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The Structure and Competitiveness of Pakistan's Basmati Rice Exports

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Abstract

This paper provides an analysis on structure of export and competitiveness of Pakistan's basmati rice over the period 1987-88 to 2011-12 by using revealed comparative advantage (RCA) and regional revealed comparative advantage (RRCA) approaches. Results demonstrate that overall Pakistan's share in world basmati market has declined from 47% in 1987-92 to 32% in 2008-12 periods at global level and also at regional level i.e. Iran, Saudi Arabia and United Arab Emirates (UAE) markets. However Pakistan has increased its market participation in Oman and United Kingdom (UK) from 60 % to 83 % and 14% to 39 % respectively during the period under analysis. Iran, Saudi Arabia, Sultanate of Oman, UAE, and UK have shown a high geographic concentration in basmati exports from Pakistan however registered a decline in export concentration over time. The analysis of export competitiveness revealed that the Pakistan has revealed comparative advantage in basmati export, implying revealed competitiveness of very high degree as basmati remained a dominant commodity of Pakistan's export basket. Over the period basmati export competitiveness has shown a fluctuating pattern and clearly diminishing pattern in recent years. This calls for science based strategies to maintain comparative advantage and market participation in basmati rice exports from Pakistan. There is also need to focus on the sector to improve export chain to obtain access in Europeans markets like UK is vital for enhancing future economic performance of rice sector and improving competitiveness in Basmati exports to ensure foreign exchange earnings for country.

Keywords: Export competitiveness, Pakistan basmati rice, RCA, RRCA

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Introduction

Rice is a member of the grass family and produced in about 42 countries and recognized as staple food in Asia, Latin America, parts of Africa, Middle East and serve as a primary source of food for more than half of the world population. About 90 percent of the world's rice is grown and consumed in Asia (FAO, 2012). The world rice market is also featured by a high degree of concentration as the data shows that most of the rice produced is consumed domestically, only 7 % of global production is internationally traded (FAO, 2012). Rice is not a uniform commodity and consumer preferences for specific types and qualities are often well-established so there is limited scope for substitution in rice (FAO, 2004).

Rice is among the leading source of export earnings of Pakistan. Pakistan's main competitors are Thailand and Vietnam for IRRI-type rice and India for the Basmati rice. Basmati rice is a premium long grain variety of rice, highly valued for its aroma and flavor and constitutes a unique group of rice in the international rice market and the Basmati rice trade is entirely shared between Pakistan and India. The production of basmati in Pakistan is concentrated in Punjab province. The cultivation of Basmati rice is confined to a specific geographic differentiation in the foot hills of Himalayas and is believed to be nature's gift to Indian sub-continent. Pakistan basmati has stiff challenge with the world largest exporter India who aggressively marketing basmati rice and have shown that the world can absorb more of it (Davidson, 1996). The adulteration of basmati rice with other cheaper varieties has become an area for potential exploitation. There is a need to develop a method that enables the differentiation of basmati varieties from other long-grain rice in order to ensure consumer protection and for use in regulation of rice trade (GOP, 2010).

In Pakistan considering the importance of rice public policy intervention have long history which is however on decline. To reduce uncertainty and price risk in rice farming the

government announcing the support price for basmati and IRRI paddy (GOP, 2006). Before 1996 the export of rice was the responsibility of public sector. At present Private traders handle all exports of rice in Pakistan.

There is dire need to conduct international marketing research on basmati rice a traditional export commodity of Pakistan as there is no significant work has seen in the literature. However recently few studies were conducted with reference to rice, including (Apple yard, 1987). In the study the author analyzed the comparative advantage of various crops including basmati rice and found that Pakistan has comparative advantage in basmati production. The author also found that basmati producers in Pakistan were under implicit taxation by policy or market failures. Akhtar *et al.* (2007) also analyzed economic efficiency and competitiveness of basmati rice production system of Pakistan's Punjab and argued that basmati rice maintained economic efficiency in domestic resource use as an export commodity and performed advantageous commodity for the country/nation. They also concluded that at farm level, lack of competitiveness is evident by the results and economic incentive structure prevailing, unfavorable for basmati producers. Davidson (1996) argued that due to agronomic factors, there is no significant competitor to Pakistan in the supply of Basmati rice. In the presence of data limitation, it was found that export elasticity of demand for basmati rice was highly inelastic. Akhtar (1999) concluded that prices of basmati will go up and Pakistan will gain in terms of basmati exports. (Hassan, 2013) concluded that rice exhibits very strong comparative advantage and also observed increasing trend and justifying heavy potentials for export growth in global market. Riaz and Jansen (2012) revealed that at the world market level Pakistan has a comparative advantage in cereals (especially rice) and horticultural products.

Basmati rice is such an important commodity for Pakistan so it is pertinent to analyze performance, destinations and competitiveness of basmati exports from Pakistan. In

the era of trade liberalization and globalization, information about the global comparative advantage pattern can be invaluable to designing development strategies at both national and farm level. Exploiting comparative advantage enables an economy to reap gains from trade. The study will look into the issues facing basmati exports regarding its competitiveness in the world and in major export destinations to sustain the competitiveness. It is hoped that this paper thus will be decent addition in the knowledge for design efficient strategies for exports competitiveness of basmati rice of Pakistan. The study of export performance, especially for country like Pakistan with serious external imbalances, is essential for economic decision-making and might prove crucial for the choice of policies aimed at addressing these imbalances and foreign trade deficit. Export performance by developing countries is highly diverse. Its patterns differ significantly by country and region and but the countries are rapidly expanding export earnings by improving export structures from products to high-technology and high-skill products (Lall, 2000). It is necessary to identify markets in which Pakistan’s Basmati rice have comparative advantage, and therefore they have prospects for further development to deal with new opportunities and threats lie in marketing at domestic and overseas markets in basmati rice.

Materials and method

Time series data was obtained from different sources i. e. Pakistan Bureau of Statistics (PBS), Economic Survey of Pakistan, and Agricultural and Processed Food Products Export Development Authority (APEDA), World Trade Organization (WTO) and Food and Agricultural Organization (FAO). Revealed comparative advantage methodology developed by Balassa (1965) and Balassa (1977) was used for empirical analysis. RCA methodology is being used in developing and developed world since its inception. Deardorff (2010) argued that the RCA remains valid in revealing true comparative advantage. Karakaya and Ozgen (2002) used the RCA index approach to

investigate the potential trade creation and diversion effects of the economic integration for Turkey with the European Union. Mahmood (2004) examines export specialization of Pakistan's non-agriculture production sectors during 1990-2000. Hanif and Jafri (2008) construct Balassa’s RCA index for the textile sector of Pakistan.

Export competitiveness

The Export Performance Ratio (EPR) was estimated to examine the comparative advantage from post-trade data by following the method suggested by Balassa, (1965). Following indicators were used at world level and region/country level to explain the argument.

$$RCA_{ijt} = \frac{\left(\frac{X_{ijt}}{X_{ajt}} \right)}{\left(\frac{X_{iwt}}{X_{awt}} \right)} \dots\dots\dots (1)$$

Where

RCA_{ijt} =Revealed Comparative Advantage index value for product/commodity *i* in country *j* in year *t*

X_{ijt}, X_{iwt} = are values of country *j* and world exports of product/commodity *i* respectively in year *t*

X_{aj_t}, X_{aw_t} = are values of country *j* and world total exports respectively in year *t*

Pakistan’s basmati rice export destinations are relatively concentrated to study the comparative advantage in relation to trading partners a regional revealed comparative advantage (RRCA) index was calculated by changing the sub-script *w* to *R* Richardson *et al.* (1999). Using regional revealed comparative advantage index Yue (2001) analyzed Chinese export pattern. We used same approach to calculate regional RCA in relation to Specific County/ market for Pakistan Basmati export.

$$RRCA_{ijt} = \frac{\left(\frac{X_{ijt}}{X_{ajt}}\right)}{\left(\frac{X_{irt}}{X_{art}}\right)} \dots\dots\dots (2)$$

RRCA_{ijt} =Regional Revealed Comparative Advantage index value for product *i* in country *j* in year *t*

X_{ijt}, X_{irt} = are values of country *j* and regional exports of product/commodity *i* respectively in year *t*

X_{ajt}, X_{art} = are values of country *j* and regional total exports respectively in year *t*

In the present Paper country ‘j’ refers to Pakistan commodity ‘i’ refers to basmati rice, ‘w’ refers to the world and r refers to reference country or region total exports of Pakistan ‘iw’ refers world export of basmati rice and ‘aw’ refer to total export of world and ‘ar’ total export of the region/country under consideration r refers to region or selected country. RCA index can take values between zero and infinity. On the basis of observed trade pattern RCA and RRCA index reveals a comparative advantage (disadvantage) in export of commodity *i* by country *j* if the index’s value is greater (less) than one, with respect to the world or a reference country or region. To analyze the export concentration by commodity and market is measured by using share of basmati export in total export of the country and share different markets in total export of basmati rice. The degree of export concentration (diversification) has been measured at global and major basmati export markets level.

Results and discussion

Basmati rice remained traditional export commodity of Pakistan and contribute significantly in total exports of country. Historically basmati rice exports concentrated in few markets so it is necessary to identify the major basmati export markets, analyze trend in export competitiveness and also geographical diversification of commodity

export. In addition to it this paper tried to examined the competitiveness of basmati exports and investigate pattern of trade concentration with major trade partners In the world only 7 % of global production of rice is internationally traded (FAO, 2012). While in Pakistan about half of basmati production is exported internationally during the period under analysis (GOP, 2011-12). The result showed that Pakistan has expanded basmati export into many countries of the world and registered remarkable growth in term of market access during the period under analysis. on average during 1988-92 Pakistan has exported its basmati rice in to 19 countries and in 2008-12, Pakistan basmati rice went to 66 countries showing a good geographical diversification in basmati export (Table 1).

Table 1: Market diversification of Pakistan’s basmati rice, 1987-88 to 2011-12

Period	# of countries importing Pakistan’s basmati rice
1987-88 to 1991-92	19
1992-93 to 1996-97	42
1997-98 to 2001-02	49
2002-03 to 2006-07	61
2008-09 to 2011-12	66

Source: Authors analysis, based on Pakistan bureau of statistics data, GOP

With in the country the relative importance of basmati rice exports in total exports ranges from a minimum of 2.3 % on an average during 1993-97 to a maximum of 4.7 % in 2008-12, indicates the importance of basmati exports in the economy of Pakistan on one hand. On the other hand the structure and increased share of Basmati export in total exports shown a increased concentration of export after 1993-97. This situation argues for export diversification into exportable products to avoid the low growth and trade deficit. Orszaghova *et al.* (2013) argues that the economies depend on commodity exports and highly concentrated economies tend to display more volatile growth. Pakistan needs to sustain growth in

foreign exchange earnings with export product diversification.

Table 2: Pakistan total exports and basmati rice export share

Period	Pakistan basmati exports (Million US \$)	Pakistan total exports	Basmati exports as % of total exports (%)
1987-88 to 1991-92	173.7	5426.2	3.2
1992-93 to 1996-97	191.5	8054.4	2.3
1997-98 to 2001-02	260.0	9023.4	2.9
2002-03 to 2006-07	449.7	14915.8	3.0
2007-08 to 2011-12	961.1	20893.0	4.7

Source: Authors analysis based on economic survey of Pakistan data different issues (GOP)

In comparison and competition analysis of Pakistan's basmati export market shares shows that the Pakistan's share in world market has declined, overall, from 47% in 1987-92 to 32% in 2008-12. The export market shares in Iran, Saudi Arabia and UAE also fell mainly due to competition stiff competition in the world. Despite the steady increase in the value of basmati exports, Pakistan share in major basmati import markets is decreasing over time which is the matter of concern. Pakistan is gradually losing its share in Saudi Arabia. Analysis

revealed that In UAE there is a sharp decrease in share during 2003-07 to 2008-12. In major basmati import markets Pakistan's share was dropped from 100 % to 41%, and from 29% to 10% in Iran and Saudi Arabia respectively. In UAE markets Pakistan share first increased from 70 % to 82 during 1987-92 to 1998-02 and then decreased substantially in the end period 2008-12 to 32%. However Pakistan has increased its market participation in Sultanate of Oman and United Kingdom from 60 % to 83 % and 14% to 39 % respectively (Table 3).

Table 3: Pakistan's share in world basmati exports (%)

Period/ Partners	Iran	Oman	Saudi Arabia	UAE	UK	Total world
1987-88 to 1991-92	100	60	29	70	14	47
1992-93 to 1996-97	94	81	17	64	10	35
1997-98 to 2001-02	88	87	10	82	25	37
2002-03 to 2006-07	88	91	8	81	32	43
2007-08 to 2011-12	41	83	10	32	39	32

Source: Authors analysis based on Pakistan bureau of statistics data, GOP and APEDA, data (GOI)

Export diversification (concentration) is variously defined as the change in the composition of a country's existing export product mix or export destination (Ali *et al.*, 1991). By using the trade data this paper investigate geographic diversification (concentration) of basmati export markets from 1987-88 to 2011-12. As for export structure is concerned, the concentration index revealed that UAE is the main importer of Pakistan's basmati rice with 21 % of total basmati export of Pakistan during the period 1987-92 and 41 % during 2003-07 followed by Iran, Saudi Arabia, Oman and

UK in order. These five market has captured about slightly less than two third of the total basmati export from Pakistan. As Pakistan's basmati exports are highly concentrated to few markets of middle East, which makes the economy more vulnerable to negative developments namely on those markets in term of export incentives. There is need to diversify its basmati exports across more regions beside Middle East. This export expansion has helped Pakistan to change its economic structure and export incentive for the country.

Table 4: Geographic structure of Pakistan's basmati exports 1987-88 to 2011-12

Year/Partner	Iran	Oman	Saudi Arabia	UAE	UK	Rest of the world	Total world
Share in total Basmati exports from Pakistan (%)							
1987-88 to 1991-92	28.3	5.4	21.4	20.6	1.6	28.2	100
1992-93 to 1996-97	13.4	9.0	21.6	25.6	2.2	28.0	100
1997-98 to 2001-02	1.8	9.6	10.4	32.0	6.0	40.4	100
2002-03 to 2006-07	5.8	6.4	5.8	40.8	5.2	35.8	100
2007-08 to 2011-12	14.4	8.0	7.2	23.4	5.0	41.4	100

Source: Authors analysis based on based on Pakistan bureau of statistics data, GOP

Basmati exports concentration is analyzed in major basmati import partner countries in relation to total export to these partners. Comparison of the various markets suggests that diversification levels increased in Oman, Saudi Arabia and UAE. However in Iran and UK markets analysis showed an increased concentration in export basket of Pakistan. For developing countries like Pakistan an

export led growth strategy, export diversification is conceived as the progression from traditional to non-traditional exports. The extent of concentration (diversification) is merely described by referring to the share of basmati export in total exports of country to major export destinations of Basmati rice.

Table 5: Pakistan export concentration in major export destinations of Pakistan (%)

Period /Partner	Iran	Oman	Saudi Arabia	UAE	UK
1987-88 to 1991-92	40.8	64.8	19.5	19.1	0.9
1987-88 to 1991-92	44.1	56.7	16.4	13.3	0.7
1997-98 to 2001-02	21.2	51.1	12.6	16.3	2.8
2002-03 to 2006-07	21.2	56.1	7.3	16.0	2.6
2007-08 to 2011-12	59.5	44.6	17.0	12.2	4.7

Source: Authors analysis based on Pakistan bureau of statistics data, GOP

We analyze briefly the structure of Pakistan Basmati rice trade using the RCA index which was calculated at global level and also for major basmati importers countries. The analysis revealed that the Pakistan has revealed comparative advantage in basmati rice export, implying revealed competitiveness. The RCA index ratio for Pakistan basmati rice is extremely high, revealing export competitiveness of a that basmati is dominant export commodity It is obvious that Pakistan have comparative advantage in basmati rice due to its strategic position in exports of country. This finding is consistent with (Ilyas *et al.*, 2009) they conclude that Pakistan has comparative and competitive advantage in rice. RCA index at region/country level of basmati rice also

shows revealed competitiveness. The analysis noted a declining trend in export competitiveness during the last five years. But declining trend in RCA index in basmati rice is real issue. To maintained comparative advantage in basmati rice there is need to focus on the sector, particularly processed products in order to make it contribute further to the development of the region. Overtime change in RCA index suggested some changes in economic competitiveness and comparative advantage. Basmati RCA at global level followed a fluctuations pattern since 1988-92, but more recently it has declined at global and country level except Saudi Arabia and UK. Overtime a meaningful sign of falling trend in export competitiveness of traditional export commodity.

Table 6: Revealed comparative advantage of basmati rice exports in major export destinations and world

Period/Country	Iran	Oman	Saudi Arabia	UAE	UK	World
			(Regional RCA)			(RCA)
1987-88 to 1991-92	165	179	49	70	68	292
1987-88 to 1991-92	675	184	40	56	45	232
1997-98 to 2001-02	1046	162	25	69	130	256
2002-03 to 2006-07	321	264	32	65	130	272
2007-08 to 2011-12	170	168	63	36	154	259

Source: Authors analysis based on Pakistan bureau of statistics data, GOP of Pakistan and APEDA, data, GOI

Conclusion

Revealed export performance have been analyzed which indicated that over time Pakistan is losing its share and market participation of traditional export commodity in traditional import markets of basmati. Despite the steady increase in the value of basmati exports over time and obvious high RCA index value its share in global export of basmati rice is declining. The results suggest that the competitiveness of Pakistan has decreased significantly over the period under analysis at global level. However the structure of basmati export by geographical destination has not much changed considerably. Based on the present analysis, several conclusions can be drawn with respect to the export competitiveness of Pakistan's basmati rice. Declining competitiveness is the real issue. The analysis of RCA revealed that the Pakistan has revealed comparative advantage in basmati rice export, implying revealed competitiveness of very high degree as basmati remained a dominant commodity of Pakistan's export earnings. It identified the export concentration and major international markets for Pakistan basmati exports. As Pakistan's basmati export is highly concentrated to few countries /markets which makes the economy more vulnerable to negative developments namely on those markets in term of export incentives. There is need to diversify basmati exports across more regions beside Middle East. There is need to increasing production capacity, infrastructure development for improved export chain to exploit potentials for export growth in high-

end markets. Measures are necessary for standardized, normalized and scientific administration track in production and marketing of basmati rice of Pakistan. Opportunities provided by the global demand patterns and inherent competitive edge in basmati rice can be exploit with effective trade policy.

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