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Market Competitiveness and Citrus Export Of Pakistan

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Abstract

Citrus is an important fruit of Pakistan occupying 25% area under fruits in the country. Pakistan is ranked in top thirteen world citrus producing countries with exports of 434 million kg of citrus to many countries in Asia, Middle East and European continent. Although Pakistan fetches three percent of the global market share yet earning only one percent of the value of world export of citrus. To analyze the situation, market competitiveness of exports of Pakistan in different international markets has been analyzed. Normalized revealed comparative advantage is used to measure market competitiveness of the Pakistani citrus in global markets. Results indicated that NRCA of Pakistan has increased from 1.43 during period 2003-06 to 8.3 during 2011-15. In 2015, NRCA value reached to 10.3. The rising NRCA indicates Pakistan's strength in gaining international market while Spain and USA are losing global citrus market.

Introduction

Agriculture sector is a vital component of Pakistan's economy for provision of raw materials to the line industries and contributing 19.8 percent in GDP during 2017. It remains the largest employer absorbing 42.3 percent of the country's total labor force (Government of Pakistan, 2017). Total area under various fruits in Pakistan is 776 thousand ha. Citrus occupied 25% during 2013-14 (GoP, 2015). The production of Pakistani fruits accounts for about 6.57 percent of total fruit production of the World (Food and Agriculture Organization, 2014). Pakistan has earned 435 million US dollars by exporting fruits in the fiscal year 2016 which is 0.36 percent of value of global fruits trade

(ITC, 2017). In the world market, Pakistan accounts for about 1 percent of oranges quantities (Food and Agriculture Organization, 2008). The agro-climatic conditions of Pakistan provides suitable environment for the production of various horticultural crops which is obvious from rapid growth of this sector even in the absence of policy interventions.

Pakistan is blessed with the agro-ecological environment conducive to the production of nearly thirty varieties of different fruits including citrus, mango, dates, guava, apple, melons and banana. The market value of these culmination produced in the

course of 2002-03 is anticipated at approximately seventy three billion rupees, that is more or less 6.73 percent of agriculture value added. Pakistan is among the top thirteen citrus producing countries of the world (FAO, 2013). World citrus production is around 73.3 million metric tons (FAO, 2003). During 2015-16, 2.39 million tons of citrus were produced in Pakistan which is 43% of total fruit production of the country. Pakistan has earned 435m US$ by exporting 0.7 million tons of different fruits. Citrus is the largest grown fruit in Pakistan. The share of citrus in total fruits export is 55 percent during 2016. Total production of citrus in Pakistan is 2.3 million tons (GoP 2017), out of which 0.38 million tons (17%) is exported (ICT, 2017).

In empirical trade research, comparative advantage is considered as a key concept. The comparative advantage from trade can be calculated by revealed comparative advantage (RCA) index (Balassa, 1965). Being a member of World Trade Organization (WTO), Pakistan should built dynamics of its trade policy on the basis of comparative advantage for improving resource use efficiency (Faruqee, 1995).

Many studies used the concept of RCA like Bangladesh has a comparative advantage in home production of rice; however at export parity and financial profitability of rice is surprisingly low (Shahabuddin and Dorosh, 2002). Furthermore, a study on seed cotton revealed that Pakistan has a strong comparative advantage in its production (Khan and Ashiq, 2004). Taking into consideration, the comparative advantage of three production systems in Syria, crops, livestock and fruits, showed a positive profit at market prices. Cotton generated about four times, the profit per hectare level from wheat. Only packed milk was profitable at social price (FAO, 2004). In tomato trade, Pakistan has no RCA (Tahir *et al* 2012). On the basis of supply/demand and input and output prices under normal conditions, it

is recommended that United States should produce grains and soya bean (Tweeten, 1986).

Similarly, relative competitiveness become calculated for one of a kind alternate regimes in Indonesia (Gonzales, 1994), export patterns of china for specific areas of the US. (Yue, 2001) and export competitiveness and changes in export sample for Asian and Latin American location during 1981-1997 had been additionally tested (kui-wai li, 2002). Information from Hungary recommended producing eleven out of twenty-two product agencies by way of displaying robust competitiveness (Ferto and Hubbard, 2003). Same was done for Turkey using RCA index (UtkuUtkulu and DilekSeymen, 2004).

Several methods for the calculation revealed comparative advantage are being used. Yu *et.al.* (2009) proposed the normalized revealed comparative advantage (NRCA) index as an alternative measure of comparative advantage. The NRCA index was demonstrated capable of revealing the extent of comparative advantage that a country has in a commodity more precisely and consistently than other alternative RCA indices in the literature like Balassa's RCA index, Symmetrical RCA index, Weighted RCA index and Additive RCA index. They argued that the NRCA index is comparable across commodity, country and time. Therefore, the NRCA index provides a useful tool for quantitative regional research, especially for studies on regional comparative advantage.

Analysis of global trade scenario of export of citrus is important for boosting exports of Pakistan as per Strategic Trade Policy Framework of Government of Pakistan. In this paper, we focused on production of citrus, level of competitiveness in global market and demand of the international market. The results were drawn under comparative advantage basis. This study

will help us to draw a conclusion about the current scenario of Pakistan's citrus exports, the position where it stands in the world market and some suggestions leading to the betterment of the trade performance of the country regarding citrus export.

Global Citrus Economy and Pakistan

World and Pakistan's share production

Citrus fruits are produced all over the world. According to UNCTAD, in 2004 there were 140 citrus producing countries. Around 70% of the world's total citrus production is grown in the Northern Hemisphere, in particular countries around the Mediterranean and the United States, while Brazil is the largest citrus producer. Pakistan has several sorts of citrus fruit, locally known as Kino which is favorite in Asian and European markets. Kino is rightly referred to as the king of all the kinds of easy peelers with attractive aroma. Pakistan is the twelfth largest producer of citrus and the biggest manufacturer of Kino in the global. Its juice contents are 44% to 47.5% making it favorite in smooth peeler range of fruits. The sugar content constitutes 12-13% and every 100ml of Kino incorporates 20-25 mg of vitamin-C. Globally 30% of the fruit of citrus is processed (Izquierdo and Sendra,

2003). Application of modern techniques at all stages of growth and during the post-harvest phase could not only add value to the fruit to attract premium price but also increase export volume to fetch much needed foreign exchange to the country.

Global Consumption Pattern of Citrus

Global intake of oranges grew at 3.5 percent over the period 1987-89 to 1997-99. Intake of fresh oranges grew at an annual charge of 2.8 percent, at the same time as processed orange consumption grew at 4.4 percent per annum. Consumption of processed oranges in Europe is expanding due to increased global intake but still the consumption of fruits and vegetable is below dietary standards in developed nations.

Global Exports of Citrus and Pakistan's Share

Kino is the most exportable fruit of Pakistan and 32.5 percentage of general exports is being exported to the center east by myself, accompanied by Indonesia (22.five percent), the Philippines (sixteen percent), Sri Lanka (eleven.6 percent) and ultimate 17.4 percentage to different markets of the arena. Brand new research located citrus fruit is excellent to guard males in opposition to prostate most cancers, which want to be capitalized by using Pakistani exporters.

Table 1: Annual Per Capita Consumption of Citrus in Major Exporting Countries

Period	Pakistan	South Africa	Spain	Turkey	USA
2002-06	13.06	13.13	68.02	30.84	40.19
2007-10	10.52	12.42	55.40	32.52	33.06
2011-14	9.20	16.93	54.86	30.26	31.22
Mean & SD	10.93±1.96	14.16±2.43	59.43±7.45	31.21±1.17	34.82±4.74

Source: Computation based on data from World Bank, FAOSTAT and Trade Map

Materials and Methods

Data Sources

Secondary data required for analyzing different parameters was collected from different sources like Economic Survey of Pakistan, Agriculture statistics various editions, Federal Bureau of Statistics, FAOSTAT, Trade Map World Bank and Trading Economics etc. The variables of study include export of citrus of Pakistan, total exports of Pakistan and world trade of citrus.

The data on production, exports and imports for Pakistan and major exporters of citrus (Spain, USA, South Africa and Turkey) for the period 2003-2016 was used for the calculation of desired indicators. The results are presented on average basis as the data was distributed into three groups: 1) 2003-2006, 2) 2007-2010 and 3) 2011-2015.

Estimation of Competitive Advantage through NRCA

Normalized Revealed Comparative Advantage (NRCA) (Yu *et.al.* 2009) technique has been used to measure the relative competitiveness of Pakistan's citrus exports as compared to four major global citrus exporters. This technique (NRCA) is preferred to Balassa's (Balassa 1965), Symmetrical (Laursen, 1998), weighted (Proudman and Redding, 1998) and additive (Hoen and Oosterhaven, 2006) RCA indices because it neutralizes the sum (and the mean value) of a country or a commodity's NRCA scores, secondly, it is additive in terms of both countries and commodities, thirdly, it symmetrically distributes the NRCA scores and fourthly, in contrast to the BRCA, SRCA and WRCA indices where they assign the constant value of 0 for zero export, the NRCA score for zero export is not invariant.

The NRCA index measures the degree of deviation of a country's actual export from its comparative-advantage-neutral level in terms of its relative scale with respect to the world export market and thus provides a proper indication of the underlying comparative advantage (Yu *et al.* 2009).

$$NRCA_j^i = \frac{E_j^i}{E} - \frac{E_j E^i}{E * E}$$

E_j^i =Country *i's* export of commodity *j*

E_j =Export of commodity *j* by all countries

E^i =Country *i's* export of all commodities

E =Export of all commodities by all countries

The RCA index reveals a comparative gain (disadvantage within the export of commodity i by country j. NRCA$_{ij}$ > zero (or NRCAij <zero) shows that i's real export of commodity j (Eij) is better (or lower) than its comparative-gain impartial level (E ij), signifying that country i has comparative gain (or loss) in commodity j. the greater (or the lower) the NRCA$_{ij}$ score is, the stronger the comparative advantage (or lower) would be. Per capita intake can be derived as production plus imports minus exports divided by population (Akhter and Zakir, 2008). The common annual growth rate has been measured using log linear version.

Results and Discussion

Pakistan is known worldwide for its particular taste of citrus products. Citrus related products of Pakistan are highly demanded throughout the world. The production of citrus is raised from 1.8 million tons in 2003 to 2.3 million tons in 2016 (GoP, 2017). Pakistan's citrus is mainly exported to Afghanistan, Russian Federation, UAE, Indonesia and Philippines. (Trade Map, 2017).

Potential markets for Pakistan citrus export were Middle East, China, South East Asia and Central Asia (Johansen, 2006).

Citrus production and export structure as well as export share in global market in terms of value and quantity for the period from 2003 to 2016 is given in table 2. Production increases about one percent per annum during 2003-16 while export increased at 12.26 percent during same period indicating export potential of the commodity. Pakistan share in global citrus market was one percent in 2003, which increased to 2.42% in 2016.

Similarly exports of citrus were 0.1 million tons in 2003 which increased to 0.38 million tons in 2016.

Consumption of citrus is increasing as compared to other vegetables and cereals (Gerbens-Leenes & Nonhebel, 2002) being the first among fruits traded globally (Norberg, 2008). Harvesting larger share of international market improve market competitiveness of the commodity. Product quality improvement under WTO standards helps in enhancing global market share (Mustafa, 2003).

**Table 2: Share of Citrus Production and Export of Pakistan and World (2003-14)**

Year	Production (Tons)	Export (Tons)	% share in quantity, of world export	% share in value, in world export	Export as percent of prod.
2003	1,760,400	108,067	1.01	0.34	6.14
2004	1,943,300	144,652	1.35	0.41	7.44
2005	2,458,400	85,166	0.74	0.28	3.46
2006	2,458,381	197,105	1.64	0.52	8.02
2007	1,472,471	132,987	1.03	0.34	9.03
2008	2,293,600	204,944	1.59	0.42	8.94
2009	2,132,000	248,397	1.85	0.63	11.65
2010	2,150,000	373,197	2.66	0.88	17.36
2011	1,982,200	366,941	2.56	1.11	18.51
2012	2,147,440	373,702	2.62	1.20	17.40
2013	2,001,800	405,243	2.65	1.20	20.24
2014	2,167,700	434,162	2.96	1.39	20.03
2015	2,344,000	435,367	2.83	1.37	19
2016	2,344,000	388,517	2.43	1.18	17

Source**:** FAO reports from 2003-2014 and Trade Map data

Table 2 pointed out another reality that proportion of citrus export from Pakistan in global market is higher in terms of quantity and lower in terms of cost indicating the charge of Pakistan's citrus exports in global marketplace is decrease than the fee of citrus

furnished from different international locations. Poor pleasant management, sanitary regulations and insufficient garage and processing capacity are fundamental constraints for end result export from Pakistan (Shah-2006).

Figure 1: Share of Citrus Exports Relative to Domestic Production Quantity Wise for Major World Citrus Producers and Exporters On The Basis Of FAO Statistics For 2003 To 2014
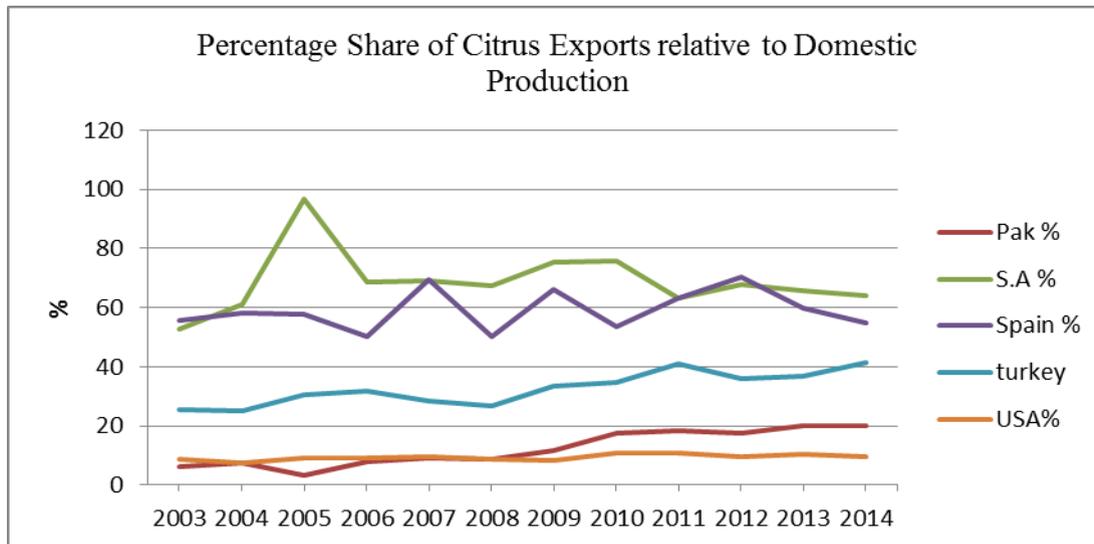
Global Competitiveness of Citrus and Pakistan

Normalized revealed comparative advantage of Pakistan is increasing more rapidly in the international citrus market as compared to all other international players (Table 3). During 2003-0, NRCA of Pakistani citrus in global market was only 1.973 as compared to 276 value for Spain and 8.844for USA. During 2011-15, competitiveness of Pakistani citrus increased as envisaged from value of NRCA which increased to 8.438.

Table 3: NRCA of Major Citrus Exporting Countries of the World

Period	Pakistan	Spain	USA	South Africa	Turkey
2003-2006	1.973	276.845	8.844	42.778	42.463
2007-2010	3.570	230.623	-2.465	6.014	42.968
2011-2015	8.438	190.648	-1.830	Ket406	45.864

World export of citrus during 2015 was 12.496 billion US$. Pakistan's import from world is 0.000369 billion US$ during 2015 as against export of 0.184 billion US$

(Trade Map 2017). Commodity balance of payment of citrus of Pakistan is positive. Citrus is also included in Pakistan's most important fruits in the context of export (Government of Pakistan 2006-07). Pakistan's share in value of world trade of citrus is raised from 0.33% in 2003 to 1.38% in 2015. Value of Citrus export of Pakistan is increasing at average growth rate of 20.5% per annum as against world export of 6.3% per annum from 2003-15. Similarly the quantity of export of Pakistan to the globe increased at an average growth rate of 13.54% per annum as compared to world increase of 3.1% per annum during 2003-15 (growth rate calculated using log-lin model). The share of quantity of citrus exported to the globe has also risen from 1.01% in 2003 to 2.84% in 2015. USA and Spain were losing citrus market while Pakistan, Turkey and South Africa are gaining citrus market due to increased market competitiveness. United States of America has more competitiveness in citrus export during 2003 with NRCA value of 8.84. Gradually USA is losing world citrus market during 2007 to 2010 with negative NRCA value of 2.4 which further deteriorate to 1.8.

Conclusion

Pakistan is ranked in top thirteen world citrus producing countries. Results indicated that NRCA of Pakistan has increased from 1.43 during period 2003-06 to 8.3 during 2011-15. In 2015 NRCA value reached to 10.3. The rising NRCA indicates that Pakistan is gradually gaining international citrus markets. When compared with world leading citrus exporters, data indicated that Spain and USA are losing global citrus market probably due to increasing local demand, while Turkey and South Africa are gaining global market. Increased market competitiveness of Pakistani Citrus in global market is a healthy sign for citrus industry and need more attention of policy makers to use this as a potential commodity for fulfilling the goals of strategic Trade Policy Framework 2015-18 of present government. Improving the yield of citrus in terms of quantity as well as quality, with the ever-limiting resource of cultivated land, is very important to meet the needs of the increasing population as well as export. Policies should be developed in a way to avail the current segment of market and utilize the opportunity and enhance foreign reserves through exports.

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