0.38	0.25	26
27/06/89	0.35	0.25	17
28/06/89	0.34	0.25	9
29/06/89	0.34	0.20	26
30/06/89	0.30	.	.

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

Table B-8. Price and Quantity Data for Amman Jordan - Green Beans, January and June 1988, and June 1989.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)	DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
01/01/88	0.13	.	.	06/05/88	0.16	.	.
02/01/88	0.13	0.12	14	07/05/88	0.16	0.12	27
03/01/88	0.13	0.15	10	08/05/88	0.16	0.10	25
04/01/88	0.13	0.10	7	09/05/88	0.16	0.12	20
05/01/88	0.17	0.15	7	10/05/88	0.25	0.10	23
06/01/88	0.20	0.12	5	11/05/88	0.22	0.11	20
07/01/88	0.18	0.15	8	12/05/88	0.22	0.12	15
08/01/88	0.18	.	.	13/05/88	0.20	.	.
09/01/88	0.18	0.16	10	14/05/88	0.20	0.10	30
10/01/88	0.18	0.14	8	15/05/88	0.20	0.09	25
11/01/88	0.20	0.20	8	16/05/88	0.20	.	.
12/01/88	0.24	0.18	5	17/05/88	0.20	.	.
13/01/88	0.25	0.23	5	18/05/88	0.20	.	.
14/01/88	0.30	0.18	5	19/05/88	0.20	.	.
15/01/88	0.26	.	.	20/05/88	0.20	.	.
16/01/88	0.26	0.25	8	21/05/88	0.20	0.12	26
17/01/88	0.30	0.30	5	22/05/88	0.18	0.12	22
18/01/88	0.37	0.28	7	23/05/88	0.18	0.12	16
19/01/88	0.35	0.25	7	24/05/88	0.18	0.10	14
20/01/88	0.34	0.25	8	25/05/88	0.18	.	.
21/01/88	0.35	0.26	6	26/05/88	0.18	0.17	10
22/01/88	0.34	.	.	27/05/88	0.24	.	.
23/01/88	0.34	0.25	7	28/05/88	0.24	0.18	7
24/01/88	0.33	0.28	7	29/05/88	0.27	0.17	11
25/01/88	0.36	0.27	6	30/05/88	0.20	0.18	8
26/01/88	0.36	0.29	4	31/05/88	0.22	0.22	8
27/01/88	0.37	0.30	7	01/06/89	0.40	0.38	8
28/01/88	0.37	0.35	4	02/06/89	0.48	.	.
29/01/88	0.40	.	.	03/06/89	0.48	0.40	11
30/01/88	0.40	0.32	6	04/06/89	0.45	0.35	10
31/01/88	0.42	0.39	4	05/06/89	0.40	0.34	8
01/05/88	0.24	.	.	06/06/89	0.40	0.35	15
02/05/88	0.24	0.17	21	07/06/89	0.55	0.40	8
03/05/88	0.20	0.12	29	08/06/89	0.55	0.33	7
04/05/88	0.20	0.10	28	09/06/89	0.50	.	.
05/05/88	0.16	0.12	16	10/06/89	0.50	.	.

Table B-8. Price and Quantity Data for Amman Jordan - Green Beans, January and June 1988 and June 1989 - Continuation.

DATE	UPPER RETAIL PRICE (JD/KILO)	COMMON WHSLE PRICE (JD/KILO)	QTY REC'D ACWM (MT)
11/06/89	0.50	0.38	12
12/06/89	0.50	0.40	14
13/06/89	0.52	0.42	12
14/06/89	0.50	0.40	5
15/06/89	0.52	0.42	10
16/06/89	0.52	.	.
17/06/89	0.52	0.40	17
18/06/89	0.54	0.35	17
19/06/89	0.48	0.35	17
20/06/89	0.45	0.35	16
21/06/89	0.47	0.37	12
22/06/89	0.50	0.35	14
23/06/89	0.47	.	.
24/06/89	0.47	0.35	22
25/06/89	0.45	0.35	12
26/06/89	0.50	0.27	19
27/06/89	0.40	0.22	19
28/06/89	0.35	0.29	16
29/06/89	0.35	0.25	23
30/06/89	0.35	.	.

Source: Ministry of Supply and Agricultural Marketing Organization, Jordan.

ANNEX C

PROCEDURE OF PRICING VEGETABLES AND FRUIT IN JORDAN

The following is an edited version of the translation of the section of the same title from the report prepared by Al-Zu'bi in 1987. It contains detailed information related to the procedures employed by the Retail Price Committee in carrying out its functions of setting retail prices for fruits and vegetables.

The pricing committee in each central market, consists of three members: the market director and representatives from the Ministries of Supply and Agriculture. The committee meets daily between 12 and one o'clock noon.[1] By this time, the market inspectors, whose duty it is to check the quantities sold through middlemen (including prices) from 6 to 11 am., would have finished preparing their reports on the morning period. Based on the information available in the inspectors morning reports (quantities sold by auction and their prices), the committee fixes a price for the consumer as follows:

(1) Fixing the prevailing wholesale price of each type of commodity, as follows:

(a) One of the committee's members reviews the inspectors reports in the presence of the other two. This review includes the prices of various kinds of products and excludes any immoderate prices. He will only mention those prices - determined by his experience and a quick review of recorded prices - which he deems are for transactions of the biggest quantities. (Price calculated by dividing the cost of the case by the weight of the quantity included).

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[1] Seen by the writer while attending eight sessions of the committee at the Central Wholesale Market during February and March 1987.

(b) Another member will register the prices, mentioned by his colleague, in a special from divided into columns, each referring to a particular kind of vegetable or fruit. He will register, in each column, a specimen of the prices for which it was sold.

(c) A sample of the prices, normally ranging from 4 to 10 observations, will be registered in the column of each kind by the end of the review.

(2) Fixing the wholesale price,[2] representing each kind of product, as follows: The committee accredits the nearest wholesale price to the average of the wholesale prices stated in the column of each kind. This figure will represent the common wholesale price of this product. Naturally, there is a great difference between the common price, at which the largest quantities of the commodity were sold, and the arithmetic mean of the sample prices registered by the committee.

(3) Calculating a upper retail price for the consumer - estimated for the first degree (grade), and a minimum price - estimated for the second degree (grade) as follows:

(a) Upper Retail Price: To clearly illustrate this, it is possible to refer to the data in Table C-1, below which represents the samples of the wholesale transaction prices of various products in fils/kg., as registered by the committee in the special form previously mentioned.

For example, the upper retail price of cucumbers is calculated as:

FIRST: The price nearest to the center (approximate arithmetic mean) is considered as the common price (120 fils/kg. in this case).

SECOND: A margin, including the marketing margin to deliver the commodity to consumer and the retailer's profit margin) is calculated according to the experience of the pricing committee. In estimating

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[2] The committee claims that it approves the common wholesale price as representative price. In fact, it selects the price whose value is nearest to specimen of prices (estimated as prevailing wholesale prices).

Table C-1. Example of Observed Transaction Prices Used by the Retail Price Committee.

CUCUMBERS	TOMATOES	CAULIFLOWER
140	160	80
130	(110)	60
(120)	100	50
110	80	40
90	70	

SQUASH	ORANGES	BANANAS
180	140	240
140	110	210
120	110	(100)
100	100	180
100	80	170
		120

REMARKS:

(1) Figures stated in the above table are the prices (fils/kg.)

(2) Encircled figures are the common wholesale prices, according to the procedure followed by the committee.

its value, the committee takes into account that its total, including the estimated common price, should exceed the registered maximum price by 10 to 30 fils. The total margin in the example of cucumbers is estimated at 40 fils.

THIRD: The upper retail price is the Estimated Common Wholesale Price + Estimated Additional Margin, or 120 + 40 = 160 fils. It should be noted that 160 fils exceed the registered maximum price (140 fils) by 20 fils.

(b) Lower Retail Price: By referring to the same example, we can clarify the method of fixing the lower retail price in fils per kg.

FIRST: The common wholesale price is calculated in the same way as above. In the illustrative example, the common wholesale price of cucumbers is 120 fils/kg.

SECOND:

(a) If the minimum wholesale price, registered in the product column, is less than the estimated common wholesale price by 20 to 30 fils, as in the case of cucumbers, the lower retail price will be fixed so as to exceed the common wholesale price by 10 to 20 fils. Thus, the consumer price will be = 120 + 10 = 130 fils/kg. or 120 + 20 = 140 fils/kg.

(b) If the minimum wholesale price, registered in the product column, is less than the estimated common wholesale price by 40 to 50 fils, as in the case of tomatoes, the lower retail price will be set so as to equalize the common wholesale price (110 fils/kg).

(c) If the minimum wholesale price stated in the product column is less than the estimated common wholesale price by 60 fils or more, the maximum price established will be less than the estimated common wholesale price by 20 to 30 fils. This

applies to bananas whose prices will be; either 190 - 20 = 170 fils/kg. or 190 - 30 = 160 fils/kg.

REMARKS:

The above method of calculating the upper and lower retail prices refutes all that was written or mentioned in previous reports or studies, especially those that calculated the upper and lower retail prices by adding a percentage of the common wholesale price (ranging from 10 to 40%). It seems that previous studies and reports have depended on the personal interpretations of some members of the pricing committees. These interpretations do not reflect the actual facts and observations. To verify the above, the difference between some consumer prices and the common wholesale prices (according to the committee's estimate) exceeds 100% of the common wholesale price. This is evident when the wholesale prices fall, so if the common wholesale price is 30 fils/kg., the upper retail price = 80 fils/kilogram and the lower retail price = 60 fils/kilogram. Upon questioning the members of the committee, their consistent response was they raised the price for the consumer in order to raise the wholesale price in the following days, as an assistance to the producer. This stems from their solid conviction, throughout their experience, that there is a direct correlation between the wholesale price and the consumer price.

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