

Revealed Comparative Advantage of Carpets and Textile Floor Covering Industry in Pakistan, India and China

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This paper measures and compares the competitiveness of Pakistan's carpet and textile floor coverings industry with other South Asian countries China and India. The pattern of revealed comparative advantage is identified using the Balassa (1965) index for export data. The index is calculated at the sector and commodity level of the Harmonized System of classification (HS 2-digit and 4-digit level) for the periods 1996-2009 and 2004-2009, respectively. Data has been taken from UN Comtrade Statistics and the World Development Indicators. The study finds out a rising, stable and fluctuating trend in RCA at 2-digit level for India, China and Pakistan, respectively. However, test of equality of means of RCA indicates a statistically significant edge of China over Pakistan and India whereas across India and Pakistan not a significant difference emerged. It aims at discerning the challenges for Pakistan in carpet and weaving sector which may hinder the future growth of this sector. The findings imply that a favorable potential exists for higher growth of carpet industry and it can endorse the export earnings and employment keeping in view the international competitions. Moreover, the said sector can be focused for the export competitiveness in the rapidly globalized markets.

1. Introduction

The global trade pattern has been changed in the pursuance of trade liberalization policies in the form of removal of tariff and non-tariff barriers, reduction in quotas and technological advancement on the part of world economies. South Asian economies such as China and India are seeking a favorable position from the trade composition perspective in the international markets. These countries possess comparative advantage in textile sector and show a noteworthy growth in changing trade patterns across the world. Pakistan has a great potential to stand

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out in this sector in the region as a prospective and overwhelming proportion of labor force is engaged in this sector. It is expected that export-led growth strategy cause a significant boost in production, employment and the productivity of labor along with the improvements in overall economic status but the political and socio-economic conditions in addition to primitive types of technology use may hinder the way to rapid progress.

Pakistan's current export structure requires structural transformation and changes in its export diversification and prototype specialization. The industrial sector in Pakistan has been playing a pivotal role in the national economy in terms of its share in GDP, exports, employment, foreign exchange earnings, investment and its contribution to the value added industry. China is one of the world's largest textiles exporters, accounting for one third of the global textile trade volume. Although the prolonged anti-dumping investigations hit the country's textile export, still textile industry in China has remained a key pillar of development in the country. It has played a vital role in proliferation of various sectors of the economy. Due to its large contribution in the economic growth, Chinese government has remained very much focused to upgrade this sector. India, another major exporter of textile goods is self-reliant and independent with lots of versatility and diversification in textile sector. Apart from providing one of the basic necessities of life i.e. cloth, the textile industry contributes about 14 % to the country's industrial output and about 17 % to export earnings. This sector stands at second in the provision of jobs to people after agricultural sector.

There is continuing debate and emerging concern about the position of these countries in the world market and the resulting edge of China for intensified competition in the labor-intensive manufactured goods. This signifies the importance of the structure of comparative advantage in selected countries; China, India and Pakistan and to find out the extent of competition among these countries in the market of selected sub-sector i.e., textile.

This study focuses on one of the important sub-sector of textile industry i.e. Carpets and other textile floor Coverings (under the category of code 57 as per Harmonized System of classification, HS). The carpet industry plays a fundamental role in determining the export bearing of Pakistan. There has been an ever increasing demand for carpets and floor

coverings both in Pakistan and around the globe. Carpets have always been a valuable asset since ages and therefore remained in vogue. This was gradually commercialized in Pakistan because of the development of export market. Commercialization gave new dimensions to this industry and it started expanding in rural areas due to the availability of cheap labor. This is one of the sectors that grew tremendously during 1970s and 80s. Among the value added goods it remained on the top of the list (Awan and Khan, 1992).

This sector started getting a set back after the issue of child labor raised by international organizations. As majority of the carpet weavers in Pakistan were estimated to be children less than 15 years of age. Although, data on the Pakistan labor force and child labor is vulnerable. Nevertheless, there is little doubt that child labor has assumed massive proportions in Pakistan. The actual total number of working children in Pakistan is probably somewhere between 2 and 19 million.²

Primarily, the promotion of carpet industry depends upon availability of raw material, presence of skilled weavers and the tradition of weaving art, etc. The skill and productivity of workers in carpet industry along with the availability of socio-economic infrastructure affects the competitiveness of this sector. Despite the presence of weaknesses in few areas, the carpet industry serves as a backbone for the economy of Pakistan. It has been a major source of foreign exchange earnings and contributes a lot in relief of poverty, especially in rural areas. Presently this industry is not revealing a significant export growth and there is a dire need to focus on the provision of infrastructure to support the growth of this industry.

A UNICEF-Punjab report (1992) asserted that "according to conservative estimates, one million out of 1.5 million workers in the carpet industry in Pakistan were children. A separate 1992 UNICEF/Government of Pakistan study reported that 90 percent of the

² The Pakistan Labor Force Survey (1990-1991) put the number of child workers in the age group 10 to 14 at two million. The Pakistan Institute of Development Economics maintains that two million is a gross underestimate because a) of serious under-reporting due to the fact that child labor is illegal, and b) working children below 10 years are not included. A study by UNICEF (1990) estimated the total number of children at not less than 8 million. Pakistan's Secretary of Labor, Mr. Sultan Hameed, stated that the UNICEF figure was "on the high side," but appeared to accept the figure as being in the general range.

one million workers in the carpet industry are children, many of whom began working in the industry before 10 years of age. The Human Rights Commission of Pakistan found that weaving thrives in self-contained homesteads, where labor is cheap and readily available”.

Different techniques have been used in literature to determine country's competitiveness in selected industry. One of the most widely used methods involves the concept of Revealed Comparative Advantage (RCA) developed by Balassa (1965). Revealed comparative advantage (RCA), a measure of international competitiveness specifies that a country is defined as being specialized in exports of a certain product if its market share in that product is higher than the average.

A number of studies are available on measuring competitiveness in various sectors of Pakistan, but there is no empirical work done on RCA of Pakistan in carpet and other textile floor coverings industry till the year of this study conducted. For small as well as growing economies, competitiveness is essential for promoting economic development and to survive in the globalized world where carpet industry holds its own worth.

From the above given perspective, the objective of this study is to analyze the comparative advantage of the carpet industry in Pakistan and compare it with selected South Asian countries .i.e. China and India. These countries were selected for measuring and comparing RCA with Pakistan's because they are similar in size and factor endowments and core competitor of Pakistan in the world market. The study enables us to find out the competitiveness of this sector in the world market and can probe at the future potential of growth in the carpet industry of Pakistan. The Balassa Index (1965) is used to find out the comparative advantage at 2-digit and 4-digit level of Harmonized System of Classification.

The rest of the paper is organized as follows. Next section provides the literature survey followed by the methodology and data description. The empirical results of the study are reported and discussed in section 4. Last section concludes the study with some policy recommendations.

2. Review of Literature

A number of studies have been conducted to find out Revealed Comparative Advantage (RCA) using Balassa Index (1965). This section provides a brief literature review that can give a better knowledge and understanding of the pattern of RCA in different countries for different sectors.

Balassa (1977) has undertaken an analysis of the pattern of comparative advantage of industrial countries for the period 1953 to 1971. The empirical findings of this study suggest a renewal of the product cycle for US that possess an ever increasing technical lead. Based on the standard deviation of the RCA indices for different countries an association is also seen to hold between size and diversification of exports. Furthermore, Balassa's results show that the extent of export diversification tends to increase with the degree of technological development and a reversal takes place at higher levels in the trade patterns.

Leishman et al. (1999) empirically analyzed the international competitiveness for agricultural commodities by applying Revealed Comparative Advantage (RCA) for wool-exporting countries. A number of six wool producing countries are selected for measuring RCA over the time period of 37 years. RCA index for Australia, Argentina, Newzeland, South Africa, United Kingdom and Uruguay indicates that GATT Uruguay Round has changed the RCA's of countries significantly.

Mehmood (2005) analyzed the export specialization and comparative advantage/disadvantage of Pakistan's non agriculture production sectors in the context of on-going multilateral trade negotiations. The study uses RCA approach at HS-4 digit level for the period 1990-2000. The data set has been drawn from International Trade Statistics compiled by the Australian National University (AND). The data set comprises 16 product categories made up of 978 product lines. Findings show that Pakistan's top-ranking exports belong to textiles and clothing sector, consistent with the natural and human factor endowments however Pakistan has failed to move from low value added to technically intensive high value added manufacturing. Pakistan's economic well-being depends on the extent to which the non-agricultural sector

remains competitive and contributes to economic growth, exports, investment and employment.

Batra and Khan (2005) examined the structure of comparative advantage enjoyed by India and China in the global market keeping in view their similar resource endowment and size. The study estimates Balassa index of RCA for India and China at sector and product level of the Harmonized Classification System (HS-1996) both at 2 and 6-digit level for the year 2000 and 2003 using data on exports from UN Comtrade.³ The year 2000 is taken as reference, as this is the year immediately preceding China's accession to WTO. The main objective of the study is to figure out the leading manufacturing industries in India and China in terms of their revealed comparative advantage. The study reveals that the maximum number of commodities with comparative advantage in the world market is concentrated in sectors like organic chemicals. There are also some sectors where India is comparatively disadvantageous positioned at the aggregate level but reveal significant comparative advantage at the constituent commodity level (HS-six digit).

In addition, China enjoys comparative advantage in the world market in 47 sectors and 1828 commodities out of 97 sectors and 4923 exported commodities, respectively by China to the world. The sectors of comparative advantage in China belong to the electrical and electronic equipment, manufacture of leather, toys, organic chemicals, articles of apparel and cotton. The number of sectors for which India and China enjoy comparative advantage remains roughly the same between 2000 and 2003. An important finding of the study is that some sectors are at disadvantageous at the aggregate level but may enjoy comparative advantage at the constituent commodity level.

Hanif and Sabina (2006) constructed Balassa's Revealed Comparative Advantage (RCA) index for the textile sector of Pakistan to analyze the relationship between the financial development and international trade

³ The Harmonized Commodity Description and Coding System (HS) of tariff Nomenclature is an internationally standardized system of names and numbers for classifying traded products developed and maintained by the World Custom Organization WCO). The HS system of classification contains 21 sections, 97 chapters and 1,241 headings at the four-digit level, 930 of which are further divided in sub headings. HS-1996 (revision 1) represents a total of 5,113 separate categories of goods identified by a six-digit code.

competitiveness. Pakistan's focus of trade policy shifted from import substitution to export promotion in the seventies and turned its resources to the products showing comparative advantage. The results show that greater access to external finance has a strong positive impact on the country's textile sector competitiveness over the time period 1974 to 2004. The study concluded that if the economies of scale, technology and endowments are identical between countries, still a country with relatively developed financial institutions will have comparative advantage in the production of processed goods requiring more external finance.

Welch and Conrad (2007) evaluated the US competitive position in the cotton yarn segment using RCA index based on Balassa (1965) among the set of countries including China, India, Pakistan, and Turkey. The results disclose that United States fails to make the competitive grade in several categories and if it happens to make it, that is by narrowing margins. While the Revealed Comparative Advantage index indicates that the United States is lagging behind China, India, Turkey, and Pakistan in terms of market share in exports of yarn, fabric, etc.

Akhtar et al. (2008) analyzed the competitiveness of footwear industry of Pakistan in the global perspective using revealed comparative advantage at 2-digit and 4-digit level of HS classification for the period of 1996 to 2006. RCA indices have been calculated for Pakistan and other Asian countries i.e. China and India, since both countries are similar in size and factor endowments and greatest competitor of Pakistan. Calculations show that Pakistan's footwear industry has shifted from a situation of comparative disadvantage to competitive advantage especially since after 2003 due to increase in volume as well as in the value of footwear exports and thus there is an upward movement in comparative advantage.

At disaggregate level, Pakistan has been enjoying comparative advantage since after 2005. This study also highlights the problems faced by footwear industry and explains the role of entrepreneurs in this regard. The rising trend of RCA reveals that there is a potential for higher growth of this industry which requires strengthening of competitiveness of the footwear industry.

According to Jayawickrama and Shandre (2010), given the abundant resources, China and India have comparative advantage in a broad range

of manufactured goods as compared to Singapore. From the disaggregated analysis at 2-digit level, the paper finds that the Singapore and China exports are complements, although the degree of complementarity has been declining over time. Meanwhile, Singapore and India exports are found to be stronger complements and stable over time. The results also show that China and India exports are strong substitutes. This makes the comparative advantage position of both countries more competitive. The study reported that the exports diversifications have broadened the exports net by China and India, as well.

Wei and Zhao (2012) found that the comparative advantage of Chinese manufactured products in both world and US markets are gradually increasing. This is pertinent to mention that most of the products with comparative advantage are low-technology products. While, the comparative advantage of Chinese medium-technology products in the world market has largely improved, but their RCA indexes are low and their kinds of products with very high comparative advantage are small. Finally, they concluded that the Chinese manufactured exports are of greater comparative advantage in the world market than in the US market.

Focusing on the clothing export sector, Kathuria (2013) demonstrated that the comparative advantage of India has increased from 23 products to 25 products between 1995 and 2003 and for Bangladesh, this number increased from 21 products to 29 products between 1995 and 2003. Moreover, the comparative position on the basis of a measure of structural change in exports of India and Bangladesh also pointed out towards a better standing of these countries.

This completes the review of relevant literature. Now we turn to the trends of carpet and weaving sector in selected countries.

3. Trend and Pattern of Carpet and Floor Coverings Industry: Pakistan, India and China's Perspective

A brief picture of the trends in exports of carpet and floor covering industry is provided in this section. Overall, exports of the carpet industry in Pakistan mounted and reached up to Rs. 109 million earnings

in 1971-72. By 1975-76, the income from carpet export gone up to Rs. 719 million and it further increased to Rs. 1,180 million in 1977-78 and then to Rs. 2,198 million in 1979-80. In 1980-81 carpet exports touched the highest ever figure of Rs. 2,243 million. There was a slight decline after that because of recession in the world market. With the export income coming down to Rs. 1,676 million and Rs. 1,913 million in 1981-82 and 1982-83, respectively. In 1985-86 the income rose to Rs. 2,693 million. The income from carpet exports further increased to Rs. 3,419 million in 1986-87. Table 1 depicts the trend of export value for three countries over the years 1996 to 2009 at 2-digit level of HS classification.

Table 1: Trends in Export of Carpets and other Textile Floor Coverings (US dollar thousands) at HS2 level

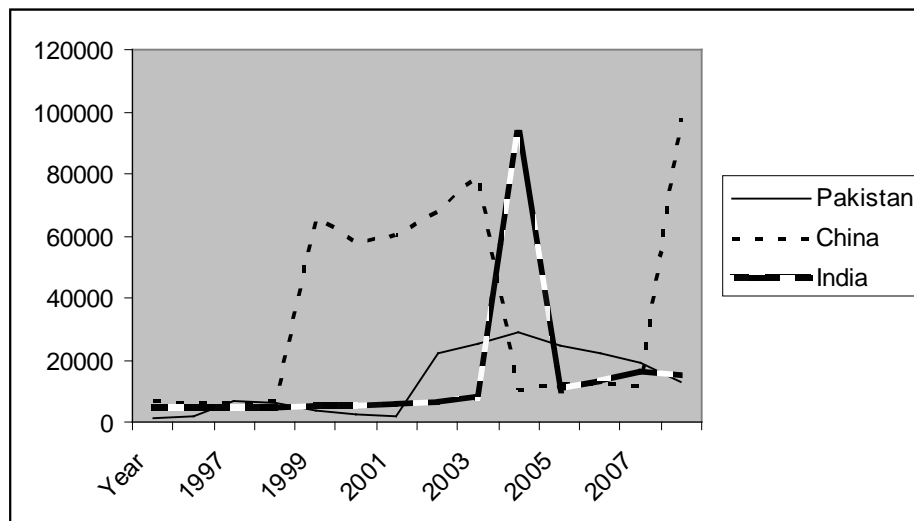
Year	Pakistan	China	India
1996	1517	6516	4221
1997	1778	6100	4554
1998	6578	6135	4416
1999	6387	6987	4212
2000	3627	65563	4709
2001	2623	57874	4907
2002	1676	60287	5570
2003	22418	67966	6374
2004	25235	79570	7731
2005	28753	10512	93222
2006	24612	12222	10686
2007	22215	12207	13200
2008	18815	11888	16185
2009	13206	97819	14912

Source: ITC, Comrade Data

China and India exhibit an increasing trend in exports while the figures for Pakistan showed first declining trend up to year 2002 and then a sharp rise that followed by a gradual rise in the export value. Pakistan's export values remained high than China and India from 2004 to 2007. The reason for lower export values afterward are less competitiveness, high interest rates and cost of inputs, non-conducive government

policies and non-guaranteed energy supplies that hinders the competitiveness of Pakistani exports over other countries. Moreover, the bans on child labor, in the backdrop of ILO recommendations also hampered the growth of this sector in Pakistan, as an overwhelming proportion of labor force working in this sector is child labor. Furthermore, the enactment of Employment of Children Act of 1991 that banned the child labor put the sector's status in more vulnerable condition than ever before. China presented the highest export value among three countries with few exceptional years.

Figure 1: Trends in Carpet and Floor Coverings Export Value



4. Methodology and Data

Measuring comparative advantages may create certain difficulties since relative prices under autarky are not directly observable. Thus comparative advantage is calculated by calculating Revealed Comparative Advantage (RCA) for specific sector. There are different indices applied for this purpose, most common of which is Balassa Index (1965) of RCA. The concept of revealed comparative advantage (Balassa, 1965) pertains to the relative trade performance of individual countries in particular commodities. The advantage of using comparative advantage index is that it considers the intrinsic advantage of a particular export commodity and is consistent with changes in an economy's relative factor endowment and productivity. Demerit of

using comparative advantage index is that it is a partial equilibrium framework and provides general direction of movement and do not predict the potential future comparative advantage in particular sector of the country.⁴

This study used Balassa Index to calculate the RCA for Pakistan in rapidly growing Carpets and other textile floor coverings industry and is based on export data as per the (HS 2007) classification and is given the code 57. RCA is calculated at 2-digit and 4-digit level at aggregated and dis-aggregated classification.⁵ Data has been sourced from UNCOMTRADE and World Development Indicators (WDI) covering a period of 14 years i.e. from 1996 to 2009. RCA at 4 digit disaggregated level has been estimated for the years 2004-2009. The study calculates RCA indices for Pakistan, China and India.

The Balassa Index of RCA is expressed in the following way,

$$RCA_{ij} = (X_{ij}/X_{wj}) / (X_i/X_w)$$

Where

X_{ij} = ith country's export of commodity j

X_{wj} = world exports of commodity j

X_i = total exports of country i

X_w = total world exports

The index of revealed comparative advantage (RCA_{ij}) is interpreted in a relatively simple way. If it takes a value greater than unity i.e., $RCA > 1$, the country has a revealed comparative advantage in that product. More specifically, if RCA turns out to be greater than 1, that particular country has revealed comparative advantage in the production of carpets and

⁴ Revealed comparative advantage index (RCA) uses the trade pattern to recognize the sectors in which an economy has a comparative advantage, by comparing the country of interests' trade profile with the world average. It defines the pattern in comparative advantage by using the trade flows, since this pattern in comparative advantage is revealed by the observed pattern of trade flows, therefore it is called 'revealed comparative advantage. Movements in RCA are caused by economic factors, structural change, improved world demand and trade specialization (Akhtar et al, (2008).

⁵ Harmonized Commodity Description and Coding System (HS) were adopted by the Customs Co-operation Council in June 1983, and the International Convention on the Harmonized System (HS Convention) entered into force on 1 January 1988 (HS 1988).

other textile floor. Since the share of country's exports out of world exports of carpets and floor coverings would be higher than the total exports of selected country in world exports, the country would be competitive in the particular sector.

5. Empirical Results and Interpretation

The study measures revealed comparative advantage indices for the carpet and floor coverings industry. The analysis has been divided into two parts. The first part analyses the comparative advantage at aggregated level. The 2-digit level of Harmonized System (HS-2007) is employed to calculate RCA index at aggregated level. The second part, calculates RCA indices at disaggregate level i.e., at 4-digit level of HS-2007 classification. The purpose of calculating RCA index at disaggregate level is to work out possible differences across the industry at different level. RCA indices are measured for Pakistan and a comparison is made with India and China since both of these countries are among the major competitors of Pakistan in the export of carpets and other textile floor coverings.

5.1 Aggregate Analysis of Revealed Comparative Advantages

The estimation of Balassa Index for the years 1996-2009 presents the movement in the pattern of revealed comparative advantage. Our findings show that at HS-2 level, Pakistan has an upward moving trend in the comparative advantage for carpet industry. RCA index has remained greater than unity ($RCA > 1$) since 1996 and is growing over the years as shown in Table 2.

The results of Table 2 show that throughout the period of study, Pakistan has never faced a situation of comparative disadvantage in this industry. The growing trend of RCA shows that Pakistan has great potential for growth in carpet and floor coverings industry. Good export performance of this sector can lead to more competitiveness if accompanied with better incentives from the government in this sector. RCA values kept on increasing from 1996 till 2001 when RCA reached its highest value i.e. 2.05 but fell immediately in the next year that may be due to the return of Afghan refugees to their homeland as 80 percent of the workforce was comprised of Afghan refugees that time. Later on, it

increased gradually but still with lower values of RCAs. The carpet industry in Pakistan needs much more attention in this regards.

Table 2: Revealed Comparative Advantage: Analysis at Aggregate Level

Year	Pakistan	China	India
1996	1.23	2.06	1.34
1997	1.26	1.57	3.8
1998	1.09	1.75	1.08
1999	1.15	1.62	1.11
2000	1.53	1.62	1.03
2001	2.05	1.65	2.6
2002	1.04	2.71	3.63
2003	1.62	1.32	3.74
2004	1.8	1.29	3.89
2005	1.13	1.28	4.18
2006	1.53	1.22	4.13
2007	1.44	1.3	4.35
2008	1.29	1.37	4.02
2009	1.38	1.21	4.46
mean	1.40	1.57	3.10
s. dev	0.29	0.41	1.36

Note: HS code 57 (Carpet and other textile floor coverings).

Source: Author's calculation from the UNCOMTRADE data.

Table 3: Test of Equality of Means between RCAs

Country	RCA	
	t-ratios	significance (p-value)
China-Pakistan	1.29	0.210
China-India	-4.03	0.0004*
India-Pakistan	4.58	0.0001*

Note: * indicates significance at 1 % level of significance.

In the last ten years Pakistan has emerged as one of the leading exporters of hand-knotted carpet industry accounts for 0.64 percent share of total GDP, 3.66 percent of manufacturing sector GDP and approximately 14 percent of small-scale manufacturing sector GDP. The available evidence indicates that Pakistan's carpet and rugs industry make up around 2.5 % of total exports". A more than 1.5 million people are employed in this sector and more than three million people directly or indirectly depend on its earnings [Nasir (2004)].

"Until 1970s, the carpet industry did not receive attention from the government but later on a number of carpet-weaving centers were established in the country. With the implementation of the labor laws and the factory Act of the mid-1970s, many big centers disintegrated into small units that eventually moved into residential areas to operate in private homes and sheds. The most carpet-weaving activity takes place in homes throughout the country. The upsurge in demand for hand-knotted carpets in foreign markets continued in 1980s and 1990s. However, with the slump in international economy in recent years, this demand has declined (EPB)".⁶

The lack of competitiveness in Pakistan's carpet industry has also been attached with the bans on bonded labor by ILO as child labor are mostly involved in this sector and children and women are considered as the better weavers of carpets in this industry from their efficiency and productivity concerns. The ban on child labor in 1991 in the carpet industry leads not only to the financial loss to the family but also towards a fall in production leading to lower foreign exchange earnings from this sector in the country.

Other problems hindering the export performance and competitiveness of this sector in Pakistan are pointed out as the reduction in rebates and incentives accompanied with high mark up rates that is troublesome for the carpet exporters; usage of obsolete production methods that is unable to produce carpets of outstanding quality; heavy reliance on the manual design methods while India and China use modern technologies; lack of skill development and the problems of supply chain and production capacity.

⁶ Export Promotion Bureau, Pakistan hand-knotted carpets: A Golden Heritage

Although the study is mainly concerned with measuring the RCA for Pakistan in carpet and floor coverings industry, it also incorporates movements in RCA of India and China. Despite the fact that Pakistani carpets are generally superior to Indian and Chinese carpets but cheap labor, low cost raw material and low utility/financing charges in India and China gave a price edge to these countries over Pakistani products.

As depicted by the results, India is the strongest competitor with highest RCA values throughout the years of study. India has an edge over its competitors in this industry because of vast artistic skills of the weavers and low labor cost which is another advantage and favorable factor for growth. The magnificence of Indian carpet weaving and the intricate patterns substantially increased India's carpet exports and placed it prominently in the international carpet map, as depicted by the increasing RCA values.

Table 3 reports the test of equality of means between RCAs of three countries. The table postulates a significant difference of RCA among China-India and India-Pakistan, but no statistically significant difference emerged across China and Pakistan. The test suggests that India has an edge over other two countries in terms of competitiveness as a higher value for means of revealed comparative advantage is estimated for India that is also consistent with the RCA trends. Hence, India has gradually escalating in terms of competitiveness in carpet industry, while China and Pakistan are losing its competitiveness in this sector.

China has RCA in carpet and other textile floor coverings industry but it is facing a declining trend. China's exports fell by 8.10 % and the average unit price fell by 9.98 % in 2009. Though the situation get improved later on but the financial crisis and low price of carpet exports made profitable growth of the carpet more difficult. This decline in carpet exports and average per unit price harmed the sound development of China's carpet industry.

Now, we turn towards the discussion of findings on RCA at disaggregated level.

5.2 Disaggregated Analysis of Revealed Comparative Advantage

The second part of analysis yields the measures of RCA at disaggregate level in order to capture the difference in export performance within the carpet and other textile floor coverings sub-sector for Pakistan and a comparison with China and India. At 4-digit level of HS-2007 classification, four sub sectors are selected of this industry owing to data availability. Pakistan is enjoying comparative advantage in the sector 5703 i.e. Carpets and other textile floor covering tufted. Whereas a comparative disadvantage in the other three sub sectors i.e. Carpets and other textile floor covering, knotted, whether or not made up (5701), Carpets and other floor coverings, of felt, not tufted or flocked, whether or not made-up (5704) and other Carpets and other textile floor coverings (5705). The results of RCA at disaggregate level are presented in Table 3, 4 and 5 for Pakistan, India and China, respectively.

Table 4: RCA at disaggregated level: Pakistan

HS codes	2005	2006	2007	2008	2009
5701	0.12	0.11	0.00	0.09	0.08
5703	1.11	1.14	1.58	1.4	1.1
5704	0.29	0.00	0.01	0.00	0.02
5705	0.00	0.74	0.03	0.01	0.2

Source: Author's calculation from UNCOMTRADE data.

Table 5: RCA at disaggregated level: China

HS codes	2005	2006	2007	2008	2009
5701	0.001	0.001	0.001	0.001	0.011
5703	0.009	0.009	0.009	0.001	0.001
5704	0.0001	0.0001	0.0001	0.0001	0.0002
5705	0.013	0.007	0.005	0.003	0.002

Source: Author's calculation from UNCOMTRADE data.

Table 6: RCA at disaggregated level: India

HS codes	2005	2006	2007	2008	2009
5701	0.012	0.001	0.01	0.014	0.013
5703	0.001	0.001	0.002	0.002	0.001
5704	0.001	0.00	0.00	0.0001	0.0004
5705	0.017	0.018	0.014	0.014	0.012

Source: Author's calculation from UNCOMTRADE data.

China and India are almost presenting the same picture as both have revealed comparative disadvantage at 4-digit disaggregate level in four sub sectors where their RCA's are less than unity ($RCA < 1$). India has a comparative disadvantage in four sub sectors of the economy implying that India is not specialized in the export of these products since India's share of world exports of these particular commodities is less than its share of world exports of all commodities. Nevertheless, India is performing well in the overall carpet industry as is obvious from the RCA at aggregated level. China is lagging behind India in terms of RCA at disaggregated level as well and is not showing competitiveness in terms of RCA.

6. Conclusions and Policy Recommendations

This study aimed at assessing the structure of comparative advantage in Pakistan and making its comparison with India and China. Data as per HS 2007 classification was used to calculate the Balassa index of RCA. Data is collected from UN Comtrade Statistics and World Development Indicator (WDI). Balassa index is the most common approach of calculating RCA. It measures the competitiveness of a country in a particular product by comparing a country's exports of a product relative to its total exports and to the corresponding exports of all countries in the world. Index was constructed at 2 digit and 4 digit level of exports of carpets and other textile floor coverings. It also analyzed the change in scene of comparative advantage from 1996 to 2009 and at disaggregates level from 2005 to 2009, respectively. The purpose of such an analysis was to obtain an inclusive view of the comparative advantage for Pakistan in this specific sector that can enable policymakers to focus on

increasing exports further and facilitating the manufacturers so that RCA can be further enhanced.

Results suggest that Pakistan enjoys a comparative advantage at 2 digit level of classification throughout the period except for the year 2002 when value of RCA considerably reduced to 1.04, the lowest of all the periods but still exceeding the required value. The reason for such a sharp decline in RCA for that time period provided is the return of Afghan refugees under the United Nations High Commission for Refugees (UNHCR) program. India and China also reveal a comparative advantage and have RCA values greater than one throughout the period of study. India is evidently dominating the carpet industry with the highest values of RCA. Reasons behind such a high demand for Indian carpets include exclusive and unique designing. This implies that carpet business will be very challenging in the future as Pakistan has to face a tough competition from India in the global arena and the cost of production in this business is constantly going up. China showed a declining trend towards the end of 2008-09 in RCA pertaining to its low exports in these years and relatively less formal supply chain. At 4-digit level of industrial classification, none of the three countries could reveal comparative advantage in any of the sectors except for Pakistan in the category 5703.

Overall, the values for RCA index of Pakistan shows that Pakistan has a comparative advantage in this sector and has higher potential for growth and development of this sector. But the resources are not being utilized properly. Continuous government support through new schemes and training program will be helpful for handmade carpet sector. Results of the study suggest that a lot of opportunities are available for the carpet industry in terms of improving the productivity and quality of raw materials at reasonable prices. The Research & Development facilities for improving the fiber quality and development of specialized fibers/yarns are required as market always demands a diversified nature of product. Rising Inflation is a world-wide phenomenon. Owing to increase in energy prices, the cost of raw material has increased that leads to rise in the price of carpets. So the government must step in and provide subsidies to make the carpet industry of Pakistan more competitive in international market.

The policy implications flows out from the results to improve the competitiveness of carpet industry are mentioned below:

- Employing new methods of production, designing and better marketing.
- Increasing the supply network at national and international level.
- Having a better knowledge of domestic and international demand and ensuring superb quality production.
- Initiating research and development activities for quality enhancement.

In short, carpet industry is imperative for the growth of the economy. It does not facilitate the foreign exchange earnings only but it also contributes to the relief of poverty in rural areas. It is a major source of income for families who have little number of resources of livelihood, apart from the subsistence level earnings from agriculture. Families can easily join the carpet-making as an occupation as it requires lesser financial and other infrastructural facilities. Keeping in view the benefits of this industry, it is therefore essential for the government to take care of the development of this sector so that the economic problems of rural population can be solved to some extent.

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