Competitiveness and Comparative Advantage of Pakistan in Leather and Leather Products Trade: Analysis and Trends

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Abstract

Livestock sector is considered the second key sector of agriculture through its share of more than half to value added and 11.8% to GDP and main source of raw material for leather industry of the country. This local availability of raw materials and low wage cost gives the country a competitive edge in the world market. This study is an effort to examine Pakistan's competitiveness of leather and leather products with a set of Revealed Comparative Advantage (RCA) and Revealed Competitive Advantage index with respect to international trade. The study has utilized Balassa index, Vollrath index and Revealed Symmetric Comparative Advantage index for empirical analysis in Pakistan during the time span from 2003 to 2014. The findings of the study illustrate that Pakistan has a high degree of comparative advantage in this sector during period under analysis which indicates the potential of leather sector exports for foreign exchange earnings. The results of the study also show that the position of Leather sector lies in the "Competitive position product group" and "Threatened product group". There is need to strengthen comparative and competitive advantage in Leather sector by policy support and facilitating role by all stakeholders to attain the growth in livestock and agriculture sector and improve the income of related stakeholders.

Keywords: Leather and Leather products, competitiveness, Comparative advantage, Vollrath index, Balassa index, Pakistan

Introduction

The leather industry, one of the major export-oriented industries, has emerged as the second largest export sector after the textile in Pakistan. This sector contributes a high amount to the GDP of Pakistan and has a potential to increase the volume of exports by improving the quality of products and introducing some diversifications in these products as well (shahab and khan,2013). The leather sector has been making massive improvements in its productivity by utilizing a EU funded program "Pakistan Leather Competitiveness Improvement Program (PLCIP)" under the EU Trade Related Technical Assistance Program. This Program has proved a catalyst in boosting the growth in the leather sector, which had been stagnant or declining for the past few years. The leather exports experienced a huge decline in the year 2009 by 32% due to the decrease in the world demand for pure leather products and with an immense increase in the demand for artificial leather products. But afterwards, a number of factors such as improvement in the quality of products, in-time delivery to the purchaser and an increase in the demand for leather products in the world lead to the increase in the exports of leather goods (Xue and Chan 2013). The degree of export diversification increased sharply from 1979 and continued till 1985. After 1985 there was again a major decline in the export diversification (Akbar, et al.2000). In Pakistan, the official data shows

that the exports of leather and leather products recorded a fall of 6.23 per cent in 2014-15. In contrast,China's leather exports increased by 20%, India's 63% and Bangladesh's 100%. Vietnam is earning $3bn from footwear exports annually with a projection of $7bn in next five years. Pakistan's share of 0.5% in the world market for leather and leather products is quite insignificant as compared to China's 19%, Italy's 9%, Vietnam's 4% and India's 2.5% (ITC 2015). The positive average growth rate of leather and leather products from 2003-2014 provides a hope and potential in this sector (ITC 2015).

Leather industry of Pakistan comprising six sub-sectors i.e. leather footwear, leather gloves, tanning, leather garments, leather shoe uppers and leather goods, is based on more than 2500 tanneries and footwear manufacturing units, mainly located in Karachi, Hyderabad, Lahore, Multan, Kasur, Faisalabad, Gujranwala, Sialkot, Sahiwal, Sheikhupura and Peshawar (Mehmood, 2008. UNIDO, 2006). At present, the exports of finished products of this sector is contributing more than $700 million foreign exchange earning annually to the economy of Pakistan (shahab and khan, 2013). The supply of leather heavily depends on the livestock population and Pakistan is fortunate enough to have this raw material of the leather industry in abundance. Livestock sector is thus considered the second key sector of agriculture (Amin, et al.2010) through its share of 55.9% to value added and 11.8% to GDP in 2013-14(GOP,2014). Local availability of raw material and low wage cost furnish the country a competitive edge in the world market (Ghafoor and zafar, 2013). Moreover, the quality of raw material obtained from sheep, goats, cows, buffalos and other pet animals is directly correlated to the quality of the above-said animals which are raised on a massive level in Pakistan (Ghafoor et al., 2012).

The globalization era, since 1940`s, has changed the international trade patterns (Chase-Dunn, et al.2000). One of the striking features of any economic environment of the last few decades has been the trade liberalization and extension of the policy reforms in the developed, underdeveloped and developing countries [Baldwin and Forslid (1999)(Wacziarg and Welch (2003)]. The countries have changed their attitude toward trade policies in order to survive in the world market (Frankel, 2000). The rules of the globalization are to reduce the trade barriers among the different economies of the world creating competitive pressures (Kim and shin, 2002) and increasing economic growth (Hassan and Ali, 2005 and Greenaway, et al. 2002) via technology transfer leading to productivity and efficiency gains and restructuring of an economy (Batra and Khan, 2005). In response, global export patterns are changing coupled with adoption of labor and capital saving technological innovations (Akhtar,et al.2008).In Pakistan manufacturing industry particularly of textile and leather remained ignorant of environmental issues attached and also showed little adoption of cleaner production . This negligence not only failed to reduce the production cost but also to earn the tag of environment friendly firms, that may enhance the comparative advantage and competiveness (Ortolano, Leonard, et al. 2014)

The changing scenario, since 1995, has been affecting the economy of Pakistan. The export performance ensures the success of a nation in selling domestic goods and services to other economies of the world (Rose, 2003) and also shows the competitiveness of a country in the global market (Voulgaris, et al., 2013 and Olamade, 2015). Furthermore, a number of factors such as international market access, market share, price competitiveness and diversification in the export goods contribute to the formation of a brand (Ahmad,2004). In terms of international trade, comparative advantage refers to the trend of specialization (Prasad, 2004) and a comparative cost advantage in producing that commodity along with observed trade patterns based on differences in resource endowments, investment pattern in physical and human capital (Anwar, et al.2010). However, the concept about comparative advantage(CA) in its real sense is typical to be measured

due to the less information about the comprehensive data on different factor costs. Therefore, some studies reviewed the measurement of comparative advantage in an indirect sense (Greenway and Milner 1993, Milangeni, 2000) through RCA index (Prasad , 2004). However, one major problem with the RCA index is that large differences in country sizes can cause problems in applying the RCA across countries (Yeats, 1985 &Laursen, 1998).

This study is expected to be a good addition to the field of competitiveness of leather sector as international markets have become far more competitive than ever before. Throughout the world, it can be witnessed that the leading factor of prosperity is economic growth which in return heavly depends upon imports and exports. As far as Pakistan is concerned, at present, it is facing various crises among which the economic instability is of gigantic magnitude. To bring economic stability, Pakistan has to formulate such economic policies both at the short and long term as can not only enhance its investment both the domestic and foreign but also promote its exports.

The main objective of this study is to measure the comparative advantage, competitive advantage and competitive position of leather articles such as footwear, gloves, hides and skins, animal gut, harness and travel goods in Pakistan. This study has employed different indexes to measure the revealed comparative advantage in Pakistan and its results would be helpful in formulating better policies to enhance the export of this sector.

Review of Literature

Ricardo, a classical economist, initially explained the theory of comparative advantage which was further explained in a simple analysis of trade by neo-classical economists, Heckcher and Ohlin. Balassa (1965 and 1977), then, presented a new index of RCA to overcome the problem of international trade. There are a number of renowned researchers who worked on RCA and among these researchers the most celebrated figures were Balassa and Marcus (1989) who investigated the RCA for the United States and Japan. On estimating the changing comparative advantage for fifty seven primary and one hundred sixty seven manufactured goods, the results showed that the USA had a comparative advantage in intensive goods of natural resources and with the specialization in intensive products of human and physical capital, both Japan and USA had a comparative advantage in the products of high technology.

Since, when we observe the regional economies as a group, the RCA of Vollrath (1991) is considered a better measure to estimate the competitiveness of an economy, because a group of economies have a greater impact than a single economy. This RCA measures the importance of exports in a given sector not only at global but also at regional level, moreover, it also eliminates the problem of double counting in international trade.

Larsen (1998), to solve the issue of upward biased values of RCA, developed a Revealed Symmetric Comparative Advantage index (RSCA) to check out the competitiveness of the export sector of a country and the adjusted values lie between -1 and +1. The RCA indices have been widely applied in economic empirical work to evaluate the patterns of trade and specialization of countries in commodities in which they have a competitive edge (see UNIDO,(1986), Van Hults et al, (1991) ,World Bank, (1994) and lim, (1997). Utkulu et al, 2004; Uchida & Cook, 2004;Bernhofen,et al ,2004; Sharman and Dietrich, 2004; Nesterenko, 2006; Waqar et al a 2009,b 2013;Richard.S ,2008; Islam et al ,2014; Asmara et al (2015) and AsiyaChaudhary (2016). As these methodologies have been widely applied, the study would concentrate on the discussion of numerous publications in respect to the competitiveness of leather exports of Pakistan.

Another researcher, Haddad (2000), applied RCA index and Intra industry index on trade data from 1985 to 1997 to check the competitiveness of Mena countries in the world markets. The results showed that the improvements in the competitiveness of exports were not evident, moreover,

the study suggested that FDI, trade liberalization and productivity of labour can improve exports. While investigating the exports competitiveness of FIJI over the time span of 1998-2002, through RSCA index, Parsad, (2004) found that selected countries had a CA over a narrow range of exports of different commodities. It was Benkovskis and Worz (2012) who, utilizing the data from 1996 to 2011, developed the export price index and estimated changes of non-price determinants for nine emerging economies of the world. The result indicated that China got a huge gain from non-price factors in international competitiveness across the markets. Similarly, Chile, Brazil, Turkey and India also showed an improvement in the competitiveness for non-price factors. On the contrary, Argentina and Indonesia experienced a loss in non-price competitiveness. The utilization of RCA index can also be witnessed in the study of Erkan and Kazim (2014) whose work highlighted that Turkey had weaker CA than Eu +13 countries as they change their factor of production in the export goods based on science. Chaudhary (2016) also measured the CA of India in the textile sector during 2005-14 by utilizing RCA and found that India had a CA in this sector.

In case of Pakistan, Longmire and Debord, (1993) estimated the CA in the production of major lucrative agricultural crops and impact of government price intervention. In 2004, Mehmood measured the competitiveness of non-agricultural produce exports through RCA. In 1999-2000, 34.7% products from clothing and textile sector showed competitive positioned products status and 23.9% from chemical industry. The RCA index was also utilized by Ilyas et al. (2005) who worked on competitiveness among Asian exporters in the world rice market. They employed both Balassa and White index for empirical analysis by utilizing the data ranging from 1985-2005. Their results indicated that India, Pakistan, Thailand and Vietnam had the comparative and competitive advantage in the rice exports. Other than Ballasa and Vollrath index some other methods are also employed to measure CA as Anwar, et al (2005) applied policy analysis matrix approach to measure the CA of Pakistan in cotton production followed by Javed, et al (2006) who calculated CA in two provinces of Pakistan (Punjab and Sindh) from 1998-99 to 2002-03. The same approach was also utilized by Hussain, et al. (2006 and 2006a) to estimate the CA and competitiveness of Pakistan in production of rice and sugarcane, and the results of their study revealed that Pakistan has comparative advantage in production of basmati rice. Similarly, Akhter et al (2009) investigated the competitiveness of Pakistan in the yield of fruit by utilizing the data from FAOSTAT (2008) for the period ranging from 1995- 2005. The findings of the analysis assert that Pakistan has competitiveness and CA higher in the production of mangoes and dates, but less in in the production of oranges, with reference to the major competitors.

A comprehensive study on the agriculture sector exports (Riaz, 2009,Riaz, et al. 2010 and Riaz and Jansen,2012) employed Balassa's measure of Revealed Comparative Advantage to determine the competitiveness of selected agricultural products in overseas export markets. This study calculated the level of competitiveness of Pakistan's various agricultural products in their particular markets .The results indicated that livestock sector had a great share in value added agriculture but not successful in acquiring any competitiveness. In Rice and fruits , competitiveness is seen but on considering one specific market and individual product; picture becomes gloomy. Gulf states have close spatial connection with Pakistan but Pakistani meat could not earn any comparative advantage there. Dairy products from Pakistan compete well in other South Asian countries. The processed products like cheese maintained a good position in Europe and USA. Owing to more stringent SPS standards in the target markets and lack of unswerving supplies, poor quality and marketing strategies; Pakistan was not able to maintain its position in export of fresh fruit in high income countries. On the other hand processed horticultural products have been successful in these higher income markets.

Moreover, Ahmad and Kalim (2014) measured the export competitiveness and export performance of Pakistani textile and clothing sectors. The results of co-integration analysis for both the short and long term, using the data from 1980-2011, showed that the textile sector had a significant impact on the exports performance than the clothing sector. The study also illustrated that the quota elimination policy had not been beneficial for this sector. Kausar (2015) found that Pakistan has gained a high CA over Bangladesh and India in textile sector over the time period of 1980-2010 It can be seen that numerous studies had utilized the RCA method to measure the competitiveness of various sectors across the world. Although this method has already been applied on leather sector of Pakistan, yet it was only Balassa index method which was employed in carrying out the emperical analysis. The present study has utilized three indexes such as Balassa Index, Revealed Symmetric Comparative Advantage Index and Vollrath Index to measure the competitiveness in leather and leather products in Pakistan.

Materials and Methods

The data have been obtained from International Trade Center (ITC) UN-COMTRADE Statistics for Pakistani articles of leather, animal gut, harness, travel goods for the time period from 2003-14. The study has analyzed different indices like Balassa index (1965), Vollrath index (1991) and Revealed symmetric comparative index (Larsen 1998) for the measurement of competitiveness of articles of leather, animal gut, harness and travel goods.

Balassa index.

When the data comprising exports is used, the RCA index (Balassa index,1965) is defined as.

$$RCA(Balassa\ Index) = \frac{X_i^A / \sum X_i^A}{X_i^w / \sum X_i^w}$$

Where

X_i^A = Leather exports of Pakistan

$\sum X_i^A$ = Total exports of Pakistan

X_i^w = Leather exports of world

$\sum X_i^w$ = Total exports of world

Ln(RCA) also shows the comparative advantage and disadvantage in the economy. If the values of Ln(RCA) are greater than zero, this shows comparative advantage and Ln(RCA) less than zero shows comparative disadvantage in the economy (Faustino 2008). In more details, in order to explain the power of comparative advantage, the RCA index of Balassa can be divided in to four stages (Hinloopen, 2001). These classifications are

o	Classification	Explanation
1	$0 < RCA \leq 1$	No comparative advantage
2	$1 < RCA \leq 2$	Week comparative advantage
3	$< RCA \leq 4$	Moderate comparative advantage
4	$RCA > 4$	Strong comparative advantage

Vollrath index

When the regional economies as a group are taken, the RCA of Vollrath (1991) is considered a better measure to estimate the competitiveness of an economy and eliminated the problem of double counting in international trade. This index is defined as

$$\text{RCA(Vollrath index)} = \frac{\left\{\frac{x_{ij}}{(\Sigma_i\, x_{ij})-x_{ij}}\right\}}{\left\{\frac{(\Sigma_j\, x_{ij})-x_{ij}}{[(\Sigma_j\Sigma_i\, x_{ij})-(\Sigma_j\, x_{ij})]-[(\Sigma_i\, x_{ij})-x_{ij}]}\right\}}$$

Where

$X_{ij=}$Leather exports of Pakistan

$\sum_i X_{ij}$=Total exports of Pakistan

$\sum_j X_{ij}$=Leather exports of world

$\sum_j \sum_i X_{ij}$=Total exports of world

Revealed symmetric comparative advantage index (RSCA)

To solve the issue of upward biased values of RCA, we used Larsen (1998) index and Larsen adjusted the RCA index values in symmetric values. The adjusted values lie between +1 and -1. Larsen (1998) explained this index as RSCA, which is defined as

$$\text{RSCA} = \frac{\text{RCA}-1}{\text{RCA}+1}$$

The positive value of RSCA shows a comparative advantage and negative value shows the comparative disadvantage in the economy. The index of RCA is also used to gain an insight knowledge of those firms or industries that currently show comparative disadvantage but they have potential to get competitiveness in exports over time (Amir 2004, Amir and Hajji ,2009 and Khuram ,2015). This objective is achieved by categorizing the export structure of a country, based on HS 4-DIGIT commodity lines into 6 product groups depending on RCA of a country. According to RCA, these products groups are as follows (Standard and Poor,1997).

Competitive positioned product lines.

The RCA index is greater than 1 in these product lines. These product lines show an efficient improvement over the period of time. The criterion of decision is as follows

The index of RCA is greater than 1 in current year i.e. RCA (current year)> 1.

The difference between RCA of current year and average of last 3 years RCA is greater than zero or positive i.e.RCA(current year) –RCA (Average of last three years)>0

This shows that the internal and external condition of business is good.

Threatened lines of products

The RCA index is greater than 1 in these product lines. The indices are decreased over the time due to adverse domestic situation or land pressures of global competitiveness. The criteria of decision are as follow.

The index of RCA is greater than 1 in current year i.e. RCA (current year)> 1.

The difference between RCA of current year and average of last 3 years RCA is less than   zero or negative, i.e.RCA (current year)–RCA (Average of last three years)<0

The Emerging product lines: Tire 1 and Tire 2

These product lines show the revealed comparative disadvantage but the position of products would improve in export market in future. The RCA index is less than 1 in this criterion. These

product lines show that these products have a potential for future exports. This group is divided into two sub groups in terms of RCA position in this group. The criterion of decision is as follows,

Tire 1:The RCA index lies between .5 and 1 in current year. i.e., .5≤ RCA <1 .

The difference between RCA of current year and average of last 3 years RCA is greater than zero or positive.RCA (current year)–RCA (Average of last three years) >0

Tire 2:The RCA index is less than .5 in current year. i.e. RCA(current year) < The difference between RCA of current year and average of last 3 years RCA is greater than zero or positive,RCA (current year) –RCA (Average of last three years) >0

Weakly positioned product lines:Tire 1 and Tire 2

The RCA index of these product lines is less than 1. These indices are deceased with domestic and non-conducive global factors.

Tire 1:The RCA index in current year is less than 1 but ≥.5 i.e, .5≤RCA<1

The difference between RCA of current year and average of last 3 years RCA is less than zero or negative.RCA (current year) –RCA (Average of last three years) <0

Tire 2:The RCA index is less than .5 in current year. i.e. RCA(current year) < .5 .

The difference between RCA of current year and average of last 3 years RCA is less than

zero or negative.RCA (current year) –RCA (Average of last three years) <0

According to empirical results, Pakistan has the comparative advantage as RCA index values are greater than 1 during 2003-2014. This result illustrates that Pakistan possessed the high level comparative advantage in leather sector up to 2014 having the values of RCA greater than 4 (Shahab and Mahmood 2013); the the trend was dwindling. The revealed comparative advantage of leather products increased during 2003-2008 while it decreased during 2009-2014. The financial global crisis in 2008-09 had a strong impact on international trade at world level. World trade organization reported a 12% decline in the volume of world trade in 2009. This decline in trade channels from financial collapse decreased demand for trading commodities and produced shortage in trade financing (WTO, 2010).The economy of Pakistan also experienced RCA decrease in 2008-09 with respect to the global financial crisis which targeted the whole economies in the world in all types of industries, and this factor resulted in the decrease of all imports and exports of leather products in importer countries. The average decreasing trend of these indices were because of regional devaluation in currency, high cost of energy, low wages, no good policies on the part of the government, high tax rate, energy crisis, unavailability of raw material, high running cost, low productivity of labour, low technology, law and order situation in the country and financial crisis in the world (Syed 2009 and Musaddiq 2015).

The LnRCA index also shows that Pakistan had a comparative advantage in this sector. The trend of RSCA depicts that Pakistan paid much emphasis on the specialization in exports of leather products during analysis. The results of RSCA indicate that Pakistan had a comparative advantage from 2003-2014 in this sector. The competitive advantage of Pakistan has also been examined by utilizing an alternative index introduced by Vollrath (1991). The values of Vollrath index (RCA#) illustrate a high competitive advantage in this sector. The growth of RCA indicates that the value of RCA increased by a high rate of 16.55% in 2005, while decreased by 28.66% in 2009.The growth rate of RCA was declined in Pakistan from 2009-12.

Table 1.Comparative Advantage of Pakistan for Product group 42 (Articles of leather, animal gut, harness, travel goods)

Year	RCA	Growth rate	LNRCA	Growth rate	RCA	Growth rate	RSCA	Growth rate
2003	10.19	---------	2.32	--------	10.72	-------	0.82	---------
2004	10.51	3.13	2.35	0.60	11.03	1.32	0.82	2.94
2005	12.60	19.83	2.53	3.22	13.36	7.69	0.85	21.09
2006	12.42	-1.36	2.51	-0.22	13.12	-0.54	0.85	-1.83
2007	12.02	-3.27	2.48	-0.54	12.64	-1.32	0.84	-3.60
2008	12.13	0.97	2.49	0.16	12.75	0.39	0.84	0.87
2009	9.43	-22.27	2.24	-4.65	9.84	-10.09	0.80	-22.86
2010	8.40	-10.90	2.12	-2.59	8.71	-5.14	0.78	-11.39
2011	7.40	-11.93	2.00	-3.22	7.64	-5.96	0.76	-12.27
2012	7.29	-1.43	1.98	-0.40	7.53	-0.72	0.75	-1.44
2013	7.47	2.47	2.01	0.67	7.74	1.23	0.76	2.70
2014	7.35	-1.65	1.99	-0.45	7.61	-0.83	0.76	-1.65

Table 2. Competitive position of Pakistan in export of Articles of leather, animal gut, harness, travel goods (2003-14)

Years	Revealed Comparative Advantage (moving Average of three years)	Years	Revealed Comparative Advantage (Single year)
2003-05	11.10	2006	12.42
2004-06	11.84	2007	12.02
2005-07	12.35	2008	12.13
2006-08	12.19	2009	9.43
2007-09	11.19	2010	8.40
2008-10	9.99	2011	7.40
2009-11	8.41	2012	7.29
2010-12	7.70	2013	7.47
2011-13	7.39	2014	7.35

The results of table 2 indicate that these leather products fell in "Threatened product group" in 2006 and in 2007 and fell in "Competitive positioned product lines" in 2008-14, that showed a strong comparative advantage in this sector of Pakistan (Shahab and Mahmood 2013). The leather sector has gained the competitive position from the availability of raw material, skilled labour, and low wages.

Conclusion

Livestock sector which is considered one of the key sub-sectors of agriculture provides raw material for Leather and leather products in Pakistan. Globalization has been playing a vital role in the international trade by reducing the trade barriers among the different economies of the world. This study used data from International Trade Center (ITC) UN COMTRADE Statistics for Pakistani articles of leather, animal gut, harness, travel goods for the time span of 2003-14. The

results showed that Pakistan had a high comparative advantage in the leather sector and its products fell in "Threatened product group" in 2006 and in 2007. From 2008-14, these products fell in "Competitive positioned product lines" that indicated a strong comparative advantage in this sector of Pakistan. To increase and retain competitiveness in leather exports, investment is needed in scientific research for technology development to produce quality marketable surplus and to devise international marketing strategies so that the leather products can make a significant contribution to reduce overall negative trade balance of Pakistan.

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