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India-Pakistan Trade: An Analysis of the Pharmaceutical Sector

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Abstract

With the ongoing trade normalisation process between India and Pakistan, opportunities to integrate have opened up between both countries. The pharmaceutical sector is crucial to health issues in developing economies and would be an ideal segment to focus on in improving trade relations between the two countries. Here, an empirical and theoretical analysis of India-Pakistan trade using some statistical indicators reveals low levels of current trade but huge trade potential.

Since China has virtually dominated the trade scene in nearly all manufacturing sectors, this study also looks at the tripartite dynamics of trade in pharmaceutical items among India, Pakistan and China. An analysis of the China-Pakistan and the South Asia Free Trade Area Agreements reveals that while Pakistan does not give any favourable treatment to China in items on Pakistan's negative/sensitive list for India, there is some indication that the favourable tariff treatment to China in general may have affected India's low trade in pharmaceutical products with Pakistan. The study further argues that the opening up of the Pakistan pharmaceutical market to India would lead to an increase in consumer surplus, given the advantages of competition. Since many items are already imported from China, the argument that India's imports would stifle domestic producers seems misplaced. Hence, non-discriminatory access to Indian products seems reasonable. A positive start could be the phasing out of Pakistan's negative list. The incorporation of trigger mechanisms would help appease the apprehensions of the pharmaceutical industry in Pakistan about an influx of pharmaceutical items from India.

Discussions with some major Pakistan pharmaceutical producers indicated that normalising trade would also provide external economies in areas like R&D and standards. In some areas, the benefits could flow to Indian producers. In this context, it seems necessary to establish a process for establishing mutual recognition agreements (MRAs), which would improve product quality in both countries.

Finally, since FDI is just another way of doing trade, it seems necessary to explore the possibilities here at least to boost future trade prospects. Some harmonisation of FDI policies may be warranted.

JEL Classification: *F10, F13, F14*

Keywords: *India-Pakistan, trade, pharmaceuticals, China, trade potential, trade complementarity, FDI, policy recommendations*

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India Pakistan Trade: An Analysis of the Pharmaceutical Sector

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1. Introduction[2]

Trade and investment have been an integral link in improving the relations of South Asia's two heavy weights, India and Pakistan. However, the enormous trade potential that exists between the two nations due to the commonalities in culture and the sharing of an 1800-km long border is yet to be fully capitalised on. Since the delinking of political considerations and trade negotiations in 2004, when talks began at the commerce secretary level, trade between India and Pakistan has seen a rising trend. Efforts have been made to iron out the creases in India-Pakistan trade relations by integrating major sectors in the two economies. This has occurred over the years in phases, sometimes with interruptions and at other times with consensus over broadening trade relations between both the countries.

A restrictive trading environment prevailed between both the countries till 2005 as there was no road route, a positive list was maintained for imports from Pakistan and the maritime protocol allowed only Indian and Pakistani flagged vessels to carry cargo between the two countries while not permitting the same vessels to carry consignments to a third country (Taneja et al., 2013). As part of confidence building measures, in October 2008, the two governments permitted trade and travel across the Line of Control along Jammu and Kashmir. The fifth round of talks in April 2011 laid down the blueprint for normalising trade between India and Pakistan (Taneja et al., 2013). In a joint statement signed in March 2012, Pakistan made a transition from the positive list approach to a small negative list of 1,209 items. However, it continued to restrict road-based trade by allowing only 137 items to be imported from India via road, while India took a number of steps to address the issue of non-tariff barriers (NTBs). As part of the ongoing trade normalisation process, India is expected to reduce the list of items on the sensitive items from the present 614 items to 100 items as and when Pakistan accords India the MFN status[3]. Issues of protectionism and providing market access have been at the heart of this normalisation process. The asymmetry in giving mutual recognition in terms of regulatory regimes and grant of the MFN status has been a major stumbling block in improving economic relations of the two countries (John and Bhatnagar, 2013). Even after partial liberalisation of trade between both

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[3] In a meeting between Commerce ministers of India and Pakistan in January 2014, it was decided to change the WTO acronym- MFN to NDMA (non-discriminatory market access). The change in terminology will help in achieving the goal of increasing trade and investment between the countries. (BS Reporter, Its official now: No MFN between India, Pakistan. Business Standard. January 18, 2014)

countries, protection of vulnerable sectors is what hinders further expansion of India-Pakistan trade.

The pharmaceutical sector is one such segment in which India and Pakistan can integrate, given that it is a fast growing sector in world trade. The global pharmaceutical market has an annual growth rate of 8 per cent and, at that rate, it will cross the value of USD 1.1 trillion by 2014 (Amir and Zaman, 2011). The Indian pharmaceutical industry is the world's third largest in terms of volume and stands 14th in terms of value (Kalani, 2011). It was estimated at USD 21.7 billion during 2011. According to the Organisation of Pharmaceutical Producers of India (OPPI), the industry is highly fragmented and is estimated to have over 25,000 pharmaceutical companies. The Indian pharmaceutical sector is dominated by national companies and consists of manufacturers of bulk drugs and formulations. Bulk drugs include active pharmaceutical ingredients (API's) that are used for the manufacture of formulations. Being the largest manufacturer of generic drugs, India's pharmaceutical industry is expected to grow by 12 to 13 per cent during the financial year 2014 (Business Standard, July 11, 2013). India imports pharmaceuticals mainly from Switzerland, Germany, United States and China. In 2012, 26 per cent of the total pharmaceutical imports of India were from Switzerland. India's main export markets in the pharmaceutical sector are in the United States, Russian Federation, United Kingdom and South Africa. In 2012, 31 per cent of the total pharmaceutical exports from India were to the United States.[4]

As opposed to the Indian pharmaceutical industry, the Pakistan pharmaceutical sector is still at a nascent stage. The industry is the 10th largest in Asia Pacific and was valued at USD 1.63 billion in 2011 (Amir and Zaman, 2011). There are 600 companies operating and around 45 per cent of the companies are multinationals. In the current scenario, 80 per cent of the demand for pharmaceuticals is fulfilled domestically and the rest is covered by imports (Amir and Zaman, 2011). Switzerland, Germany, Denmark, France, United States, Italy and China are the main countries from which Pakistan imports pharmaceutical items. In 2012, 25 per cent of Pakistan's total pharmaceutical imports from the world were from Denmark. Pakistan's major export markets are Afghanistan, Sri Lanka, Vietnam, Philippines, Myanmar, Nigeria and Kenya. In 2012, 28 per cent of the total pharmaceutical exports from Pakistan went to Afghanistan.

The contrast in terms of export markets for pharmaceuticals of the two countries is quite clear and interesting to note. Typically, India seems to have a look-west approach and Pakistan tends to look more towards the eastern part of the world in terms of where it exports pharmaceutical items. In terms of imports, one Asian country that has emerged recently as a common exporter of pharmaceuticals to both India and Pakistan has been China.

[4] All figures on shares of countries in India's and Pakistan's exports and imports are the authors' calculations using data from UN COMTRADE.

In this paper, we try to explore the current pharmaceutical trade and the possibilities for further expansion in pharmaceutical trade between India and Pakistan. The main focus would be on analysing the inherent trade complementarities in the pharmaceutical sector between the two countries and the consequences of removal of the negative list by way of Pakistan granting the NDMA status to India. Since China has been a major trade partner of both countries, we would also examine the India-China-Pakistan trade in pharmaceuticals with special focus on the Pakistan-China free trade agreement. We note that foreign direct investment (FDI) is a crucial link to assess the impact of trade integration and the possibility of this will be explored keeping in view India and Pakistan's pharmaceutical sector.

The paper is organised as follows. Section II describes the history of the Indian and Pakistan pharmaceutical industry and existing regulations governing the industry. Section III describes the theoretical methodology to be followed in the paper and the main data sources. The quantitative empirical results are then presented in Section IV with a focus on Indo-Pakistan trade and regional trading agreements. In Section V, we present a brief study of the free trade agreement between China and Pakistan along with some qualitative and quantitative comments on how this affects pharmaceutical trade between India and Pakistan. In Section VI, we throw some light on the insights obtained by discussions with some industry stakeholders in the two countries. Section VII looks at the link between FDI and trade in the context of the pharmaceutical sectors in India and Pakistan. Finally, some policy recommendations are given in Section VIII to suggest the way forward in India-Pakistan trade in pharmaceuticals.

2. A Brief History of India and Pakistan's pharmaceutical Industry

The Indian and Pakistan pharmaceutical industries have come a long way since the time of independence when multinational corporations dominated the industry. Over the years, under favourable policy regimes, the industries have grown phenomenally. A historical overview of the evolution of the pharmaceutical sector in both countries will provide a background to the analysis on pharmaceutical trade between the two countries.

India has established itself as a major supplier of not only generic products but also new formulations. The Indian pharmaceutical industry, in addition to meeting domestic demand, is in a position to export significant volumes of pharmaceutical products to various destinations, including the developed markets of USA, EU and Japan.

The evolution of the Indian pharmaceutical industry can be traced over two epochs -- pre-independence and post-independence. During the first epoch, from 1850 to 1945 (pre-independence phase), indigenous forms of medicine were in use. There were no production units in the country and foreign companies exported raw material from India, transformed them into finished products and sent them back to India. The indigenous industry received an impetus

during World War II when there was a shortage in supply of drugs from foreign companies (Sahu, 1998).

After independence, the evolution can be divided mainly into three phases:

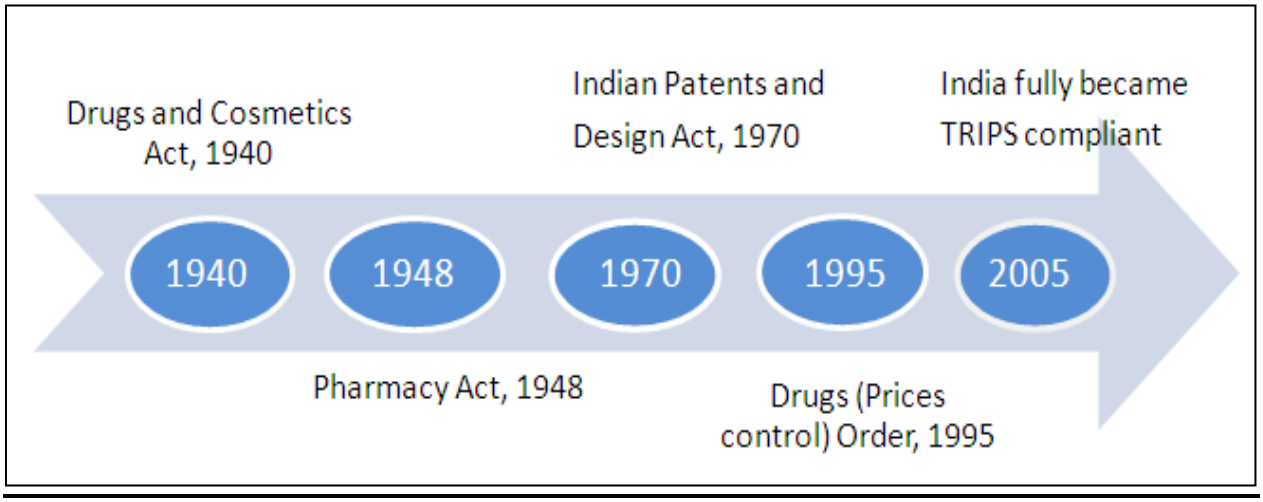
1945-1970- There was a major therapeutic revolution, with a shift in the structure of the industry resulting in the growth of the global pharmaceutical industry during this period. However, India could not capitalise on this growth due to the lack of technology, capital and support from the government. Concerned by the lack of manufacturing facilities and guided by the perception that 'foreign technology' was important for the growth of pharmaceutical sector, the Government of India brought out the New Industrial Policy Statement, 1948, to liberalise production and licensing of drugs for MNCs. This led to the free flow of foreign capital and there was rapid growth in the sector. Despite the liberal attitude towards MNCs, they did not establish any production units in India. They preferred to import bulk drugs for manufacturing formulations rather than setup production units in India because production required investment in plant and machinery and was less profitable than import of bulk drugs to transform into formulations (Mazumdar, 2013). The government became aware of the reluctance of foreign firms to start manufacturing bulk drugs from the basic stage in India and the inability of the Indian private sector because of the limitations of the Indian patent law (Sahu, 1998). Under the Industrial licensing policy of 1956, the government made it mandatory for foreign companies to produce drugs from the basic stage by establishing their production units in India. Hence, many foreign companies started their production in India and, with government support, many domestic companies also entered the market leading to an increase in drug production.

1970-1995- Even though domestic companies had grown considerably, foreign MNCs still dominated the pharmaceutical industry until the 1970s. However, during this period, the public sector and indigenous companies contributed to a significant share of the bulk drug production. Most foreign companies were engaged in high pay-off formulation production, which resulted in high prices in India. Hence, the government's efforts turned to curbing the monopolistic position of foreign firms. In 1970, the government withdrew the concessions it had granted to foreign firms (Sahu, 1998). The Patent Act of 1970 recognised only process patents. The life of a patent was also significantly reduced from 16 to 5 years from the date of sealing or date of filing a complete application, whichever was shorter. The Foreign Exchange Regulation Act (FERA), enacted in 1973, put further restrictions on foreign equity holdings and was implemented to compel MNC's to produce high technology bulk drugs. For FERA companies, licences were granted only when companies provided 50 per cent of the drugs to non-associated formulators and the ratio of value of bulk drugs to own manufacture was 1:5, which was set as 1:10 for domestic companies. The New Drug Policy, enacted in 1978, reserved production of various categories of drugs for domestic producers (Mazumdar, 2013). Hence, with the Patents Act, New Drug Policy and FERA, the share of MNC's dropped and the industry embarked on a high

growth path; simultaneously, there was a fall in medicine prices and a large number of generic versions of drugs were introduced.

1995 onwards- The pharmaceutical sector in India grew consistently from 1995 onwards. Indian companies also emerged as major players due to the competence gained in process engineering. The year 1995 was significant for the Indian pharmaceuticals industry due to two reasons: a) India became a member of the World Trade Organisation and agreed to the requirements of the WTO intellectual property agreement, Trade Related Aspects of Intellectual Property Rights (TRIPS) and b) the government incorporated Schedule M in the Drugs and Cosmetics Act in 1995 that lays down Good Manufacturing Practices (GMP) according to WHO standards. Under TRIPS, India received a 10-year transition period until January 2005, to put in place pharmaceutical patent recognition (Linton et. al, 2007). There was also a shift in the foreign policy framework towards liberalisation and measures such as the abolishing of licensing requirement for entry and expansion of firms and 100 per cent inward foreign direct investment under automatic approval of RBI under the New Drug Policy of 1994 and 2002 were introduced (Mazumdar, 2013). The year 2005 was a landmark in the history of the Indian pharmaceutical sector with India being fully TRIPS compliant with one of the implications being the grant of both product and process patents for inventions in all fields of technology. This was implemented in three successive phases with the implementation of the mailbox system[5] in 1995, a second amendment in 2002 to extend the term of patent protection to 20 years and amend the compulsory licensing system and the third in 2005, with the introduction of the product patent regime.

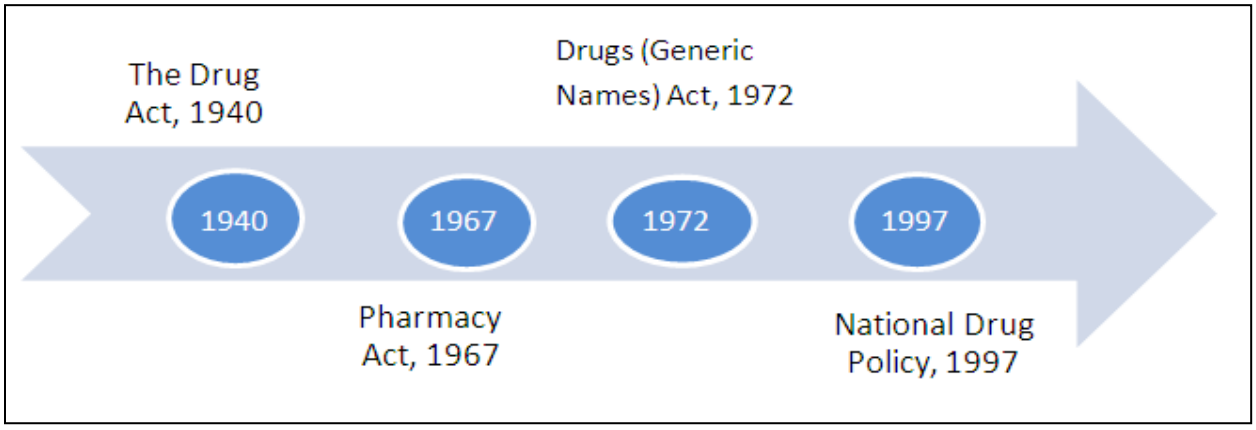
Figure 1: Timeline of India's pharmaceutical industry



[5] Under the mail box facility, mail box applications were not examined until 2004 and exclusive marketing rights could be granted to those mail box applications for which a patent had been granted in at least one member nation and the application was not rejected in the member nation where the patent protect was sought by the applicant for the reason of invention being not patentable. (TRIPS Agreement: An Overview, IPpro Services (India) P. Ltd., 2008)

Similarly, the history of the Pakistan pharmaceutical industry can be divided into three phases (Asif and Awan, 2005). The first phase is from 1948 to 1971. After independence, Pakistan had no pharmaceutical industry and traders, based primarily in India, were importing most of the medicines. Recognising the importance of this industry, the Government of Pakistan established two pharmaceutical units named "Khurram Chemicals Limited" (near Islamabad) and "Antibiotics Private Limited" (in Mianwali) through the Pakistan Industrial Development Board (PIDB). The pharmaceutical industry continued to grow till 1971. At that time, due to the conducive policies and the right entrepreneurial spirit, the pharmaceutical industry reached its peak and had a leadership position in Asia. In the second phase (1972 to 1991), due to discriminatory and restrictive policies (Drug Generic Act, 1972), national companies suffered a lot and lost the earlier created export markets. The generic drugs were of poor quality and low efficacy. Unfortunately, the subsequent lack of regulation or control of generics led effectively to the market being flooded by poor quality drugs and the scheme needlessly failed (World Health Organisation, 1997). In addition to that, completely manufactured drugs and medicines were imported largely with the permission of the government, which resulted in large scale flooding of imported drugs. The third phase is from 1991 to present. Mehdi and Kalani (1996) clearly bring out the dominance of MNCs in the Pakistan pharmaceutical market through an analysis of the top 100 medicines in terms of sales volume and value of sales (Basant, 2007). In 1993, under the deregulation policy undertaken by the government, the prices of drugs rose by nearly 400 per cent. A study showed that prices were hiked by 30 per cent in the regulated era (1980-1990) while they increased by 87 per cent in the deregulated era (Umar, 2006) As a result, the federal government had to reduce and then freeze prices of several drugs in the second half of the 1990s. The Ministry of Health also issued an ordinance indicating their intention to amend the Drug Act of 1976 to allow the government to fix prices of imported raw material to solve the perceived problem of transfer pricing by MNCs (Basant, 2007). Due to this policy framework, the market share of national companies grew as compared to multinational companies. The national companies grew in size and also exploited possibilities in other regions (UNCTAD/WTO 2004).

Figure 2: The timeline of Pakistan's Pharmaceutical Industry



Perhaps, due to the large scale of imports that the pharmaceutical industry witnessed in its second phase, industry stakeholders are sceptical of integrating with India. There is apparent concern that Pakistan pharmaceutical industry will not be able to compete with the well established Indian pharmaceutical companies because the latter possess economies of scale and are endowed with superior technological and human resources. Factors limiting output like inconsistent policy, lack of funds for upgrading plants, high duties imposed on the formulation industry, poor policy framework, lack of research and development facilities, unavailability of sophisticated machinery, high input costs, discriminatory policies and stringent price control are the major factors that contribute to the poor performance of manufacturing in all sectors in Pakistan (Asif and Awan, 2005).

3. Theoretical Framework

The quantitative analysis in the paper consists of examining the trade potential of India and Pakistan in pharmaceuticals. We have used three measures to examine this potential: the trade possibility approach, intra-industry trade index and trade complementarity index. The section also lists the type of data used for empirical analysis.

3.1 Trade Possibility Approach

To look at the trade potential in pharmaceutical trade, we have used the Trade Possibility Approach. Trade possibilities exist in items that two countries can import from each other instead of importing from elsewhere in the world. The Trade Possibility Approach is a simple, yet intuitive method, which yields practical results (Taneja et. al, 2013). It is calculated as follows:

$$\text{Min}\,(\text{SE}, \text{MI}) - \text{ET}$$

where SE, MI and ET are supplier's global exports, receiver's global imports and existing trade between the supplier and the receiver (Taneja et. al, 2013).

3.2 Intra-Industry Trade Index

The nature of trade between any two countries can be inter-industry or intra industry. Trade theory tells us that the former is normally a characteristic of trade between dissimilar countries in homogenous goods (for example, trade between developed countries and less developed countries). This is often called Ricardian or Heckscher-Ohlin (HOS) trade (Bhagwati et. al, 1998). On the other hand, there can be trade between somewhat "similar countries" in differentiated goods and this is often referred to as IIT or intra-industry trade (Krugman, 1979). Empirically, IIT is defined as the simultaneous export and import of goods in the same industry. It is also seen that IIT is typical of trade in manufactured goods where "product differentiation"

is more likely. Here one must also distinguish between exchange of final goods for inputs (vertical IIT) and trade in differentiated final goods or inputs (horizontal IIT). It has also been argued that IIT is easier to expand as it does not lead to the kind of structural adjustments and consequent political costs associated with traditional inter-industry trade (Pant, 2013). Although inter-industry trade still accounts for most trade, its share in overall trade is declining. Instead, intra-industry trade (IIT), which can be further divided into horizontal IIT and vertical IIT , is growing in importance.

A widely used measure of intra-industry trade is the Grubel-Lloyd (GL) index. To measure the extent of intra-industry trade between India and Pakistan in the pharmaceuticals sector, we have calculated the GL index from 2009 to 2012. It is calculated as an (un)weighted average to measure the degree of intra-industry trade for country j in product i. It is defined as

$$GL_{ij} = \frac{(X_{ij} + M_{ij}) - |X_{ij} - M_{ij}|}{(X_{ij} + M_{ij})} = 1 - \frac{|X_{ij} - M_{ij}|}{(X_{ij} + M_{ij})} ----(1)$$

where X_{ij} are the exports of commodity i of country j and M_{ij} are the imports of commodity I of country j.

The GL index assigns pure intra-industry trade value of 1 and pure inter-industry trade a value of 0.

To calculate the average level of IIT for a country j we can rewrite (1) as a weighted average of the GL_j 's as

$$GL_{j=} \frac{\sum\{(X_{ij} + M_{ij})\} - \sum|X_{ij} - M_{ij}|}{\sum(X_{ij} + M_{ij})} ------(2)$$

Where the summation in (2) is over commodities, i.

As is well known (for example, Greenway and Tharakan, 1986), the GL index is subject to two biases: 1) categorical (commodity) aggregation and, 2) trade imbalance. The aggregation bias occurs because the data aggregates across commodities which are not 'similar': for example, final goods and intermediate inputs. Excessive aggregation tends to bias the index upwards. In our formulae above, GL_j would generally be greater than GL_{ij}. The trade imbalance bias occurs when one or the other country has an excessive trade surplus (deficit) and this tends to bias the index downwards. A high trade balance surplus (deficit) is reflected in the second term in the numerator of (2): the higher this term, the lower is GL_j.

One suggestion to eliminate the effect of a high trade surplus (deficit) is to subtract the absolute value of this trade balance from the denominator of (2) so that

$$GL_j' = \frac{\sum\{(X_{ij} + M_{ij})\} - \sum|X_{ij} - M_{ij}|}{\sum(X_{ij} + M_{ij}) - |\sum X_{ij} - \sum M_{ij}|} - - - - - - (3)$$

where the summation is over the commodities, i. So, if there is no trade imbalance, (3) equals (2). GL_j' becomes the adjusted Grubel Lloyd index.

The simple Grubel Lloyd index (GL) thus needs adjustment to reduce the trade imbalance bias that results from countries being a net exporter in one sub-group of an industry and a net importer in another sub-group as well as the simple aggregation bias. While it is not possible to completely eliminate both biases, one can minimise these using the adjusted GL index, GL′. (Andersen, 2003). The adjusted Grubel-Lloyd index thus becomes:

$$GL''_k = 1 - \sum_{i=1}^{nk} \frac{|X_i^k - M_i^k|}{(X_i^k + M_i^k)} - - - - (4)$$

where nk = number of commodities in the pharma sub-group, k. The advantage of (4) is that it reduces the bias due to aggregation by defining it separately over sub-groups of the pharmaceutical sector. For our purpose, in the calculations below, we have looked at two sub-groups – bulk and intermediaries and formulations. Since the overall trade in pharmaceuticals is broken up into two sub-groups, the effect of the overall trade imbalance is also minimised.

Finally, another drawback of the Grubel-Lloyd index is that it does not recognize the direction of trade. In interpreting our calculations below, this must be kept in mind.

3.3 Trade Complementarity Index

A useful indication of the trade potential between India and Pakistan in pharmaceuticals will be the trade complementarity index (TCI). It measures the extent to which two countries are "natural trading partners", i.e., the extent to which what one country exports overlaps with what the other country imports (United Nations and World Trade Organisation, 2012). With perfect correlation between sectoral shares, the index is 100 and with perfect negative correlation, it is 0. The import TCI is:

$$c^{ij} = 100[1 - \sum_{k=1}^{m} |m_k^i - x_k^j|/2]$$

where m_k^i is the share of the k[th] industry (pharmaceutical) of India's imports from Pakistan in India's total pharmaceutical imports from the world and x_k^j is the share of Pakistan's total pharmaceutical exports to India in Pakistan's total exports to the world, i and j are India and Pakistan respectively. Thus, if India imports 10 per cent of its total pharmaceutical imports from Pakistan and Pakistan exports 10 per cent of its total pharmaceutical exports to India the exports and imports are perfectly matched and the TCI would be 100. Obviously the index can be calculated in the same way for Pakistan's imports from India.

3.4 Data

For an empirical analysis, trade values and quantities have been extracted from WITS COMTRADE database. The data has been collected for two basic categories of pharmaceuticals: bulk and intermediaries, and formulations (Kallummal et al. 2012). The production of pharmaceutical items entails use of organic, inorganic and other chemicals. Owing to this fact, our study uses data on 239 pharmaceuticals items for selected HS (Harmonized system) codes 15,17,19,23, 26, 27, 28, 29 and 30.[6] The data work in the paper, therefore, is based on the available classification of products in the pharmaceutical industry by the Department of Pharmaceuticals (DOP), Indian Drug Manufacturers Association (IDMA) and the paper "Trends in India's Trade in Pharmaceutical Sector: Some Insights" by Dr. Murali Kallumal and Kavita Bugalya (2013) .

4. Empirical Results and Analysis

4.1 Indo-Pakistan Trade and RTAs

Trade between India and Pakistan, due to political and strategic issues, has been fraught with hindrances. The establishment of SAARC[7] (South Asian Association for Regional Co-operation) in 1985 can be remarked as the initiation of improving relations in the South Asian bloc, particularly between India and Pakistan. The launching of the South Asian Preferential trade Agreement (SAPTA) in 1995 was the first major political breakthrough for SAARC since it was India's first regional agreement on economic co-operation (Sawhney and Kumar, 2007). Later, the signing of the SAFTA (South Asian Free Trade Area) Agreement in January 2004 was an attempt by SAARC countries to further integrate through trade and investment. Nepal, Bhutan, Maldives and Bangladesh comprised the least developed countries (LDCs) and Pakistan, India and Sri Lanka the non-LDCs (NLDCs).

The trade liberalisation programme of SAFTA has described the schedules of tariff reductions for LDCs and NLDCs. Along with this, the contracting states can maintain sensitive lists for which the tariff reduction schedules will not hold. Sensitive lists are lists of products of special interest to individual member countries that are exempted from low SAFTA tariffs. The use of sensitive lists allows countries to protect growing domestic industries or important sources of customs revenue. However, overuse of sensitive lists can make goods more expensive for consumers and reduce trade between countries.[8]

6HS 15 includes animal or vegetable fats and oils and their cleavage products, HS 17 includes sugars and sugar confectionery, hs 19 includes preparations of cereals, flour, starch or milk, hs 23 includes residues and waste from the food industries, hs 27 includes mineral fuels, mineral oils and products of their distillation, HS 28 includes inorganic chemicals, HS 29 includes organic chemicals and HS 30 includes pharmaceutical items

7SAARC was founded by seven countries viz., Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

8Ministry of Commerce and Industries, Republic of Afghanistan

The LDCs and NLDCs have affirmed their existing rights and obligations with respect to each other under the Marakkesh Agreement establishing World Trade Organization (WTO). As members of the World Trade Organization (WTO), they are supposed to accord "most favoured nation" (MFN) status to each other. The MFN principle is a principle of non-discrimination embodied in the General Agreement on Trade and Tariffs (GATT), which means countries cannot discriminate between their trading partners. The MFN principle ensures that each country treats the 159 fellow-members of WTO equally. But there are some exceptions for preferential treatment of developing countries, regional free trade areas and customs unions (World Trade Organization). India accorded the MFN status to Pakistan in 1996 and Pakistan has assured it will grant India MFN status soon. However, because Pakistan has not granted MFN status to India, it maintains a negative list for India. Items in Pakistan's negative list are those which are not allowed to be imported from India.

Until 2011, Pakistan maintained a positive list for India specifying permitted items to be imported. It was when a joint statement was issued laying down full phasing-in of MFN in November 2011 that Pakistan shifted to a small negative list. Accordingly, India and Pakistan maintain a sensitive list for its SAFTA members and Pakistan, in addition, maintains a negative list for India. As of now, India has 6 pharmaceutical items in its sensitive list for NLDCs and Pakistan has 24 pharmaceutical items (Refer Annexure 2, Table A1 and A3). In addition to the sensitive list, Pakistan also maintains a negative list for India. Pakistan's negative list consists of 35 pharmaceutical items[9] (Refer Annexure 2, Table A2).

Box 1: MFN: A Hindrance to India Pakistan Pharmaceutical Trade?

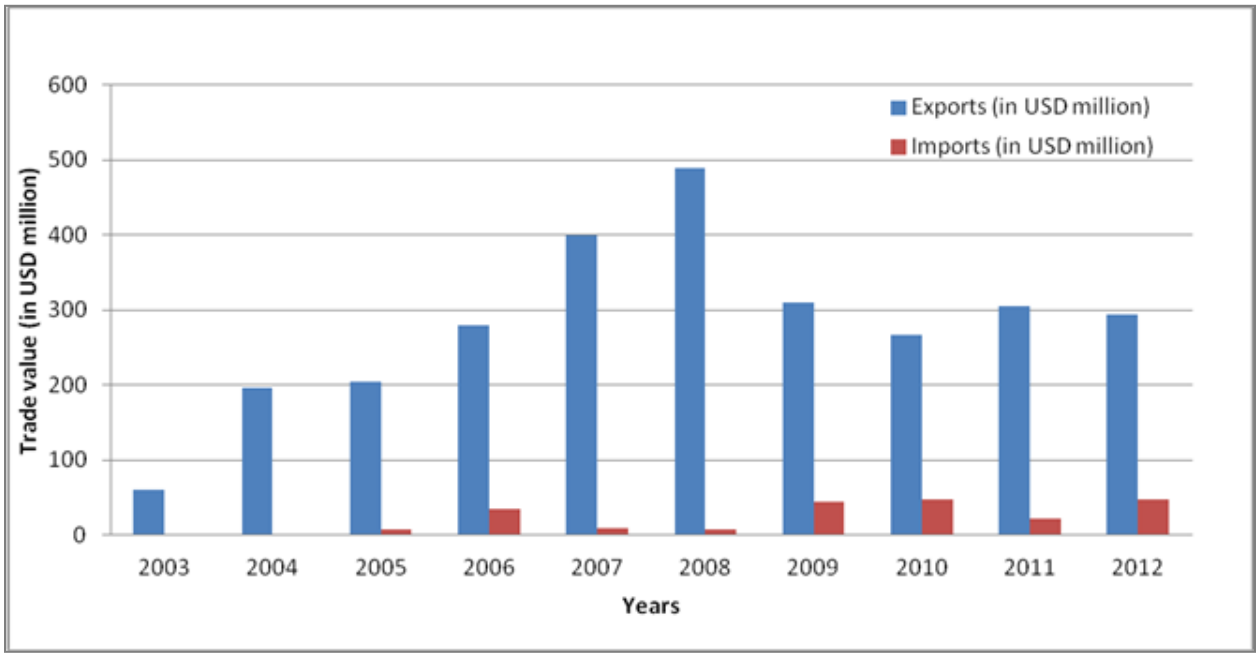
As mentioned earlier, Pakistan prohibits imports of certain commodities from India, known as the negative list and maintains a sensitive list (a list of products on which no preferential concessions are allowed) under the South Asian Free Trade Agreement (SAFTA). There are 35 pharmaceutical items in the negative list and 24 pharmaceutical items (at 6 digit level of HS codes) in the sensitive list (Refer Annexure 2, Table A1 and A2). Most of the items fall in the category of medicaments, dextrose and antibiotics containing penicillin and its derivatives thereof. If Pakistan gives the MFN status to India, it will do away with the negative list. Although most of the pharmaceutical items in the negative list command a 2-3 per cent share in Pakistan's total imports from the world, their importance cannot be undermined. In 2012, some of the items such as medicaments had a 36 per cent share in Pakistan imports of pharmaceutical items from the world and a 27 per cent share in Indian exports of pharmaceutical items to the world, with a similar trend in the previous years. This clearly implies that there is a possibility for Pakistan to import these items from India.

9The number of items in the negative and sensitive lists is according to the classification of pharmaceutical items used in the paper.

4.2 Indo-Pakistan Trade in Pharmaceuticals: Potential and Trends

The focus of this section will be to examine the pharmaceutical items which are currently traded between India and Pakistan and those which are on the sensitive and negative lists. Looking at pharmaceutical items other than those in the sensitive and negative lists, we will examine the trend of their share in total trade over the years. The share of Indian exports to Pakistan in India's trade with the world in pharmaceutical items has ranged between just 1 and 3 per cent over the years 2009-12. The trade balance in these items has been in favour of India, possibly because of the fact that Pakistan's pharmaceutical sector is still in the developing stage. Consequently, possibilities for both countries to integrate are untapped and yet to be taken advantage of.

Graph1: Indian pharmaceutical exports to and imports from Pakistan (2003-12)



Source: Based on data from UN COMTRADE

Barring a few years, exports of pharmaceutical items from India to Pakistan have been increasing. The compound annual growth rate of the exports was 19 per cent over the nine-year period from 2003 to 2012. While, exports show a reasonably stable trend, imports have been very volatile. Imports in the years 2003 and 2004 were negligible (USD 0.047 million and USD 1.195 million). Unlike exports, which started showing an increasing trend 2005 onwards, imports from Pakistan actually started growing from 2009-10. This can be attributed to the fact that both India and Pakistan engaged in a bilateral dialogue that started in 2004 and has continued. The four rounds of talks concluded during 2004 and 2007 resulted in an expansion of the positive list, opening of the road route and an amendment of the maritime protocol, which could have led to the increasing trade between both countries (Taneja et al., 2013).

Examining items which are in the sensitive and negative lists will throw light on the potential for trade and competitiveness. To examine the trade potential between India and Pakistan of pharmaceutical goods, we have used the trade possibility approach. Since current trade in pharmaceuticals between India and Pakistan is limited, this measure will throw light on the trade potential in pharmaceuticals between the two countries. The results of the trade possibility exercise show that in 2012, there was an untapped trade potential of USD1,635.5 million in pharmaceutical items between India and Pakistan. The quantum of export potential from India to Pakistan is much more than the import potential. Of the trade potential – USD1,635.5 million – the export potential of India is USD1,534.6 million and import potential is USD102.8 million. These figures are negligible when compared to the current Indian pharmaceutical exports to Pakistan, of USD 16.99 million and import of USD 0.07 million in 2012. Clearly, pharmaceutical trade of both countries with the rest of the world is much greater than the bilateral trade.

An overview of the trends and potential for trade in pharmaceutical items reveals that current trade is not zero between India and Pakistan. Markets definitely exist in both countries and there would be gains for both India and Pakistan from greater trade integration. As regards trade within the pharmaceutical sector, an insight into intra-industry trade would yield a better picture of the trade potential between the two countries. Bulk and intermediaries, and formulations form two major categories of pharmaceutical items and the extent to which there is exchange of these similar pharmaceuticals will provide a snapshot for future integration in trade between both countries.

4.3 Intra-Industry Trade between India and Pakistan

It is quite possible that trade between India and Pakistan would lie in the intra-industry trade category given that they are developing countries and have somewhat "similar" industry structures. The growth in the Indian pharmaceutical industry is mainly driven by contract manufacturing. The sourcing of APIs for patented drugs is maintained in-house by most innovator companies in order to maintain greater flexibility and quality control (Dun and Bradstreet). The Pakistan pharmaceutical industry is similar. Leading multinationals companies have their products manufactured by the national companies under contract manufacturing arrangements (International Trade Centre, UNCTAD/WTO, 2007). Domestic pharmaceutical manufacturing industries have acquired the latest technologies and have been involved in contract manufacturing in both countries. The Grubel Lloyd index calculations would help validate the intra-industry trade in pharmaceuticals between India and Pakistan. Indian exports and imports of pharmaceuticals along with three intra-industry trade indices (simple, adjusted and group-wise) are shown in the table below.

Table 1: Pharmaceutical exports and imports of India, simple Grubel Lloyd index, Adjusted Grubel Lloyd index and group-wise adjusted GL indices (2009-12)

	2009	2010	2011	2012
Exports (in 1000 US $)	315310.2	272628.7	313274.6	303894.2
Imports (in 1000 US $)	44317.52	48174.89	2138.41	47186.31
Simple Grubel- Lloyd index (GL)	0.04	0.0015	0.0062	0.0057
Adjusted Grubel- Lloyd (GL')	0.48	0.69	0.55	0.25
Group-wise GL indices				
Bulk and intermediaries adjusted GL index, GL''	0.049	0.0015	0.0069	0.0057
Formulations adjusted GL index , GL''	0.0017	0.0026	0.00003	0.0084

Source: Authors calculations using data from COMTRADE

The GL index value ranges from 0.001 to 0.04. This would imply that intra-industry trade in pharmaceuticals is not very high between India and Pakistan considering a value of 1 indicates pure intra-industry trade. The simple GL index, GL, shows a chequered pattern from the years 2009 to 2012, increasing from 2009 to 2010 and decreasing between 2010 and 2011. We have already noted that this index is affected by trade imbalances. In this case, the trade imbalance is in favour of India. The adjustment for trade imbalance is shown in the index GL' in Table 1 above. However, comparison of the changes over time in the either of the two indices reveals that IIT in general is very limited. As an inspection of GL' above shows, there was some increase in IIT between 2009 and 2010 but subsequently, IIT has shown a secular decline. The results of group-wise GL indices (GL") seem to indicate that even the limited IIT is occurring mainly in bulk and intermediaries and IIT in formulations, in particular, is almost non-existent. This can be because the Indian pharmaceutical industry, being an established one, has spent much more on R&D and therefore, can produce formulations for which it needs bulk drugs. The strength of the Indian pharmaceutical industry lies in reverse engineering (Lalitha, 2002) and its competitive advantage lies in its lower production and research costs, its large pool of low cost technical and scientifically trained personnel, and the large number of US FDA certified plants (Greene, 2007). Besides, only a few companies manufacture good quality APIs in Pakistan and most are dependent on imports from other countries for the raw material requirements of API (International Trade Centre, UNCTAD/WTO, 2007). The lack of competitiveness of Pakistan's formulations industry largely explains why IIT in this sector has not increased over the years. It also explains resistance to opening up to imports of Indian formulations, which are mostly in Pakistan's negative list. Since Grubel and Lloyd (1975), many studies stressed that there is strong empirical support for the hypothesis that countries that have common borders and have eliminated or lowered barriers on trade with each other will have relatively high levels of intra-

industry trade. Moreover, the extent of intra-industry trade will be positively correlated with trade intensity. That is, as the trade volume with trade partners increases, there will be more opportunity for more differentiated products to be traded (Koçyiğit et al., 2000). While it is still too early to tell, it is clear that increase in IIT between India and Pakistan is also probably limited by small trading volumes in general. We also see that IIT in formulations is hindered by the unequal R&D capabilities of the two countries.

4.4 Trade Complementarity

A useful indication of the trade potential between India and Pakistan in pharmaceuticals will be the trade complementarity index (TCI). The two TCI values are shown below.

Table 2: Trade Complementarity Index between India and Pakistan

	2012	
	India's trade complementarity with Pakistan	**Pakistan's trade complementarity with India**
Trade Complementarity Index	67.91	72.03

The results for the TCI between India and Pakistan in the year 2012 show that India's demand for pharmaceuticals was partially matched by Pakistan's offer and vice versa. The measure of adequacy of Pakistan's export supply to India's import demand is about 68 per cent whereas, in the case of India's exports, it is 72 per cent. Hence, there seems to be a fair degree of complementarity between the two countries. Expanded trade should exploit this complementarity. Our discussion of the IIT between the two countries shows that this is not happening at present.

Box 2: Bio-Pharmaceuticals: The Link to Strengthening Indo-Pak Pharmaceutical Trade

In the recent years, the bio-pharmaceuticals sector has assumed increasing importance in the light of patent regimes and increasing expenditure on research and development in the world. In 2010, worldwide R&D spending by the pharmaceuticals and biotechnology sector grew by 6.2 per cent, strengthening its position as the top R&D investing sector. The rise of this sector must be exploited to improve trading relations between India and Pakistan.

The current trade between the two countries in bio-pharmaceuticals has been negligible as compared to that in other pharmaceutical categories. The main trade items of bio-pharmaceuticals have been antisera and other blood fractions and modified immunological products, medicaments containing hormones or steroids used as hormones but not antibiotics, human/animal blood prepared for therapeutic, prophylactic or diagnostic uses; toxins and cultures of micro-organisms, vaccines for veterinary medicine and extracts of glands/other organs. Bio-chemical medicines and a few items from the toxins category like Saxitoxin and Ricin are part of Pakistan's negative list (Refer Annex 2, Table A2). Most of the bilateral trade is in the form of Indian exports to Pakistan. Even then, the share of bio-pharmaceuticals in total Indian pharmaceutical exports to Pakistan is a mere 0.02 per cent. The indicative potential trade in bio-pharmaceuticals was 31 times the current trade for the year 2012 (ITC Trade Map).

Collaborative efforts like technology transfer and promoting entrepreneurial know-how will enhance trade in the bio-pharmaceutical sector which is the upcoming sector in the pharmaceuticals segment.

5. Pakistan-China Trade: The Bottleneck in India-Pak Trade?

For both India and Pakistan, the United States is a major trading partner in pharmaceuticals. Also, most of the major pharmaceuticals trading partners of both countries are from Europe. In the Asian region, China is the largest pharmaceuticals exporter to both Pakistan and India. In fact, China is the only Asian country from which Pakistan gets a major chunk of its pharmaceutical imports. According to a 2010 KPMG report, the Chinese pharmaceutical industry is the fifth largest in the world with domestic growth projected at about 20 per cent per annum. It is characterised by both major and minor players comprising about 5,000 units. China has been an important producer of bulk drugs (raw material or bulk drugs and intermediaries). The Chinese pharmaceutical industry has three sub-pharmaceutical industries: 1) chemical medicine 2) traditional Chinese medicine (TCM) and 3) biological products (Kallumal et.al, 2012). The traditional Chinese medicine and chemical raw materials sectors have enhanced the global competitiveness of the Chinese pharmaceutical industry. An analysis of the countries from where Pakistan imports pharmaceutical items shows that the top importing partners of Pakistan – European countries (Denmark, Switzerland, Germany, Belgium, and Italy) and the United States

of America – are outside the Asian region. China is the only Asian country that features in its list of top 10 import partners.

Graph 2: Share (per cent) in pharmaceutical imports of Pakistan of top 12 suppliers

Source: Trade Map, International Trade Centre

Despite the trade complementarities that exist between India and Pakistan in terms of geographical proximity and other similarities, Pakistan imports more pharmaceuticals from China than from India (Refer Annexure 2, Table A4 and A5). Consequently, the potential for trade in pharmaceuticals between India and Pakistan has remained untapped. Whether this is because of desire to protect domestic industry or because of political considerations is what will be looked into in the following sections. The position of China as regards its pharmaceutical trade with Pakistan will be a crucial link to explain why India-Pakistan trade in pharmaceuticals remains small.

The theory of customs unions and RTAs tells us that any RTA can lead to trade diversion away from the non-RTA partners to members of the RTA. This is classified as trade diversion since it is only the tariff preferences that make member countries lower cost suppliers to other RTA members. If tariffs did not exist, the lower cost supplier countries would actually lie outside the RTA (Viner, 1978). Here we look at the issue of such trade diversion for India as a consequence of the Pakistan-China FTA. Since Pakistan has not given MFN status to India but does give preferential trade access to China, this issue is worth investigating.

5.1 Are Indian pharmaceutical items substitutes for Chinese exports to Pakistan?

The global economy has been virtually dominated by Chinese exports in nearly all manufacturing sectors (Kallumal et. al, 2012). China has been increasing its presence in the bulk

drugs and formulations segments in the pharmaceutical sector. As the world's fastest growing economy, China's pharmaceutical market will definitely have implications for India-Pakistan trade given that both countries trade with it. The main issue involved with respect to China-Pakistan and India-Pakistan trade is that being a major trade partner of Pakistan in pharmaceutical items, it is possible that Chinese exports to Pakistan might counter India-Pakistan pharmaceutical trade particularly if Chinese exports to Pakistan are given preferential tariff access. Therefore, it becomes imperative to undertake a detailed analysis of the current pharmaceutical trade between China and Pakistan keeping in view the China-Pakistan free trade area (CPFTA) agreement along with the substitutability and complementarity of Indian and Chinese exports to Pakistan.

China and Pakistan announced the launch of the negotiations on an FTA in 2005. The two countries signed the FTA in November 2006 and it took effect from July 2007. An Early Harvest Programme (EHP) for the Free Trade Agreement was implemented in 2006. It covered the lists for zero-tariff and preferential tariff items along with their margin of preference (MOP) and also included a tariff reduction modality of zero-tariff items. According to the FTA, the tariff reduction modality of Pakistan was supposed to be as follows:

Table 3: Tariff Reduction Modality of Pakistan under the CPFTA

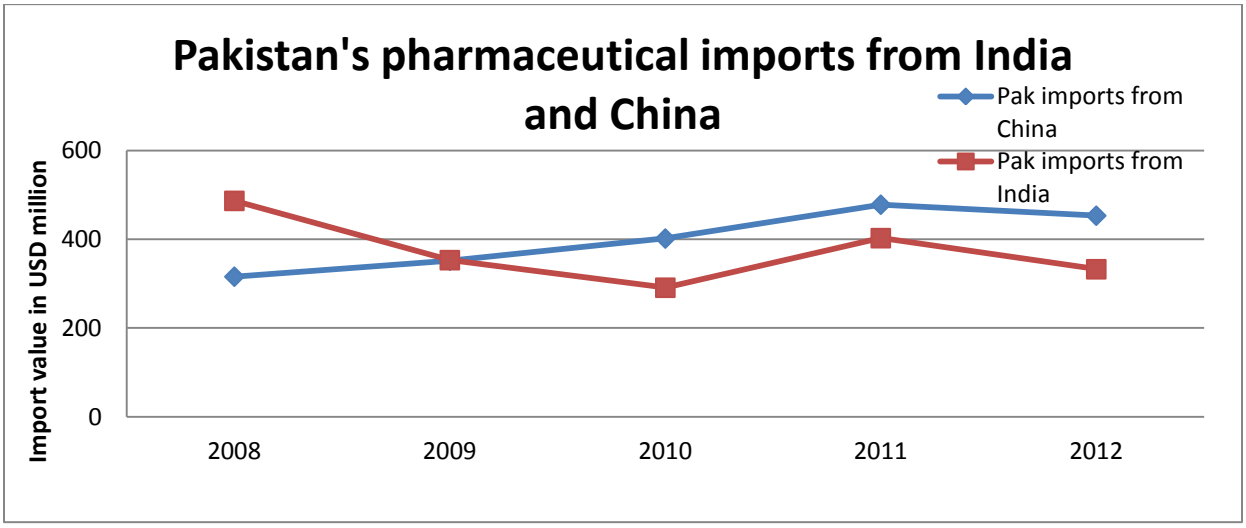
Category	Track	No. of Tariff Lines	Percentage of Tariff lines at 8 digit
I	Elimination of tariff (3 years)	2423	35.6
II	0-5% (5 years)	1338	19.9
III	Reduction on margin of preference from 50% (5 years)	157	2.0
IV	Reduction on Margin of Preference from 20% (5 years)	1768	26.1
V	No Concession	1025	15.0
VI	Exclusion	92	1.4

Source: Free Trade Agreement between the Government of People's Republic of China and The Government Of The Islamic Republic Of Pakistan

The term "margin of preference" here defines the tariff preference to Chinese imports as compared to the MFN rate applicable on those items. Hence, import duties were to be eliminated or reduced to less than 5 per cent in about 56 per cent of tariff lines in 3 years (Categories I and II above). In Category III, tariff was to be reduced to 50 per cent of the prevailing MFN tariff in 5 years while this figure was 20 per cent for Category IV. (Refer Annexure 1 for details).

In the overall package, Pakistan was to get market access at zero duty on industrial alcohol, cotton fabrics, bed-linen and other home textiles, marble and other tiles, leather articles, sports goods, mangoes, citrus fruit and other fruits and vegetables; iron and steel products and engineering goods. Pakistan has given market access to China mainly in sectors like machinery, organic and inorganic chemicals, fruits and vegetables, medicaments and other raw materials for various industries including engineering sector, intermediary goods for engineering sectors, etc. The figure below shows the pharmaceutical imports of Pakistan from India and China over the years from 2008 to 2012.

Graph 3: Pakistan's pharmaceutical imports from India and China



Source: Based on data from UN COMTRADE

It is quite evident that for Pakistan, imports from India show a downward trend and imports from China show an upward trend. After 2009, the value of Pakistan's pharmaceutical imports from China has been increasing and the gap between the value of imports from India and China has also been on the rise. This could perhaps point towards trade diversion since before 2009, the value of Pakistan's pharmaceutical imports from India was substantially higher than from China. It is clear that Pakistan's imports from India have shown a downward trend since 2008 when the Pakistan-China FTA became fully operational giving substantial tariff advantages to Chinese imports. While a proper evaluation of trade diversion requires a much more detailed analysis, the decline in India's exports of pharmaceutical items immediately following the full application of the China-Pakistan FTA cannot be completely coincidental.

From another perspective, it is useful to evaluate the zero-tariff and preferential rates list of items under CPFTA and the negative and sensitive lists maintained under SAFTA. Under the CPFTA, the zero-tariff list comprises 74 pharmaceutical items and the preferential tariff products list offered by Pakistan comprises 25 pharmaceutical items (Refer Annexure 2, table A6 and A7). Matching these items with the pharmaceutical items in the negative and sensitive list maintained

by Pakistan for India reveals that no favourable tariff treatment is given to China over India. The very fact that the items in the zero-tariff and preferential tariff products are completely different from the negative list implies that Pakistan does not give preferential treatment to China over India at least in items on the negative/sensitive list of imports from India. It may be noted that Pakistan has no negative list of items imported from China.

5.2 Competitiveness of Chinese Pharmaceuticals

The issue of global competitiveness becomes important to see how countries perform in a global setting. Clearly, China and India both have a certain degree of overall competitiveness in the global pharmaceutical industry. However, the origin of this competitiveness differs greatly. Since 2004, in the global pharmaceutical value chain production link, China has specialised mainly in raw medicine, while India has specialised in prepared medicine. It was also observed that China exported raw medicine while it imported manufactured formulations (Kallumalet.al, 2012). Pakistan assumes importance in this trilateral, not only as a major importer of pharmaceuticals but also as a foreign collaborator, owing to its proximity with India and it being a chief importer from China. In 2012, the share of Pakistan's pharmaceutical imports, from China was 17 per cent and 12 per cent from India. As regards competitiveness, considering the geographical proximity, ease of transportation to India and competitiveness of Indian drugs, the share of imports from India could be higher.

Are Indian imports competitive? Has the CPFTA diverted trade from India to China? Does Pakistan need to maintain a negative list for India? A proper analysis of the trade diverting/creating potential of the CPFTA requires calculation of demand elasticities etc. This is not possible given the limited data available. We have followed a simpler, yet indicative, procedure of comparing landed prices in Pakistan for Chinese and Indian pharmaceutical products for the year 2012.

Unit values are calculated by dividing the trade value by the quantity. Since CIF (cost, insurance, freight) cost is the actual cost of the imported goods, trade value of Pakistan's pharmaceutical imports from China and India have been used to calculate the unit values. The unit values have been used as proxies for the prices of items in this exercise. Although they suffer from the quantity bias, this is the closest estimation of prices possible with the data on trade value and quantity. The table below shows the unit values of top 13 Pakistan imports from China and the respective unit values of Pakistan imports of those items from India.[10]

[10] This exercise has been carried out using data at the HS 6-digit level from UN COMTRADE rather than at HS 8-digit level to facilitate comparison and make the results discernible. Hence, wherever applicable, we talk about categories and not specific items.

Table 4: Unit Value Comparison – Top 13 Pakistan pharmaceutical imports from China, their share and their respective unit values (2012)

Sr. No.	Product Description	Share of items in Pakistan's imports from China (percentage)	Pak-China unit values	Pak-India unit values	Unit values comparison (greater unit value)
1.	Antibiotics & their derivatives	9	0.071	0.153	India
2.	Nucleic acids& their salts	6	0.034	0.053	India
3.	Nitrile-function comps.	6	0.007	0.007	India
4.	Lysine & its esters; salts thereof	6	0.001	0.003	India
5.	Organo-sulphur compounds	4	0.008	0.006	China
6.	Heterocyclic comps.	4	0.026	0.036	India
7.	Amino-acids, other than those containing more than one kind of oxygen function	3	0.008	0.017	India
8.	Glutamic acid & its salts	3	0.001	0.006	India
9.	Heterocyclic compounds with oxygen	3	0.016	0.025	India
10.	Sulphonamides	2	0.023	0.045	India
11.	Medicaments (excluding goods of healing)	2	0.012	0.016	India
12.	Disodium carbonate	2	0.001	0.0009	China
13.	Cyclic amides	2	0.008	0.020	India

- Category of pharmaceutical items comprising items in the negative list maintained by Pakistan for India

Source: Calculations done using data from UN COMTRADE

In 2012, out of the top 13 Pakistan imports of pharmaceutical items from China, unit values of 11 items are lesser than that of India. Moreover, 5 out of the 10 categories, viz., antibiotics and their derivatives, sulphonamides, medicaments, disodium carbonate and cyclic amides have items in Pakistan's negative list for India. Antibiotics and their derivatives and sulphonamides particularly command shares of 8.9 per cent and 2.2 per cent respectively in Pakistan's imports from China. Some major arguments that can be made, looking at the figures in the table, are as follows: First, Pak-India unit values are greater than Pak-China unit values for the categories comprising negative list items. Retaining these items in Pakistan's negative list for India is thus needless. The very fact that Indian pharmaceuticals are more expensive than their Chinese

counterparts would mean that even after removing the items from negative list, Indian items would have to compete with Chinese items. So, the fear of Indian pharmaceutical items flooding the Pakistan pharmaceutical industry is misplaced since free competition in the market would lead to survival of the cheapest and best quality products. The potential gains of increased market competition are very apparent; lower prices and better quality for consumers, greater discipline on producers/suppliers to keep their costs down, improvements in technology with positive effects on production methods and costs and a faster pace of innovation are some of them. Second, the landed prices of Indian pharmaceutical products would also reflect tariffs payable. Given the tariff advantage to China (as much as 15 per cent or more in some items), it is possible that the extension of similar tariff advantages to India could well reduce the landed prices of Indian goods to the Chinese level or lower. However, a more precise answer would require data not available at this point. In any case, the argument for maintaining a negative list seems weak given the open access in these items to China.

An important advantage of opening up trade in pharmaceuticals by eliminating the negative list would be an increase in consumer surplus. It is also important to note that Pakistan's imports from China might be merely replaced by those from India if this happens for common items that Pakistan imports from India and China. The increased consumer welfare would be a consequence of increased market competition that would have other spill over benefits in the pharmaceutical sector. It is worth noting that of the top 15 formulations that are exported from India to Pakistan, 12 figure in India's major exports of formulations to the world. Given India's predominant position in the world market for formulations, there is no doubt that both in terms of quality (tested in the world market) and price, consumers in Pakistan could benefit enormously by pruning its negative list for Indian exports.

6. Industry Insights

6.1 View from Pakistan

An interaction with pharmaceutical industry stakeholders in Pakistan revealed that as opposed to the general view of the Pakistan pharmaceutical sector not willing to open up; there are a few big players which are proponents of competition and welcome integration with the Indian pharmaceutical industry. The arguments of the supporters of granting MFN status to India and hence opening up pharmaceutical trade with India revolve mainly around the following issues:

- Gain to the Pakistan pharmaceutical industry from the research and development experience of India
- Direct trade as opposed to indirect trade of bulk drugs and intermediaries (raw materials) that are currently being routed from Dubai to Pakistan
- Larger market access for Pakistan pharmaceutical companies

- Possibility of a better drug regulatory framework with greater exposure of the Pakistani pharmaceutical industry to the Indian market

The R&D profile of Indian pharmaceutical industry includes development of generics, new drug delivery systems and new drug development (Joseph, 2011). The benefits of this can accrue to the Pakistan pharmaceutical industry also. Pakistan pharmaceuticals manufacturers are also looking at getting packaging material from India due to existence of a monopoly in Pakistan. This direct trade will save costs and improve efficiency. The existence of a weak regulatory structure (for instance, the herbal medicines division of the Pakistan pharmaceutical sector is completely unregulated) has also worked to the disadvantage of the pharmaceutical industry in Pakistan. Liberalising trade will lead to the enhancement of the regulatory framework enabling producers to compete with Indian suppliers.

Many smaller Pakistan pharmaceutical companies have apprehensions regarding the opening up of the sector to India. The "fear of competition" and influx of pharmaceutical items from India are the main reservations of the section of the pharmaceutical industry opposing MFN status to India. They also need time to prepare and establish themselves to face competition. However, the Pakistan pharmaceutical sector, due to its "Look East" policy, has been able to compete with the Indian pharmaceutical items in South-Asian markets such as Vietnam and Philippines. Hence, providing market access to India with appropriate trigger mechanisms (like imposing quotas, if necessary) to prevent flooding of Indian pharmaceutical items in the Pakistan pharmaceutical market will facilitate integration of the sectors in both countries.

As regards Pakistan trade with China, it has flourished in the recent past, mainly due to the CPFTA. This can be attributed to the fact that Chinese companies can produce generic versions of branded drugs for lower prices. With reference to China in India-Pakistan trade, the issue of non-discriminatory access with non-tariff barriers being country-specific comes to the fore.

6.2 View from India

India has substantial comparative advantage over Pakistan in pharmaceuticals (Ahmad, 2013). Keeping this in view, consultations with Indian exporters held in India were helpful in corroborating the quantitative exercises undertaken and views from stakeholders in Pakistan. Interviews with Indian exporters of pharmaceuticals to Pakistan brought to light a few ground issues that need attention:

- Weak drug regulatory framework in the Pakistan
- Competitive nature of the Pakistan pharmaceutical market – prices of pharmaceuticals items are quite low
- Logistical issues of banking and visa
- Inclusion of formulations in the negative list as a protectionist measure

The regulations for pharmaceutical items are not very stringent in Pakistan and registration for exports is very easy. In fact, Indian traders are of the opinion that regulations in other partner countries like Bangladesh are stricter. This had resulted in easy exports of pharmaceutical items to Pakistan. However, issues related to payments and visas still hamper trade. Banking has to be carried out through a third party overseas bank, which is costly and time consuming. The Indian exporters were also concerned with the pricing in the Pakistan pharmaceutical market. They find the market very competitive and get low prices for their pharmaceutical items. Although most of the exporters denied any competition from Chinese pharmaceuticals in the pharmaceutical items exported from India, for a few items, Chinese prices are much lower than Indian drugs. This has led to the suspension of pharmaceutical trade with Pakistan by a few exporters. Indian exporters are also unable to export formulations since most of the formulations are in the negative list. This is attributed to protectionism in Pakistan. Out of the 35 items in Pakistan's negative list maintained for India, 14 fall under the category of formulations (Refer Annex 2, Table A2). As regards competition with China in the Pakistan pharmaceutical market, Indian exporters said that even though Chinese pharmaceuticals are priced lower, their quality does not match Indian pharmaceutical items. Even importers from Pakistan prefer the quality and potency of Indian drugs compared to Chinese imports.

Despite the concerns, Indian traders who have discontinued trade in pharmaceuticals are more than willing to resume trade provided trade is facilitated via an improvement in banking and finance. The outlook of stakeholders, both in Pakistan and in India of enhancing trade in pharmaceuticals is very positive and encouraging.

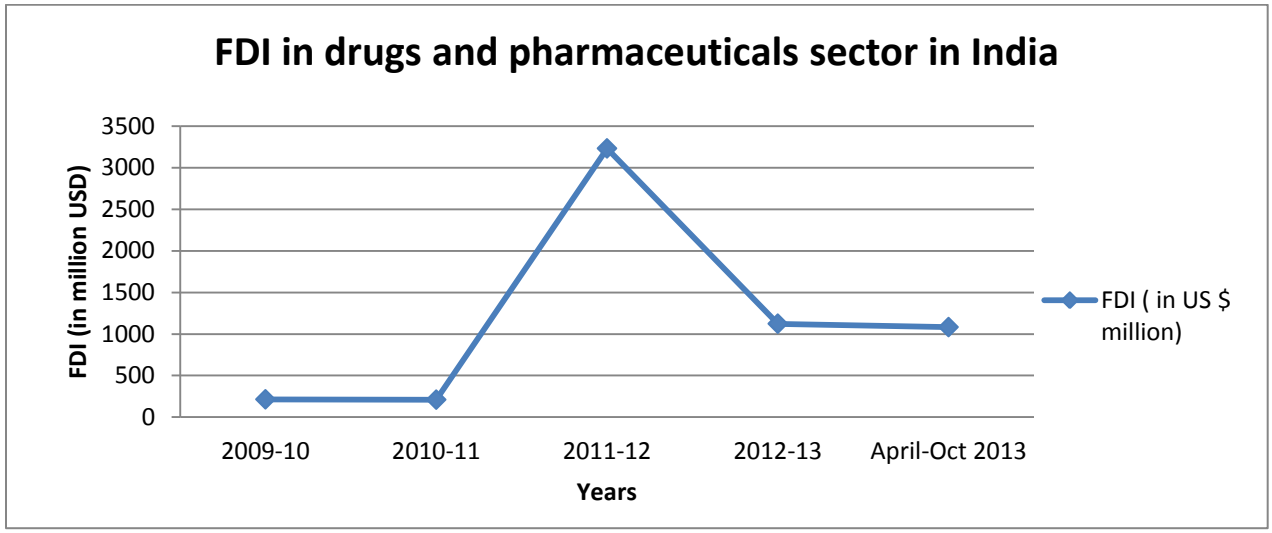
7. FDI in Pharmaceutical Sector

Traditionally, issues of trade and FDI have generally been discussed separately. Standard trade theory, in fact, did not throw much light on FDI and the process of integration of the two did not start until as late as 1980. The link between the two arises because it is now recognised that FDI and trade can be complements or substitutes. FDI, in fact, is simply another way of doing trade particularly when the technology component of trade is high (Trefler, 1995; Markusen, 2002, Pant, 2013). The role of FDI in promoting trade becomes particularly important today when declining transport costs and tariffs have led to the fragmentation of world production (Krugman, 2008). In general, a firm in one country can interact with the market of another country via exports (imports), via licensing the sale/production of its commodities (input purchases) in that country or via locating its own physical production units abroad. It is this last stage that is normally classified as FDI. While in all cases, the objective is export or import of commodities, fixed costs are the highest in the case of FDI. The internalisation theory of FDI thus argues that FDI is generally the last stage for companies engaging in trade (Pant, 1995).

In the context of the pharmaceutical industry, it is useful to look at how policy of the two countries on FDI differs. India had allowed 100 per cent FDI in the pharmaceutical sector through the automatic approval route in greenfield[11] investments and 100 per cent FDI in the brownfield category, subject to approval from the Foreign Investment Promotion Board (FIPB). Pakistan allows 100 per cent foreign equity in the manufacturing sector along with 5 per cent customs duty on plant and machinery and 25 per cent tax relief (Board of Investment, Prime minister's office, Govt of Pakistan). Hence, FDI norms in both countries are very liberal and provide incentives to invest in the pharmaceutical sector.

Yet, there is a vast difference in the nature of foreign involvement in the pharmaceutical industry in the two countries. In India, drugs and pharmaceuticals are among the top 5 sectors which attract FDI after the services, construction, telecommunications and computer software sectors. Its share in the total FDI inflows over the last 10 years from 2000 to 2010 has been 6 per cent.

Graph 3: FDI in drugs and pharmaceuticals in India (2009 to Oct 2013)



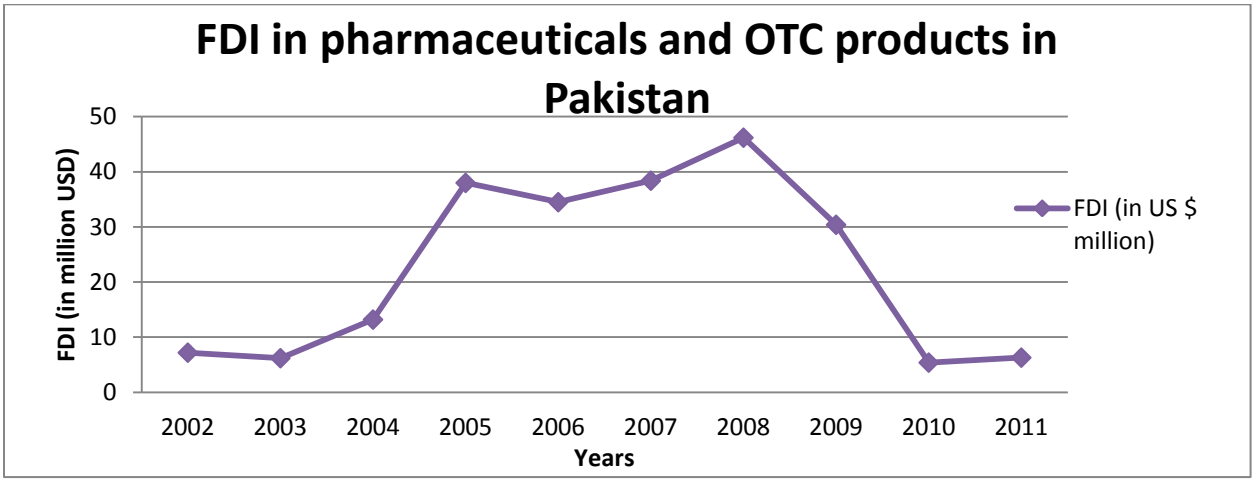
Source: DIPP

As is evident from Graph 4, FDI in drugs and pharmaceuticals sector experienced a boom in 2011-12 when the Indian government liberalised FDI regulations. But thereafter, FDI in pharmaceuticals has remained sluggish.

On the contrary, in Pakistan, the share of FDI in pharmaceuticals and OTC products has ranged around 1 to 2 per cent only. Graph 5 shows that FDI in pharmaceuticals rose from 2003 onwards and this increase continued till 2008. From there on, there has been a decline in FDI inflows in the sector.

11 While brownfield investment implies purchase or sale of existing investment, Greenfield investments refer to altogether new investments. (OECD Benchmark Definition of Foreign Direct Investment ,Fourth Edition 2008)

Graph 4: FDI in pharmaceuticals and OTC products in Pakistan (2002-2011)



Source: State Bank of Pakistan

While the Pakistan pharmaceutical industry is largely controlled by foreign ownership, this is not true in the case of India where Indian pharmaceutical companies have themselves become multinationals over time, particularly in the generic pharmaceutical segment. In fact, the role of foreign firms in the Indian pharmaceutical industry has declined over time as Indian companies have become highly competitive with a very high share of R&D expenditure as compared to other sectors. Multinational companies have a 30 per cent market share in the Indian pharmaceutical industry while the top 20 domestic companies in India have a 50 per cent market share. As opposed to the dominance of national companies in India, multinational pharmaceutical companies have a 53 per cent share in Pakistan's pharmaceutical market (Business Recorder, 2012, September 29).

India's pharmaceutical sector currently spends six to eight per cent of revenues on R&D (Business Standard, 2013, January 03). Stakeholders in Pakistan recognised the benefits of collaborating with the Indian pharmaceutical industry in research and development. The Indian pharmaceutical industry has become an important hub in the production of generic drugs over the last few decades and the Pakistan pharmaceutical industry could take advantage of India's production and R&D in this segment. Further, pharmaceutical industrialists also mentioned the lack of FDA approved laboratories for testing purposes in Pakistan. Through collaborations with the Indian pharmaceutical industry, units in Pakistan's pharmaceutical sector could use FDA approved laboratories in India and save on costs.

There is currently little FDI flow between Pakistan and India; this is also true of the pharmaceutical industry. Yet literature shows that, in general, high bilateral trade tends to be associated over time with high bilateral FDI (Hejazi & Safarin, 1999; Brainard, 1997). The issue is that with trade today being mainly of the intra-industry type, and this type of trade is normally driven by FDI (Blomstorm, 1991). Moreover, it is now recognised that transnational corporations

(TNCs) base their decisions on regional rather than country policies towards FDI (Clausing, 2000). Thus, it is argued that in South Asia, it is necessary for countries to harmonise FDI policies as competition for the same FDI can be harmful, particularly for smaller countries (Das and Pant, 2006)

Given the current political situation, it is unlikely that high volumes of FDI will flow from India to Pakistan or vice versa in the immediate future. The possibilities of third country FDI driving India-Pakistan is worth exploring. Here it is worth noting that most of the RTAs being contracted today allow for an investment component. This is missing from the SAFTA agreement. The issue of harmonisation of the FDI policies of India and its neighbours surely deserves a second look, especially as India has included an investment component in its RTAs with Singapore, South Korea and Japan.

8. Summary and Policy Recommendations

The pharmaceutical industry is an important component of healthcare system in an economy. India's pharmaceutical sector has been pre-dominantly a producer of generic products and has a large global presence, particularly in the large markets of the developed world. On the other hand, the Pakistan pharmaceutical sector is still at a developing stage but has been able to gain a small foothold in the Asia-Pacific region. There are some obvious complementarities here. An industry sector like pharmaceuticals, with "high social value" and having direct relation to the health and well-being of consumers, would be an ideal segment to enhance trade and improve relations between the two countries.

There is substantial trade complementarity and high trade potential of USD 1,635 million in trade of pharmaceuticals between India and Pakistan. Consultations with stakeholders on both sides revealed that firms realise the possibility of huge benefits from increased trade and investment. However, there have been apprehensions among the small players in Pakistan regarding the influx of pharmaceuticals from India once trade opens up. Since Pakistan imports a substantial amount of pharmaceuticals from China, the CPFTA is a significant free trade agreement signed between China and Pakistan in terms of market access. The matching of the negative list maintained by Pakistan for India and the sensitive lists of both India and Pakistan under SAFTA with the zero-tariff and preferential lists reveal that Pakistan gives no favourable treatment to China over India. Out of the top 13 Pakistan imports of pharmaceuticals from China, unit values of 11 items are lesser than those in which Pakistan trades with India. This points to the fact that when Pakistan opens its pharmaceutical market to India, competition would eventually lead to survival of best quality pharmaceutical items in the Pakistan pharmaceutical market. Consequently, this would have a positive impact on the consumer surplus in the pharmaceutical sector.

Specific to the pharmaceuticals sector, the following policy recommendations are suggested to propel trade and investment:

1) **Removal of pharmaceutical items from the negative list**: To give a push to trade in pharmaceuticals, it is imperative that the negative list maintained by Pakistan for India should be done away with. Currently, with 35 items at the 6-digit level according to the HS classification, the negative list contains pharmaceutical items of critical importance such as penicillin and its derivatives, erythromicin and its derivatives, ingredients for pesticides, vaccines for veterinary medicine and surgical tapes. Pakistan already trades in these items with China under the Pakistan-China free trade agreement. Hence, it seems illogical to continue to maintain a negative list for India in these items. Incorporation of trigger mechanisms from Pakistan's side would help combat the apprehensions of smaller pharmaceutical manufacturers about being flooded with imports from India. In fact, competition from Indian products can only benefit consumers and this is critical in the health sector, particularly in developing economies. It may be noted that *in this critical sector, consumer gains should be given greater weightage than temporary production losses*.

2) **Removal of pharmaceutical raw materials from the sensitive list**: Another channel to enhance trade in pharmaceuticals would be the removal of raw materials from the sensitive list maintained by Pakistan. *The high import duties on raw materials actually reduce the effective rate of protection*[12] *of final products and this would defeat the purpose of protecting the Pakistan pharmaceutical industry, if that is the intent*. We, therefore, suggest that protection to final products in Pakistan could be increased by bringing raw materials under a zero or low duty regime.

3) **FDI in pharmaceuticals**: Theory recognises that FDI is another way of doing trade, and traversing this path would certainly give a boost to bilateral trade between India and Pakistan. However, the internalisation theory of trade establishes that FDI is the last stage of engagement between countries/companies that trade with each other. So, *the prospects of FDI in pharmaceuticals will come later in the future after trade integration between the two countries happens*. However, some groundwork in harmonising policies towards FDI in this sector seems necessary.

4) **Tapping the traditional medicine segment to enhance trade**: Traditional medicine is another significant area with large potential requiring substantial policy interventions. *Herbal, ayurvedic, Sihdha and Unani medicines are common to both India and Pakistan*. Although the Government of India has realized Good Manufacturing Practices (GMPs) for the pharmaceutical manufacturing, the need to establish regulatory mechanisms to regulate

[12]Effective rate of protection = $(T_f - T_i)/ VA_{int}$ where $T_f$is the total tariff theoretically or actually paid on the final product, T_i is the total tariffs paid on importable inputs and VA_{int} is the international value added.

herbal medicines is obvious. In India, new rules came into force from June 2000 as an amendment to the Drugs and Cosmetics Act, 1940. These rules give details regarding essential infrastructure, personnel and quality control requirements for herbal drug manufacturing. Implementing GMP requirements is mandatory for the industry. Pakistan also faces challenges in the traditional medicine system. Challenges such as unknown market demand, absence of a regulatory environment and framework, i.e., traditional medicines act, R&D facilities, infrastructure and allocation of appropriate financial resources need to be worked upon.

5) **Potential for trade in bio-pharmaceuticals**: Bio-pharmaceuticals, an upcoming field, has a lot of scope in the pharmaceutical sector. It has been the top R&D investing sector in the world in recent times. The fact that both India and Pakistan have companies that are engaged in the manufacture and sale of bio-pharmaceuticals is another reason for the countries to integrate and collaborate in setting up R&D facilities.

6) **Harmonising Regulatory Regimes in pharmaceutical sector**: *Harmonisation of regulatory regimes is a prerequisite for smooth and uninterrupted trade*. The lack of a standardised regulatory framework with respect to manufacturing and the lack of FDA approved laboratories[13] in Pakistan have acted as barriers to trade in pharmaceuticals products. A constitutional amendment in 2010 dissolved the Ministry of Health and shifted the responsibility to the country's provincial governments. The Drug Regulatory Authority of Pakistan (DRAP) was set up only in 2012 to provide for effective co-ordination and enforcement of The Drugs Act 1976 and to bring harmony in inter-provincial trade in therapeutic goods.

   Pakistan's counterpart in India, the Central Drugs Standard Control Organisation (CDSCO) was established under the Drugs and Cosmetics Act, 1940, to regulate the pharmaceutical sector. The devolution of powers is such that state authorities are responsible for the manufacture, sale and distribution of drugs while the central authorities are responsible for approval of new drugs. However, the pricing of drugs is the purview of the central government's National Pharmaceutical Pricing Authority (NPPA), which periodically issues Drug Prices Control Orders (DPCO) that specify maximum retail prices, particularly of bulk drugs and essential formulations, and hence keep down prices to consumers.

7) **Mutual Recognition Agreements**: Lastly, if pharmaceutical trade between India and Pakistan is to expand, it will be necessary to sign mutual recognition agreements (MRAs) that specify standards to be enforced on the drug industry in both countries. *Any fears on either side of sub-standard drugs flooding the markets can be addressed via these MRAs*.

13Stakeholders in Karachi claimed having only 2 FDA approved laboratories for testing in Pakistan – one in Islamabad and another in Karachi

Another issue that is critical in the development of the pharmaceutical sector is research and development (R&D). The 30 leading Indian pharmaceutical companies spend almost 20 per cent of their turnover on research and development (Pingle, 2013). Collaborations in research and development of pharmaceuticals would yield returns for both countries. In fact, Pakistan can take advantage of India's world-class R&D facilities through collaborations and joint ventures.

In the near future, prospects of economic integration seem substantial considering the trade potential between India and Pakistan. The pharmaceutical sector assumes importance by virtue of having a direct association with consumers, as regards their health and welfare. The importance of pharmaceuticals industry also stems from the objective of safeguarding life and enhancing healthcare. It is regarded as the mainstay of public health in any country (International Trade Centre, UNCTAD/WTO, 2007). The "Healthcare in India – Vision 2020" document remarks that 'Health is best understood as the indispensible basis for defining a person's sense of well-being'. The National Drug Policy of Pakistan also states that the government is committed to the goal of health and is taking all possible measures in the field of health services at large and drugs in particular. As such, governments all over the world are committed to the goal of health and well-being of its citizens. Trade in pharmaceuticals can be one of the means to indirectly resolve healthcare issues and meet related objectives in both countries.

At the production level, the pharmaceutical industries of both India and Pakistan are growing at a satisfactory rate. Addressing issues that are holding back trade and providing market access are major steps that need to be taken to integrate the sectors of both countries. Infusing confidence in manufacturers on both sides to collaborate will help the two countries avail of the obvious trade complementarities between their pharmaceutical sectors. The prospects of greater trade flows and investment between India and Pakistan seem bright and the time for this opportune, given the giant leap that the global pharmaceutical industry has taken.

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ANNEXURE

Annexure 1

Elimination of Import Customs Duties under the China-Pakistan Free Trade Agreement

The categories which are applicable to imports into Pakistan from China are the following**:**

1）"Category I": Import customs duties shall be removed in four stages beginning on the date this Agreement enters into force, and such goods shall be duty-free, effective January 1st of year three. Each year's Margin of Preference（MOP）is as follows:

Category	Entry into force	01.01.08	01.01.09	01.01.10
I	25%	50%	75%	100%

2）"Category II": Import customs duties shall be reduced to or below 5 per cent in five years after entry into force of this Agreement. The MOP is as follows:

Category	Entry into force	01.01.08	01.01.09	01.01.10	01.01.11	01.01.12
II	(X-5) 6X	2(X-5) 6X	3(X-5) 6X	4(X-5) 6X	5(X-5) 6X	6(X-5) 6X

X refers to applied MFN tariff rates of the current year

3）"Category III": Import customs duties shall be reduced by the margin of preference of 50 per cent within five years of entry into force of this Agreement. Each year's MOP is as follows:

Category	Entry into force	01.01.08	01.01.09	01.01.10	01.01.11	01.01.12
III	8%	16%	25%	33%	41%	50%

4）"Category IV": Import customs duties shall be reduced by the margin of preference of 20 per cent within five years of entry into force of this Agreement. Each year's MOP is as follows:

Category	Entry into force	01.01.08	01.01.09	01.01.10	01.01.11	01.01.12
IV	3%	6%	10%	13%	16%	20%

5）"Category V": No concession

Annexure 2

Table A1: Pharmaceutical Items in Pakistan's Sensitive List under SAFTA

Sr. No.	HS Code (at 6 digit level)	Categorisation	Items
1	283620	Bulk and intermediary	Disodium carbonate
2	283630	Bulk and intermediary	Sodium hydrogencarbonate (sodium bicarbonate)
3	284910	Bulk and intermediary	Calcium Carbide
4	291511	Bulk and intermediary	Formic acid
5	291521	Bulk and intermediary	Acetic acid
6	291531	Bulk and intermediary	Ethyl acetate
7	291533	Bulk and intermediary	n-Butyl acetate
8	291570	Bulk and intermediary	Palmitic acid, stearic acid, their salts and esters
9	291639	Bulk and intermediary	Aromatic monocarboxylic acids and their derivatives, nes
10	291732	Bulk and intermediary	Dioctyl orthophthal
11	291735	Bulk and intermediary	Phthalic anhydride
12	291736	Bulk and intermediary	Terephthalic acid & its salts
13	291822	Bulk and intermediary	O-Acetylsalicylic acid, its salts and esters
14	292429	Bulk and intermediary	Cyclic amides and their derivatives, nes; salts thereof
15	293359	Bulk and intermediary	Heterocyclic comps
16	293500	Bulk and intermediary	Sulphonamides in bulk
17	293941	Bulk and intermediary	Ephedrine & its salts
18	293942	Bulk and intermediary	Pseudoephedrine (INN) and its salts
19	294110	Bulk and intermediary	Penicillins & their derivatives, in bulk; salts thereof
20	294190	Bulk and intermediary	Antibiotics nes, in bulk
21	300490	Formulation	Medicaments ,nes, in dosage
22	300510	Formulation	Dressings and other articles having an adhesive layer
23	300610	Formulation	Suture materials, sterile; laminaria, sterile; haemostactics, sterile
24	300691	Formulation	Appliances identifiable for ostomy use

Table A2: Pharmaceutical Items in Pakistan's Negative List*

Sr. No.	HS Code (at 6-digit level)	Categorisation	Items
1	283630	Bulk and intermediary	Sodium hydrogencarbonate (Sodium bicarbonate)
2	290544	Bulk and intermediary	D-glucitol (sorbitol)
3	290545	Bulk and intermediary	Glycerol
4	290549	Bulk and intermediary	Other
5	291521	Bulk and intermediary	Acetic acid
6	291531	Bulk and intermediary	Ethyl acetate
7	291533	Bulk and intermediary	*n* -Butyl acetate
8	291639	Bulk and intermediary	Ibuprofen
9	292429	Bulk and intermediary	Paracetamol
10	293349	Bulk and intermediary	Other
11	293500	Bulk and intermediary	Sulphamethexazole
12	293941	Bulk and intermediary	Ephedrine and its salts
13	293942	Bulk and intermediary	Pseudoephedrine (INN) and its salts
14	293949	Bulk and intermediary	Other
15	293969	Bulk and intermediary	Other
16	294110	Bulk and intermediary	Penicillins and their derivatives with a penicillanic acid structure; salts thereof
17	294130	Bulk and intermediary	Tetracyclines and their derivatives; salts thereof
18	294140	Bulk and intermediary	Chloramphenicol and its derivatives salts thereof
19	294150	Bulk and intermediary	Erythromycin and its derivatives; salts thereof
20	294190	Bulk and intermediary	Cephalexin
21	300230	Formulation	Vaccines for veterinary medicine
22	300290	Formulation	Human blood; animal blood prepared for therapeutic or diagnostic uses; toxins, cultures of micro-organisms

Sr. No.	HS Code (at 6-digit level)	Categorisation	Items
23	300310	Formulation	Medicaments containing pencillins or derivatives thereof, with a penicillanic acid structure, or streptomycins or their derivatives
24	300320	Formulation	Medicaments containing other antibiotics
25	300340	Formulation	Medicaments containing alkaloids or derivatives thereof but not Medicaments containing hormones or other products of heading 29.37 or antibiotics
26	300410	Formulation	Ampicillin, Amoxcillin and Cloxcillin capsules/ syrup
27	300420	Formulation	Medicaments containing other antibiotics
28	300431	Formulation	Medicaments containing insulin
29	300432	Formulation	Medicaments containing corticosteroid hormones, their derivatives or structural analogues
30	300450	Formulation	Medicaments Medicaments containing provitamins, vitamins, incl. natural concentrates and derivatives thereof
31	300490	Formulation	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, in measured doses or put up for retail sale
32	300510	Formulation	Adhesive dressings and other articles having an adhesive layer, impregnated or covered with pharmaceutical substances or put up for retail sale for medical, surgical, dental or veterinary purposes
33	300590	Formulation	Wadding, gauze, bandages and the like, e.g. dressings, adhesive plasters, poultices, impregnated or covered with pharmaceutical substances or put up for retail sale for medical, surgical, dental or dental haemostactics
34	560110	Formulation	Diapers of waddings
35	960200	Bulk and intermediary	Gelatin Capsules

*Negative List provided by the Ministry of Commerce, Pakistan at the 8-digit level has been compressed at the 6-digit level.

Table A3: Pharmaceutical Items in India's Sensitive List			
Sr. No.	**HS Code**	**Categorisation**	**Items**
1	28170010	Bulk and intermediary	Zinc Oxide
2	30039011	Formulation	Medicants of Ayurvedic system
3	300410	Formulation	Containing penicillins or derivatives thereof, with a penicillanic acid structure, or streptomycins
4	300420	Formulation	Containing other antibiotics
5	300610	Formulation	Sterile absorbable surgical or dental yarn; sterile surgical or dental adhesion barriers, whether or not absorbable.
6	300691	Formulation	Appliances identifiable for osotomy use

Pharmaceutical items that are in the negative list maintained by Pakistan for India

Table A4:China's exports of pharmaceutical items to Pakistan in 2012

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
1	294190	Antibiotics & their derivatives (excl. of 2941.10-2941.50); salts thereof	Bulk and intermediary	38.5217
2	293299	Heterocyclic compounds with oxygen hetero-atom(s) only (excl. of 2932.11-2932.95)	-	21.9612
3	300490	Medicaments (excluding goods of heading 30.02/30.05/30.06/3004.10-3004.50) consisting of mixed/unmixed products for therapeutic/prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems)/in forms/packi	Formulation	20.5659
4	293399	Heterocyclic comps. with nitrogen hetero-atom(s) only (excl. of 2933.11-2933.91)		19.8916
5	293339	Heterocyclic comps. containing an unfused pyridine ring (whether/not hydrogenated) in the structure (excl. of 2933.31-2933.33)	Bulk and intermediary	19.8517
6	293090	Organo-sulphur compounds (excl. of 2930.20-2930.50)	Bulk and intermediary	19.5629
7	292429	Cyclic amides (incl. cyclic carbamates) & their derivatives (excl. of 2924.21-2924.24); salts thereof	Bulk and intermediary	16.0548
8	292242	Glutamic acid & its salts	Bulk and intermediary	15.7747
9	293499	Nucleic acids&their salts, whether/not chemically defined,n.e.s.; other heterocyclic compounds,n.e.s.	-	13.6552
10	291814	Citric acid	Bulk and intermediary	12.6573
11	292910	Isocyanates	Bulk and intermediary	10.9235
12	292249	Amino-acids, other than those containing > one kind of oxygen function, & their esters (excl. of 2922.41-2922.44); salts thereof	Bulk and intermediary	10.4709
13	293349	Heterocyclic comps. containing in the structure a quinoline/isoquinoline ring-system (whether/not hydrogenated), not further fused, other than levorphanol (INN) & its salts	Bulk and intermediary	9.0405
14	300431	Medicaments containing insulin, put up in measured doses/forms/packings for RS	Formulation	8.89529
15	300420	Medicaments containing other antibiotics (excl. of 3004.10), put up in measured doses/forms/packings for RS	Formulation	8.73515
16	290611	Menthol	Bulk and intermediary	8.41645

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
17	292250	Amino-alcohol-phenols, amino-acid-phenols & other amino-comps. with oxygen function	Bulk and intermediary	8.28442
18	291620	Cyclanic/cyclenic/cycloterpenic monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives	Bulk and intermediary	8.16303
19	290349	Halogenated derivatives of acyclic hydrocarbons containing 2/more different halogens (excl. of 2903.41-2903.47)	-	7.38842
20	300210	Antisera & other blood fractions & modified immunological products, whether/not obt. by means of biotechnological processes	Formulation	6.76002
21	290339	Fluorinated/brominated/iodinated derivatives of acyclic hydrocarbons (excl. of 2903.31)	-	6.74451
22	294130	Tetracyclines & their derivatives; salts thereof	Bulk and intermediary	6.33184
23	293500	Sulphonamides	Bulk and intermediary	6.02983
24	293329	Heterocyclic comps. containing an unfused imidazole ring (whether/not hydrogenated) in the structure, other than hydantoin & its derivatives	Bulk and intermediary	5.99395
25	293020	Thiocarbamates & dithiocarbamates	Bulk and intermediary	5.68032
26	294110	Penicillins & their derivatives with a penicillanic acid structure; salts thereof	Bulk and intermediary	5.65925
27	294150	Erythromycin & its derivatives; salts thereof	Bulk and intermediary	4.7482
28	291539	Esters of acetic acid (excl. of 2915.31-2915.36)	Bulk and intermediary	4.65472
29	292229	Amino-naphthols&other amino-phenols, other than those containing more than one kind of oxygen function(excl. of 2922.21), their ethers&esters; salts thereof	Bulk and intermediary	4.453
30	292241	Lysine & its esters; salts thereof	Bulk and intermediary	4.43298
31	292690	Nitrile-function comps. (excl. of 2926.10-2923.30)	-	4.26749
32	293361	Melamine	Bulk and intermediary	4.13179
33	292990	Compounds with other nitrogen function, other than isocyanates	-	4.12432
34	293627	Vitamin C & its derivatives	-	4.11594
35	300410	Medicaments containing penicillins/derivatives thereof with a penicillanic acid structure/streptomycins/their derivatives, put up in measured doses/forms/packings for RS	Formulation	3.9834
36	291614	Esters of methacrylic acid	Bulk and intermediary	3.89433
37	293359	Heterocyclic comps. containing a pyrimidine ring (whether/not hydrogenated)/piperazine ring in the structure (excl. of 2933.52-2933.55)	Bulk and intermediary	3.8848

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
38	291512	Salts of formic acid	Bulk and intermediary	3.42881
39	292700	Diazo- /azo- /azoxy-comps.	Bulk and intermediary	3.17808
40	293722	Halogenated derivatives of corticosteroidal hormones	Bulk and intermediary	3.09492
41	300390	Medicaments (excluding goods of heading 30.02, 30.05/30.06/of 3003.10-3003.40) consisting of two/more constituents which have been mixed together for therapeutic/prophylactic uses, not put up in measured doses/in forms/packings for retail sale	Formulation	3.07361
42	293229	Lactones (excl. coumarin, methylcoumarins & ethylcoumarins)	Bulk and intermediary	2.96202
43	292511	Saccharin & its salts	Bulk and intermediary	2.96021
44	292419	Acyclic amides (including acyclic carbamates, excl. of 2924.11& 2924.12)&their derivatives; salts thereof	-	2.87346
45	292159	Aromatic polyamines & their derivatives (excl. of 2921.51); salts thereof	Bulk and intermediary	2.85007
46	291639	Aromatic monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2916.31-2916.36)	Bulk and intermediary	2.80787
47	300320	Medicaments consisting of 2/more constituents, containing other antibiotics (excl. of 3003.10), not put up in measured doses/forms/packagings for RS	Formulation	2.58086
48	291529	Salts of acetic acid	Bulk and intermediary	2.4449
49	291511	Formic acid	Bulk and intermediary	2.44436
50	293721	Cortisone, hydrocortisone, prednisone (dehydrocortisone) & prednisolone (dehydrohydrocortisone)	Bulk and intermediary	2.27173
51	293628	Vitamin E & its derivatives	-	2.20104
52	293625	Vitamin B6 & its derivatives	-	2.18552
53	292221	Aminohydroxynaphthalenesulphonic acids & their salts	Bulk and intermediary	2.17832
54	290619	Cyclanic/cyclenic/cycloterpenic alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2906.11-2906.13)	Bulk and intermediary	2.14926
55	293100	Organo-inorganic compounds, n.e.s. in Ch.29	-	2.04703
56	300439	Medicaments containing hormones/other products of 29.37 but not containing antibiotics, put up in measured doses/forms/packings for RS	Formulation	1.99771
57	290532	Propylene glycol (propane-1,2-diol)	Bulk and intermediary	1.95724
58	293319	Heterocyclic comps. containing an unfused pyrazole ring (whether/not hydrogenated) in the	Bulk and intermediary	1.94676

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
		structure (excl. phenazone & its derivatives)		
59	290542	Pentaerythritol	Bulk and intermediary	1.85693
60	291612	Esters of acrylic acid	Bulk and intermediary	1.75475
61	293420	Compounds containing in the structure a benzothiazole ring-system (whether/not hydrogenated), not further fused	Bulk and intermediary	1.65822
62	290960	Alcohol peroxides, ether peroxides, ketone peroxides & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	1.62236
63	293369	Heterocyclic comps. containing an unfused triazine ring (whether/not hydrogenated) in the structure, other than melamine	Bulk and intermediary	1.58555
64	290219	Cyclanes, cyclenes & cycloterpenes other than cyclohexane	-	1.55794
65	291899	Carboxylic acids with additional oxygen function&their anhydrides/halides/peroxides/peroxyacids;their halogenated/sulphonated/nitrated/nitrosated derivatives(excl. 2918.11-2918.91)	-	1.52555
66	290312	Dichloromethane (methylene chloride)	Bulk and intermediary	1.48377
67	291714	Maleic anhydride	Bulk and intermediary	1.47148
68	292390	Quaternary ammonium salts & hydroxides; lecithins & other phosphoaminolipids, whether/not chemically defined (excl. of 2923.10 & 2923.20)	Bulk and intermediary	1.46409
69	291631	Benzoic acid, its salts & esters	Bulk and intermediary	1.41838
70	294200	Organic comps. n.e.s. in Ch.29	Bulk and intermediary	1.40601
71	293626	Vitamin B12 & its derivatives	-	1.39079
72	292149	Aromatic monoamines & their derivatives (excl. of 2921.41-2921.46); salts thereof	Bulk and intermediary	1.3195
73	291815	Salts & esters of citric acid	Bulk and intermediary	1.27834
74	291822	O-Acetylsalicylic acid, its salts & esters	-	1.25438
75	290930	Aromatic ethers & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	1.12765
76	300590	Wadding, gauze, bandages & similar articles (eg. dressings, adhesive plasters, poultices), impregnated/coated with pharmaceutical substances/put up in forms/packings for retail sale for medical, surgical, dental/veterinary purposes(excl. of 3005.10)	Formulation	1.09948
77	293930	Caffeine & its salts	Bulk and	1.06079

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
			intermediary	
78	291711	Oxalic acid, its salts & esters	Bulk and intermediary	1.02187
79	293622	Vitamin B1 & its derivatives	Bulk and intermediary	1.01868
80	294120	Streptomycins & their derivatives; salts thereof	Bulk and intermediary	0.96723
81	292151	o-, m-, p-Phenylenediamine, diaminotoluenes, & their derivatives; salts thereof	Bulk and intermediary	0.96335
82	291570	Palmitic acid, stearic acid, their salts & esters	Bulk and intermediary	0.95304
83	292145	1-Naphthylamine (alpha-naphthylamine), 2-naphthylamine (beta-naphthylamine) & their derivatives; salts thereof	Bulk and intermediary	0.95015
84	300450	Medicaments containing vitamins/other products of 29.36 (excl. of 3004.10-3004.40), put up in measured doses/forms/packings for RS	Formulation	0.94564
85	292620	1-Cyanoguanidine (dicyandiamide)	Bulk and intermediary	0.94352
86	291241	Vanillin (4-hydroxy-3-methoxybenzaldehyde)	Bulk and intermediary	0.94133
87	291531	Ethyl acetate	Bulk and intermediary	0.88927
88	300510	Adhesive dressings & other articles having an adhesive layer	Formulation	0.8667
89	293629	Vitamins & their derivatives, unmixed (excl. of 2936.10-2936.28)	-	0.86025
90	291619	Unsaturated acyclic monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2916.11-2916.15)	Bulk and intermediary	0.83403
91	291816	Gluconic acid, its salts & esters	Bulk and intermediary	0.7843
92	290323	Tetrachloroethylene (perchloroethylene)	Bulk and intermediary	0.78256
93	294140	Chloramphenicol & its derivatives; salts thereof	Bulk and intermediary	0.77639
94	290290	Xylenes (excl. of 2902.41-2902.70)	Bulk and intermediary	0.75218
95	291219	Acyclic aldehydes without other oxygen function (excl. of 2912.11&2912.12)	Bulk and intermediary	0.73049
96	290899	Halogenated/sulphonated/nitrated/nitrosated derivatives of phenols/phenol-alcohols (excl. of 2908.11-2908.91)	-	0.70308
97	290543	Mannitol	Bulk and intermediary	0.6606
98	300220	Vaccines for human medicine	Formulation	0.63543
99	300432	Medicaments containing corticosteroid hormones, their derivatives & structural analogues, put up in measured doses/forms/packings for RS	Formulation	0.62833

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
100	300310	Medicaments containing penicillins/derivatives thereof with a penicillanic acid structure/streptomycins/their derivatives, not put up in measured doses/forms/packagings for RS	Formulation	0.61302
101	292219	Amino-alcohols other than those containing > one kind of oxygen function (excl. of 2922.11-2922.14), their ethers & esters; salts thereof	Bulk and intermediary	0.5841
102	291830	Carboxylic acids with aldehyde/ketone function but without other oxygen function, their anhydrides, halides, peroxides, peroxyacids & their derivatives	-	0.5684
103	290322	Trichloroethylene	Bulk and intermediary	0.52632
104	293719	Polypeptide hormones, protein hormones & glycoprotein hormones, their derivatives & structural analogues (excl. of 2937.11 & 2937.12)	Bulk and intermediary	0.49744
105	291469	Quinones other than anthraquinone	Bulk and intermediary	0.49217
106	291990	Phosphoric esters&their salts, including lactophosphates; their halogenated, sulphonated, nitrated/nitrosated derivatives(excl. of 2919.10)	Bulk and intermediary	0.47479
107	291829	Carboxylic acids with phenol function but without other oxygen function, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2918.21-2918.23)	-	0.46379
108	292143	Toluidines & their derivatives; salts thereof	Bulk and intermediary	0.45128
109	292142	Aniline derivatives & their salts	Bulk and intermediary	0.44445
110	291712	Adipic acid, its salts & esters	Bulk and intermediary	0.43336
111	290729	Polyphenols (excl. of 2907.21-2907.23); phenol-alcohols	Bulk and intermediary	0.43116
112	300190	Glands&other organs for organo-therapeutic uses, dried, whether/not powdered; heparin&its salts; other human/animal substances prepared for therapeutic/prophylactic uses, n.e.s./incld.	Formulation	0.43069
113	293379	Lactams (excl. of 2933.71 & 2933.72)	Bulk and intermediary	0.41854
114	292529	Imines&their derivatives (excl. of 2925.21); salts thereof	-	0.41345
115	293723	Oestrogens & progestogens	Bulk and intermediary	0.37575
116	290919	Acyclic ethers other than diethyl ether, & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	0.37198
117	293729	Steroidal hormones, their derivatives & structural analogues (excl. of 2937.21-2937.23)	Bulk and intermediary	0.37112
118	290920	Cyclanic/cyclenic/cycloterpenic ethers & their halogenated/sulphonated/nitrated/nitrosated	-	0.37064

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
		derivatives		
119	291590	Saturated acyclic monocarboxylic acids & their anhydrides, halides, peroxides&peroxyacids; their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2915.11-2915.70)	Bulk and intermediary	0.36795
120	293959	Theophylline & aminophylline (theophylline-ethylenedia-mine) & their derivatives (excl. of 2939.51); salts thereof , n.e.s.	Bulk and intermediary	0.36593
121	294000	Sugars, chemically pure, other than sucrose, lactose, maltose, glucose&fructose; sugar ethers, sugar acetals&sugar esters,& their salts (excl. of 29.37/29.38/29.39)	Bulk and intermediary	0.35705
122	292090	Esters of inorganic acids of non-metals (excl. esters of hydrogen halides) & their salts (excl.of 2919.00&2920.10); their halogenated/sulphonated/nitrated/nitrosated derivatives, n.e.s.	Bulk and intermediary	0.35099
123	292130	Cyclanic/cyclenic/cycloterpenic mono-/polyamines, & their derivatives; salts thereof	Bulk and intermediary	0.35073
124	291429	Cyclanic/cyclenic/cycloterpenic ketones without other oxygen function (excl. camphor, cyclohexanone & methylcyclohexanones, ionones & methylionones)	Bulk and intermediary	0.34599
125	293890	Glycosides, other than rutoside (rutin) & its derivatives, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives	Bulk and intermediary	0.34412
126	293212	2-Furaldehyde (furfuraldehyde)	Bulk and intermediary	0.33976
127	290949	Ether-alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2909.41-2909.44)	Bulk and intermediary	0.33787
128	291812	Tartaric acid	Bulk and intermediary	0.33127
129	291260	Paraformaldehyde	Bulk and intermediary	0.32123
130	300630	Opacifying preparations for X-ray examinations; diagnostic reagents designed to be administered to the patient	Formulation	0.31002
131	291811	Lactic acid, its salts&esters	Bulk and intermediary	0.29073
132	291550	Propionic acid, its salts & esters	Bulk and intermediary	0.28376
133	293621	Vitamins A & their derivatives	Bulk and intermediary	0.28243
134	291560	Butanoic acids, pentanoic acids, their salts & esters	Bulk and intermediary	0.23146
135	290519	Saturated monohydric alcohols (excl. of 2905.11-2905.17)	Bulk and intermediary	0.22452
136	293623	Vitamin B2 & its derivatives	Bulk and intermediary	0.22168

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
137	290621	Benzyl alcohol	Bulk and intermediary	0.20266
138	290559	Halogenated/sulphonated/nitrated/nitrosated derivatives of acyclic alcohols, other than ethchlorvynol (INN)	-	0.1987
139	292129	Acyclic polyamines (excl. ethylenediamine & hexamethylenediamine) & their derivatives; salts thereof , n.e.s.	Bulk and intermediary	0.19431
140	292320	Lecithins & other phosphoaminolipids	Bulk and intermediary	0.19354
141	292800	Organic derivatives of hydrazine/of hydroxylamine	Bulk and intermediary	0.1902
142	293219	Heterocyclic comps. containing an unfused furan ring (whether/not hydrogenated) in the structure (excl. of 2932.11-2932.13)	Bulk and intermediary	0.17811
143	300440	Medicaments containing alkaloids/derivatives thereof but not containing hormones/other products of 29.37/antibiotics, put up in measured doses/forms/packings for RS	Formulation	0.16782
144	292421	Ureines & their derivatives; salts thereof	-	0.16599
145	290629	Aromatic cyclic alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2906.11-2906.21)	Bulk and intermediary	0.16217
146	292144	Diphenylamine & its derivatives; salts thereof	Bulk and intermediary	0.15687
147	291242	Ethylvanillin (3-ethoxy-4-hydroxybenzaldehyde)	Bulk and intermediary	0.15461
148	292243	Anthranilic acid & its salts	Bulk and intermediary	0.15067
149	291819	Carboxylic acids with alcohol function but without other oxygen function, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2918.11-2918.18)	Bulk and intermediary	0.13546
150	291821	Salicylic acid & its salts	Bulk and intermediary	0.13349
151	290715	Naphthols & their salts	Bulk and intermediary	0.12474
152	292519	Imides & their derivatives other than saccharin & glutethimide (INN); salts thereof	Bulk and intermediary	0.12387
153	291611	Acrylic acid & its salts	Bulk and intermediary	0.12107
154	290490	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated (excl. of 2904.10 & 2904.20)	Bulk and intermediary	0.11882
155	291823	Esters of salicylic acid & their salts, other than salicylic acid & its salts/O-acetylsalicylic acid & its salts & esters	-	0.11844
156	291229	Cyclic aldehydes without other oxygen function, other than benzaldehyde	Bulk and intermediary	0.11696
157	292310	Choline & its salts	Bulk and intermediary	0.11635

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
158	290124	Buta-1,3-diene & isoprene	Bulk and intermediary	0.1163
159	293391	Alprazolam (INN), camazepam (INN), chlordiazepoxide (INN), clonazepam (INN), clorazepate, delorazepam (INN), diazepam (INN), estazolam (INN), ethyl loflazepate (INN), fludiazepam (INN), flunitrazepam (INN), flurazepam (INN), halazepam (INN), lorazepam(IN	-	0.11508
160	290531	Ethylene glycol (ethanediol)	Bulk and intermediary	0.1073
161	293410	Compounds containing an unfused thiazole ring (whether/not hydrogenated) in the structure	Bulk and intermediary	0.10522
162	290950	Ether-phenols, ether-alcohol-phenols & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	0.10228
163	290522	Acyclic terpene alcohols	Bulk and intermediary	0.10195
164	291412	Butanone (methyl ethyl ketone)	Bulk and intermediary	0.0982
165	290719	Other monophenols	Bulk and intermediary	0.09261
166	290420	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated, containing only nitro/nitroso groups	Bulk and intermediary	0.08897
167	291719	Acyclic polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2917.11-2917.14)	Bulk and intermediary	0.08278
168	290544	D-glucitol (sorbitol)	Bulk and intermediary	0.07508
169	293321	Hydantoin & its derivatives	Bulk and intermediary	0.07335
170	293430	Compounds containing in the structure a phenothiazine ring-system (whether/not hydrogenated), not further fused	Bulk and intermediary	0.07233
171	300640	Dental cements & other dental fillings; bone reconstruction cements	Formulation	0.07154
172	300660	Chemical contraceptive preparations based on hormones/other products of 29.37/spermicides	Formulation	0.06977
173	291632	Benzoyl peroxide & benzoyl chloride	Bulk and intermediary	0.06791
174	291513	Esters of formic acid	Bulk and intermediary	0.06653
175	290722	Hydroquinone (quinol) & its salts	Bulk and intermediary	0.06391
176	290359	Halogenated derivatives of cyclanic/cyclenic/cycloterpenic hydrocarbons (excl. of 2903.51 & 2903.52)	Bulk and intermediary	0.0571
177	291521	Acetic acid	Bulk and intermediary	0.05517
178	293712	Insulin & its salts	Bulk and	0.05302

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
			intermediary	
179	290613	Sterols & inositols	Bulk and intermediary	0.05294
180	290361	Chlorobenzene, o-dichlorobenzene & p-dichlorobenzene	Bulk and intermediary	0.05229
181	291439	Aromatic ketones without other oxygen function other than phenylacetone (phenylpropan-2-one)	Bulk and intermediary	0.05055
182	300120	Extracts of glands/of other organs/of their secretions	Formulation	0.05011
183	291613	Methacrylic acid & its salts	Bulk and intermediary	0.04939
184	292141	Aniline & its salts	Bulk and intermediary	0.0489
185	300610	Sterile surgical catgut, similar sterile suture materials (including sterile absorbable surgical/dental yarns)&sterile tissue adhesives for surgical wound closure; sterile laminaria&sterile laminaria tents; sterile absorbable surgical/dental/veterinary p	Formulation	0.0481
186	290110	Saturated acyclic hydrocarbons	-	0.04767
187	290721	Resorcinol & its salts	Bulk and intermediary	0.04565
188	293790	Hormones, prostaglandins, thromboxanes & leukotrienes, natural/reproduced by synthesis(excl. of 2937.11-2937.50); derivatives & structural analogues thereof, including chain modified polypeptides, used primarily as hormones	Bulk and intermediary	0.04417
189	293624	D- /DL-Pantothenic acid (Vitamin B3/Vitamin B5) & its derivatives	-	0.04327
190	293311	Phenazone (antipyrin) & its derivatives	Bulk and intermediary	0.0423
191	291533	n-Butyl acetate	Bulk and intermediary	0.04081
192	291461	Anthraquinone	Bulk and intermediary	0.03402
193	300620	Blood-grouping reagents	Formulation	0.03011
194	290819	Halogenated derivatives of phenols/phenol-alcohols containing only halogen substituents & their salts (excl. of 2908.11)	-	0.02879
195	292121	Ethylenediamine & its salts	Bulk and intermediary	0.02866
196	291470	Halogenated/sulphonated/nitrated/nitrosated derivatives of ketones & quinones	Bulk and intermediary	0.02813
197	290260	Ethylbenzene	Bulk and intermediary	0.02711
198	291422	Cyclohexanone & methylcyclohexanones	Bulk and intermediary	0.02648
199	293353	Allobarbital (INN), amobarbital (INN), barbital (INN), butalbital (INN), butobarbital,	-	0.02567

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
		cyclobarbital (INN), methylphenobarbital (INN), pentobarbital (INN), phenobarbital (INN), secbutabarbital (INN), secobarbital (INN) & vinylbital (INN); salts thereof		
200	300650	First-aid boxes & kits	Formulation	0.0247
201	293371	6-Hexanelactam (epsilon-caprolactam)	Bulk and intermediary	0.02376
202	290944	Monoalkylethers of ethylene glycol/diethylene glycol (excl. of 2909.43)	Bulk and intermediary	0.02336
203	290516	Octanol (octyl alcohol) & isomers thereof	-	0.02146
204	293332	Piperidine & its salts	Bulk and intermediary	0.01989
205	291450	Ketone-phenols & ketones with other oxygen function	-	0.01899
206	300290	Human blood; animal blood prepared for therapeutic/prophylactic/diagnostic uses; toxins, cultures of micro-organisms (excl. yeasts) & similar products	Formulation	0.01893
207	290529	Unsaturated monohydric alcohols other than acyclic terpene alcohols	-	0.01806
208	291615	Oleic/linoleic/linolenic acids, their salts & esters	Bulk and intermediary	0.01739
209	290545	Glycerol other than crude	Bulk and intermediary	0.0171
210	293030	Thiuram mono- /di- /tetrasulphides	Bulk and intermediary	0.01696
211	291734	Esters of orthophthalic acid, other than dioctyl/dinonyl/didecyl orthophthalates	Bulk and intermediary	0.01618
212	291739	Aromatic polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2917.31-2917.33)	-	0.01503
213	291713	Azelaic acid, sebacic acid, their salts & esters	Bulk and intermediary	0.01446
214	290319	Saturated chlorinated derivatives of acyclic hydrocarbons (excl. of 2903.11-2903.15)	-	0.01415
215	290244	Mixed xylene isomers	Bulk and intermediary	0.01228
216	292019	Thiophosphoric esters (phosphorothioates)&their salts; their halogenated, sulphonated, nitrated/nitrosated derivatives (excl. of 2920.11)	-	0.01204
217	290712	Cresols & their salts	Bulk and intermediary	0.01191
218	290410	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated, containing only sulpho groups, their salts & ethyl esters	Bulk and intermediary	0.0117
219	292239	Amino-aldehydes, amino-ketones & amino-quinones, other than those containing > one kind of oxygen function (excl. of 2922.31); salts	-	0.00987

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
		thereof		
220	291440	Ketone-alcohols & ketone-aldehydes	-	0.00854
221	290369	Halogenated derivatives of aromatic hydrocarbons (excl. of 2903.61 & 2903.62)	Bulk and intermediary	0.00828
222	292119	Acyclic monoamines & their derivatives (excl. of 2921.11); salts thereof	Bulk and intermediary	0.00822
223	293040	Methionine	Bulk and intermediary	0.00753
224	290941	2,2'-Oxydiethanol (diethylene glycol, digol)	Bulk and intermediary	0.00738
225	290517	Dodecan-1-ol (lauryl alcohol), hexadecan-1-ol (cetyl alcohol) & octadecan-1-ol (stearyl alcohol)	Bulk and intermediary	0.0069
226	291736	Terephthalic acid & its salts	Bulk and intermediary	0.00659
227	293949	Ephedrines & their salts, other than ephedrine, pseudoephedrine (INN) & cathine (INN)	Bulk and intermediary	0.00645
228	291540	Mono- /di- /trichloroacetic acids, their salts & esters	Bulk and intermediary	0.0064
229	293999	Vegetable alkaloids, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives (excl. of 2939.11-2939.91)	Bulk and intermediary	0.00555
230	290711	Phenol (hydroxybenzene) & its salts	Bulk and intermediary	0.00536
231	290539	Diols other than ethylene glycol (ethanediol) & propylene glycol (propane-1,2-diol)	Bulk and intermediary	0.00513
232	300670	Gel preparations designed to be used in human/veterinary medicine as a lubricant for parts of the body for surgical operations/physical examinations/as a coupling agent between the body & medical instruments	Formulation	0.00465
233	291419	Acyclic ketones without other oxygen function (excl. of 2914.11-2914.13)	Bulk and intermediary	0.00456
234	291221	Benzaldehyde	Bulk and intermediary	0.00406
235	290129	Unsaturated acyclic hydrocarbons (excl. of 2901.21-2901.24)	Bulk and intermediary	0.00389
236	291634	Phenylacetic acid & its salts	Bulk and intermediary	0.0036
237	290943	Monobutyl ethers of ethylene glycol/of diethylene glycol	Bulk and intermediary	0.00292
238	291300	Halogenated/sulphonated/nitrated/nitrosated derivatives of products of 29.12	Bulk and intermediary	0.0029
239	293690	Provitamins&vitamins, natural/reproduced by synthesis (including natural concentrates), derivatives thereof used primarily as vitamins,&intermixtures of the foregoing, whether/not in any solvent,n.e.s.in Ch 29.36	-	0.0024
240	293331	Pyridine & its salts	Bulk and intermediary	0.0022

Sr. No.	Product code	Product description	Categorisation	Chinese pharmaceutical exports to Pakistan (Trade value in USD million)
241	293810	Rutoside (rutin) & its derivatives, natural/reproduced by synthesis	Bulk and intermediary	0.00204
242	290549	Polyhydric alcohols (excl. of 2905.41-2905.45)	Bulk and intermediary	0.002
243	291411	Acetone	Bulk and intermediary	0.00142
244	293750	Prostaglandins, thromboxanes & leukotrienes, their derivatives & structural analogues	Bulk and intermediary	0.0009
245	291090	Epoxides, epoxyalcohols, epoxyphenols & epoxyethers, with a three-membered ring, & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2910.10-2910.40)	-	0.00011
246	290512	Propan-1-ol (propyl alcohol) & propan-2-ol (isopropyl alcohol)	Bulk and intermediary	0.000092

Table A5: Indian pharmaceutical exports to Pakistan (2012)

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
1	290243	p-Xylene	Bulk and intermediary	134.5093
2	294200	Organic comps. n.e.s. in Ch.29	Bulk and intermediary	25.52097
3	290241	o-Xylene	Bulk and intermediary	20.50076
4	290242	m-Xylene	Bulk and intermediary	17.29325
5	283110	Dithionites & sulphoxylates, of sodium	Bulk and intermediary	8.080369
6	300490	Medicaments (excluding goods of heading 30.02/30.05/30.06/3004.10-3004.50) consisting of mixed/unmixed products for therapeutic/prophylactic uses, put up in measured doses (including those in the form of transdermal administration systems)/in forms/packiNG	Formulation	6.853115
7	300220	Vaccines for human medicine	Formulation	6.01916
8	293339	Heterocyclic comps. containing an unfused pyridine ring (whether/not hydrogenated) in the structure (excl. of 2933.31-2933.33)	Bulk and intermediary	4.390977
9	294190	Antibiotics & their derivatives (excl. of 2941.10-2941.50); salts thereof	Bulk and intermediary	4.369815
10	294150	Erythromycin & its derivatives; salts thereof	Bulk and intermediary	3.823499
11	290944	Monoalkylethers of ethylene glycol/diethylene glycol (excl. of 2909.43)	Bulk and intermediary	3.184117
12	293920	Alkaloids of cinchona&their derivatives; salts thereof	Bulk and intermediary	3.162503
13	290544	D-glucitol (sorbitol)	Bulk and intermediary	2.886178
14	293329	Heterocyclic comps. containing an unfused imidazole ring (whether/not hydrogenated) in the structure, other than hydantoin & its derivatives	Bulk and intermediary	2.545641
15	293499	Nucleic acids&their salts, whether/not chemically defined,n.e.s.; other heterocyclic compounds,n.e.s.	-	2.464177
16	293999	Vegetable alkaloids, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives (excl. of 2939.11-2939.91)	Bulk and intermediary	2.162072
17	293359	Heterocyclic comps. containing a pyrimidine ring (whether/not	Bulk and intermediary	2.107157

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		hydrogenated)/piperazine ring in the structure (excl. of 2933.52-2933.55)		
18	293299	Heterocyclic compounds with oxygen hetero-atom(s) only (excl. of 2932.11-2932.95)	-	1.939862
19	281830	Aluminium hydroxide	Bulk and intermediary	1.641946
20	300390	Medicaments (excluding goods of heading 30.02, 30.05/30.06/of 3003.10-3003.40) consisting of two/more constituents which have been mixed together for therapeutic/prophylactic uses, not put up in measured doses/in forms/packings for retail sale	Formulation	1.630958
21	291711	Oxalic acid, its salts & esters	Bulk and intermediary	1.616305
22	292429	Cyclic amides (incl. cyclic carbamates) & their derivatives (excl. of 2924.21-2924.24); salts thereof	Bulk and intermediary	1.386621
23	293729	Steroidal hormones, their derivatives & structural analogues (excl. of 2937.21-2937.23)	Bulk and intermediary	1.381149
24	290919	Acyclic ethers other than diethyl ether, & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	1.356035
25	293719	Polypeptide hormones, protein hormones & glycoprotein hormones, their derivatives & structural analogues (excl. of 2937.11 & 2937.12)	Bulk and intermediary	1.327827
26	292250	Amino-alcohol-phenols, amino-acid-phenols & other amino-comps. with oxygen function	Bulk and intermediary	1.263074
27	292221	Aminohydroxynaphthalenesulphonic acids & their salts	Bulk and intermediary	1.197322
28	292219	Amino-alcohols other than those containing > one kind of oxygen function (excl. of 2922.11-2922.14), their ethers & esters; salts thereof	Bulk and intermediary	1.121603
29	293311	Phenazone (antipyrin) & its derivatives	Bulk and intermediary	1.104435
30	293942	Pseudoephedrine (INN) & its salts	Bulk and intermediary	1.05183
31	293712	Insulin & its salts	Bulk and intermediary	0.986508

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
32	291816	Gluconic acid, its salts & esters	Bulk and intermediary	0.969148
33	291734	Esters of orthophthalic acid, other than dioctyl/dinonyl/didecyl orthophthalates	Bulk and intermediary	0.962677
34	300210	Antisera & other blood fractions & modified immunological products, whether/not obt. by means of biotechnological processes	Formulation	0.962238
35	293500	Sulphonamides	Bulk and intermediary	0.937647
36	293319	Heterocyclic comps. containing an unfused pyrazole ring (whether/not hydrogenated) in the structure (excl. phenazone & its derivatives)	Bulk and intermediary	0.82594
37	294140	Chloramphenicol & its derivatives; salts thereof	Bulk and intermediary	0.821753
38	290410	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated, containing only sulpho groups, their salts & ethyl esters	Bulk and intermediary	0.815018
39	293721	Cortisone, hydrocortisone, prednisone (dehydrocortisone) & prednisolone (dehydrohydrocortisone)	Bulk and intermediary	0.693584
40	280800	Nitric acid; sulphonitric acids	Bulk and intermediary	0.596639
41	293349	Heterocyclic comps. containing in the structure a quinoline/isoquinoline ring-system (whether/not hydrogenated), not further fused, other than levorphanol (INN) & its salts	Bulk and intermediary	0.529549
42	292159	Aromatic polyamines & their derivatives (excl. of 2921.51); salts thereof	Bulk and intermediary	0.524545
43	300450	Medicaments containing vitamins/other products of 29.36 (excl. of 3004.10-3004.40), put up in measured doses/forms/packings for RS	Formulation	0.504108
44	293100	Organo-inorganic compounds, n.e.s. in Ch.29	-	0.495744
45	290514	Butanols other than butan-1-ol (n-butyl alcohol)	Bulk and intermediary	0.479323
46	292320	Lecithins & other phosphoaminolipids	Bulk and intermediary	0.446339
47	291590	Saturated acyclic monocarboxylic acids & their anhydrides, halides, peroxides&peroxyacids; their	Bulk and intermediary	0.432061

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2915.11-2915.70)		
48	293959	Theophylline & aminophylline (theophylline-ethylenedia-mine) & their derivatives (excl. of 2939.51); salts thereof , n.e.s.	Bulk and intermediary	0.428335
49	300431	Medicaments containing insulin, put up in measured doses/forms/packings for RS	Formulation	0.384095
50	291440	Ketone-alcohols & ketone-aldehydes	-	0.339565
51	290539	Diols other than ethylene glycol (ethanediol) & propylene glycol (propane-1,2-diol)	Bulk and intermediary	0.335909
52	292142	Aniline derivatives & their salts	Bulk and intermediary	0.333312
53	281610	Hydroxide & peroxide of magnesium	Bulk and intermediary	0.313999
54	292229	Amino-naphthols&other amino-phenols, other than those containing more than one kind of oxygen function(excl. of 2922.21), their ethers&esters; salts thereof	Bulk and intermediary	0.300046
55	290949	Ether-alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2909.41-2909.44)	Bulk and intermediary	0.296347
56	291614	Esters of methacrylic acid	Bulk and intermediary	0.292259
57	291560	Butanoic acids, pentanoic acids, their salts & esters	Bulk and intermediary	0.286352
58	291719	Acyclic polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2917.11-2917.14)	Bulk and intermediary	0.284704
59	290290	Xylenes (excl. of 2902.41-2902.70)	Bulk and intermediary	0.281325
60	292421	Ureines & their derivatives; salts thereof	-	0.275041
61	300440	Medicaments containing alkaloids/derivatives thereof but not containing hormones/other products of 29.37/antibiotics, put up in measured doses/forms/packings for RS	Formulation	0.270224
62	292119	Acyclic monoamines & their derivatives (excl. of 2921.11); salts thereof	Bulk and intermediary	0.269757
63	290319	Saturated chlorinated derivatives of acyclic hydrocarbons (excl. of 2903.11-2903.15)	-	0.255297

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
64	285200	Compounds, inorganic/organic, of mercury, excluding amalgams.	-	0.2505
65	290629	Aromatic cyclic alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2906.11-2906.21)	Bulk and intermediary	0.246794
66	293722	Halogenated derivatives of corticosteroidal hormones	Bulk and intermediary	0.246645
67	282110	Iron oxides & hydroxides	Bulk and intermediary	0.244468
68	281122	Silicon dioxide	-	0.24202
69	292145	1-Naphthylamine (alpha-naphthylamine), 2-naphthylamine (beta-naphthylamine) & their derivatives; salts thereof	Bulk and intermediary	0.221519
70	291450	Ketone-phenols & ketones with other oxygen function	-	0.22051
71	283650	Calcium carbonate	Bulk and intermediary	0.220416
72	293623	Vitamin B2 & its derivatives	Bulk and intermediary	0.211031
73	283319	Sodium sulphates other than disodium sulphate	Bulk and intermediary	0.210711
74	281410	Anhydrous ammonia	-	0.210671
75	293219	Heterocyclic comps. containing an unfused furan ring (whether/not hydrogenated) in the structure (excl. of 2932.11-2932.13)	Bulk and intermediary	0.210163
76	291811	Lactic acid, its salts&esters	Bulk and intermediary	0.208309
77	290420	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated, containing only nitro/nitroso groups	Bulk and intermediary	0.208184
78	292249	Amino-acids, other than those containing > one kind of oxygen function, & their esters (excl. of 2922.41-2922.44); salts thereof	Bulk and intermediary	0.208156
79	292141	Aniline & its salts	Bulk and intermediary	0.204081
80	292241	Lysine & its esters; salts thereof	Bulk and intermediary	0.199614
81	293930	Caffeine & its salts	Bulk and intermediary	0.197414
82	283525	Calcium hydrogenorthophosphate (dicalcium phosphate)	-	0.193903
83	291639	Aromatic monocarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2916.31-2916.36)	Bulk and intermediary	0.191244

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
84	293369	Heterocyclic comps. containing an unfused triazine ring (whether/not hydrogenated) in the structure, other than melamine	Bulk and intermediary	0.179368
85	283329	Sulphates other than Sodium sulphates(excl. of 2833.21-2833.27)	Bulk and intermediary	0.1741
86	290941	2,2'-Oxydiethanol (diethylene glycol, digol)	Bulk and intermediary	0.169508
87	291539	Esters of acetic acid (excl. of 2915.31-2915.36)	Bulk and intermediary	0.163421
88	291813	Salts & esters of tartaric acid	Bulk and intermediary	0.158057
89	292800	Organic derivatives of hydrazine/of hydroxylamine	Bulk and intermediary	0.156408
90	291421	Camphor	Bulk and intermediary	0.156244
91	292143	Toluidines & their derivatives; salts thereof	Bulk and intermediary	0.153449
92	281420	Ammonia in aqueous solution	-	0.146816
93	284329	Silver comps. other than silver nitrate	Bulk and intermediary	0.135707
94	294110	Penicillins & their derivatives with a penicillanic acid structure; salts thereof	Bulk and intermediary	0.130682
95	291631	Benzoic acid, its salts & esters	Bulk and intermediary	0.121254
96	282739	Chlorides (excl. of 2827.10-2827.35), n.e.s.	Bulk and intermediary	0.120628
97	281121	Carbon dioxide	-	0.117852
98	290490	Sulphonated/nitrated/nitrosated derivatives of hydrocarbons, whether/not halogenated (excl. of 2904.10 & 2904.20)	Bulk and intermediary	0.117396
99	292151	o-, m-, p-Phenylenediamine, diaminotoluenes, & their derivatives; salts thereof	Bulk and intermediary	0.112538
100	282760	Iodides & iodide oxides	Bulk and intermediary	0.11218
101	293740	Amino-acid derivatives	Bulk and intermediary	0.109285
102	293711	Somatotropin, its derivatives & structural analogues	Bulk and intermediary	0.10927
103	290729	Polyphenols (excl. of 2907.21-2907.23); phenol-alcohols	Bulk and intermediary	0.108783
104	300420	Medicaments containing other antibiotics (excl. of 3004.10), put up in measured doses/forms/packings for RS	Formulation	0.107321

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
105	282300	Titanium oxides	Bulk and intermediary	0.103628
106	293410	Compounds containing an unfused thiazole ring (whether/not hydrogenated) in the structure	Bulk and intermediary	0.102499
107	294000	Sugars, chemically pure, other than sucrose, lactose, maltose, glucose&fructose; sugar ethers, sugar acetals&sugar esters,& their salts (excl. of 29.37/29.38/29.39)	Bulk and intermediary	0.096824
108	300660	Chemical contraceptive preparations based on hormones/other products of 29.37/spermicides	Formulation	0.095833
109	291990	Phosphoric esters&their salts, including lactophosphates; their halogenated, sulphonated, nitrated/nitrosated derivatives(excl. of 2919.10)	Bulk and intermediary	0.095427
110	290719	Other monophenols	Bulk and intermediary	0.091712
111	290722	Hydroquinone (quinol) & its salts	Bulk and intermediary	0.090982
112	291529	Salts of acetic acid	Bulk and intermediary	0.089421
113	292419	Acyclic amides (including acyclic carbamates, excl. of 2924.11& 2924.12)&their derivatives; salts thereof	-	0.089317
114	293333	Alfentanil (INN), anileridine (INN), bezitramide (INN), bromazepam (INN), difenoxin (INN), diphenoxylate (INN), dipipanone (INN), fentanyl (INN), ketobemidone (INN), methylphenidate (INN), pentazocine (INN), pethidine (INN), pethidine (INN),pethidine (INN)	-	0.088017
115	280519	Alkali/alkaline-earth metals other than sodium & calcium	Bulk and intermediary	0.086492
116	283090	Sulphides (excl. of 2830.10); polysulphides, whether/not chemically defined	Bulk and intermediary	0.085534
117	280421	Argon	Bulk and intermediary	0.085364
118	290930	Aromatic ethers & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	0.085047
119	291570	Palmitic acid, stearic acid, their salts & esters	Bulk and intermediary	0.083672
120	281820	Aluminium oxide (excl. artificial corundum)	Bulk and intermediary	0.083108

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
121	290611	Menthol	Bulk and intermediary	0.082975
122	292700	Diazo- /azo- /azoxy-comps.	Bulk and intermediary	0.077848
123	292129	Acyclic polyamines (excl. ethylenediamine & hexamethylenediamine) & their derivatives; salts thereof , n.e.s.	Bulk and intermediary	0.073585
124	293229	Lactones (excl. coumarin, methylcoumarins & ethylcoumarins)	Bulk and intermediary	0.073206
125	281119	Inorganic acids other than hydrogen fluoride	-	0.071567
126	293379	Lactams (excl. of 2933.71 & 2933.72)	Bulk and intermediary	0.071511
127	290619	Cyclanic/cyclenic/cycloterpenic alcohols & their halogenated/sulphonated/nitrated/nitrosated derivatives (excl. of 2906.11-2906.13)	Bulk and intermediary	0.069031
128	291815	Salts & esters of citric acid	Bulk and intermediary	0.068933
129	291819	Carboxylic acids with alcohol function but without other oxygen function, their anhydrides, halides, peroxides, peroxyacids & their derivatives (excl. of 2918.11-2918.18)	Bulk and intermediary	0.067132
130	283990	Silicates other than of sodium; commercial alkali metal silicates	-	0.061717
131	292111	Methylamine, di- /trimethylamine & their salts	Bulk and intermediary	0.058288
132	282710	Ammonium chloride	Bulk and intermediary	0.057655
133	281520	Potassium hydroxide (caustic potash)	-	0.057281
134	290899	Halogenated/sulphonated/nitrated/nitrosated derivatives of phenols/phenol-alcohols (excl. of 2908.11-2908.91)	-	0.055063
135	291010	Oxirane (ethylene oxide)	-	0.053196
136	280120	Iodine	Bulk and intermediary	0.05255
137	290313	Chloroform (trichloromethane)	Bulk and intermediary	0.051493
138	284800	Phosphides, whether/not chemically defined (excl. ferrophosphorus)	Bulk and intermediary	0.05143
139	300410	Medicaments containing penicillins/derivatives thereof with a penicillanic acid	Formulation	0.050614

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		structure/streptomycins/their derivatives, put up in measured doses/forms/packings for RS		
140	292149	Aromatic monoamines & their derivatives (excl. of 2921.41-2921.46); salts thereof	Bulk and intermediary	0.05016
141	293919	Alkaloids of opium (excl. of 2939.11) & their derivatives; salts thereof	-	0.050047
142	291470	Halogenated/sulphonated/nitrated/nitrosated derivatives of ketones & quinones	Bulk and intermediary	0.049841
143	300439	Medicaments containing hormones/other products of 29.37 but not containing antibiotics, put up in measured doses/forms/packings for RS	Formulation	0.047936
144	291512	Salts of formic acid	Bulk and intermediary	0.043319
145	300692	Waste pharmaceuticals	Formulation	0.042742
146	293790	Hormones, prostaglandins, thromboxanes & leukotrienes, natural/reproduced by synthesis(excl. of 2937.11-2937.50); derivatives & structural analogues thereof, including chain modified polypeptides, used primarily as hormones	Bulk and intermediary	0.042145
147	291221	Benzaldehyde	Bulk and intermediary	0.040124
148	293321	Hydantoin & its derivatives	Bulk and intermediary	0.038856
149	290950	Ether-phenols, ether-alcohol-phenols & their halogenated/sulphonated/nitrated/nitrosated derivatives	Bulk and intermediary	0.038171
150	293420	Compounds containing in the structure a benzothiazole ring-system (whether/not hydrogenated), not further fused	Bulk and intermediary	0.035175
151	293090	Organo-sulphur compounds (excl. of 2930.20-2930.50)	Bulk and intermediary	0.035131
152	292910	Isocyanates	Bulk and intermediary	0.033636
153	291821	Salicylic acid & its salts	Bulk and intermediary	0.033594
154	281111	Hydrogen fluoride (hydrofluoric acid)	-	0.032435
155	291419	Acyclic ketones without other oxygen function (excl. of 2914.11-2914.13)	Bulk and intermediary	0.032412
156	293391	Alprazolam (INN), camazepam (INN), chlordiazepoxide (INN), clonazepam (INN), clorazepate, delorazepam (INN),	-	0.032389

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		diazepam (INN), estazolam (INN), ethyl loflazepate (INN), fludiazepam (INN), flunitrazepam (INN), flurazepam (INN), halazepam (INN), lorazepam(INN)		
157	281990	Chromium oxides (excl. chromium trioxide) & hydroxides	Bulk and intermediary	0.032079
158	291733	Dinonyl/didecyl orthophthalates	Bulk and intermediary	0.032041
159	291412	Butanone (methyl ethyl ketone)	Bulk and intermediary	0.0317
160	291511	Formic acid	Bulk and intermediary	0.03079
161	291550	Propionic acid, its salts & esters	Bulk and intermediary	0.03036
162	292310	Choline & its salts	Bulk and intermediary	0.029669
163	293890	Glycosides, other than rutoside (rutin) & its derivatives, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives	Bulk and intermediary	0.029308
164	290712	Cresols & their salts	Bulk and intermediary	0.028079
165	292239	Amino-aldehydes, amino-ketones & amino-quinones, other than those containing > one kind of oxygen function (excl. of 2922.31); salts thereof	-	0.027914
166	290351	1,2,3,4,5,6-Hexachlorocyclohexane	Bulk and intermediary	0.027353
167	291615	Oleic/linoleic/linolenic acids, their salts & esters	Bulk and intermediary	0.025339
168	283421	Nitrates of potassium	-	0.02461
169	282490	Lead oxides (excl. of 2824.10);red lead&orange lead	Bulk and intermediary	0.023798
170	293622	Vitamin B1 & its derivatives	Bulk and intermediary	0.023679
171	290517	Dodecan-1-ol (lauryl alcohol), hexadecan-1-ol (cetyl alcohol) & octadecan-1-ol (stearyl alcohol)	Bulk and intermediary	0.023542
172	283220	Sulphites (excl. of sodium)	Bulk and intermediary	0.022868
173	292242	Glutamic acid & its salts	Bulk and intermediary	0.022623
174	283330	Alums	Bulk and intermediary	0.019821
175	290522	Acyclic terpene alcohols	Bulk and	0.019291

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
			intermediary	
176	292090	Esters of inorganic acids of non-metals (excl. esters of hydrogen halides) & their salts (excl.of 2919.00&2920.10); their halogenated/sulphonated/nitrated/nitrosated derivatives, n.e.s.	Bulk and intermediary	0.018555
177	292519	Imides & their derivatives other than saccharin & glutethimide (INN); salts thereof	Bulk and intermediary	0.018441
178	290359	Halogenated derivatives of cyclanic/cyclenic/cycloterpenic hydrocarbons (excl. of 2903.51 & 2903.52)	Bulk and intermediary	0.018178
179	291219	Acyclic aldehydes without other oxygen function (excl. of 2912.11&2912.12)	Bulk and intermediary	0.01767
180	291524	Acetic anhydride	Bulk and intermediary	0.017587
181	293040	Methionine	Bulk and intermediary	0.016944
182	293941	Ephedrine & its salts	Bulk and intermediary	0.016222
183	284610	Cerium comps.	-	0.015953
184	281129	Inorganic oxygen comps. of non-metals (excl. of 2811.21& 2811.22),n.e.s.	-	0.015292
185	290329	Unsaturated chlorinated derivatives of acyclic hydrocarbons (excl. of 2903.21-2903.23)	Bulk and intermediary	0.015097
186	291634	Phenylacetic acid & its salts	Bulk and intermediary	0.014261
187	292390	Quaternary ammonium salts & hydroxides; lecithins & other phosphoaminolipids, whether/not chemically defined (excl. of 2923.10 & 2923.20)	Bulk and intermediary	0.014012
188	290559	Halogenated/sulphonated/nitrated/nitrosated derivatives of acyclic alcohols, other than ethchlorvynol (INN)	-	0.013501
189	280490	Selenium	Bulk and intermediary	0.01314
190	300290	Human blood; animal blood prepared for therapeutic/prophylactic/diagnostic uses; toxins, cultures of micro-organisms (excl. yeasts) & similar products	Formulation	0.01229
191	294130	Tetracyclines & their derivatives; salts thereof	Bulk and intermediary	0.012082
192	293430	Compounds containing in the structure a phenothiazine ring-system (whether/not	Bulk and intermediary	0.011737

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		hydrogenated), not further fused		
193	290721	Resorcinol & its salts	Bulk and intermediary	0.011732
194	282751	Bromides of sodium/potassium	Bulk and intermediary	0.011716
195	291540	Mono- /di- /trichloroacetic acids, their salts & esters	Bulk and intermediary	0.011038
196	282010	Manganese dioxide	Bulk and intermediary	0.010228
197	291439	Aromatic ketones without other oxygen function other than phenylacetone (phenylpropan-2-one)	Bulk and intermediary	0.009013
198	282731	Magnesium chlorides	Bulk and intermediary	0.008939
199	292243	Anthranilic acid & its salts	Bulk and intermediary	0.008882
200	284290	Salts of inorganic acids/peroxoacids (excl. of double/complex silicates), whether/not chemically defined (excl. azides)	Bulk and intermediary	0.008853
201	284990	Carbides (excl. of 2849.10 & 2849.20), whether/not chemically defined	Bulk and intermediary	0.008824
202	284700	Hydrogen peroxide, whether/not solidified with urea	-	0.00821
203	290532	Propylene glycol (propane-1,2-diol)	Bulk and intermediary	0.007761
204	284210	Double/complex silicates, incl. aluminosilicates, whether/not chemically defined	Bulk and intermediary	0.007619
205	293911	Concentrates of poppy straw; buprenorphine (INN), codeine, dihydrocodeine (INN), ethylmorphine, etorphine (INN), heroin, hydrocodone (INN), hydromorphone (INN), morphine, nicomorphine (INN), oxycodone (INN), oxymorphone (INN), pholcodine (INN), thebacon	Bulk and intermediary	0.007543
206	300590	Wadding, gauze, bandages & similar articles (eg. dressings, adhesive plasters, poultices), impregnated/coated with pharmaceutical substances/put up in forms/packings for retail sale for medical, surgical, dental/veterinary purposes(excl. of 3005.10)	Formulation	0.007473
207	293491	Aminorex (INN), brotizolam (INN),	-	0.007244

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
		clotiazepam (INN), cloxazolam (INN), dextromoramide (INN), haloxazolam (INN), ketazolam (INN), mesocarb (INN), oxazolam (INN), pemoline (INN), phendimetrazine (INN), phenmetrazine (INN) & sufentanil (INN); salts thereof		
208	280910	Diphosphorus pentaoxide	-	0.007071
209	282749	Chloride oxides & chloride hydroxides other than of copper	Bulk and intermediary	0.007054
210	283322	Sulphates of aluminium	Bulk and intermediary	0.006265
211	290819	Halogenated derivatives of phenols/phenol-alcohols containing only halogen substituents & their salts (excl. of 2908.11)	-	0.005977
212	284170	Molybdates	Bulk and intermediary	0.005911
213	293969	Alkaloids of rye ergot & their derivatives (excl. of 2939.61-2939.63); salts thereof	Bulk and intermediary	0.005693
214	290621	Benzyl alcohol	Bulk and intermediary	0.005643
215	292690	Nitrile-function comps. (excl. of 2926.10-2923.30)	-	0.005608
216	282720	Calcium chloride	Bulk and intermediary	0.005199
217	290612	Cyclohexanol, methylcyclohexanols & dimethylcyclo-hexanols	Bulk and intermediary	0.004967
218	290711	Phenol (hydroxybenzene) & its salts	Bulk and intermediary	0.00472
219	283620	Disodium carbonate	Bulk and intermediary	0.004239
220	281390	Sulphides of non-metals (excl. carbon disulphide); commercial phosphorus trisulphide	-	0.004065
221	291532	Vinyl acetate	Bulk and intermediary	0.003519
222	281290	Halides & halide oxides of non-metals other than chlorides & chloride oxides	-	0.003422
223	293750	Prostaglandins, thromboxanes & leukotrienes, their derivatives & structural analogues	Bulk and intermediary	0.003387
224	292130	Cyclanic/cyclenic/cycloterpenic mono-/polyamines, & their derivatives; salts thereof	Bulk and intermediary	0.003162
225	283325	Sulphates of copper	Bulk and intermediary	0.00312

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
226	290549	Polyhydric alcohols (excl. of 2905.41-2905.45)	Bulk and intermediary	0.002931
227	300340	Medicaments containing alkaloids/derivatives thereof but not containing hormones/other products of 29.37/antibiotics, not put up in measured doses/forms/packagings for RS	Formulation	0.002891
228	291260	Paraformaldehyde	Bulk and intermediary	0.002592
229	282580	Antimony oxides	Bulk and intermediary	0.002536
230	300339	Medicaments containing hormones/other products of 29.37 but not containing antibiotics (excl. meds. containing insulin), not put up in measured doses/forms/packagings for RS	Formulation	0.002514
231	291423	Ionones & methylionones	Bulk and intermediary	0.002473
232	292211	Monoethanolamine & its salts	-	0.002402
233	292990	Compounds with other nitrogen function, other than isocyanates	-	0.002271
234	291712	Adipic acid, its salts & esters	Bulk and intermediary	0.002168
235	283510	Phosphinates (hypophosphites) & phosphonates (phosphites)	-	0.002165
236	283526	Phosphates of calcium other than hydrogenorthophosphate (dicalcium phosphate)	-	0.002141
237	290219	Cyclanes, cyclenes & cycloterpenes other than cyclohexane	-	0.002048
238	291720	Cyclanic/cyclenic/cycloterpenic polycarboxylic acids, their anhydrides, halides, peroxides, peroxyacids & their derivatives	Bulk and intermediary	0.001934
239	292144	Diphenylamine & its derivatives; salts thereof	Bulk and intermediary	0.001886
240	290519	Saturated monohydric alcohols (excl. of 2905.11-2905.17)	Bulk and intermediary	0.001813
241	291229	Cyclic aldehydes without other oxygen function, other than benzaldehyde	Bulk and intermediary	0.001782
242	300620	Blood-grouping reagents	Formulation	0.001732
243	293221	Coumarin, methylcoumarins & ethylcoumarins	Bulk and intermediary	0.001481
244	291812	Tartaric acid	Bulk and intermediary	0.001466

Sr. No.	Product Code	Product Description	Classification	Indian pharmaceutical exports to Pakistan (Trade Value in million USD)
245	283539	Polyphosphates (excl. of 2835.31)	-	0.001366
246	283529	Phosphates (excl. of 2835.22-2835.26)	-	0.001202
247	280300	Carbon (carbon blacks & other forms of carbon, n.e.s.)	-	0.00084
248	300510	Adhesive dressings & other articles having an adhesive layer	Formulation	0.000687
249	282590	Inorganic bases other than hydrazine & hydroxylamine & their inorganic salts; other metal oxides, hydroxides & peroxides, n.e.s. in Ch 28.25	Bulk and intermediary	0.000663
250	281511	Sodium hydroxide (caustic soda), solid	-	0.000554
251	290361	Chlorobenzene, o-dichlorobenzene & p-dichlorobenzene	Bulk and intermediary	0.000474
252	283324	Sulphates of nickel	Bulk and intermediary	0.00045
253	283210	Sodium sulphites	Bulk and intermediary	0.000315
254	282741	Chloride oxides & chloride hydroxides, of copper	Bulk and intermediary	0.00009
255	283429	Nitrates other than of potassium	-	0.000085

Table A6: Zero Tariff List under Pakistan-China Free Trade Agreement

Sr. No.	HS Code	Item	Categorisation
1	290211	Cyclohexane	Bulk and intermediary
2	290219	Cyclopentane	-
3	290219	Other	-
4	290220	Benzene	Bulk and intermediary
5	290230	Toluene	Bulk and intermediary
6	290241	O-Xylene	Bulk and intermediary
7	290242	M-Xylene	Bulk and intermediary
8	290243	P-Xylene	Bulk and intermediary
9	290244	Mixed Xylene Isomers	Bulk and intermediary
10	290250	Styrene	Bulk and intermediary
11	290260	Ethyl-Benzene	Bulk and intermediary
12	290270	Cumene	Bulk and intermediary
13	290290	Naphthalene	Bulk and intermediary
14	290290	Limonene	Bulk and intermediary
15	290290	Other	Bulk and intermediary
16	290311	Methyl	Bulk and intermediary
17	290311	Saturated	Bulk and intermediary
18	290311	Other	Bulk and intermediary
19	290312	Dichloromethane	Bulk and intermediary
20	290313	Chloroform	Bulk and intermediary
21	290314	Carbon	Bulk and intermediary
22	290315	12-Dichloroethane	Bulk and intermediary
23	290319	Other	-
24	290321	Vinyl	Bulk and intermediary
25	290322	Trichloroethylene	Bulk and intermediary
26	290323	Tetrachloroethylene	Bulk and intermediary
27	290329	Other	Bulk and intermediary
28	290330	Methyl	Bulk and intermediary
29	290330	Difluoromethane	Bulk and intermediary
30	290330	Tetrafluoroethane	Bulk and intermediary
31	290330	Ingredients	Bulk and intermediary
32	290330	Other	Bulk and intermediary
33	290341	Trichlorofluoromethane	Bulk and intermediary
34	290342	Dichlorodiflueromethane	Bulk and intermediary
35	290343	Trichlorotrifluoroethanes	Bulk and intermediary
36	290344	Dichlorotetrafluoroethanes	Bulk and intermediary
37	290345	Penta-Chlorofluoromethane	Bulk and intermediary
38	290345	Chlorofluoroethane	Bulk and intermediary
39	290345	Tetrachlorodifluoroethanes	Bulk and intermediary

Sr. No.	HS Code	Item	Categorisation
40	290345	Heptachlorofluoropropanes	Bulk and intermediary
41	290345	Hexachlorodifluoropropanes	Bulk and intermediary
42	290345	Trichloropentafluoropropanes	Bulk and intermediary
43	290345	Dichlorohexafluoropropanes	Bulk and intermediary
44	290345	Other	Bulk and intermediary
45	290346	Bromochlorodifluoromethane	Bulk and intermediary
46	290347	Other	Bulk and intermediary
47	290349	Chlordifloromethane	-
48	290349	Other	-
49	290351	Other	Bulk and intermediary
50	290359	Other	Bulk and intermediary
51	290361	Chlorobenzene	Bulk and intermediary
52	290361	O-Dichlorobenzene	Bulk and intermediary
53	290361	P-Dichlorobenzene	Bulk and intermediary
54	290362	Hexachlorobenze	-
55	290369	Other	Bulk and intermediary
56	290410	Benzene	Bulk and intermediary
57	290410	Other	Bulk and intermediary
58	290420	Nirobenzene	Bulk and intermediary
59	290420	Other	Bulk and intermediary
60	290490	Other	Bulk and intermediary
61	290711	Phenol	Bulk and intermediary
62	290712	Cresols	Bulk and intermediary
63	290713	Octylphenol	Bulk and intermediary
64	290714	Xylenols	Bulk and intermediary
65	290715	Naphthols	Bulk and intermediary
66	290719	Other	Bulk and intermediary
67	290721	Resorcinol	Bulk and intermediary
68	290722	Hydroquinone	Bulk and intermediary
69	290723	4'-Isopropylidenediphenol (Bisphenol	Bulk and intermediary
70	290729	Other	Bulk and intermediary
71	290810	4-Chloro	Bulk and intermediary
72	290810	Other	Bulk and intermediary
73	290820	Derivatives	Bulk and intermediary
74	290890	Other	Bulk and intermediary

Table A7: Preferential Tariff List of Pharmaceutical Items under Pakistan China Free Trade Agreement			
Sr. No.	**HS Code**	**Product description**	**Categorisation**
1	280461	containing by weight not less than 99.99% of silicon	Bulk and intermediary
2	280470	Phosphorus	Bulk and intermediary
3	280300	Carbon (carbon blacks and other forms of carbon not elsewhere specified or included).	-
4	281810	Artificial corundum, whether or not chemically defined	Bulk and intermediary
5	282010	Manganese dioxide	Bulk and intermediary
6	282530	Vanadium oxides and hydroxides	Bulk and intermediary
7	282560	Germanium oxides and zirconium dioxide	Bulk and intermediary
8	282570	Molybdenum oxides and hydroxides	Bulk and intermediary
9	282580	Antimony oxides	Bulk and intermediary
10	282590	Other	Bulk and intermediary
11	282690	Other	Bulk and intermediary
12	282749	Other	Bulk and intermediary
13	283510	Phosphinates (hypophosphites) and phosphonates (phosphites)	-
14	283525	Calcium hydrogenorthophosphate ("dicalcium phosphate")	-
15	290110	Acyclinc Hydrocarbons-saturated	-
16	290219	Other	-
17	290290	Other	Bulk and intermediary
18	290330	Fluorinated, brominated or iodinated derivatives of acyclic hydrocarbons	Bulk and intermediary
19	290349	Other	-
20	290369	Other	Bulk and intermediary
21	290545	Glycerol	Bulk and intermediary
22	291241	Vanillin (4-hydroxy-3-methoxybenzaldehyde)	Bulk and intermediary
23	291249	Other	Bulk and intermediary
24	291429	Other	Bulk and intermediary
25	291450	Ketone-phenols and ketones with other oxygen unction	-
26	291469	Other	Bulk and intermediary
27	291550	Propanoic acid, and its salts and esters	Bulk and intermediary
28	291590	Other	Bulk and intermediary
29	291612	Esters of acrylic acid	Bulk and intermediary
30	291619	Other	Bulk and intermediary
31	291639	Other	Bulk and intermediary
32	292145	1-Naphthylamine (a-naphthylamine), 2-naphthylamine (naphthylamine) and their derivatives; salts thereof	Bulk and intermediary
33	292221	Aminohydroxynaphthalenesulphonic acid and their salts	Bulk and intermediary
34	292249	Other	Bulk and intermediary
35	292620	1-cyanoguanidine (dicyandiamide)	Bulk and intermediary
36	292690	Other	-
37	293090	Other	Bulk and intermediary
38	293399	Other	-
39	293499	Other	-

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