

Competitiveness of Pakistani Fruits in the World Market

Waqar Akhtar^{*}, M. Sharif^{**} and Hassnain Shah^{***}

Abstract

This paper examines the global competitiveness of Pakistan's fruit exports (dates, mangoes, and oranges), using revealed comparative advantage (RCA). It also analyzes domestic consumption trends among selected fruits grown by major exporters. Our results indicate that Pakistan has a comparative advantage in fruit exports. Comparing the movement in comparative advantage indices for Pakistan with those of its main exporters/competitors demonstrates that Pakistan has a relatively high comparative and competitive advantage in the production of dates and mangoes. The increasing trend of competitiveness in Pakistan indicates that there is potential for higher growth; given that fruit exports are a potential source of higher exports earnings, there is a need to strengthen competitiveness in this sector.

Keywords: Comparative advantage, competitiveness, exports, growth.

JEL Classification: F14, Q17, Q18.

I. Introduction

Pakistan's agro-climatic conditions provide a suitable environment for the production of various horticultural crops, as well as a strong comparative advantage in horticulture, as indicated by the sector's rapid growth in the absence of policy interventions. However, the perishability of horticultural products means that the sector requires an efficient processing and marketing infrastructure that is largely lacking in Pakistan (Khan 2000). As a result, the proportion of fruit exported in relation to total production is as low as 5.7 percent.

Faruqee (1995) suggests that trade policy in Pakistan should be based on comparative advantage according to the World Trade Organization

* Scientific Officer, Social Sciences Institute (SSI), National Agricultural Research Centre (NARC), Islamabad.

** Chief Scientific Officer/Senior Director, SSI, NARC, Islamabad.

*** Senior Scientific Officer, SSI, NARC, Islamabad.

(WTO)'s Agreement on Agriculture (AoA), under which member countries are required to utilize the benefits of comparative and competitive advantage in the international economy, increasing competition and forcing resources to be allocated more efficiently. Azhar (1995) points out that exploiting Pakistan's export potential of nontraditional commodities will require considerable streamlining in the areas of storage, transportation, and packing. Since globalization has significantly increased competition, compliance with international standards is necessary.

Citrus fruits, dates, and mangoes are Pakistan's most important export fruits, constituting about 78 percent of the total value of Pakistan's fruit exports (Government of Pakistan 2006/07). In the world market, Pakistan accounts for about 11 percent of date exports as the fourth-largest exporter, 5 percent of mangoes as the sixth-largest exporter, and about 1 percent of oranges (Food and Agriculture Organization [FAO] 2008). Given the importance of these fruits as world exports, it is important to investigate their competitiveness in the global market for Pakistan and its main competitors.

From the point of view of trade theory, competitive advantage is a more useful concept than comparative advantage. Competitiveness includes market distortions while comparative advantage assumes undistorted markets (Voltrath 1985, Voltrath and De Huu 1988). With the gradual reduction in trade barriers led by the process of globalization, more emphasis is now being placed on promoting export competitiveness (Prasad 2004). As a founding member of GATT and signatory to WTO, Pakistan has accepted both the opportunity for and challenge of trade liberalization (Akhtar 1999). This paper attempts to measure Pakistan's export competitiveness in selected fruits compared to major international exporters.

The paper is organized as follows. Section II describes the data and indicators used to measure competitiveness, while our results and discussion are given in Section III. Section IV concludes the paper.

II. Data and Methodology

In order to calculate the relevant indicators, we have used data on production, exports, and imports (FAOSTAT 2008) for Pakistan and major exporters of selected fruits in relation to total world trade for the period 1995-2005. To gain an idea of the changes in calculated indicators for this sample period, we use a series of three-year-averages: 1995-1997, 1998-2000, and 2003-2005.

We use revealed comparative advantage (RCA) to measure export competitiveness for Pakistan and four of the world's largest exporters of the selected fruits (this ranking was based on the volume of exports in 2005). Per capita (apparent) consumption was derived as production plus imports minus exports divided by country population.

Our analysis is based on Balassa's (1965) and Vollrath's (1991) RCA index of competitiveness. These indicators have been used by several sources to determine competitiveness and comparative advantage (Balassa 1989, Scott and Vollrath 1992, Frohberg and Hartmann 1997, Laursen 1998, Hsu and Wann 2001, Ferto and Hubbard 2003, Mahmood 2005). The study concentrates on the following representations: RCA and RCA#. RCA was developed by Balassa (1965), while the measure RCA# is an improved version constructed by Vollrath (1991) and used by Bender and Li (2002); it is considered a more sophisticated and comprehensive measure of international competitiveness. It is important to note that the main difference between Vollrath's RCA# and Balassa's original RCA index is that it prevents double-counting. Thus, using only export data, we define RCA and RCA#, respectively, as:

$$RCA_{ijt} = (X_{ijt} / \sum X_{ajt}) / (X_{iwt} / \sum X_{awt})$$

$$RXA_{ij} = \left(X_{ij} / \sum_{l,l \neq j} X_{il} \right) / \left(\sum_{k,k \neq i} X_{kj} / \sum_{k,k \neq i} \sum_{l,l \neq j} X_{kl} \right) \quad (1)$$

$$RCA_{ij} \# = \ln RXA_{ij} \quad (2)$$

RCA_{ijt} is the index for product i in country j in year t , X_{ijt} represents the export of product i by country j in year t , X_{iwt} is the total world export of product i in year t , $\sum X_{ajt}$ is the total volume of exports in country j in year t , and $\sum X_{awt}$ is the total volume of world exports in year t .

The RCA index reveals a comparative advantage (disadvantage) in the export of commodity i by country j if the index's value is greater (less) than 1.

RXA_{ij} is the relative export advantage index, $\sum_{l,l \neq j} X_{il}$ is the total exports of the country minus the product considered, and $\sum_{k,k \neq i} \sum_{l,l \neq j} X_{kl}$ is the total exports of the world minus the country considered for analysis.

$RCA_{ij} \#$ is simply the logarithm of the relative export advantage index. A positive value indicates a comparative/competitive advantage, whereas a negative value indicates a comparative/competitive disadvantage.

III. Results and Discussions

Table-1 indicates the export competitiveness of dates for Pakistan and other major date exporters. Pakistan accounts for 11% of the world's total date exports, the UAE for 35%, Iraq for 19%, Saudi Arabia for 17%, and Iran for 15% (FAO 2008). For the period under investigation, the results reveal that Pakistan has a relatively high comparative and competitive advantage in the production of dates over other major date exporting countries. However, Pakistan's per capita apparent consumption decreased during 1995-97 to 2003-05 (Table-2). Competitiveness indicators demonstrated that Iran, Iraq, the UAE, and Saudi Arabia had falling RCA values. The trend in per capita consumption reveals that there was an increase in consumption in Iran, Saudi Arabia and UAE, but a decrease in consumption in Iraq.

Table-1: Competitiveness Indicators of Major Date Exporters

Period/ Country	Pakistan (4)		Iran (3)		Iraq (1)		Saudi Arabia (5)		UAE (2)	
Indicator	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#
1995-97	44.14	3.87	36.51	3.79	173.9	5.20	6.67	1.97	16.25	2.93
1998-00	69.62	4.35	25.3	3.34	8.38	2.15	4.99	1.68	19.85	3.29
2003-05	47.89	3.95	25.24	3.37	9.85	2.32	5.97	1.88	9.13	2.33

Source: Computation based on data from www.fao.org. Figures in parentheses indicate the ranking of the country in the world market for dates. RCA = revealed comparative advantage, $RCA\# = \ln(RXA)$.

Table-2 Annual per Capita Consumption of Dates
(Unit: kg/person/annum)

Period/ Country	Pakistan	Iran	Iraq	Saudi Arabia	UAE
Indicator	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption
1995-97	3.8	11.3	34.7	31.4	84.1
1998-00	4.2	12.2	34.1	33.5	111.5
2003-05	2.9	12.1	24.0	38.6	164.5

Source: Computation based on data from www.fao.org.

Based on the competitiveness indicators provided in Table-3, the results reveal that Pakistan has a relatively high comparative and competitive advantage in the production of mangoes as against its main competitors. Pakistan's RCA values registered an increasing trend during 1995-97 and 2003-05. India, Brazil, and the Netherlands also increased their comparative advantage over the investigated period, while Mexico showed a significant decrease in its RCA value over the period investigated. Pakistan, Brazil, Mexico, and the Netherlands increased their consumption over the period investigated. The highest consumption was registered in Mexico. India decreased its consumption (Table-4) but increased its comparative advantage.

Table-3: Competitiveness Indicators of Major Mango Exporters

Period/ Country	Pakistan (6)		Brazil (3)		India (1)		Mexico (2)		Netherlands (4)	
Indicator	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#
1995-97	8.57	2.16	7.79	2.13	7.20	2.02	34.43	4.00	2.44	0.99
1998-00	23.07	3.18	11.2	2.52	6.57	1.93	22.93	3.50	2.65	1.08
2003-05	21.60	3.11	11.54	2.58	18.8	3.13	15.77	2.96	2.94	1.20

Source: Computation based on data from www.fao.org. Figures in parentheses indicate the ranking of the country in the world market for dates. RCA = revealed comparative advantage, RCA# = $\ln(RCA)$.

Table-4: Annual per Capita Consumption of Mangoes
(Unit: kg/person/annum)

Period/ Country	Pakistan	Brazil	India	Mexico	Netherlands
Indicator	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption
1995-97	6.6	3.4	11.3	12.7	0.6
1998-00	6.1	2.5	9.9	13.3	1.5
2003-05	7.3	4.6	10.6	12.8	1.8

Source: Computation based on data from www.fao.org.

The results presented in Table-5 indicate that Pakistan has a comparative advantage with an increasing trend in orange exports during the periods under analysis. However, Pakistan has the lowest comparative and competitive advantage relative to four major exporters of oranges except the US, which does not have a comparative advantage for the period investigated. South Africa and Morocco have increased their comparative and competitive advantage. Per capita consumption decreased in Pakistan, South Africa, Morocco, and the US, and increased in Spain (Table-6).

Table-5: Competitiveness Indicators of Major Oranges Exporters

Period/ Country	Pakistan (15)		Spain (1)		South Africa (2)		Morocco (4)		USA (3)	
Indicator	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#	RCA	RCA#
1995-97	1.52	0.42	25.09	3.87	7.43	2.05	75.39	4.45	0.78	-0.14
1998-00	3.05	1.12	23.65	3.75	11.35	2.49	55.44	4.12	0.77	-0.15
2003-05	3.37	1.22	25.28	3.92	12.39	2.59	50.15	4.00	0.89	-0.03

Source: Computation based on data from www.fao.org, Figures in parenthesis are rankings of each country in world market in export of oranges. RCA=Revealed Comparative Advantage, RCA# =ln (RXA)

Table-6 Annual per Capita Consumption of Oranges
(Unit: kg/person/annum)

Period/ Country	Pakistan	Spain	South Africa	Morocco	US
Indicator	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption	Per capita Consumption
1995-97	10.5	32.8	11.3	18.8	37.2
1998-00	9.2	34.2	13.4	20.6	37.3
2003-05	8.8	36.2	10.4	18.1	32.1

Source: Computation based on data from www.fao.org.

IV. Conclusion

The main objective of this paper was to examine the export competitiveness of dates, oranges, and mangoes for Pakistan and its main competitors during the period 1995-2005.

The results revealed that Pakistan has a higher comparative and competitive advantage in the production of dates and mangoes relative to its main competitors during the period analyzed. The results also revealed that Pakistan has the lowest comparative and competitive advantage relative to the world's four major exporters of oranges, except the US. However, Pakistan has significantly increased its comparative and competitive advantage over the examined period for all commodities under analysis. Among these commodities, dates have a higher advantage than oranges and mangoes for Pakistan. Based on the results, it was observed that Pakistan's main competitors in date exports have decreased their competitiveness, while for mangoes and oranges, their comparative and competitive advantage has increased slightly. Per capita consumption of mangoes has increased in Pakistan, while dates and oranges showed a decreasing pattern during the entire period under analysis. In oranges, all countries included in the analysis except Spain showed a decreasing consumption trend.

The increasing pattern of RCA and the decreasing trend in domestic consumption of dates and oranges in Pakistan indicates that there is potential for higher growth in these products and these products can be a source of higher export earnings, which advocates the need for strengthening the country's competitiveness in these exports.

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