

Saudi Dates Exports Demand In Selected Markets

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ABSTRACT: This paper estimated the external elasticities for exported dates from Saudi Arabia to selected countries during the period 2001-2011. Moreover, it estimated Saudi dates market share in these countries. The export price elasticity is computed as a weighted average of the import demand elasticities in each individual country-product destination market, using the elasticities of substitution across imported types. The results show that the price elasticity of demand was more than one in Germany, India, USA and Pakistan; this means that it could not be possible to increase Saudi Arabian dates' prices in these countries, because other countries will substitute Saudi Arabia. On the other hand, the short run elasticities were found inelastic, except in Jordan. This result indicates that there is a possibility of increasing Saudi dates exports in the selected countries, except in Jordan, in the short-run, while in the long-run, the only country which has elastic elasticity was India, which indicated that there is a possibility to increase Saudi market share in the selected countries in the long run, except in India.

Key Words: Export Demand, Export Elasticity, Market Share, Saudi Arabia.

bbreviations: KSA Kingdom of Saudi Arabia, UAE United Arab Emirates, USA United States of America

INTRODUCTION

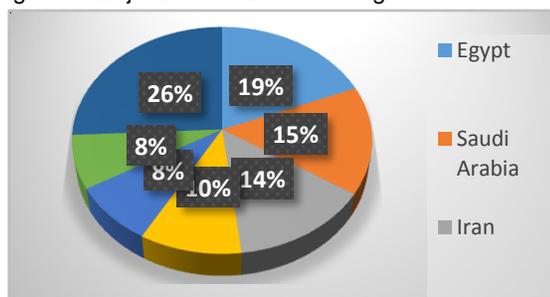
Dates Production and Trade

World date palm production had witnessed a remarkable increase during the last five decades. In 1965, it was 1.85 million tons, increased to 2.7 million tons in 1985, and then it reached 8.3 million tons in 2011.

Asia is leading continent in dates' production in the world, then comes Africa (57.2% and 42% respectively in year 2011)

Egypt is the main producing country for dates (About 19% of total production in 2011), then comes Saudi Arabia with a share of 15% of the world trade then comes Iran (14%). (Figure 1)

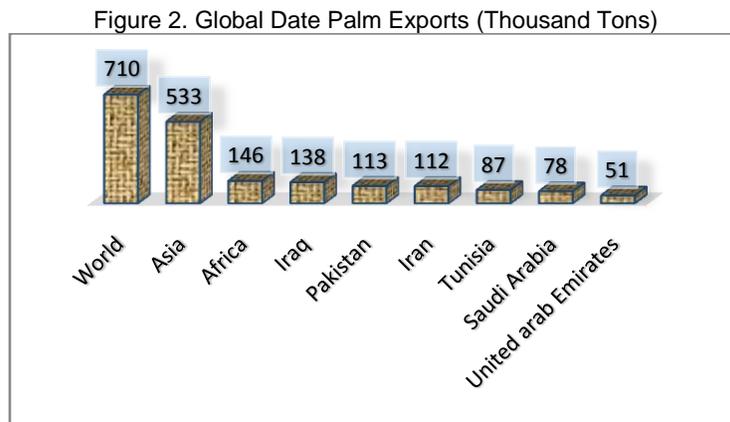
Figure 1. Major Date Palm Producing Countries



Source: FAO, FAOSTAT 2013

The Kingdom of Saudi Arabia (KSA) had established an export program under the umbrella of the Saudi Fund for Development in 1999, which aimed at encouraging Saudi dates exports to expand in existing export

markets, and have access to new markets to contribute to diversifying the sources of national income. However, exports of Saudi dates are still weak, the amount of dates exported was about 7.7 % of the volume of production in 2011 (about 78 thousand tons only). Figure 2.



In general, there is a surplus of production of dates in Saudi Arabia, which was estimated at about 400 thousand tons in 2010 and is expected to increase to about 600 thousand tons in 2020, this led to a decline in the wholesale price of dates received by the farmers.

Literature Cited

A study was conducted to evaluate Egyptian grapes market shares in the world markets (El-Sawalhy, H. 2008) stated that grapes are considered one of the promising exported crops in Egypt. The exported quantities of the Egyptian grapes comprised 1.4% of the total grape production through the period 2001-2006. The purpose of the study was to identify the main factors affecting foreign countries' imports of the Egyptian grapes. The study focused on methods for estimating the price demand elasticity for the purchases of grapes by, United Kingdom, Netherlands, Italy, and Saudi Arabia. Three models for estimating export demand for Egyptian grapes were applied; the direct model, the substitution model and the market share model. Each model dealt with Egyptian grapes as a final product. It was concluded that Egyptian grapes still have the potentialities to increase its exports in both Netherlands and United Kingdom markets. The results obtained from the direct model showed that the price elasticity in Netherlands market was elastic, accordingly, this market is considered the most sensitive market to import prices of the grapes, and it was followed by Saudi market. Long-run elasticities indicated that Egyptian grapes encounter high competition in terms of price sensitivity in all the studied markets. This result implied that prices play a key factor for competition in these markets. Consequently, the Egyptian policy makers have to take an attention to the impact of the price in all imported market.

A research was conducted to estimate the price elasticity of external demand of Portuguese exports in the period 1995-2009 and compares it with those of other Euro area countries. (Cabral, S. and C. Manteu. 2011). This proxy of the export price elasticity is computed as a weighted average of the import demand elasticities in each individual country-product destination market, using the elasticities of substitution across imported varieties of Broda et al. (2006). Overall, Portugal tends to export to individual markets, which have, on average, a lower price elasticity than the markets where other Euro area countries export. Therefore, the product and geographical composition of Portuguese exports reduces their exposure to relative price fluctuations.

Elashry, et.al. (2010) conducted a study on the analysis of Export Demand for United Arab Emirates, Dates in World Markets. This study focused on methods for estimating the price elasticity of foreign demand of UAE dates for India, Malaysia, Pakistan, Indonesia, Sri Lanka, and Jordan. The two models used for the analysis are the substitution model and the market share model. Each model considered the United Arab Emirates (UAE) dates as a final product. It was concluded that the UAE has the potential to increase its date exports to the Indian, Sri Lankan, Indonesian, Pakistani, and Jordanian markets. The 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.

Purpose of the Study

This study aimed at analysing the current situation of demand for the exports of Saudi dates and its market share in the global markets.

The following questions were answered

- What are the level of short-run and long-run export Demand Elasticities of Saudi dates
- How these elasticities do affects Saudi Dates exports?
- What is the market share of Saudi Dates exports in the selected countries?

MATERIALS AND METHODS

Secondary data were used in achieving the purpose of this study. The main source of the global data was FAODSTAT, while the detailed data for Saudi Arabia date palm sector were collected from local sources where available.

Three types of analysis were used in this study, the first is evaluating the global geographic distribution of Saudi Arabia date’s exports;the second isthrough the elasticity of export substitution; and the third through evaluating the Saudi Arabia dates market share.

Elasticity of Demand for Exported Dates

The response of traded quantities to exogenous shifts in relative prices is often used to gauge a country's external performance. Export elasticities illustrate the resilience of exporters in theface of a sudden deterioration in their position. The price elasticity of imports summarizes thecompetition between domestic and foreign producers in the face of an adjustment in demand.

The price elasticity of demand for exports, measuresas the change in a country’s exports with respect to changes in the price of exported goods relative to the prices of competing goods in destination markets, it depends on the willingness of consumers in importing countries to substitute among foreign goods.

We define the dates produced and exported from a particular country as a “Type”, i.e. Saudi dates are considered a type; Iraqi dates are considered a type, and so on. The preferences of consumers in importing countries have a “taste for type”, in the sense that they prefer to consume a diversified bundle of types of the imported dates.The elasticity of substitution among imported types of good (i) by country (j), σ_{ij} , is interpreted as the price elasticity of demand for a good (i) exported from any origin country to destination country (j). The elasticity of substitution is equal to the price elasticity of demand if we assume a sufficiently large number of types so that the price of a single variety has no effect on the aggregated price index of the good. When σ_{ij} is low, consumers in the country (j) see the imported varieties of good (i) as imperfect substitutes, that is, as differentiated varieties that are to some extent substitutable, based on actual physical product differences or other characteristics such as purchasing convenience, after-sales service or even consumers’ perceptions of inherently un- observable quality. In contrast, when σ_{ij} is high, varieties of a particular good are assessed as more alike and consumers will easily substitute one for another when relative prices change.

To examine the degree of substitutability inSaudi Arabia dates exports to a third market, we directly estimate an elasticity of substitution for dates exports between Saudi Arabia and competing countries in Yemen, Jordan, Pakistan, Turkey, the rest of the world and world markets.

The export elasticity of substitution (σ) is defined as follows. (Tanaka, I. and T. Gakuen. 2012)

$$\sigma = d \ln \left(\frac{Q_j}{Q_c} \right) / d \ln \left(\frac{P_i}{P_c} \right) \tag{1}$$

Where:

- Q_j = Represents Saudi Arabia export quantity of a part of a third country,
- Q_c = Is the competing country’s export quantity of the same part of the same country,
- P_i = The prices on dates exported from Saudi Arabia
- P_c = The prices on exported dates from competing countries,

The simplest way to obtain the elasticity of substitution is to take the logarithm of the numerator on the denominator of equation (1). That is,

$$\ln \left(\frac{Q_j}{Q_c} \right) = \alpha + \sigma * \ln \left(\frac{P_i}{P_c} \right) + \mu \tag{2}$$

An error term μ is added to depict an estimation model in equation (2). The estimate of the coefficient on the relative price term shows the estimated export demand elasticity (σ). The sign of (σ)is defined as negative. It

means that for a part with large elasticity, if the price of the dates exported from Saudi Arabia is increased, its export is more likely replaced by the dates supplied from another country. If the elasticity is small, however, the price rise of the dates is not likely to lead to the replacement with the competitor.

The overall export elasticity for a given country (i) (Saudi Arabia) is computed as a weighted average of the demand elasticities in each destination market. The weights are given by the share of each market for total exports by country (j). Formally, the export elasticity for country (i) in the year(t) is defined as:

$$\xi_{it} = \sum_j \sigma_j \varphi_j \quad (3)$$

$$\varphi_j = X_{ijt} / \sum_j X_{ijt} \quad (4)$$

$$\xi_{it} = \sum_j \sigma_j X_{ijt} / \sum_i X_{it} \quad (5)$$

Where:

j indices destination countries for country i's exports,

σ_j is the estimated demand elasticity for dates in importing country j and

X_{ijt} is the value of exports of dates from country i to country j in year t.

Market Share for Saudi Arabia Dates Exports

The export market share is defined as the ratio of a certain commodity from Country (i) to the total imports of the same commodity in country (j), i.e. QE_i/Q_j .

The distributed lag mechanism was applied to evaluate the market share of exported Saudi Dates to estimate the short run and long run elasticities of price ratios. It's worth mentioning here that the responses to price are gradual rather than instantaneous.

$$(Q_{ij}/Q_j)_t^* = f((P_i/P_j)_t, T) \quad (6)$$

Where:

Q_{ij} is the Saudi dates' exports to market (j)

Q_j is a total dates' imports of dates of the market (j)

P_i is The price of Saudi dates in the market(j)

P_j is the price of imported dates in market (j)

T is Time trend

$(Q_{ij}/Q_j)_t^*$ is the desired/optimal long run market share.

We suppose the actual market share adjusts slowly towards its desired ratio. Then:

$$(Q_{ij}/Q_j)_t - (Q_{ij}/Q_j)_{t-1} = \lambda((Q_{ij}/Q_j)_t^* - (Q_{ij}/Q_j)_{t-1}) \quad (7)$$

Where (λ) is the partial adjustment fraction, the linear estimating equation then becomes:

$$\ln(Q_{ij}/Q_j)_t = \ln(\beta_0) + \lambda\beta_1 \ln(Q_{ij}/Q_j)_t + (1-\lambda) \ln(Q_{ij}/Q_j)_{t-1} \quad (8)$$

This equation is the partial adjustment model for Nerlove. (Nerlove, M., 1958.)

While $1-\lambda$ is known, the short run elasticity of the price ratio can be simply equal $\lambda\beta_1$. On the other hand, the long-run elasticity of market share with respond to price ratio is equal to β_1 .

RESULTS AND DISCUSSIONS

Price Elasticity of Demand and Export Elasticities

The estimation results of the replacement for dates' export model from Saudi dates in seven markets (Yemen, Jordan, India, Turkey, Pakistan, and USA) are shown in table 1. The results show that the price elasticity of demand was more than one in Germany, India, USA and Pakistan; this means that it could not be possible to increase Saudi Arabian dates' prices in these countries; otherwise, other countries will substitute Saudi Arabia. However, if Saudi Arabia decreased the export price by 10% in these countries the quantity demanded will increase by 32% in Germany, 29% in India, 23% in the USA, and 14% in Pakistan. On the other hand, Yemen, Turkey and Jordan had an inelastic demand; accordingly, there is a possibility to increase export prices in these countries.

Table1. Substitution Price Elasticities for Saudi Arabia Dates with Competitors in the World Markets (1997-2011)

Importing Markets	Demand Function Type	Constant	Price ratio	Time	R2	f	DW	Price Elasticity of Demand
Yemen	Double Log	2.25 10.6**	0.87- -4.38**	0.38- -3.2**	0.85	**14.6	1.6	0.87-
Pakistan	Linear	0.037	0.121- -1.37	0.035	0.54	*7.05	2.69	1.42-
Turkey	Double Log	1.9 -5.44 **	-0.97 -6.5**	0.017 0.645	0.84	**30.5	1.48	- 0.97
India	Double Log	-11.511 -0.867	-2.888 -1.702	0.006 0.092	0.299	1.71	1.532	-2.888
Jordan	Double Log	-32.331 -1.321	-0.763 -2.926**	0.016 1.295	0.57	5.311**	2.356	-0.763
Germany	Double Log	-1667.8 -5.135	-3.179 -4.133***	0.826 5.132	0.904 0.633	17.992* 6.893**	2.537 1.826	-3.179*
USA	Double Log	-162.677 -1.969	-2.282 -3.625***	0.08 1.942	0.63	6.893	1.826	- 2.282

** Significant at 5%

*** Significant at less than 1%

Source: Calculated by the researchers

The evolution of the estimated export elasticities over time are not applicable in our analysis as the dynamics only emerge due to the varying composition of exports, since the underlying import demand elasticities (σ_{ij}) are assumed to be time- invariant.

The external demand elasticities are computed as a weighted average of import demand elasticities from Saudi Arabia (ξ_{it}); it was estimated from equation (5) at -1.84, i.e. Elastic export demand. This indicates that, on average, Saudi Arabia can increase its exports by decreasing dates' prices.

Market Share for Saudi Arabia Dates Exports

Results from the equation (8) are shown in Table 2. The coefficients of the price ratio are negative as expected according to the economic theory, and significant in all markets. The Jordanian market showed a highest price elasticity as 10 percent decrease in price ratio (Saudi dates' price over the average price of the competitors) may lead to increase the Saudi dates exports to the Jordanian market over the competitor by 10.1 percent. The rest of the countries dates exports were inelastic, with the lowest in Pakistan (-0.38) and the highest in Yemen (-0.854). This indicates that increasing the dates' export prices from Saudi Arabia to these countries will lead to lower exported quantities.

Table 3 showed that all short-run elasticities are inelastic, except for Jordan. Accordingly, a one percent decrease in the relative price ratio of Saudi Dates will lead the competitors to increase their exports to that country, and will lead to an increase of less than a one percent in the Saudi Dates share in each market, except in Jordan. One can conclude that there are low competitions in dates imported from Saudi Arabia in the mentioned markets. In addition, the results of long-run elasticities showed in Table 3 confirmed that the Saudi's dates do not face high competition in terms of price sensitivity in all the selected countries except in India.

Table 2. Market share of Saudi Arabia dates in the World markets (Double log through the period 2000-2011)

Market	Constant	Price ratio	Lagged market share	R2	f	D-W
Yemen	0.192- (-8.424)**	-0.854 (-15.7)**	0.011 0.199	0.98	**126	1.46
Jordan	0.73- (5.34)**	1.009- (-4.92)**	0.25- (-146)	0.69	12.09**	.92
Pakistan	0.077 (0.089)	-038 (-0.35)	0.87 (4.99)* *	0.70	**12.6	2.85
Turkey	0.93 (-4.16)**	0.83- (-3.72)**	0.13 (0.67)	0.75	**16.1	1.71
India	-0.646 (-0.58)	-0.206 (-0.165)	0.844 (3.191)**	0.68	**11.4	1.9

*** Significant at less than 1%

Source: Calculated by the researchers

Table 3. Short-Run and Long-Run Elasticities of Saudi Arabia Dates Market Share in World Markets

Market	Elasticity Short-Run	Long- Run
Yemen	-0.85	0.86-
Jordan	-1.01	0.81-
Pakistan	-0.38	2.92-
Turkey	-0.83	0.95-
India	- 0.21	1.31-

Source: Calculated by the researchers

The above results show that Saudi Arabia could increase its exports of dates to Yemen, India, Pakistan and Turkey in the short run. On the other hand Saudi Arabian dates could be increased in Yemen, Jordan, Pakistan and turkey in the long run.

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