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Determinants of Revealed Comparative Advantage and China Pakistan Economic Corridor

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ABSTRACT
In the study we have find determinants of RCA and its impact on CPEC. The objective of the study is to find determinants of Revealed Comparative Advantage. With the help of these determinants we can improve the sectors of Pakistan from which Pakistan can gain more from the project of CPEC. It can maximize our gains of trade with China and other nearby countries. We have calculated RCA for Pakistan and China by using the commodity wise data of Pakistan and China and total merchandise trade of these countries and World as a whole. We have made framework of export demand function. In which dependent variable is RCA and independent variables include Inflation, FDI, World GDP, GDP, Trade openness and Exchange rate for each sector. The data is collected for the years 1984 to 2015 for sectoral exports. The data is divided into two samples. One sample is from the year 1984 to 2015. The sectors covered in the sample period include Agriculture, Fuel and mining, Food, Manufacturing and Office and telecom. Second sample is from the years 1990 to 2015. The sectors covered in the sample period include Agriculture, Automotives, Chemicals, Clothing, Fuel and Mining, Food, Iron and Steel, manufacturing, machinery, Office and Telecom and textile. The results of this study indicate that Pakistan can get a lot of advantages from CPEC and ONE ROAD ONE BELT policy of China by specializing in food, agriculture, clothing, textile and fuel and mining because Pakistan has comparative advantage in the exports of these products over China. The results of regression analysis indicate that Pakistan may boost up its advantages from CPEC by introducing investment friendly policies especially for foreign investors. Effective management of exchange rate may also be helpful for Pakistan in improving balance of payments and earn foreign exchange earnings. The findings also suggest that policy of trade liberalization or trade openness may be helpful in improving trade balance if Pakistan can effectively manage specialization in the sectors in which the country has revealed comparative advantage.

INTRODUCTION

CPEC stands for China Pakistan economic corridor. It throws light on the social and economic relations of both nations. Pakistan is a country of south Asia and china from East Asia. Both are good friends and the project of China Pakistan Economic corridor makes their friendship most unique. China was regarded as a sleeping giant in earlier decades but now it is plying a core role not only in Asian region but also in whole world. CPEC is a development scheme .It is important to promote connectivity across Pakistan with a network of highways, roads and pipelines. CPEC will facilitate trade along an overland route that connects China to the Indian Ocean, linking the Chinese city of kasghar to the Pakistan's port of Gawader.

One belt one Road was brilliant program of China and CPEC is a crucial part of the programme. CPEC development programmer is a part of Chinese agenda of regional economic connectivity THE ONE BELT ONE ROAD (OBOR).The silk road economic belt and 21st century Maritime silk road also known as THE BELT THE ROAD (abbreviated B,R) ,One belt One road (abbreviated OBOR) is a development strategy proposed by Chinese leader Xi Jinping that focuses

on connectivity and cooperation among countries. Economic corridor is a combination of network of infrastructure within a geographical area especially designed to enhance economic development and growth. Corridor exists in Asia, Africa and other areas. CPEC provides a new model of cooperation of china and Pakistan. Bilateral trade and commercial linkages between Pakistan and China were established in January 1963. Chinese say that the journey of thousands miles begin with a single step. First step was taken by Pakistan, which is to accept China as an independence state. An agreement was signed by Pakistan and China for good neighbourly relations. Pakistan and China has come close to each other after a long journey of smooth relations. On May 21, 1955 Pakistan and China has established formal relations. This opened a new chapter of history's bilateral friendly cooperation. China has always supported Pakistan in the task of development and anti-terrorism security. China has also supported Pakistan for safeguarding its independence. Once Prime Minister of Pakistan Nawaz Sharif said that Pakistan and China are best friends and their relations higher than Himalaya Mountains, deeper than oceans, sweeter than honey and stronger than steel. Pakistan and China share the common geographical border and Korakoram highway that connect highway Kasghar to Islamabad. Korakorum Highway is known as Pak-China friendship highway completed in 1979. Pakistan border is with Iran, China, Afghanistan, India and Arabia Sea. Pakistan enjoys a unique landscape situated at cross road of Asia. Gwader is located on the shores of Arabian Sea in Pakistan 'province of Balochistan. It is about 533 kilometer
And 120 kilometer from Iranian border. The town of Gwader was purchased by government of Pakistan from sultan of Muscat in 1958. Air operation was started in 1966. The terminal building was inaugurated in 1984.Gwader can act as an alternative route to Indian Ocean or South China Sea routes. It is the third international port in Pakistan after Karachi and Qasim port. Gwadar port connect Central Asia, Sout Asia and Middle East. Gwadar provides opportunities of tax free investment and trade which encourage foreigners to open new development project and economic plans. In the oil and energy sector gwader will boost up cooperation of Pakistan with countries. On 7th, September 1958 Pakistan purchased it from Sultanat of Oman and Muscat for USD $3 million. It became the part of Pakistan on December 1958, after 174 year of Oman rule. Gwadar is a warm water sea port. India is unhappy with the development of Pakistan. It would do everything for the failure of China Pakistan economic corridor. India is trying to develop Chabahar port with the help of Iran to compete Pakistan. Former launch of China Pakistan Economic corridor has done in April, 2015 by the president of Xi jinping. Once the CPEC is completed it serves as central between China, Africa and Middle East. It also includes the mega project infrastructure from Gwadar to khunjrab which connects China, India, Iran and Afghanistan to Karachi and Lahore motorway and 2700 kilometer highway from kasghar to Gwadar. This network will promote economic integration. The essence of an old Chinese proverb is that, one must first construct road to become rich. This message of this line is quite clear. The purpose of China Pakistan Economic Corridor is not only to develop the infrastructure of Pakistan it includes the integral physical infrastructure for the development of the whole region. With the success of CPEC Pakistan will prove a hub of all economic activities.
It is a rapid expansion of and it is upgrade of infrastructure of Pakistan. It's a part of China's 13th five year plan. The investment of China Pakistan Economic Corridor is provided by the Exim bank of China, China development bank, industrial and commercial bank of China. An 1100 kilometer long motorway will be constructed between Karachi and Lahore. It is also an extention of CPEC project. It is also estimated that Pakistan's railway would be extended to connect china xinjing railway in kasgher. A network of gas pipeline between Nawabshah and Gwader to eventually transport gas from Iran including $2.5 billion. To overcome energy crises of Pakistan, in May

2013, when Chinese premier Li-keqiang emphasized the construction of the CPEC during his visit in Pakistan. He signed the agreement at that time. Eight agreements were signed by the Prime Minister of Pakistan having the cost of $18 billion. For the planning of China Pakistan Economic Corridor president of Pakistan Mamnoon Hussain visited china in February 2014. Prime minister of Pakistan Nawaz sharif visited China same year and signed 18 different agreement of the corridors. Its cost is about $ 46 billion is much more than the billion FDI which Pakistan has received from years and from the aid which Pakistan has received from U-S 9-11. The construction period of CPEC is from 2014 to 2030. The short term project will be completed by 2017, mid term completed by 2025 and long term completed by 2030. CPEC is now moving into the implementation phase On May 2016, there was an open ceremony held in the city of sukkar and Pakistan's Sindh province because construction between the highway of sukkar and Multan. It's a major component of CPEC's plan for infrastructure. As soon as the corridor is complete, it would be connected to Africa, Middle East and Europe. Corridor will provide opportunities to all countries either to invest in Pakistan or any other country of the world. In the deep sea port of Gwadar for developing special economic zone Pakistan signed lease with China and rented 23 years acers of land. CPEC will provide massive opportunities to both countries. The CPEC will open door of opportunities not only for Pakistan but also connect China to its market of China. A huge benefit of the Corridor to China is the reduction of distance between Malacca to shanghai. it will reduce from 16000 to 5000 kilometer. For China this corriodor will provide an alternative route to import energy. This project will provide many external and internal challenges for Pakitan's Government to multi dollars project. Through this project Pakistan will modernize. It will improve trade and economy, enhance connectivity, overcome energy crises and develop infra structure. Pakistan is now try into improve and make good ralations with other countries. In 1951, Pakistan and China became good friends. Pakistan and china has a glorious history of journey.

It is estimated that this project will provide job opportunities about 700000 direct jobs during the period of 2015 to 2030. CPEC has a special focus on meeting high energy demand in China and Pakistan. More than 21000 MW has been expected to produce in Pakistan. From $ 46 billion, $ 12 billion would estimated to spent on infrastructure and $ 34 billion would estimated to spent on producing electricity. CPEC is an ongoing mega project. It will run about 27000 kilometer from Gwadar to Kasghar. The investment of $46 billion for the entire project is the huge investment of China.

The corridor will prove a game changer for Pakistan and make Pakistan a richer and develop country. This project will prove a huge one benefit for other investor. It will provide infrastructure for Pakistan .It will prove a back bone to Pakistan economy. With the support of China in the China Pakistan Economic Corridor project significance of Pakistan has been improved in the whole world. China has steadily appeared as Pakistan largest trading partner equally in terms of trade. Its aim is to create linkage and communication between Pakistan and china by develop trade corridors that would facilitate economic activity along the corridors. After the open ceremony of CPEC, construction start on a part of highway between Sukkar and Multan. This network is a major component of CPEC's plan for infrastructure expansion, which highlights the development of two countries. In the addition on November 13, 2016 the first large shipment of Chinese goods traded through the port of Gwader, a flagship CPEC project in Pakistan's South Westren province of Balochistan. Chinese hope that through economic development it will increase the economic stability in Pakistan. It is not only the infrastructure but also construction of gas pipeline. Pakistan serves as an important bridge between China, Central Asia, south Asia and Middle East. Stability

in Pakistan will improve the relations of China with other countries. It also provides China security and stability. This is why China is going to invest a huge amount on the infrastructure of Pakistan. China also realizes that no other country had such strong strategic relations with it as Pakistan. With such an infrastructure Pakistan will surely move from lower level income nation to upper level middle nation. To achieve this goal it must be increase the Foreign Direct Investment (FDI). An element that identify or determine the nature of something or that fix or condition an outcome. For example education level as a determinant of income. It can also be define as factor or element that limits or define a decision or condition. Comparative Advantage can be defined as a concept in economics that a country should specialize in producing and exporting only those goods and services which it can produce more efficiently at lower opportunity cost than other goods and services (which it should import). Comparative advantage results from different endowments of the factors of production (capital, land, labour) entrepreneurial, skill, power, resources and technology etc. it therefore follows free trade is beneficial to all countries because each can gain if it specializes according to its comparative advantage. The theory of the comparative advantage states if country specialize in producing goods and services where they have a lower opportunity cost, then there will be increase in economic welfare. The law of comparative advantage was formally developed by British political Economists David Ricardo. His idea greatly influenced the development of economics as a science. He introduced this concept in his book, PRINCIPLE OF POLITICAL ECONOMY AND TAXATION in 1817 although it is likely that Ricardo's mentor James Mill originated the analysis. RCA is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods and services as evidenced by trade flows.

Regional infrastructure also help to increase standard of living and reduce poverty by connecting isolated places and people with major economic centers and markets and filling narrow development gap among regions. CPEC is critically important for both countries. Pakistan needs it to be overcome its economic development, social and energy problem with china needs it to be expands its periphery of influence and consolidation its global presence. According to development Economists infrastructure is considered necessary condition for industrialization. With the help of infrastructure markets developed and access of markets become easier. It also reduces poverty because people get a job and unemployment must decrease. Infrastructure means buildings and roads. Physical infrastructure may be of two kinds:

1. Economic infrastructure. 2. Social infrastructure. Economic infrastructure includes roads,
2. irrigation, telecommunication and electricity. Social infrastructure includes water supply, sewage system and hospital. Trade is known as the act or process of buying, selling or exchanging commodities at retail price between countries. International trade has played a vital role in the welfare and development of all countries. Due to the importance of trade it is very difficult to avoid international trade because it is fulfilling the growing needs of all nations. Theories of absolute and Comparative Advantage is considered beneficial and important because of its efficiency and welfare effects. International trade has flourished over the years of due to many benefits. It is also one of the most important source of revenue of developing countries. Trade among nations is not a new concept but there are several instances of international trade. A rise in international trade is necessary of growth of all countries and nations. Nations with strong international trade have become prosperous and develop. With the help of international trade it has become more powerful for world economy. It has contributed mostly in the reduction of poverty and unemployment. It can also reduce income inequalities within nations by increasing the income of unskilled labourer in labour abundant countries. Empirical evidences shows that distributions of trade gains among

nations almost uneven. This has given birth a sort of controversy among economists regarding the gains of trade. On the basis of above controversy kavoussi(1985) divide trade economists into two groups. First is in favor of free trade export promotion and outward looking trade policies and this group is known as optimists economists. Second is in favor of inward looking supports import substitution and protection policies and this one known as pessimists. In today's world trade optimization is dominant. Every nation wants to maximize its gain and rather than the other nation gains. China is a modern developing countries with good economic condition. China has superb relations with its neighbours like Pakistan. Pakistan is one the first countries of the world to recognize china, since then they have good relations with each other. Pakistan and China entered into a trade agreement in January, 1963 on trade and commerce. Trade between border regions of china and Pakistan started in 1969. Further trade protocols signed over the years. The construction of Korakaram Highway was helped to further trade and communication. Pakistan is an important for China. A lot of development projects are in process with the cooperation of China for the job opportunities both China and Pakistan. Pakistan has treated China as economic partner. In the last few years investment of more than US$1.3 billion was made by China in Pakistan. Chinese has invested in Pakistan in telecommunication, energy, infrastructure, mining and defense related industries. There is a high demand for Chinese good in Pakistan's market. Their xperience of growth in trade is positive. Bilateral trade has reached US $3.31 billion in 2009. The balance is in favor of China due to lesser exports of China. Balance of trade has increased US$ 1.38 billion in 2005_2006 to US$ 2.0 billion in 2008_2009. Important factor of trade deficit with China is growing exports of Chinese product to Pakistan. China has achieved considerable success in formulating a peaceful environment. In the 1990's during the Asian financial crises China has provided help to neighbor countries. During the unstable international conditions China and Pakistan 's friendship has remained strong and vibrant. China has become one of the top five import sources of Pakistan. Bilateral trade has reached around seven billion between 2008 and 2010 and is on the rise. Pakistan is 66th largest export economy in the world and the 110th most complex economy according to Economic complexity index. In 2015, Pakistan exported $ 26.2 billion and imported $ 45.5 billion resulting in negative balance of trade. Top exports of Pakistan are house lineecns ($2.99 billion), rice ($1.91 billion), non retail pure cotton yarn ($1.75 billion), non knit men' suits ($ 1.49 billion), heavy pure woven cotton ($1.01 billion) using the 1992 revision of HS (harmonized system) classification. Its top imports are refined petroleum ($5.46) billion, crude petroleum ($2.74 billion), palm oil ($1.58 billion), scarp iron ($945 million) and cars ($807 million). China is the largest export economy in the world and the 38th most complex economy according the economic complexity index. In 2005, China exported $ 2.37 trillion and imported $1.2 trillion resulting a positive balance of trade of $ 1.1 trillion. In 2015, GDP of China was $11 trillion and GDP per capita was $14.5 k. TOP exports of China are computer ($188b), broadcasting equipment ($165b), telephone ($112b), integrated circuit ($657b), and office machine parts ($45.5b), using the 1992 revision of HS (harmonized system) classification. Its imports are crude petroleum ($119b), integrated circuits ($95.2b), gold (65.8b), iron ore (42.9b) and cars (38.5b). Whenever a country has a comparative advantage in production it can take advantage of specialization. However specialization has a positive effect on an economy. The nations specialize in that areas in which resources are abundant and they can produce cheaply. Nations can gain benefit of increasing return to scale. They can also achieve economies of scale which means average cost of producing anything is minimum. Specialization also means nations are efficiently producing such goods and in this way nations are making better off themselves. Another benefit is that producers produce more and prices are lower for consumers and they can

easily access. The nations who are specialized means that they have achieved fully skilled about producing these goods and services. It also saves time and allow rapid work. When a country can produce more of a good with a same resources that another country can, it is said to have an absolute advantage in the production of that good. It is the second country has an absolute advantage producing a good that the first country wants both will be better off if they specialize and trade. We individuals are not self sufficient because we have not same natural resources, land, infrastructure, technology and investment. Each and every nation has different scenario. For the fulfillment of our needs and wants we have to exchange goods and services which process is known as trade. We want to import the country who offers us at cheaper rate. The importing countries then compete with each other and without specialization their quality of good deteriorates. And if it happens then demand for such goods in international market falls that' s why specialization is most important for all nations.

Every country tries to make its maximum through trade. In 1817, a political economists David ricardo in his book of principle of political economy and taxation proposed a theory of comparative advantage. This theory can also be named as comparative cost theory and classical theory of international trade. According to this theory the country has abundant resources it can fully utilized and efficiently produce the commodities at a very low cost and after meeting the domestic demand the surplus of that commodity import for the commodities in which this country cannot fully utilize their resources and inefficient in producing that commodity. It can also be stated that others things remaining the same a country can surely produce those commodities in which it have more comparative advantage and less comparative disadvantage. Ricardo explained his theory with help of the assumption. These are as under:

1. There are two countries and two commodities.
2. There is a perfect competition in factor market and commodities as well.
3. Labour is the only factor of production rather than natural resources.
4. Labours are identical in efficiency.
5. Full employment exist in both countries.
6. Transportation cost is zero.
7. Technology remains the same.
8. There is a constant returns to scale rather than increasing to scale.
9. Trade based on barter system.
10. There are no restrictions on trade and It indicates free trade.
11. Cost of production is measured in terms of labours per hour which is used to produce it.

According to this theory a country can maximize its per capita income by fully utilizing the resources of its country. In earlier, firms used to perform domestically and use all its resources in producing those commodities in which it have absolute advantage but with globalization same firms has crossed its domestic bounderies. Now these firms had make their place in international markets and introduced themselves as super markets. This is known as relative comparative advantage. It is an index which is used in calculating the relative advantage in certain commodity class of goods and services. The objective of the study to measure RCA of Pakistan with respect to China for different sectors commodity wise with the sample period of 1985 to 2015. RCA is equal to the country's export that are of the sector under considerations (Eij/Eit) divided by the proportion of world's exports (Enj/Ent). A Comparative Advantage is revealed if RCA>1 and if RCA<1 it means that country has comparative disadvantage in the commodity for which you measure revealed comparative advantage. The concept of RCA is same as economic base theory but it uses employment rather than exports. In this study we use time series data of exports and

imports of Pakistan, china and world commodity wise and total trade from the website of world trade organization. For export sample period is 1984 to 2015 and for import from 1985 to 1990.
The study shows revealed comparative advantage in the sectors of Pakistan, India and Bangladesh. This study uses Balassa's index for this analysis. The results show that Pakistan has highest revealed comparative advantage in textile over India and Bangladesh. India has revealed comparative disadvantage in textile relative to Pakistan and Bangladesh. For clothing Bangladesh has a dominant revealed comparative advantage as compared to Pakistan and India. Bangladesh has gaining a dominant revealed comparative advantage since 1980. India has very low comparative advantage in both textile and another study explains that Turkey has a comparative advantage in tomato, olive oil and fruit industries and how it fluctuate from 1995 to 2005 in the UE market. Import demand is estimation is estimated for rival countries. Using regression analysis if turkey has a competition for those countries then demand has a significantly effect on price. It has a strong comparative advantage in it. In this study our objective is to estimate the gains from trade in content of two countries. Named as china and Pakistan and also want to see the Revealed Comparative Advantage of these two countries in different sectors. The sectors in which Pakistan has more Comparative Advantage it can maximize their gain by improving these sectors. And China Pakistan economic corridor which is the most burning issue now_ a_ days from this project Pakistan can maximize its gain of trade because this project of development is providing more than enough opportunities for Pakistan of employment and also reduces the distances of Pakistan with other South Asian countries. In this study I have collected data on these variables named as revealed comparative advantage of imports in the sectors of agriculture, food, manufacturers, office and telecom equipment, textiles and clothing for the time period of 1985 to 2014 for China and Pakistan. Similarly for the exports I have calculate RCA for the sectors of agriculture, fuel and mining, food, manufacturing and office and telecom equipment for both China and Pakistan for the time period of 1984 to 2015. for another sectors of Pakistan and china RCA during the time period of 1990 to 2015 sectors include agriculture, food, fuel and mining, manufacture, iron and steel, chemicals, machinery and telecom equipment, automotive products, textile and clothing. In RCA of Imports Pakistan has revealed comparative advantage in the sectors of agriculture, automotives, chemicals, food, fuel and after 2004 Pakistan has high revealed comparative advantage in iron and steel. China has dominant revealed comparative advantage in office and telecom equipment, manufacturer, clothing and machinery and telecom equipment. In case of exports Pakistan has revealed comparative advantage in sectors of agriculture, clothing, food and textile. On the other hand China has high RCA as compared to Pakistan in the sectors of automotive products, chemical, iron and steel, office and telecom equipment and manufacturing. For Pakistan I have take the some factors as independent variable such as GDP growth, GDP at market prices (at constant 2010 Us$), GDP per capita (at constant 2011 US$), GDP per capita at growth (annual %), inflation at consumer prices (annual %), inflation deflator (annual %), trade % of GDP, foreign direct investment (net balance of payment current US $), foreign direct investment net inflows (% of GDP), real effective rate (2010=100), real interest rate (%) and official exchange rate.
The study by Imran et al. (2021) examines global regulatory perspectives on artificial intelligence in autonomous vehicles, stressing challenges in harmonizing standards, ensuring safety, and addressing ethical concerns. It highlights that coherent frameworks not only enhance safety and public health but also indirectly support remittances by improving migrant workers' mobility and transport reliability.

THEORETICAL FRAMEWORK, ECONOMETRIC METHODOLOGY AND DATA SOURCES

During the seventeenth and eighteenth century there was a famous concept at that time which was known as mercantilism. It can be used for severe restrictions and to increase exports. As a result the surplus of export supposed to enrich nation by the inflows of precious metals. Adam smith (1776) who is known as father of Economics presented his theory of absolute advantage by rejected the concept of mercantilism. He argued that at the same time all nations cannot be rich according to the mercantilism's view that one country's exports are another county's imports. All nations can be rich at a same if they specialized in which they have absolute advantage and they also practiced free trade (Yu, Cai, & Leung, 2009).

Absolute advantage

	US	UK
Wheat/bushel	6	1
Cloth/yards	4	5

The above table shows the concept of Smith's Absolute Advantage quantities of wheat and cloth produced of an hour work in two countries United States and United Kingdom. United states has an absolute in wheat and UK has in cloth. Determination of Smith's Absolute Advantage by a simple comparison of both countries. The theory of Smith explains that US will only produce wheat and UK will produce cloth. Both nations gain only if they have restricted trade in wheat and trade. If they trade 6wheat for 6 clothes then the gain of United States is ½ hour of work, which is required to produce 2 extra cloth that is getting through trade with UK. The UK stops wheat production, but the 6w it get from US will have 6 hours of labour time. After exchanging 6 wheat out of 30 Uk has 24 wheat which is equal to the 5 hours of labour time. Nations can produce more and can gain maximum benefit from international trade. Although absolute advantage is determined by the simple cmparison of laour productivity but it is possible for a nation that it does' not have absolute advantage. In above table if the labour productivity in cloth in US becomes 8 instead of 4 then US have an absolute advantage in both and UK has absolute disadvantage rather than absolute advantage. However Adam Smith has a concern with the role of foreign trade in development of any economy and his model was essentially a dynamic one. Another classical Economists known as David Ricardo (1817) presented the theory of comparative advantage. Ricardo focused on labour productivity or (resourse productivity more generally) for different products in a country. According to his theory a country should export the commodity that it can produce at a very cost opportunity low in terms of other good that could be produced within a country. A country will import only those products it would produce at a very high opportunity cost Assumptions of the theory are the following:

1. There are two countries and two commodities.
2. There exists perfect competition in all markets of a country.
3. One factor input is used in production in each industry. This factor input is assumed to be homogeneous in quality and fixed in quantity and always fully employed.
4. Factor is freely mobile between industries and immobile between countries.
5. Factor used for input has a constant cost in industry.
6. There exists no transport cost, quota and tariff. (Levich)

Ricardo have explained by the help of table of one US labour in wheat production is 1.5=(6/4) as productive in cloth production. On the other hand UK's labour productivity in wheat is only one

fifth of cloth. US has comparative advantage in wheat and by inversing the ratio UK has a comparative advantage in cloth. If we raise US labour productivity in cloth from 4 to 8 then ¾ still be greater than 1/5. The ratio comes from Ricardo's theory of value. Ricardo treated labour as the only source of value because capital as a factor of production also produced by labour. Thus the price of a good is simply p equals to the wage rate times the labor used in production divided by Q as profit is zero in comparative markets. If the labours are competitive than wage rate would be equal in all industries. Therefore the ratio between the price of wheat and price of cloths would be equal to average productivity of labour aw:[pw/pc] =[ac/aw]. In a competitive economy a positive link between relative prices and relative commodity prices. If US has a comparative advantage in wheat than it will be relatively cheaper in US rather than in UK. Theory of comparative advantage has some criticismon its assumptions. The assumptions of the theory ars unrealistic because it ignore the facts that all nations have different way of producing and there are many nations producing many goods. In reality there exists no perfect competition because some markets has market power. Countries used different technology rather than same. Comparative advantages changes as trade in goods and capital changes and changes in factor endowment. Ricardo's theory of comparative advantage carries an important massage. He is first one economist who introduced the concept of trade and specialization which is the base of modern trade theory (Yu et al., 2009).

The idea to determine a country's strong sector was presented by Liesner 1959. Since the produced was refined and famous by BELA BALASSA (1965, 1989) which is known as BALASSA INDEX. Alternatively as the actual export flow reveals, the country's export sector it is also defined as revealed comparative advantage. This is normalized as exports share (Bela Balassa, 1965; B. Balassa, . (1965), ; Hinloopen & Van Marrewijk, 2001, 2008).

- Revealed comparative advantage is an index used in International Economics for calculating relative advantage or disadvantage of a certain country in a certain class of goods and services. It is based on Ricardian comparative advantage concept. It is most commonly refers to an index introduced by BELA BALASSA. In 2010, soybeans represented 0.35% of world with export of 42 billion. Of this total Brazil exported $11 billion and since Brazil's total export was 140 billion of the year. The share of soybeans was 7.8 % of total from Brazil. Because 7.8/0.35 =22 %. The actual share of export of Brazil is 22 %. So we can say by this example that Brazil has a high revealed comparative advantage in export of soybeans. (B. Balassa, . (1965), ; Utkulu & Seymen, 2004)

In few areas of economics as the behavior of foreign trade flows over the last thirty five year are investigated empirically. There is no difficult task to find reason of abnormal degree. First the data base is rich one which means that statistics on export and import extended over long period of time. Second the underlying theoretical framework for the determination of trade volume and prices from consumer demand and prices are well-known with consumer demand and production theory and can do relatively with few explanatory variable (Nathan Nunn, 2014).

Modeling international trade flows on several things:

1. Traded goods.
2. Use of traded good.
3. Purpose of modeling.
4. Trade policy of different countries.

Before develop a trade model a researcher should keep in mind few things.

1. Either traded goods are homogeneous primary products or it may be differentiated final products.

2. Either the model is going to test for forecasting or hypothesis testing.
3. Either the goods are traded for consumption or input use.
4. How much liberalized trading economies.

Here we defined two models of trade.

1. Perfect substitute of model.
2. Imperfect substitute of model.

We criticize the perfect substitute of model in literature because if both goods are perfect substitute and produced under constant or decreasing returns to scale then it should captures the whole foreign or domestic market. Thus a country can be exporter or importer but not both. The empirical literature shows that traded goods are not perfect substitute of domestic goods. Because both coexist in same market. The increasing trade among the nations and existence of intra industry trade also put a question mark on the validity of hypothesis of perfect substitutes (Chani & Chaudhary, 2012). Basic export demand model is expressed as:

$$RCAA_t = \beta_1 + \beta_2 INF_t + \beta_3 ER_t + \beta_4 IR_t + \beta_5 TRADE_t + \beta_6 WGDP_t + \beta_7 GDP_t + \beta_8 FDI_t + \mu_t, \quad t = 1984,1985,1986,..,2015$$ where

RCAA is the dependent variable and it is denoted as the RCA of agriculture sector of china. INF is denoted as inflation deflator, ER is of official exchange rate, IR is of real exchange rate, TRADE as measured as a percentage of GDP, WGDP denoted as world Gross Domestic Product. GDP measured as current US dollar and FDI is Foreign Direct investment net inflows (BOP current USD $) and μ is the error term for the time period of 1984 to 2015

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Estimation and Interpretation:

Table 01
Dependent Variable: RCACN_AGRI
Method: Least Squares
Date: 04/22/17 Time: 21:01
Sample: 1984 2015
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF_DEFLATOR	0.013320	0.012387	1.075309	0.2929
OER	-0.077182	0.018134	-4.256184	0.0003
RIR	0.008376	0.016871	0.496467	0.6241
TRADE_GDP	-0.004778	0.004194	-1.139132	0.2659
WGDP/1000000000	-1.85E-05	1.63E-05	-1.135312	0.2675
GDP_CUTUSD/1000000000	9.08E-06	7.23E-05	0.125659	0.9010
FDI_INFUSD/1000000000	-0.000654	0.000792	-0.825216	0.4174
C	2.393555	0.428989	5.579529	0.0000
R-squared	0.974078	Mean dependent var		0.831763

Adjusted R-squared	0.966517	S.D. dependent var	0.454195
F-statistic	128.8353	Durbin-Watson stat	1.267259
Prob(F-statistic)	0.000000		

From this table we have analyzed that here revealed comparative advantage of agriculture sector is a dependent variable and independent variables include inflation, exchange rate, interest rate, trade, world GDP, GDP and FDI. There is a positive relationship between inflation deflator and RCA agriculture indicate that any increase in the inflation deflator cause an increase in RCA agriculture. Probability value of inflation deflator is greater than alpha which is 10 % which indicate that it is insignificant. Exchange rate has a negative relationship with RCA of agriculture and it is significant because P. value is less than level of significance. Interest rate has a positive relationship but it is insignificant. Trade has a negative relationship and it is also insignificant. There is a negative relationship between RCA of agriculture and World GDP and here it is also insignificant. There is a positive relationship between GDP and RCA of agriculture and it is insignificant also. Finally, FDI has a negative relationship and it is insignificant as well. R square explains the explanatory power of the model which is (97 %) and remaining 3 % is explained by the other variable which we not include in the model. The reported F-stat (128.8353) and its corresponding p. value is (0.000000) indicate that our overall regression model is significant at 5 % level of significance. As P. value is less than 5 % so we will reject the null hypothesis of insignificant. (CHINA…exports)

Graphical Analysis of RCA

Exports

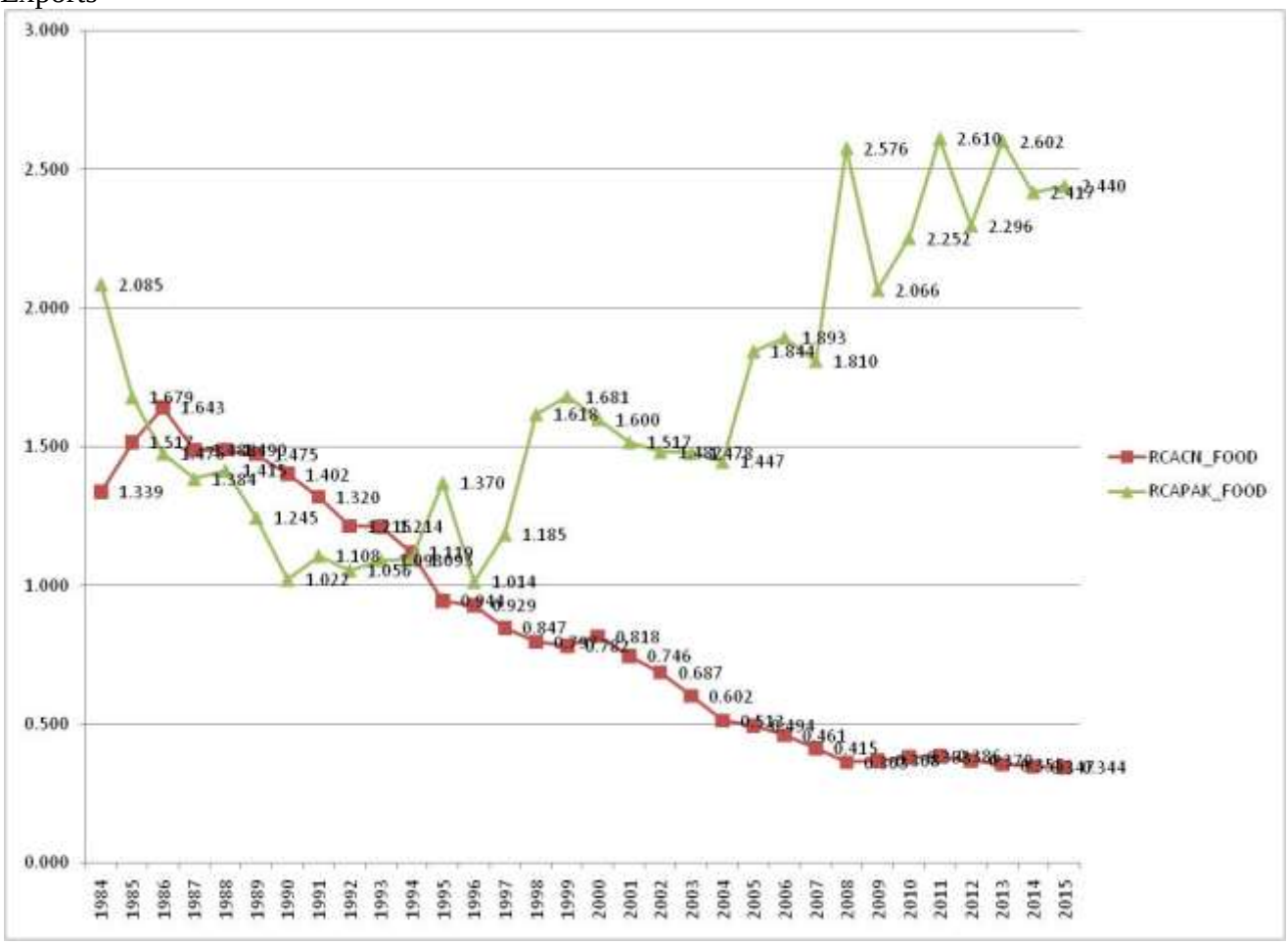
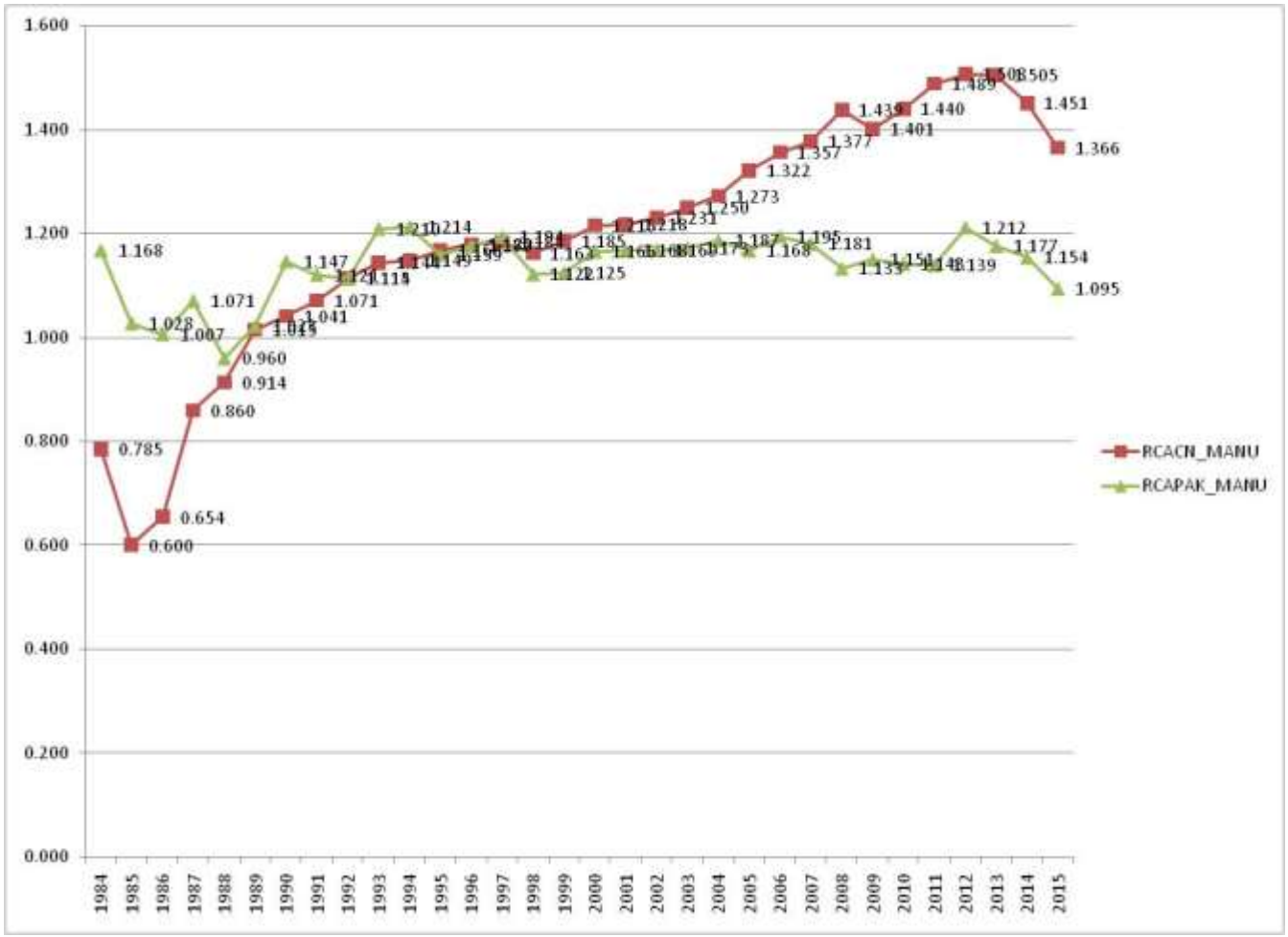


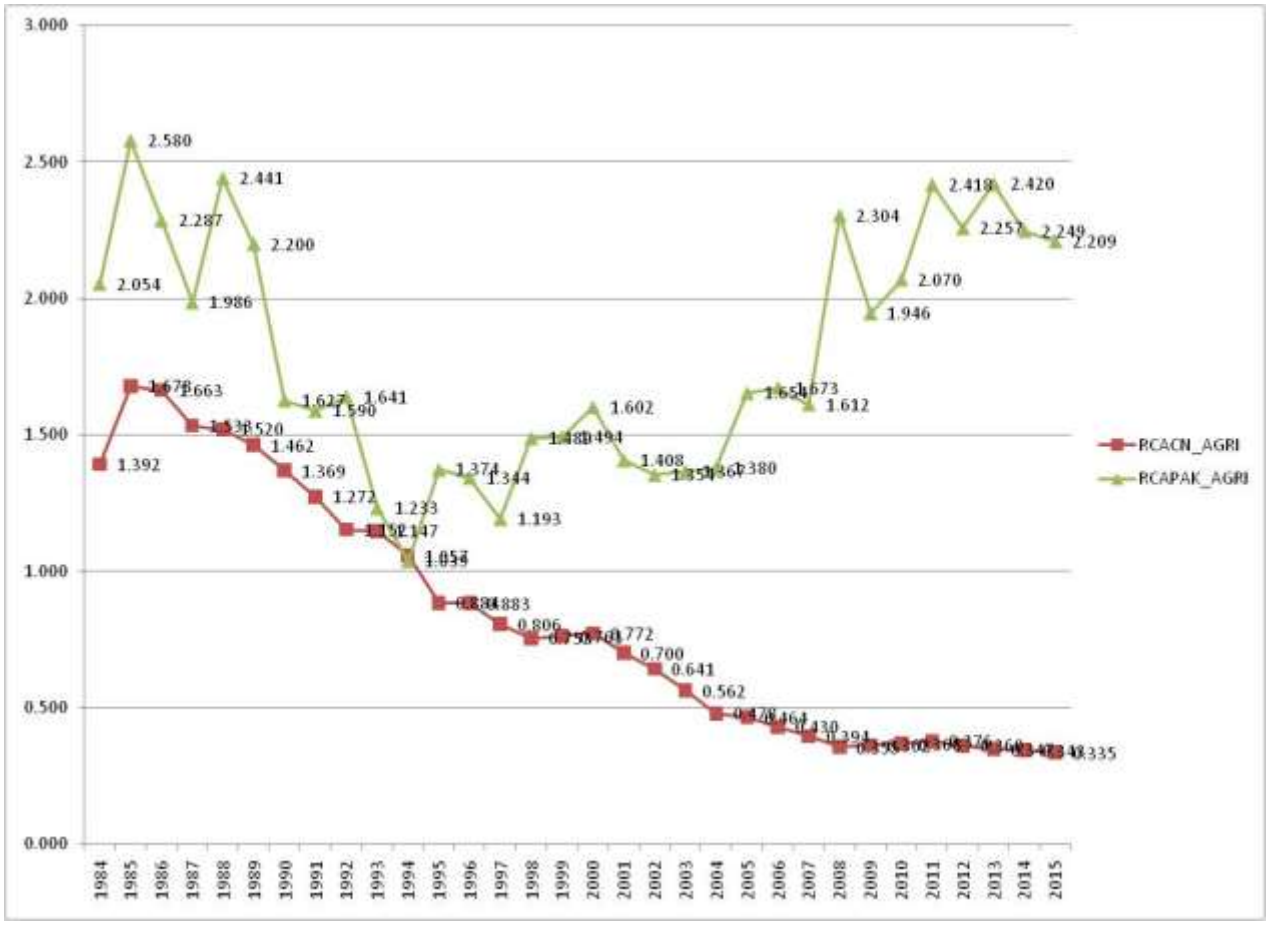
Figure 5.1: Comparison of RCA of Food for China and Pakistan

This graph represents that starting point of our sample i.e. 1984 Pakistan had revealed comparative advantage over China in food sector. The value of RCA for food industry of Pakistan was 2.085 as compared to that of China which was 1.339. After 1986 this situation was reserve and China got advantage over Pakistan in fod sector. This advantage of China continued in 1995. In this ers of free trade and emergance of WTO Pakistan regained advantage over China in Food Industry and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.

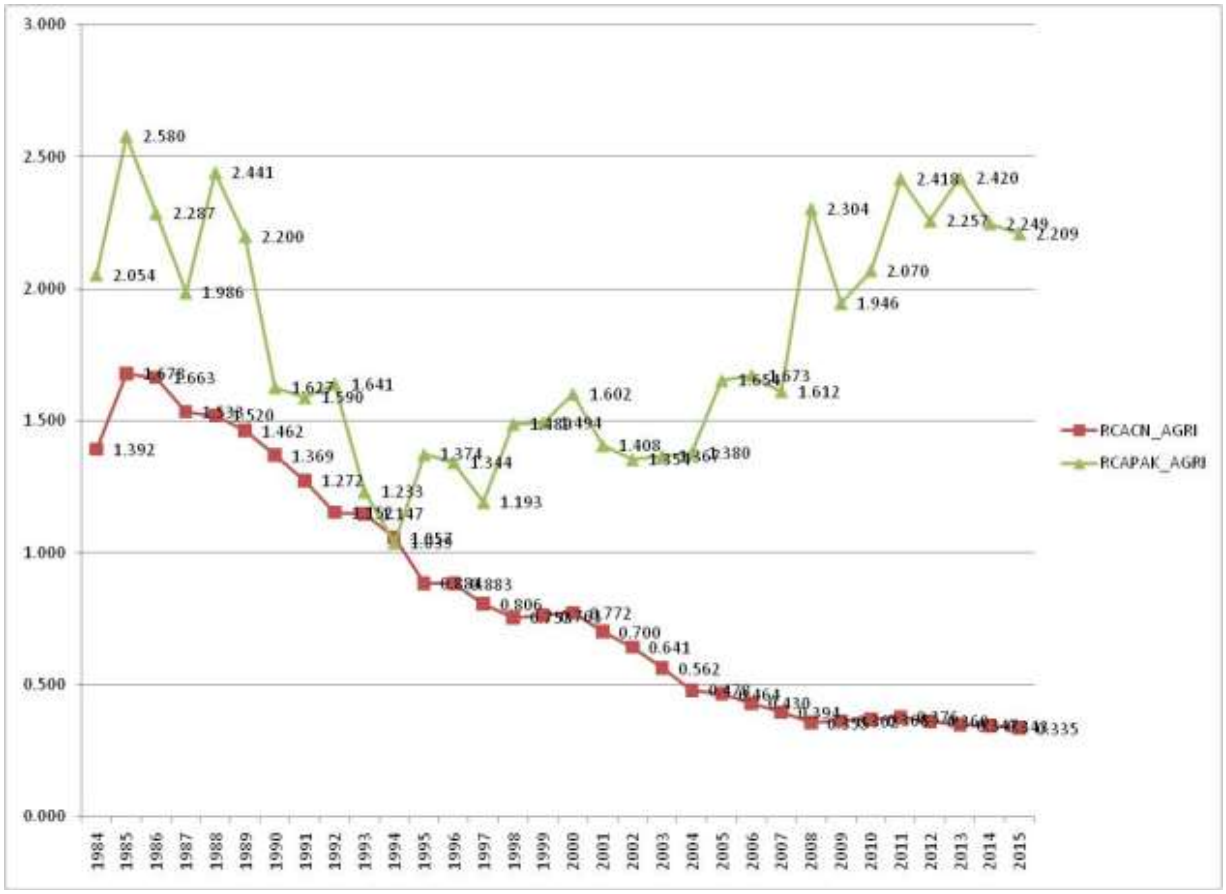


Comparison of RCA of Manufecturing for Pakistan and China

This graph represents that at starting point of our sample i.e. 1984 Pakistan had revealed comparative advantage over China in manufecturers sector. The value of RCA for manufecturers sector of Pakistan was 1.168 as compared to that of China which was 0.785. Graph shows the trend that as earlier Pakistan had comparative advantage over China but after that the situation reverse and China got advantage over Pakistan.

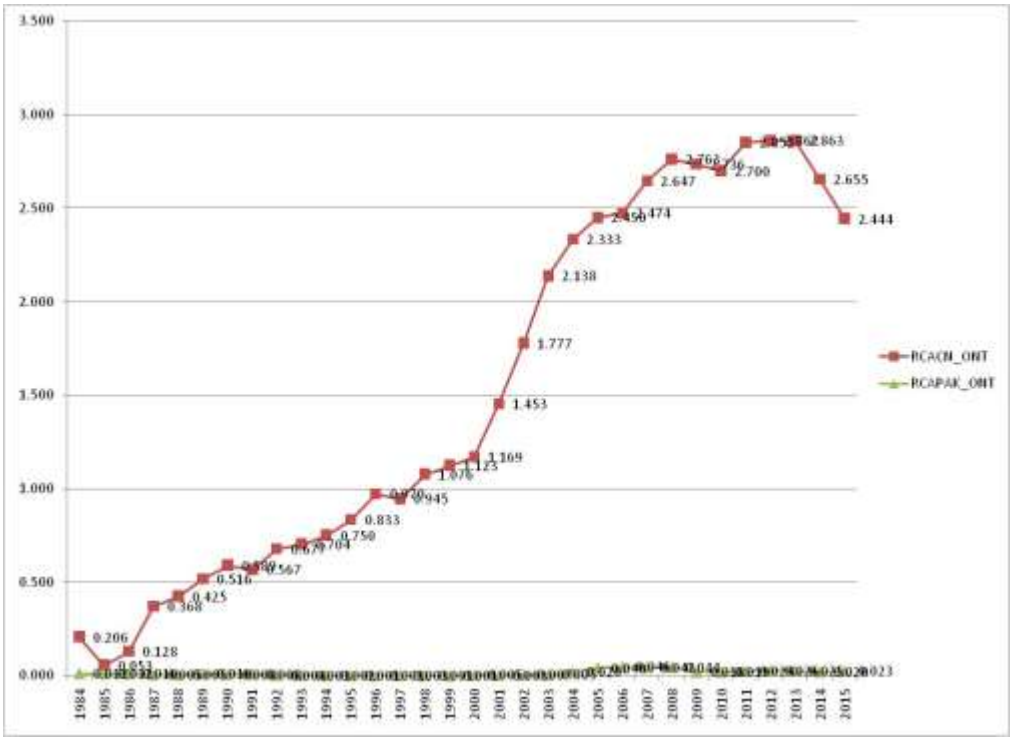


Comparison of RCA of Agriculture for Pakistan and China



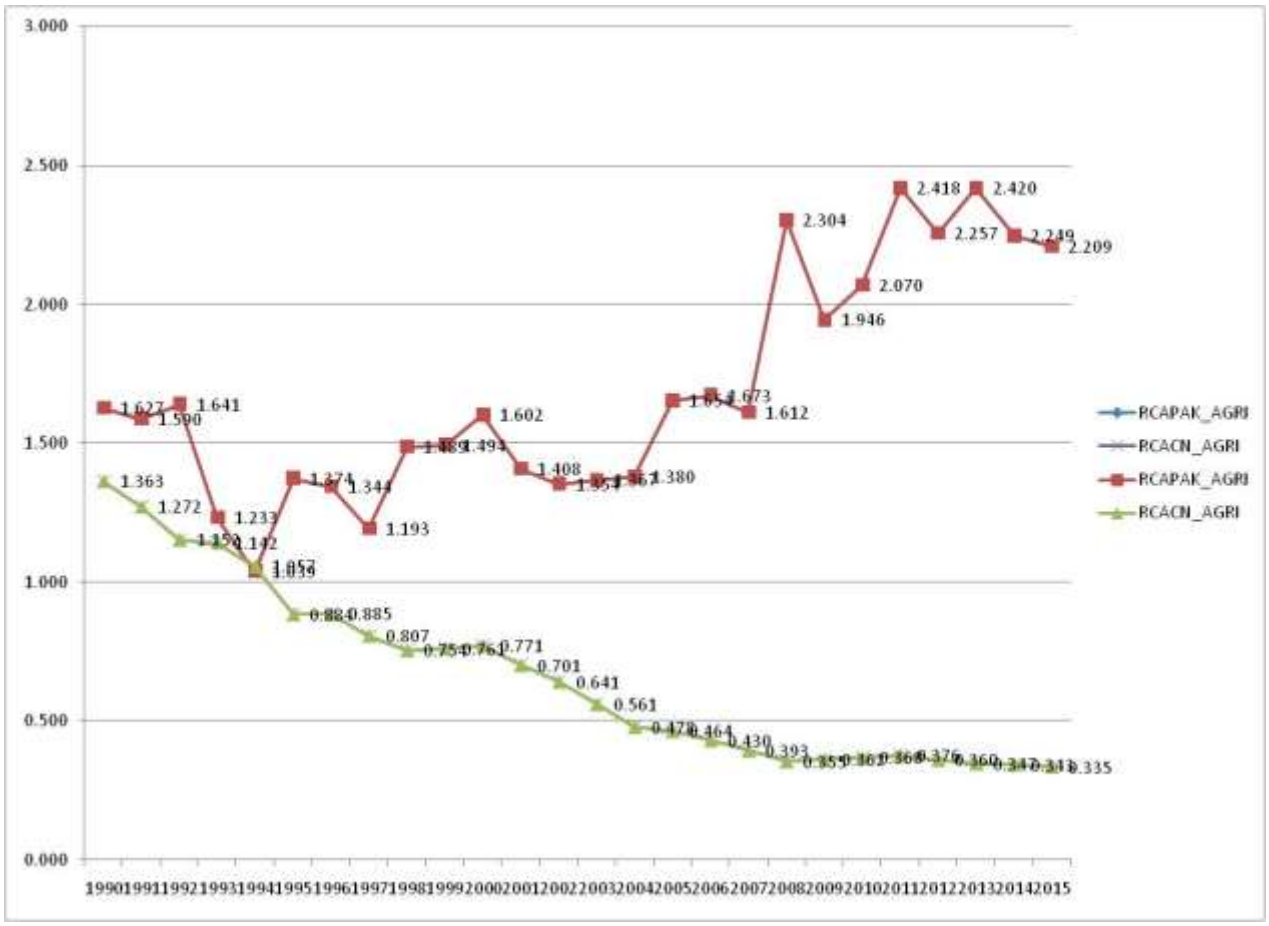
Comparison of RCA agriculture for China and Pakistan

This graph represents that starting point of our sample i.e. 1984 Pakistan had revealed comparative advantage over China in agriculture sector. The value of RCA for agriculture industry of Pakistan was 2.054 as compared to that of China which was 1.392. After 1994 this situation was changed and China and Pakistan got same advantage in this sector. In this era of free trade and emergance of WTO Pakistan regained advantage over China in agriculture Industry and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.



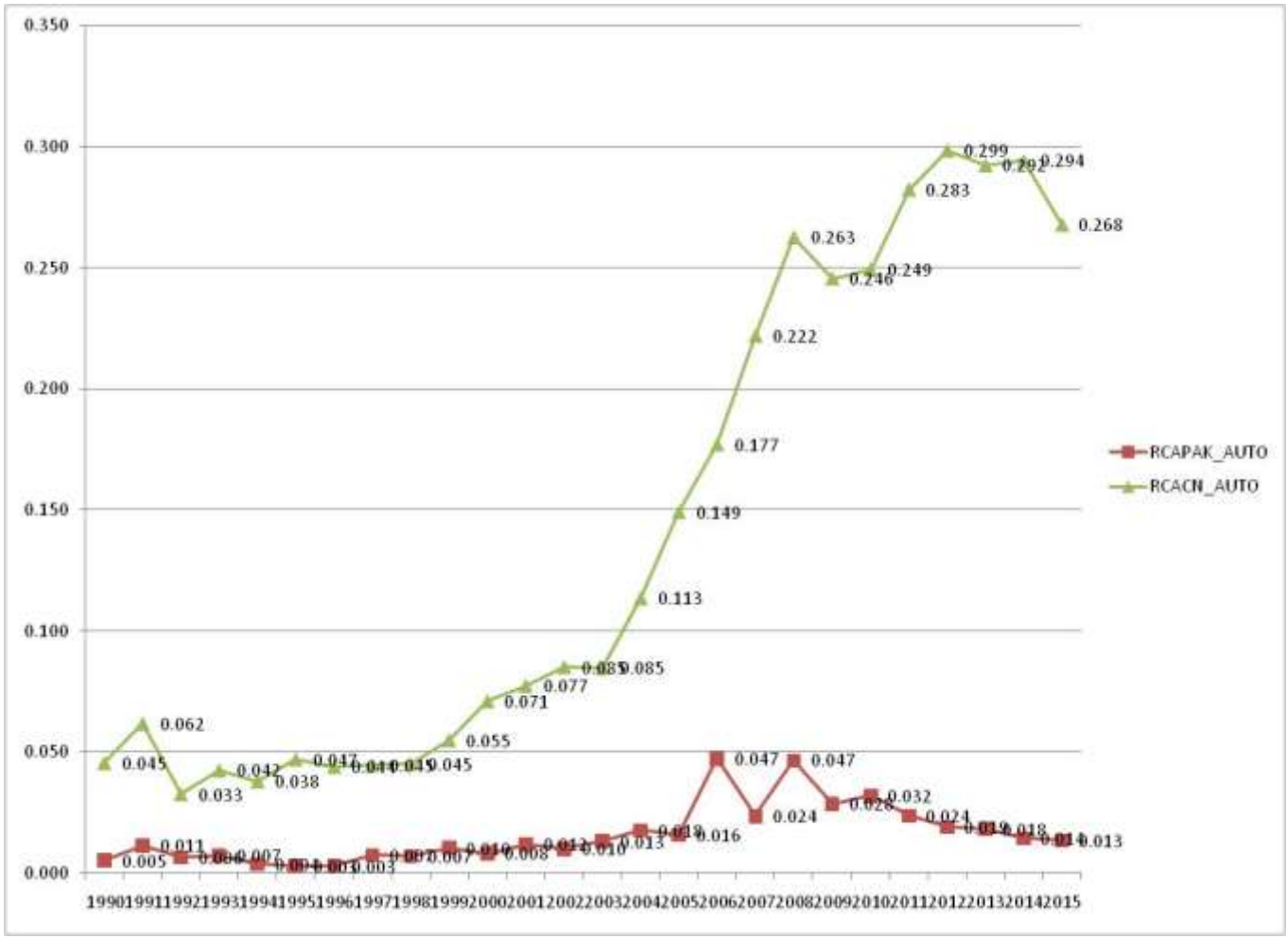
Comparison of RCA of Office and Telecom of Pakistan and China

This graph represents that starting point of our sample i.e. 1984 Pakistan had revealed comparative advantage over China in Office and Telecom sector. The value of RCA for Office and Telecom of Pakistan was 0.032 as compared to that of China which was 0.026. In 1985 the value of this sector of China becme approximately equal to that of China. From 1996 China got advantage in this sector which is increasing one. For Pakistan the value had the same trend as before.



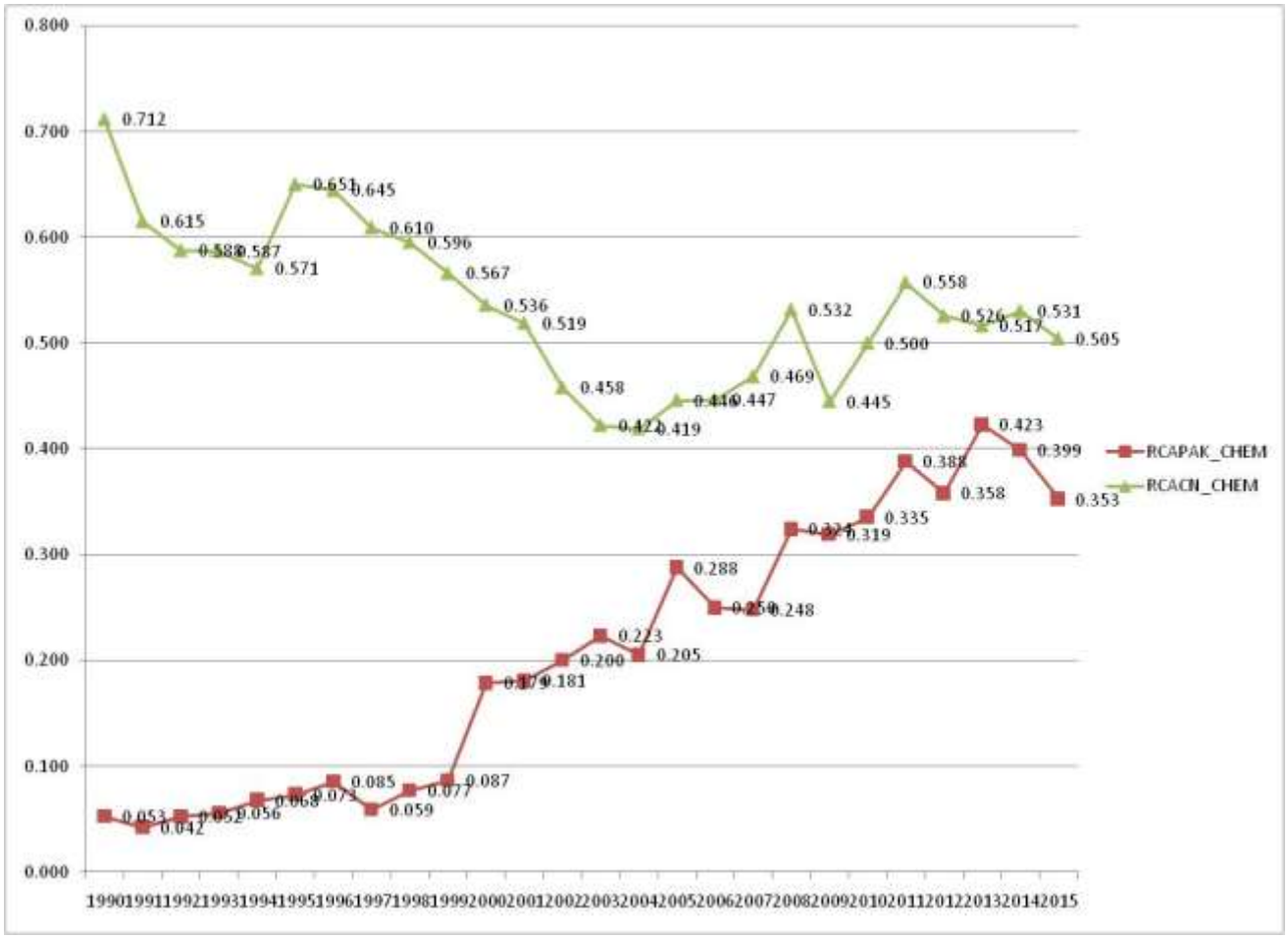
Comparison of RCA of agriculture of Pakitan and China

This graph represents that starting point of our sample i.e. 1990 Pakistan had revealed comparative advantage over China in agriculture sector. The value of RCA for food industry of Pakistan was 2.085 as compared to that of China which was 1.339. After 1986 this situation was reserve and China got advantage over Pakistan in fod sector. This advantage of China continued in 1995. In this ers of free trade and emergance of WTO Pakistan regained advantage over China in Food Industry and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.



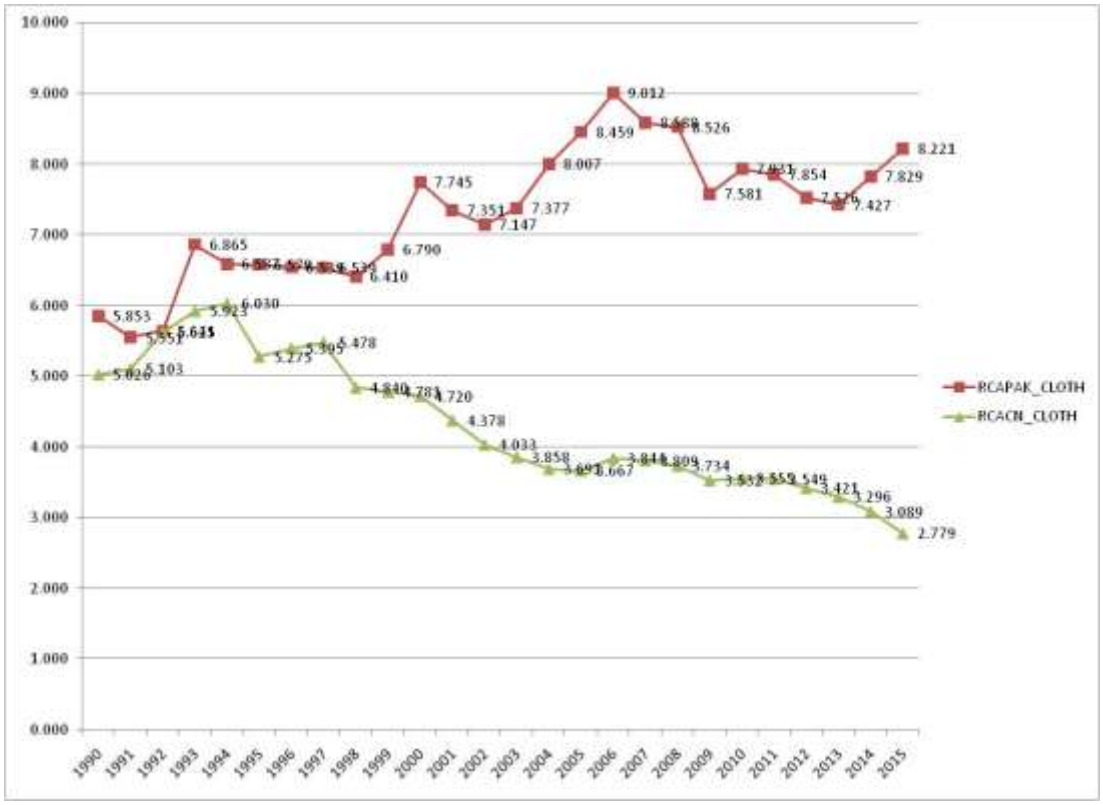
Comparison of RCA of Automotive Products of Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 China had revealed comparative advantage over Pakistan in Automotive sector. The value of RCA for Automotive products of Pakistan was 0.005 as compared to that of China which was 0.045. After 1986 this situation remained the same and China got advantage over Pakistan in Automotive sector. This advantage of China continued in 2002. After 2003 it had been increasing with an icreasing rate. comprative possition of China has been improving till now and the RCA gap between Pakistan and China is widening continously.



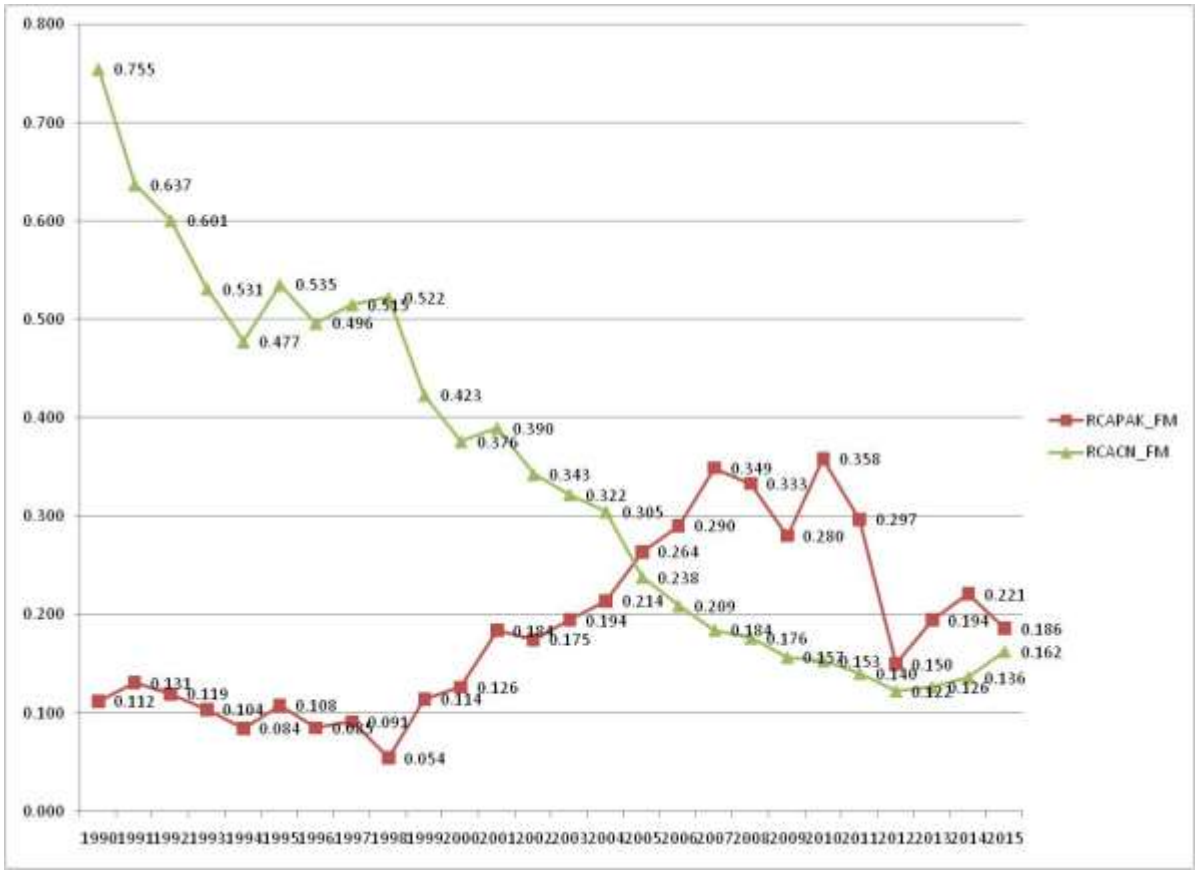
Comparison of RCA of Chemicals for Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 China had revealed comparative advantage over Pakistan in Chemicals sector. The value of RCA for Chemicals industry of Pakistan was 0.053 as compared to that of China which was 0.712 . After 1995 thre RCA of China has been decling and RCA of Pakistan has been incling with the passage of time.RCA gap between Pakistan and China is lowering continously. Pakistan's sector of Chemicals has improved now.



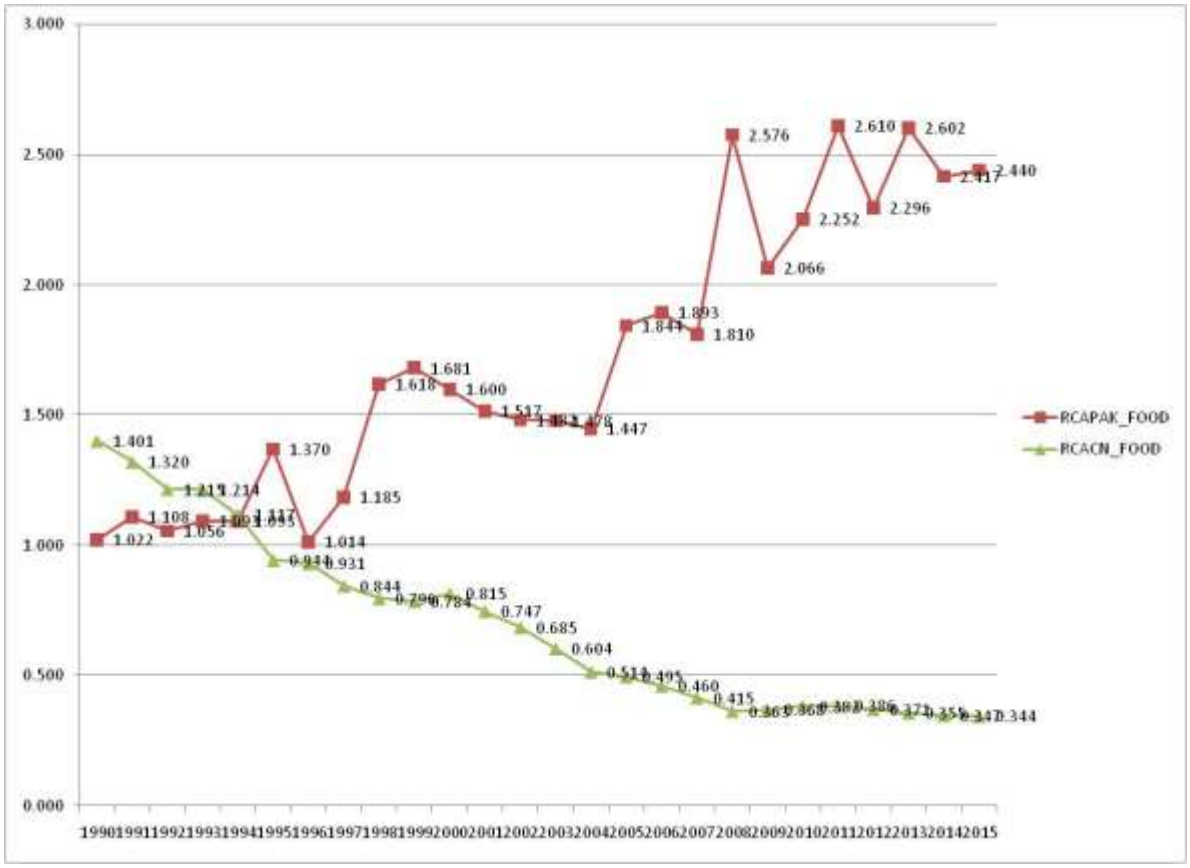
Comparison of RCA of Clothing for Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 Pakistan had revealed comparative advantage over China in Clothing sector. The value of RCA for Clothing of Pakistan was 5.853 as compared to that of China which was 5.026. in 1992 both counteries has same values of RCA and got same advantage . RCA gap between Pakistan and China is widening continously. The value of RCA of clothing for Pakistan is increasing one that of China.



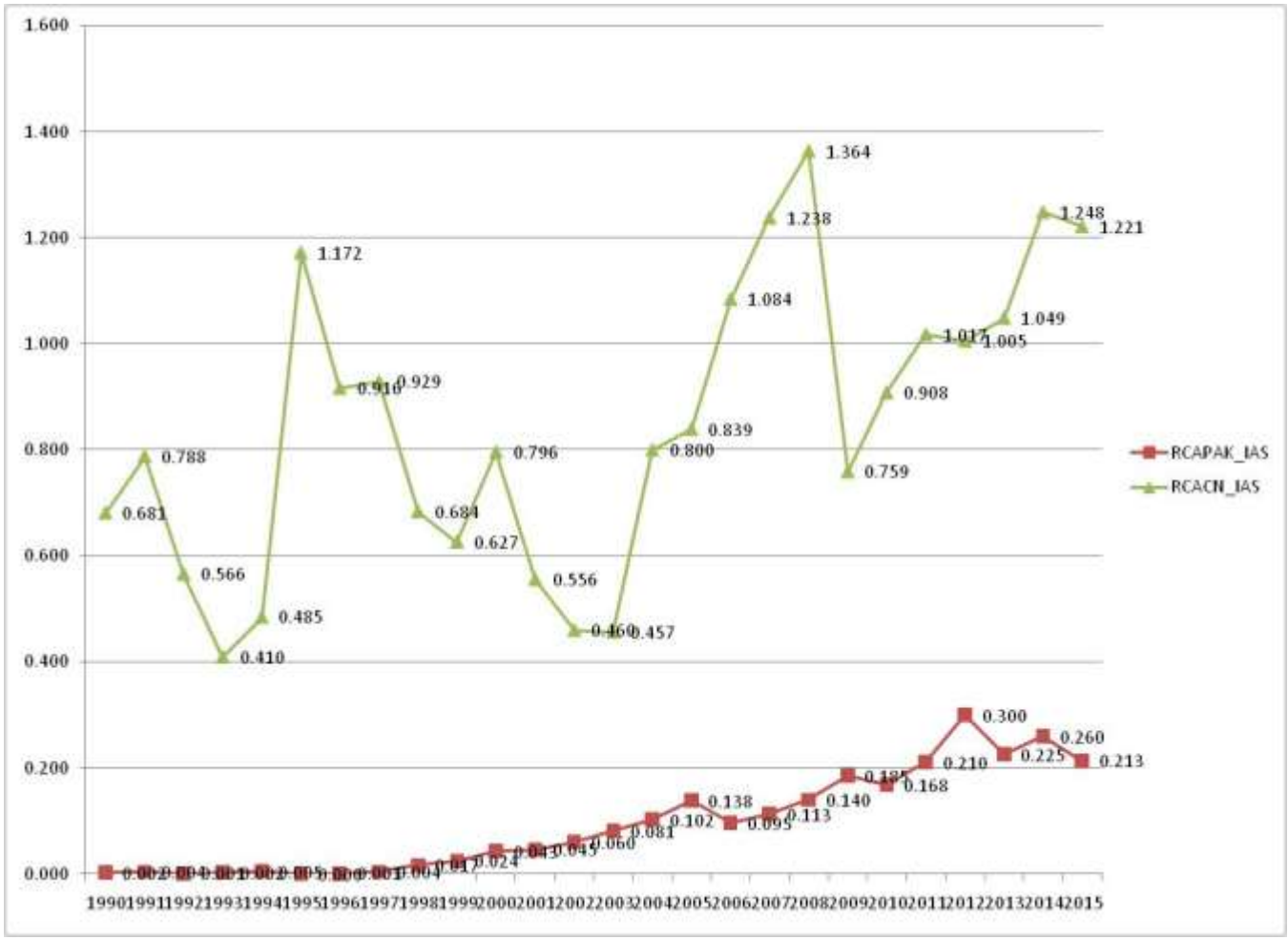
Comparison of RCA of Fuel anf mining for Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 Pakistan had revealed comparative advantage over China in **Fuel and mining** sector. The value of RCA for Fuel and mining products of Pakistan was 2.085 as compared to that of China which was 1.339. After 1986 this situation was reserve and China got advantage over Pakistan in fod sector. This advantage of China continued in 1995. In this ers of free trade and emergance of WTO Pakistan regained advantage over China in Food Industry and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.



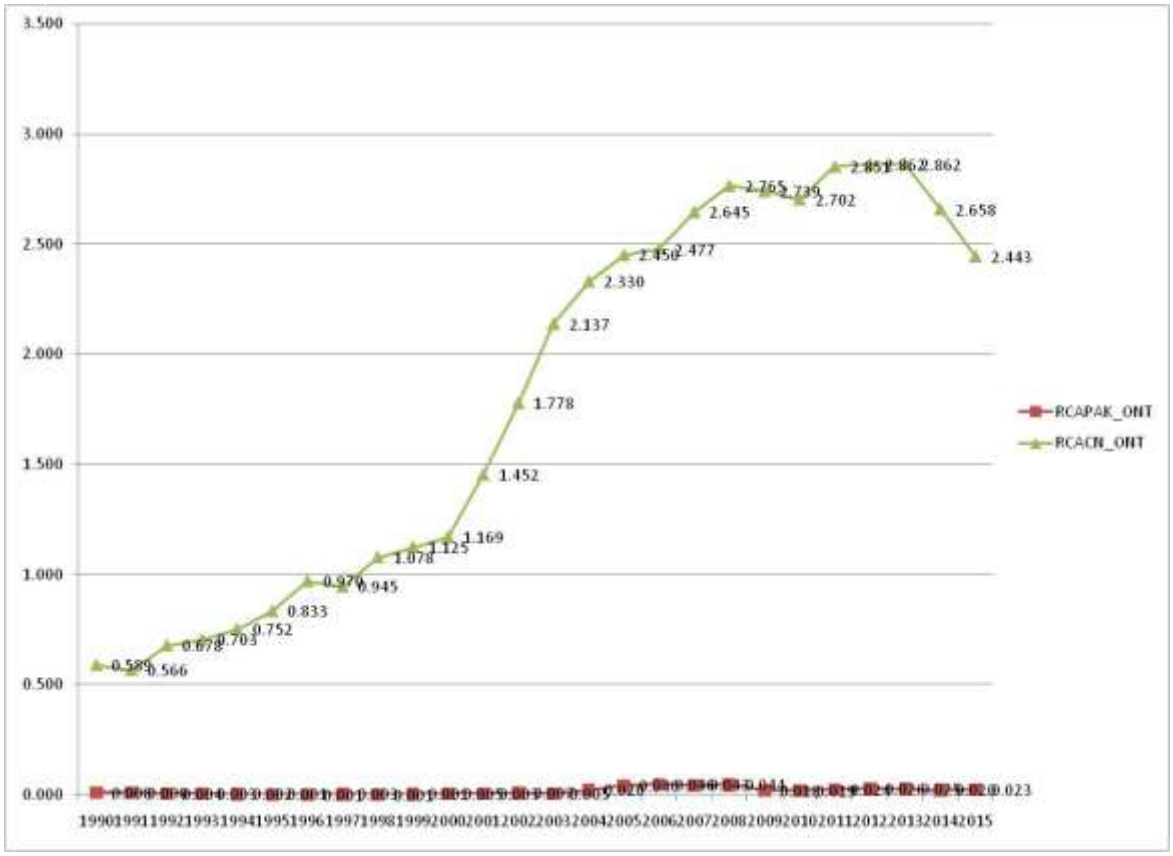
Comparison of RCA of food for Pakistan and China

This graph represents that starting point of our sample i.e. 1990 China had revealed comparative advantage over Pakistan Food sector. The value of RCA for food industry of Pakistan was 1.022 as compared to that of China which was 1.401. After 1994 this situation was reverse and Pakistan got advantage over China in this sector. In this era of free trade and emergance of WTO Pakistan improved this sector and got more advantage as compared to that of China and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.



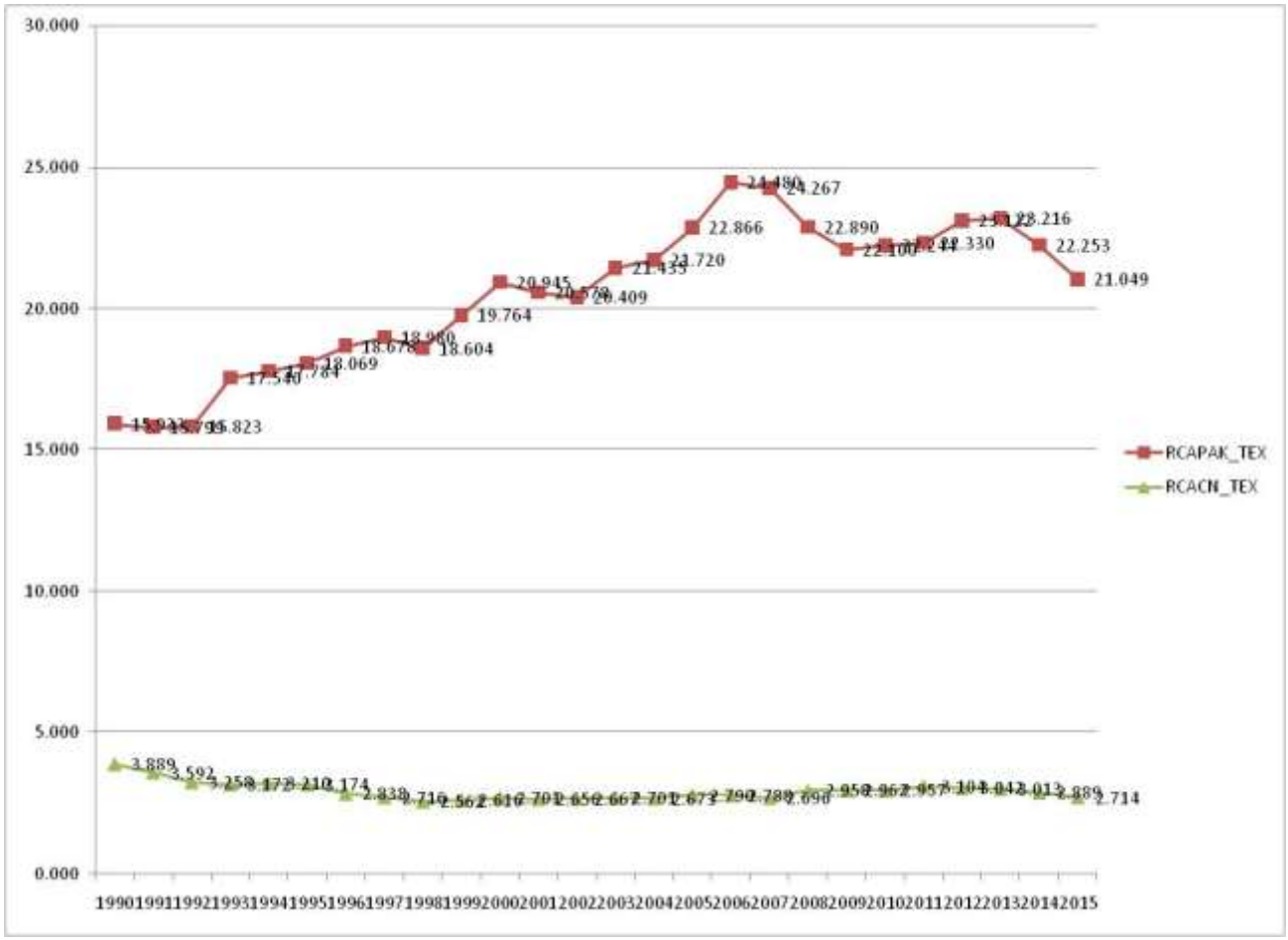
Comparison of RCA of Iron and Steel for Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 China had revealed comparative advantage over Pakistan in Iron and Steel sector. The value of RCA for Iron and steel sector of Pakistan was 0.00 as compared to that of China which was 0.681. After 1992 the value of RCA for Pakistan decreased and the of both counteries become less. In 1995 this situation improved and China gain advantage over Pakistan with an increasing rate. The RCA gap between Pakistan and China is widening continously and RCA has a random behaviour means flucutuate over the period of time.



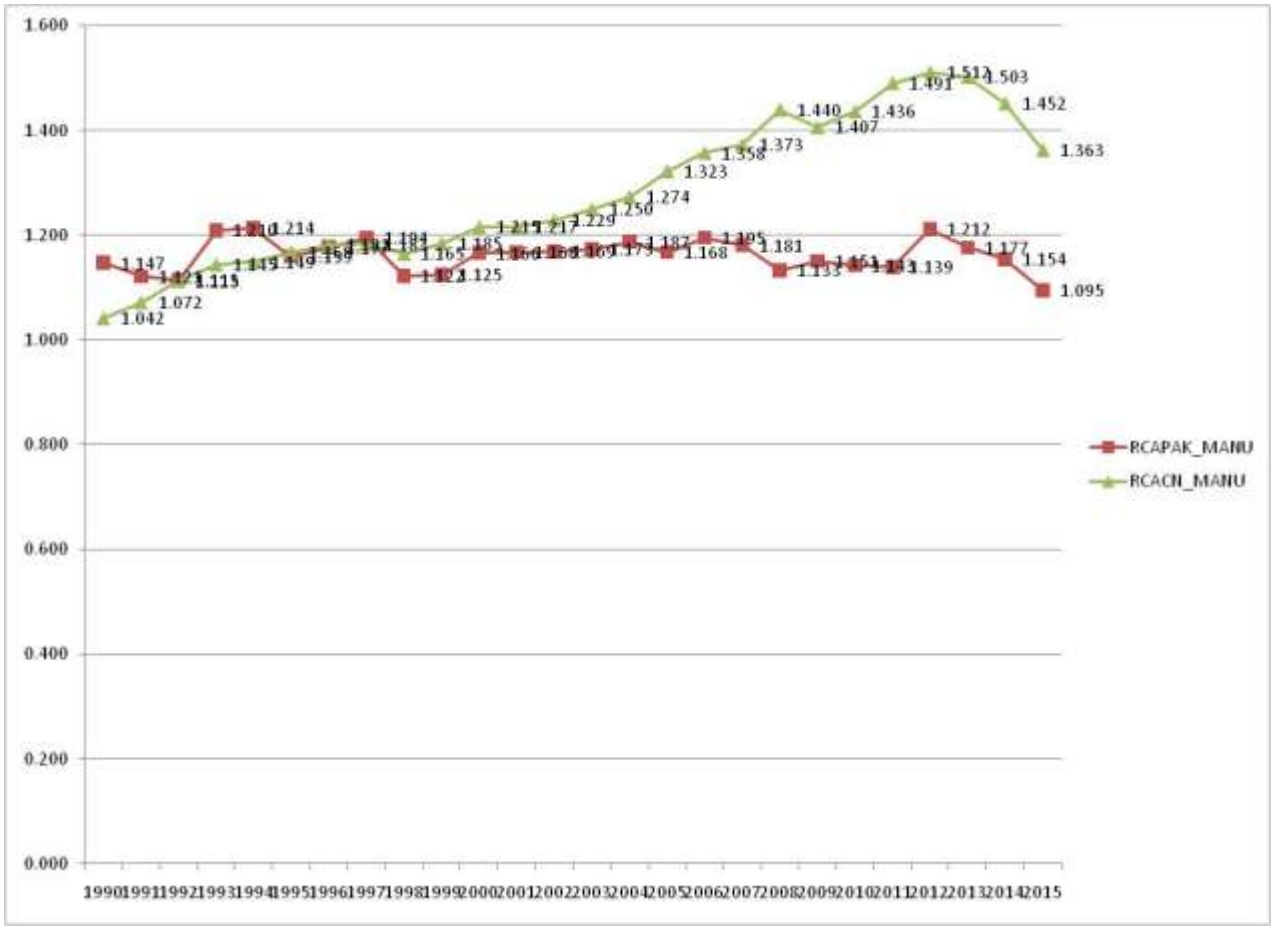
Comparison of RCA of Office an telecom for Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 China had revealed comparative advantage over Pakistan in Office and telecom sector. The value of RCA for Office and telecom industry of Pakistan was 0.00 as compared to that of China which was 0.589. After 2003 this situation improved and China gain advantage over Pakistan with an increasing rate. The RCA gap between Pakistan and China is widening continously.



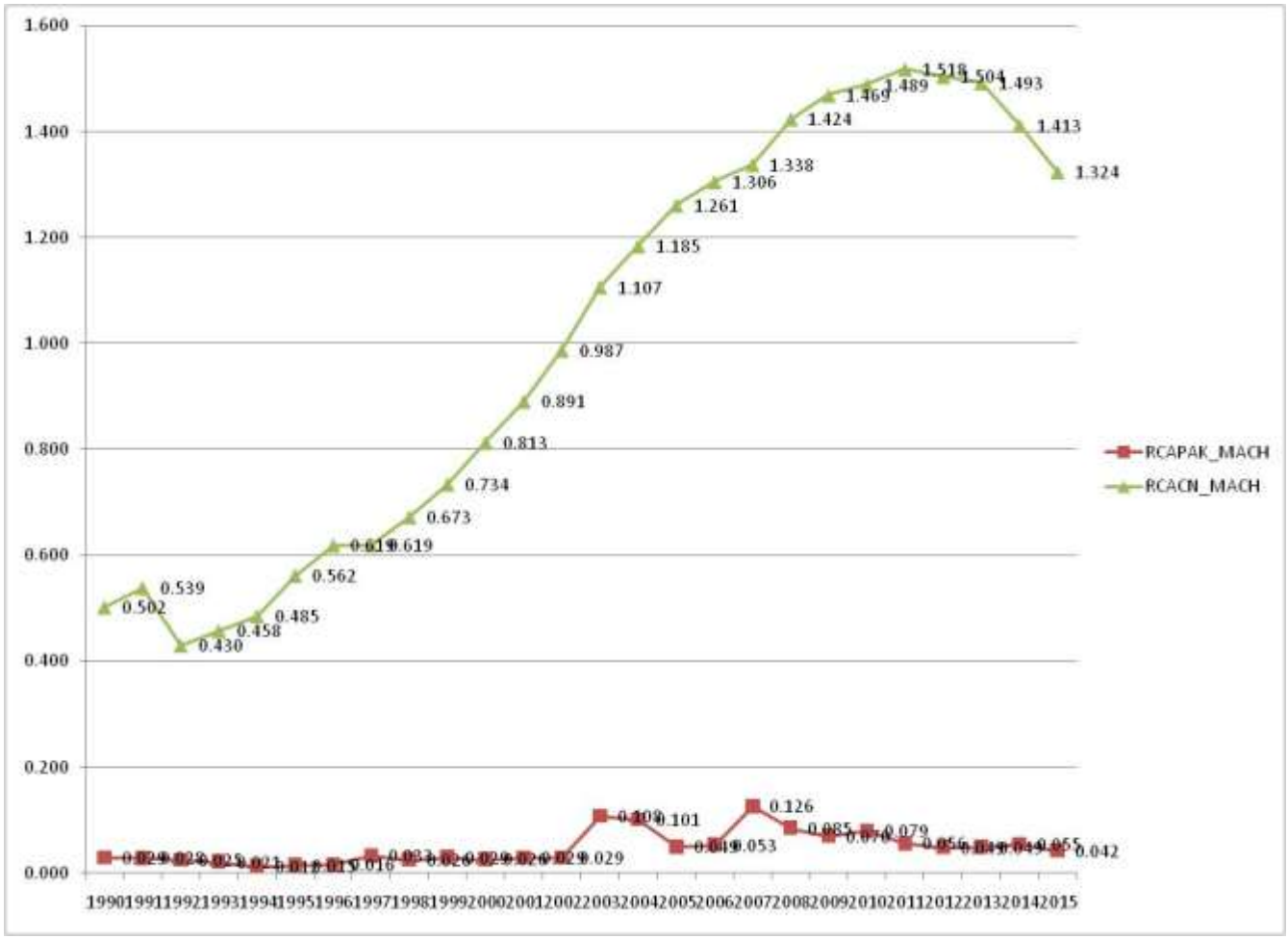
Comparison of RCA of Textile For Pakistan and China.

This graph represents that starting point of our sample i.e. 1990 Pakistan had revealed comparative advantage over China in Textile sector. The value of RCA for Textile industry of Pakistan was 15.93 as compared to that of China which was 3.889. In this era of free trade and emergance of WTO Pakistan gained advantage over China in textile Industry and the comprative possition of Pakistan has been improving till now and thr RCA gap between Pakistan and China is widening continously.



Comparison of RCA of manufecturing for pakistan and China.

This graph represents that starting point of our sample i.e. 1990 Pakistan had revealed comparative advantage over China in manufecturing sector. The value of RCA for manufecturing sector of Pakistan was 1.147 as compared to that of China which was 1.042 . After 1997 this situation was changed and China had more advantage over Pakistan in this sector. China had improved this sector and gained more advantage as compared to that of China.



Comparison of RCA of machinery for Pakistan and China.

The graph represents that at starting point of our sample i.e. 1990 China has more revealed comparative advantage over pakistan in manufecturing. The value of RCA for manufecturing sector of Pakistan was 0.02 as compared to that of China which was 0.502. China 's RCA was increasing one with the time period. In 2003 RCA of Pakistan was increased but relatively low as China. The gap between China and Pakistan is increasing widely.

CONLUSION:

In the study we have find determinats of RCA and its impact on CPEC. The objective of the study is to find determinants of Revealed Comparative Advantage. With the help of these determinants we can improve the sectors of Pakistan from wich pakistan can gain more from the project of CPEC. It can maximize our gains of trade with China and other nearbying counteries.

There is a lot of literature on determinants of revealed comparative Advantage. Some studies suggest one list of determinants and the others suggest different list. It is observed that each country has different determinants of RCA according to its Economic and geographical situation but there is no agreed upon list of determinants which can explain RCA of each country. Due to

this controversy and literature the current study has found the determinants of RCA for China and Pakistan in the context of CPEC.

We have calculated RCA for Pakistan and China by using the commodity wise data of Pakistan and China and total merchandise trade of these counteries and World as a whole. We have made framework of export demand function. In which dependent variable is RCA and independent variables include Inflation, FDI, World GDP, GDP, Trade openness and Exchange rate for each sector. The data is collected for the years 1984 to 2015 for sectoral exports. The data is divided into two samples. One sample is from the year 1984 to 2015. The sectors covered in the sample period include Agriculture, Fuel and mining, Food, Manufecturing and Office and telecom. Second sample is from the years 1990 to 2015. The sectors covered in the sample period include Agriculture, Automotives, Chemicals, Clothing, Fuel and Mining, Food, Iron and Steel, manufecturing, machinery, Office and Telecom and textile.

The findings of regression analysis for the sample period 1984 to 2015 for Office and Telecom Equipments sector show that there is positive role of GDP and negative relationship WGDP, FDI, INF, Exchange Rate and Trade openness in determination of Revealed Comparative Advantage in this sector.

The results of regression analysis for the sample period 1984 to 2015 for Manufecturers sector show that there is
positive role of Trade Openness, Exchange Rate, Inflation and WGDP and negative relationship GDP and FDI in determination of Revealed Comparative Advantage in this sector.

The estimates of regression analysis for the sample period 1984 to 2015 for Food sector show that there is positive role of GDP and Exchange Rate and negative relationship WGDP, FDI, INF and Trade openness in determination of Revealed Comparative Advantage in this sector.

The outcomes of regression analysis for the sample period 1984 to 2015 for Fuel and mining sector show that there is positive role of WGDP and Inflation and negative relationship GDP, FDI, Exchange Rate and Trade openness in determination of Revealed Comparative Advantage in this sector.

The inferences of regression analysis for the sample period 1984 to 2015 for Agriculture sector show that there is positive role of WGDP, Trade Openness, Inflation and FDI and negative relationship GDP and Exchane Rate in determination of Revealed Comparative Advantage in this sector.

The results of regression analysis for the sample period 1990 to 2015 for Textile sector show that there is positive role of World GDP, Exchange Rate and Inflation and negative relationship GDP, FDI and Trade openness in determination of Revealed Comparative Advantage in this sector.

The estimates of regression analysis for the sample period 1990 to 2015 for Office and Telecom Equipments sector show that there is positive role of Inflation, World GDP and Trade openess and negative relationship GDP, FDI and Exchange Rates in determination of Revealed Comparative Advantage in this sector.

The outcomes of regression analysis for the sample period 1990 to 2015 for Machinery and Transport Equipment sector show that there is positive role of Inflation, World GDP and FDI and negative relationship GDP, Trade openness and Exchange Rates in determination of Revealed Comparative Advantage in this sector.

The inferences of regression analysis for the sample period 1990 to 2015 for Manufactures sector show that there is positive Trade Openness and Exchange Rate and negative relationship FDI, GDP,INF and WGDP in determination of Revealed Comparative Advantage in this sector.

The results of regression analysis for the sample period 1990 to 2015 for Iron and Steel sector show that there is positive Trade Openness, Exchange Rate, WGDP, FDI, GDP and negative relationship INF in determination of Revealed Comparative Advantage in this sector.

The findings of regression analysis for the sample period 1990 to 2015 for Food sector show that there is positive Inflation, Exchange Rate and GDP and negative relationship FDI, WGDP and Trade Openness in determination of Revealed Comparative Advantage in this sector.

The outcomes of regression analysis for the sample period 1990 to 2015 for Fuels and mining products sector show that there is positive FDI, WGDP and Inflation and negative relationship Trade openness, Exchange Rate and GDP in determination of Revealed Comparative Advantage in this sector.

The inferences of regression analysis for the sample period 1990 to 2015 for Clothing sector show that there is positive WGDP and Inflation and negative relationship Trade openness, Exchange Rate, FDI and GDP in determination of Revealed Comparative Advantage in this sector.

The findings of regression analysis for the sample period 1990 to 2015 for Chemicals sector show that there is positive FDI, WGDP and Trade Openness and negative relationship GDP, Exchange Rate and Inflation and GDP in determination of Revealed Comparative Advantage in this sector. The results of regression analysis for the sample period 1990 to 2015 for Automotive products sector show that there is positive Inflation and WGDP and negative relationship FDI, Exchange Rate, Trade Openness and GDP in determination of Revealed Comparative Advantage in this sector.

The estimates of regression analysis for the sample period 1990 to 2015 for Agricultural products sector show that there is positive Inflation and WGDP, Exchange Rate, FDI and Trade Openness and negative relationship GDP in determination of Revealed Comparative Advantage in this sector.
According to the graphical analysis Pakistan has comparative advantage over China in the exports of food, agriculture, clothing, fuel and mining and textile products.

POLICY IMPLICATIONS:
The results of this study indicate that Pakistan can get a lot of advantages from CPEC and ONE ROAD ONE BELT policy of China by specializing in food,agriculture,clothing, textile and fuel and mining because Pakistan has comparative advantage in the exports of these products over China. The results of regression analysis indicate that Pakistan may boost up its advantages from CPEC by introducing investment friendly policies especially for foreign investors. Effective management of exchange rate may also be helpful for Pakistan in improving balanace of payments and earn foreign exchange earnings. The findings also suggest that policy of trade liberalization or trade openness may be helpful in improving trade balance if Pakistan can effectively manage specialization in the sectors in which the country has revealed comparative advantage.

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