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ANALYSIS OF EXPORT DEMAND FOR UNITED ARAB EMIRATES' DATES IN WORLD MARKETS

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Abstract

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The main focus of this study was on methods of estimating the price elasticity of foreign demand of UAE dates for India, Malaysia, Pakistan, Indonesia, Sri Lanka, and Jordan. Two models for estimating export demand for the UAE dates were applied; the substitution model and the market share model. Each model considered UAE dates as a final product. It was concluded that UAE has the potential to increase its date exports to the Indian, Sri Lankan, Indonesian, Pakistani, and Jordanian markets. Results of the substitution model illustrated that Indian, Pakistani, and Indonesian markets were the most sensitive to import prices. The results of the market share model indicated that Indian and Pakistani markets were sensitive to import prices of dates in both the short and long runs. Long-run elasticities showed that UAE dates encountered high competition in terms of price sensitivity in all of the studied markets except for Malaysia (inelastic). This result implied that dates' prices play a key role in competition in these markets.

Key words: Dates, market share, substitution price elasticity, partial adjustment coefficients.

Introduction

Date palm is one of the oldest fruit trees in the Arabian Peninsula and played a vital role in the life of its people. Date fruit is marketed all over the world as a high value confectionery and as a fresh fruit. It remains an important subsistence crop in most the desert areas. It is largely produced in hot arid regions of the world such as the Gulf Cooperation Council (GCC) countries.

World dates production has increased exponentially over the past two decades. In 1990, production was 3.44 million tons and increased to 4.85, 6.17, and 6.68 million tons in 1995, 2000, and 2005, respectively. The increase of 3.24 million tons in 2005 over 1990 represented an increase of 94.2%. This meant that world production of dates was almost doubled in the year 2005 (FAOstat). Table 1 indicates that the top five producing countries of dates in the world for the years 2004 and 2005 were Egypt, Iran, Saudi Arabia, UAE, and Iraq with percentages 16.96%, 14.42%, 13.88%, 12.15%, and 9.29%, respectively, of the world dates production based on the average for the two years.

These five countries represented 66.7% of total world production of dates. If the next five most im-

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portant countries were to be included; namely, Pakistan, Algeria, Sudan, Oman, and Libya, this percentage would rise to 92.5% of total world production of dates. If we further added the next five main producing countries; China, Tunisia, Morocco, Qatar, and Kuwait, this percentage would reach 96.16% of total world production of dates.

The data presented in Table 2 show that UAE dates production has increased from 141.5 thousand tons in 1990 to 859.16 thousand tons in 2005 with an average increase of 457.7 thousand tons for the mentioned period (or equivalent to 507.3%).

The table further shows that there was a significant increase in UAE dates production from 535.95 thousand tons in 1999 to reach a maximum amount of 859.16 thousand tons in 2005 with an average of 749 thousand tons during the period (1999-2005). In addition, the ratio of dates' exports to total dates production has declined sharply from 11.3% in 1999 to 7.62% and 2.78% for 2004 and 2005, respectively.

By contrast, dates exports of UAE have declined from 67.6 thousand tons in 1990 to 23.9 thousand tons in 2005, with an average decline of 90.4 thousand tons for the period 1990–2005. Meanwhile, dates exports of UAE ranged between 359.8 thousand tons in 2001, as an upper limit, and 9.47 thousand tons in 1993, as a lower limit. A decline in dates' exports of 64.7% in 2005 over 1990 has been noted. The ratio of date exports to production ranged between 80.4 % in 1996, as a maximum, and 2.78 % in 2005, as a minimum. A decline of 94% in this ratio was found in 2005 over 1990.

Exports of dates showed a significant increase throughout 2001 to 2003 by 359, 259.4 and 256.6 thousand tons, respectively; then declined in years 2004 and 2005 to 62 and 23.9 thousand tons, respectively. The question is how UAE can enhance its date exports of dates?

Table 1
Dates production in leading countries of the world (2004 and 2005)

Countries	Production, Mt		Average of two years	Ratio, %
	2004	2005		
World	7092949	6681781	6887365	100
Egypt	1166182	1170000	1168091	16.96
Iran	989626	996770	993198	14.42
Saudi Arabia	941293	970488	55890.5	13.88
UAE	814773	859159	836966	12.15
Iraq	875000	404000	639500	9.29
Pakistan	622404	496576	559490	8.12
Algeria	442600	516293	479446.5	6.96
Sudan	336000	328200	332100	4.62
Oman	231000	247331	239165.5	3.47
Libya	150000	180727	165363.5	2.4
China	128231	133847	131039	1.9
Tunisia	122000	125000	123500	1.79
Morocco	69400	47500	58450	0.85
Qatar	18222	19844	19033	0.28
Kuwait	16000	16372	16186	0.24
Chad	16268	15337	15802.5	0.23

Source: FAOSTAT.Org.

Table 2
UAE's dates production and exports 1990-2005

Years	Production 000 tons -1	Exports 000 tons -2	Ratio (2) / (1)
1990	141.463	67.58	47.77
1991	173.11	16.74	9.67
1992	230.4	35.47	15.39
1993	236.135	9.47	4.01
1994	236.1	42.52	18.01
1995	236.965	31.97	13.49
1996	249.644	196.74	80.42
1997	288.19	21.46	7.45
1998	290.448	32.65	11.24
1999	535.946	60.34	11.26
2000	757.601	65.89	8.7
2001	757.601	359.77	47.49
2002	760	259.58	34.19
2003	760	256.58	33.76
2004	814.773	62.12	7.62
2005	859.159	23.88	2.78
Average	457.66	90.41	25.10%
Change*	507.34 +	-64.66	-94.1

*The percentages changes of 2005 over 1990= [(2005/1990) -1] * 100
Source: FAOSTAT.Org.

Objectives

The present study mainly sheds the light on the import markets and substitution relations between UAE and its competitors in these markets. Specifically, the study objectives are: 1/to identify the main factors affecting foreign countries' imports of dates; and 2/to explain the implications of price changes on UAE exports of dates in world markets. Analyses have been made of import demand for six Asian countries which have purchased approximately 76.8% of UAE dates during the years 2004 and 2005 (these are the last two years of data available). The study concentrated mostly on methods of estimating the price elasticity of foreign demand of UAE dates.

Literature Review

There is no published research on export demand for UAE dates. Accordingly, this section presents a review of some previous studies on market share and substitution models.

An important work of Sirhan et al. (1971) was on a market share model regarding foreign demand for US cotton. The objective was to estimate the short-run and the long-run price elasticities of US cotton share in both British and West Germany markets. The results illustrated that the short-run price elasticities of US cotton share in the British market ranged from – 2.7 to – 8.67; and in the West German market ranged from -7.6 to – 9.9. Whereas the long–run price elasticities ranged between -10.67 and -11.04. The study concluded that the relatively large estimates of the short-run and long-run elasticities of market share were illustrative of the high degree of sensitivity of U.S. cotton in the mentioned two import markets to price changes and substantial degree of competition between US cotton and other exporters.

Another study of Capel et al. (1974) aimed at 1/ specifying the main factors impacting foreign demand for Canadian wheat; and 2/ interpreting the implications for Canadian exports policy. Three models were used: the direct, the substitution, and the market share models to estimate the price elasticities of demand for wheat by selected import countries (China, UK, EEC, Japan, USSR., India, Poland, Brazil, Hong Kong, the Philippines, and Taiwan). The results showed that the estimates of price elasticity of the substation model, including Canada and US, generally had negative signs and were larger than those obtained from the direct model. In general, the market share model of Canadian wheat yielded positive and insignificant estimates of elasticity in all importing countries except UK, Japan, the Philippines, and Taiwan which had negative signs of price elasticities but still insignificant.

The results indicated that the estimates of the substitution model performed better with significant negative price elasticities considerably greater than unity (in absolute values) were found for several importing countries. This suggested that there were large potential gains obtainable for Canadian wheat by decreasing export price.

Elashry (2001) adopted a market share approach to estimate the relative price elasticities in both the short run and the long run of Egyptian potatoes in Germany and UK markets. Results showed that relative price elasticities of the double-log form were elastic in both the short run (- 2.32), and the long run (- 4.45) and both were significant at the 1%. This meant that Egypt's potatoes exports and that of other competitors in the German market operated in the elastic portion of their export market share curves. Accordingly, there was a high degree of competition between Egypt's potatoes and other countries in the German market. By contrast, all relative price elasticities obtained from the model were inelastic in both the short run (-0.22) and the long run (-0.24), implying a weak competition between Egypt's potatoes exports and other competitors in the UK market. The study concluded that Egypt's potato exports would gain more hard currency in the German market if Egypt's price was reduced with respect to an average of the other competitors' price.

Hyun and Won's (2003) objectives were to analyze US wheat market shares in East Asian countries. The results illustrated the relative importance of export prices and exchange rates as factors identifying the US market shares in ten Asia countries. These variables had negative sings and were statistically significant, implying that higher US wheat prices and an appreciated US wheat market share, while competitors' higher wheat prices and currency appreciation had cross positive effects on US market shares. At the same time, relative volatilities of price and currency values were insignificant. This meant that Asian importers of wheat were sensitive to changes in wheat prices and currency values, but not sensitive to volatility in annual price and exchange rate variations. So, the increase in US wheat prices and appreciation of the US dollar against the currencies of its competitors had negative and significant effects on US wheat exports to the Asian importing markets, suggesting that Australian and Canadian wheat exporters had advantages over US wheat exporters.

A study by AlBoghdady (2007) focused on methods of estimating foreign demand price elasticities of Egypt's groundnuts market shares in the Italian, Greek, and Jordanian markets. This study used three models: the direct model, the substitution model, and the market share model. Each model dealt with Egyptian groundnuts as a final product. The results of the direct model showed that markets of Jordon and Greece were the most sensitive to import price of the Egyptian groundnuts, as the price elasticities were elastic at -2.99 and – 2.68, respectively. These elasticities were significant at the 5% level. The results of the substitution model showed that China and US competed with Egypt's groundnuts in both Italy and Greece markets, where the substitution price elasticities were elastic at – 2.33 and -1.87 and were significant at the 1% and 5% significance levels. Lastly, the estimates of the market share model were also elastic in both Italy and Greece market at – 2.65 and – 2.43 in the short run and at -3.98 and –3.24 in the long run, respectively, and were significant at the 5% significance level. It was concluded that Egypt's had the potential

to increase its exports in both Italy and Greece market.

El-Sawalhy et al. (2008) analyzed Egyptian grapes market shares in the world markets. This study also applied three models: the direct, the substitution, and the market share models to estimate the price-elasticity of demand for grapes, for United Kingdom, Netherlands, Italy, and Saudi Arabia. The results of the direct model showed that Netherlands, UK, and Saudi Arabia markets were most sensitive to the import prices of grapes as the price elasticities were estimated at -3.08, -2.49, and –1.16, respectively. The estimates of the substitution elasticity model showed that Turkish export price of grapes was the closest competitor to Egyptian export price in both Netherlands and UK with estimates of – 3.41 and – 2.6, respectively. While Chile export price was the most competitive price to Egyptian export price in the Italian Market with estimates of -4.13; and that the Iranian export price was highly sensitive with price elasticity of substitution of -5.21. Results obtained from the market share model illustrated that the price elasticities were highly significant with correct signs in the four importing markets: Netherlands, UK, Italy, and Saudi Arabia in both the short run (-4.22, -3.68, -1.91, and -1.62) and the long run (-5.76, -4.48, -2.53, and -2.17), respectively. This meant that the export price plays a vital role to competition in the mentioned markets.

Data Source

The data consisted of UAE dates exports for major imported countries; India, Malaysia, Pakistan, Indonesia, Sri Lanka, and Jordan. Data also included the competitors' export quantities in thousand tons and competitors' export prices in US Dollars per ton to the mentioned markets during the period 1990-2005. Data were gathered from website of Food and Agricultural Organization (FAO).

Analytical Framework

Studies of international trade flows have generally concentrated on the specification and estimation of both imports and exports e.g. Hickman et al. (1973) and Goldstein et al. (1978). Many economists discussed the theoretical and statistical problems of demand for both exports and imports in the world markets (Orcutt (1950), Morgan and Corlett (1950), Harberger (1953), and Polak (1954)). An alternative approach was suggested to measure the degree of competitiveness between a country's commodity and foreign competitors' commodities in importing countries by using the market share model (Sirhan et al., 1971).

The present microeconomic theory of trade is able to estimate the export and import demand of a commodity. In accordance with the classical theory of trade, the exports can be considered as a function of export prices in the world markets. Two models for estimating the export demand for UAE dates were applied; the substitution model and the market share model. Each model dealt with UAE dates as a final product. Both models were estimated using the ordinary least squares (OLS) technique.

Substitution Elasticity Model

Lichler (1985) cited that the elasticity of substitution has become one of the measurements of price responsiveness, not only in production theory, but also in the study of world trade. Consequently, the elasticity of substitution between UAE dates and that of major competitors in an individual importing market can be estimated by using the following equation:

$$(G_E / G_C)_t = f\{(P_E / P_C)_t, T\} \quad (1)$$

where G_E is the quantity of dates imported by a foreign market from UAE in year t; G_C is the quantity of dates imported by that foreign market from a competitor in year t; P_E is the price of UAE export of dates to that foreign market; P_C is the price of competitor's supplies to that market in year t; and T is time. Time is included as an allowance for factors that change gradually over series of years analyzed for annual data (1990-2005). The sign on the regression coefficient of the price ratio $(P_E / P_C)_t$ is hypothesized to be negative according to economic theory. The elasticity of substitution can be estimated

simply from the coefficient of the price ratio in logarithmic form as follows:

$$\ln (G_E / G_C)_t = B_0 + B_1 \ln (P_E / P_C)_t + e_t \quad (2)$$

where e_t is an error term. The estimated elasticity of substitution (B_1) reflects the short-run elasticity rather than the long-run elasticity as the observed elasticity relates to one year length.

This model has been used to examine substitution between exports of two countries as competitors in single world markets. Many economists have applied this model such as Capel (1966), Sirhan, (1969), Sirhan et al. (1971), Capel et al. (1974), AlBoghdady (2007), and El-Sawalhy et al. (2008). The model can be estimated in both linear and double log forms.

Market Share Model

Many economists have used the market share model in their studies such as Sirhan (1969), Sirhan et al. (1971), Karl et al. (1981), Elashry (2001), Hyun et al. (2003), AlBoghdady (2007), and El-Sawalhy et al. (2008). This section is concerned with the formulation of the model and the estimation of elasticities of market share in both the short and long-runs with respect to the price ratio. The dependent variable is the UAE dates market share which is a function of the price ratio and time factor as follows:

$$(G_E / Q)_t = f\{ (P_E / P_a)_t , T \} \quad (3)$$

where: Q is a total date imports of the foreign market in year t; P_a is the average price of all competitors in the same market, whereas other variables are as previously defined. It is desirable to apply the distributed lag mechanism on equation (3) because responses to price are gradual rather than instantaneous (Tesler, 1962). In the present application:

$$(G_E / Q)^*_t = f \{(P_E / P_a)_t , T \} \quad (4)$$

where the starred item is the desired or long-run market share. There is no error term here since $(G_E / Q)^*_t$ is not stochastic. If we assume that actual market share adjusts slowly towards its desired ratio, then:

$$(G_E / Q)_t - (G_E / Q)_{t-1} = \lambda \{ (G_E / Q)^*_t - (G_E / Q)_{t-1} \} \quad (5)$$

where λ is the partial adjustment fraction of the expected long-run market share tha can be achieved within a specific period. It is also a constant of proportionality which is called the elasticity or coefficient of adjustment whether the quantity is expressed in logarithms or not (Nerlove, 1958). The linear estimated equation is as follows:

$$(G_E/Q)_t = \alpha_0 + \lambda \alpha_1 (P_E / P_a)_t + (1- \lambda) (G_E / Q)_{t-1} \quad (6)$$

By estimating the parameters of equation (6) in the double logarithmic form, then it becomes:

$$\ln(G_E / Q)_t = \alpha_0 + \lambda\alpha_1 \ln (P_E / P_a)_t + (1-\lambda) \ln(G_E / Q)_{t-1} \quad (7)$$

where equation (7) is in the double log form, and the parameter $1-\lambda$ is known; the short-run elasticity of the price ratio is the coefficient $\lambda\alpha_1$, while the long-run elasticity of market share with respect to price ratio is equal to $\lambda\alpha_1 / ((1-(1-\lambda))$, or is equal to α_1, (Attia, 1998).

Empirical Results

This section is composed of two subsections; the estimation of the price elasticity of substitution model for the markets of India, Malaysia, Sri Lanka, Indonesia, Pakistan, and Jordan; and the estimation of the elasticities in both the short and the long runs of UAE dates market share in the mentioned markets. All the market share equations were estimated in the double log form except those of Sri Lanka were estimated in the semi log form.

Results of Elasticity of Substitution Model

Estimates of this model using equation 2 were presented in Table 3. The elasticity of substitution model

Table 3

Substitution price elasticities model for UAE dates with competitors in the Asian markets (double logarithm form for the period 1990-2005)

Competitors market	Constant	Price ratio	r	R2	F	DW
1. India						
Iran	-0.8	-1.501	0.75	0.53	18.16	1.596
	(-5.98)**	(-4.26)				
Pakistan	-1.375	-2.241	0.93	0.84	83.62	1.225
	(-17.71)**	(-9.144)**				
Oman	-0.101	-1.426	0.74	0.52	17.03	1.43
	(-0.94)**	(-4.126)**				
Saudi Arabia	1.074	-2.426	0.68	0.43	12.27	1.638
	(5.989)**	(-3.503)**				
2. Malaysia						
China	-1.105	-0.898	0.7	0.46	13.73	1.388
	(-13.496)**	(-3.705)**				
Iran	-0.585	-0.548	0.44	0.13	3.29	0.75
	(-6.487)**	(-1.813)				
Egypt	-0.753	-1.018	0.71	0.46	13.8	1.23
	(-10.296)**	(-3.715)**				
Australia	0.791	-0.953	0.64	0.37	9.83	1.76
	(8.88)**	(-3.135)**				
3. Sri Lanka						
Iran	0.493	-2.966	0.75	0.53	18.12	0.66
	(2.757)	(-4.256)**				
Saudi Arabia	1.457	-2.845	0.93	0.85	82.48	1.297
	(13.226)	(-9.082)**				
Pakistan	1.718	-2.586	0.7	0.45	13.4	0.565
	(7.86)	(-3.661)**				
4. Indonesia						
Egypt	-0.158	-1.839	0.77	0.56	19.83	1.785
	(-1.995)	(-4.553)**				
Iran	-0.468	-2.758	0.77	0.57	20.73	1.611
	(-3.766)	(-4.553)**				
5. Pakistan						
Iran	0.0064	-3.938	0.92	0.84	76.92	1.451
	(0.05)	(-8.77)**				
Saudi Arabia	1.41	-1.738	0.59	0.3	7.29	1.28
	(7.56)	(-2.7)*				

t- Statistics values in parentheses *significant at P< 0.05 **significant at P< 0.01

Table 4
Substitution price elasticities model for UAE dates with competitors in the Jordanian market (Linear form 1990-2005)

	Constant	Price ratio	Time	r	R 2	F	DW
Egypt	1.341 (1.423)	-2.519 (-3.31)**	0.435 (5.194)**	0.83	0.63	13.91	2.722
Iran	2.021 (1.635)	-1.278 (-1.904)	0.194 (1.867)	0.54	0.18	2.69	1.232
Substitution price elasticity (e) with							
Egypt		-1.785					
Iran		-1.283					

(e) is computed at the mean

introduced a measurable relation between the ratio of UAE dates export price divided by the export price of each rival in a specific market and the quantity ratio of exports of UAE dates to exports of each competitor in the imported markets of dates. The estimated equations were in double log form except Jordanian market was in linear form.

In the Indian market, there are four contenders that competed with UAE dates in this market; Iran, Pakistan, Oman, and Saudi Arabia. As one can see from the same table, all coefficients of price ratios were highly significant at the 1% level. The adjusted coefficient of determination R^2 ranged between 43% as a lower limit and 84% as an upper limit. F-ratio was highly significant at 1% level in the four equations. DW test for autocorrelation indicated that there was no serial correlation with Iran, Oman, and Saudi Arabia, and inconclusive with Pakistan. The signs of price ratio elasticities were negative in all equations as anticipated. Moreover, all substitution- price elasticities were elastic implying high degree of competition between UAE exports and those of Iran, Pakistan, Oman, and Saudi Arabia exports of dates in the Indian Market. The results also implied that, Saudi Arabia, Pakistan, Iran, and Oman were the most sensitive competitors to the UAE price as 10% decrease in export price of UAE dates with respect to the four competitors led to increasing in the ratio of UAE export quantity of dates to the four rivals' quantities by 24.3%, 22.4%, 15%, and 14.3%, respectively.

In regard to the Malaysian market, China, Egypt, Iran, and Australia were rival countries to UAE dates. All substitution price elasticities were inelastic except Egypt was unitary elastic (1.02). Furthermore, all price ratios had correct signs and significant at 1% level except Iran was significant level at 10%. The adjusted coefficient of determination R^2 ranged between 13% as a lower limit and 46% as an upper limit. F-ratio was highly significant at 1% level for China, Australia, and Egypt equations; whereas they were significant at 10% for Iran. DW test for autocorrelation indicated to no serial correlation of UAE exports with China and Australia exports, and inconclusive with Egypt exports. By contrast, there was a serial correlation of UAE exports with Iranian exports.

In Sri Lanka market, Iran, Saudi Arabia, and Pakistan competed with UAE exports of dates as indicated by the substitution price elasticities which were significant at 1% level and with correct signs. The estimated equations indicated prices to be highly sensitive showing that a 10% decrease in export price of UAE dates with respect to export prices of the three rival countries led to an increase in quantity ratio of UAE to Iran, Saudi Arabia, and Pakistan of 29.7%,

28.5%, and 25.9%, respectively. Furthermore, the price ratios explained about 70% and 93 % of the total variation in the imported quantity ratios of Sri Lanka. F- ratio was highly significant at the 1% level in the three equations. DW test for autocorrelation unfortunately indicated that there was serial correlation of UAE exports with both Iran and Pakistan exports, but with Saudi Arabia exports it was inconclusive.

Regarding Indonesian market, Egypt and Iran were rivals countries to UAE dates exports. Substitution price elasticities were elastic at -1.839 and -2.758 at the 1% level. This meant that there was high degree of competition among the three countries in this market. A 10% decrease in export price of UAE dates with respect to export prices of the two rival countries led to an increase in quantity ratio of UAE to Egypt and Iran of 18.4% and 27.6%, respectively. The adjusted coefficient of determination R^2 was the same for both of the two equations at 56%. F-ratio was significant at the 1% level for both Egypt and Iran equations. DW test for autocorrelation indicated to no serial correlation in the two equations.

For the Pakistani market, two countries competed with UAE exports of dates; Iran and Saudi Arabia. Results confirmed that the two mentioned countries were the most sensitive competitors to changes in the price ratios as the substitution price elasticities were estimated at -3.938 and -1.738, respectively, which were highly significant at the 1% level. In addition, the price ratios explained about 84% and 30% of the total variations in the ratios of imported quantities. Moreover, F-ratio was significant at 1% level for both Egypt and Iran equations. DW test for autocorrelation indicated that there was no serial correlation of UAE exports with Iranian competitor, and inconclusive with Saudi Arabia.

Lastly, Egypt and Iran dates' exports competed with UAE exports of dates in the Jordanian market. The estimated equations were in the linear form as per Equation 1. The substitution price elasticities were set at -1.728 and -1.283, respectively, which were significant at 1% level for Egypt and at 10% for Iran. Price ratios and time trend explained about 83% and 18 % of the total variations in the ratios of imported quantities, respectively. F-ratio was significant at 1% level for Egypt and insignificant for Iran. DW test for autocorrelation showed no serial correlation with

Table 5

Market share of UAE dates in India, Malaysia, Jordan, Indonesia, and Pakistan markets (Double Log Form) and (Sri Lanka market in Semi-Log form) 1990-2005

	Constant	Price ratio	Lagged market share	r	R2	F	DW
India	-1.123	-1.751	0.33	0.67	0.36	4.87*	1.657
	(-3.301)**	(-2.342) *	-1.612				
Malaysia	-0.936	-0.53	0.26	0.59	0.23	3.12	1.939
	(-3.276)*	(-2.037)*	-1.08				
Indonesia	-0.641	-0.919	0.33	0.74	0.47	7.21*	1.764
	(-2.81)**	(-2.363)*	-1.788				
Pakistan	-0.426	-1.865	0.487	0.79	0.53	10.03 **	1.448
	(-1.994)*	(-2.669)**		(2.63)* *			
Jordan	0.097	-0.395	0.662	0.84	0.65	13.72**	1.563
	-0.246	(-0.464)		(5.037) **			
Sri Lanka	0.815	-0.444	0.454	0.89	0.75	22.33**	1.809
	(8.416)**	(-1.687)*		(3.565) **			

t- Statistics values in parentheses *significant at P<0.05 **significant at P<0.01

Egypt, and inconclusive with Iran (Table 4).

In sum, substitution price elasticities were considerably elastic for five markets: India, Sri Lanka, Indonesia, Pakistan, and Jordan. Also UAE exports with respect to Egypt exports in the Malaysian market suggested there were large potential gains obtainable for UAE exports of dates by decreasing the export price in the mentioned markets. So dates exporters and policy makers of UAE have to pay close attention to the impact of price changes in the above mentioned markets.

Results of the Market Share Model

Results of the market share model using equation 7 were shown in Table 5. All equations were estimated in double logarithmic form except UAE dates share in Sir Lanka market was in semi log form. At the same time, all signs of coefficients in the estimated equations had proper sings as theoretically anticipated.

The coefficients of the price ratios were negative for all equations as expected and significant at the 1% level for both India and Sri Lanka and at the 5% level for Malaysian, Pakistani, and Indonesian markets, while it was insignificant for the Jordanian market. The signs of lagged market share coefficient were positive as expected earlier. The adjusted coefficient of determination R^2 ranged between 23% in the Malaysian market, as a lower limit, and 75% in Sri Lanka, as an upper limit. F-ratio was highly significant at the 1% level for Indian, Indonesian, Pakistani, Jordanian, and Sri Lankan equations and significant for Malaysian market at the 10% level. In the presence of a lagged depended variable among the explanatory variables, the assumption underlying the Durbin Watson test was no longer valid and the value of the test statistic was not reliable. The alternative appropriate test was Durbin h statistic for autocorrelation. The calculated values of Durban h statistic in all equations were less than 1.6475 implying that the hypothesis of zero autocorrelation cannot be rejected at 5% significant level (Johnston, 1985). This meant that there was no serial correlation in all estimated equations in all markets. The coefficients of lagged market share had correct signs and were statistically significant at the 1% for both Sri Lankan and Jordanian markets, at 5% level for Pakistani market, and at 10% for Indonesian market. By contrast, these coefficients were insignificant for both the Indian and Malaysian markets (Table 5).

The estimates of the long run price elasticities of market share were considerably elastic for all of the mentioned markets except the Malaysian market (Table 6).

This meant that there was a high degree of sensitivity of UAE dates share in the five import markets to price changes and a substantial degree of competition

Table 6

Short-run and Long-run elasticities of UAE dates share in Asian markets

Market	Elasticity		Partial Adjustment coefficient
	Short-Run	Long-Run	
India	-1.751	-2.613	0.67
Malaysia	-0.53	-0.72	0.74
Sri Lanka	-0.848	-1.582	0.55
Indonesia	-0.919	-1.372	0.67
Pakistan	-1.865	-3.635	0.51
Jordan	-0.399	-3.59	0.11

The market share elasticity of Jordan was computed at the mean (the export price of UAE to Egypt's export price on average is equal to 1.2659 and the ratio of export quantity of UAE to Egypt's export quantity on average is equal to 1.84842.

in dates imported from UAE and other rivals. Accordingly, a 1% increase in the export price of UAE dates to the average price of other competitors led to a decrease in UAE dates market share in Pakistan, Jordan, India, Indonesia, and Sir Lanka of -3.635, -3.59, -2.613, -1.582, and -1.372, respectively. While they were elastic in the short run for both Pakistani and Indian markets at -1.865 and -1.751, respectively.

Conclusions

It could be concluded that UAE still have the potential to increase its date exports in the world markets. The results obtained from the substitution model revealed that Indian, Sri Lankan, Pakistani, and Jordanian markets were the most sensitive ones to dates' import price, as the price elasticities were high. Short-run elasticities of market share illustrated that there were high degree of competition between UAE dates and other competitors in the Pakistani and Indian markets. The estimates obtained from long-run elasticities of market share confirmed that UAE dates stumbled upon high competition in terms of price sensitivity in the mentioned import markets. These results implied that dates prices played a key factor to competition in the mentioned markets. Consequently, UAE's dates exporters and policy makers have to consider the impact of dates export price in the Asian importing markets of dates.

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