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## **China and the Least Developed Countries**

*An Enquiry into the  
Trade Relationship during the  
Post-WTO Accession Period*

Debapriya Bhattacharya  
Farzana Misha



CENTRE FOR POLICY DIALOGUE (CPD)  
B A N G L A D E S H  
a civil society think tank

**CHINA AND THE LEAST DEVELOPED COUNTRIES**  
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***Post-WTO Accession Period\****

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The present paper titled **China and the Least Developed Countries: An Enquiry into the Trade Relationship during the Post-WTO Accession Period** has been prepared by *Dr Debapriya Bhattacharya*, Distinguished Fellow, CPD and *Ms Farzana Misha*, Former Senior Research Associate, CPD.

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# Abstract

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In the post-WTO accession decade, China's trade relationship with the least developed countries (LDCs) has undergone significant transformation. In this context, the present paper seeks to analyse trends, nature and determinants of the evolving trade relationship between China and the LDCs. The paper, based on a cross-section analysis, further intends to develop an understanding of this relationship in terms of its changing regional attributes and product composition.

The analysis reveals that trade regime between China and the LDC is characterised by high product concentration, regional orientation and positive trade balance in favour of China. As part of the effort to explain the China-LDC trade performance, a basic gravity model has been used in the paper which shows that China's entry into the WTO had both direct and indirect impact in promoting trade with the LDCs.

# Contents

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|  |           |
|--|-----------|
| <i>Abstract</i>  | <i>iv</i> |
| <i>Acronyms</i>  | <i>vi</i> |
| 1. Introduction  | 1         |
| 2. China's Accession to the WTO: Analytical Perspectives on Trade Implications | 2         |
| 3. China-LDC Trade Relationship: Trends and Composition                        | 4         |
| 4. Explaining China-LDC Trade Performance                                      | 10        |
| 5. Concluding Observations   | 16        |
| References   | 19        |

## List of Tables

|          |  |    |
|----------|--|----|
| Table 1  | : Estimates of Welfare Gain from China's Accession to WTO        | 2  |
| Table 2  | : Trends in Export Performance: World, China and LDCs            | 4  |
| Table 3  | : Trends in China-LDC Bilateral Export Performance               | 5  |
| Table 4  | : China-LDCs: Global and Bilateral Trade Balance                 | 6  |
| Table 5  | : Share of Asian and African LDCs in Total LDCs' Export to China | 7  |
| Table 6  | : Top Ten LDCs Exporting to China                                | 7  |
| Table 7  | : China's Top Ten Export Destinations among LDCs                 | 8  |
| Table 8  | : China's Exports to LDCs by Broad Product Groups                | 9  |
| Table 9  | : LDCs' Exports to China by Broad Product Groups                 | 10 |
| Table 10 | : China's Average (Weighted) Tariff Rates for LDC Exports        | 11 |
| Table 11 | : Number of China's Tariff Lines Used by Imports from LDCs       | 11 |
| Table 12 | : LDC DF-QF Provisions of China and Other Countries              | 12 |
| Table 13 | : Impact on China's Imports from LDCs                            | 13 |
| Table 14 | : Impact on China's Export to LDCs                               | 14 |
| Table 15 | : China-LDC Trade Relationship: Regression Results               | 15 |

## List of Figures

|          |  |   |
|----------|--|---|
| Figure 1 | : Annual Export Growth Rates: World, China and LDCs      | 4 |
| Figure 2 | : LDCs' Export to China and Rest of the World: 1995-2010 | 5 |

# Acronyms

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|        |  |
|--------|--|
| APTA   | Asia-Pacific Trade Agreement                       |
| ASEAN  | Association of Southeast Asian Nations             |
| DF-QF  | Duty Free Quota Free                               |
| EU     | European Union                                     |
| GATT   | General Agreement on Tariffs and Trade             |
| GDP    | Gross Domestic Product                             |
| G-20   | Group of Twenty                                    |
| HS     | Harmonized System of Commodity Classification      |
| LDC    | Least Developed Country                            |
| LLDC   | Land-Locked Developing Country                     |
| MFA    | Multi-Fibre Arrangement                            |
| MFN    | Most Favoured Nation                               |
| MoU    | Memorandum of Understanding                        |
| NTB    | Non-Tariff Barrier                                 |
| NTM    | Non-Tariff Measure                                 |
| PPP    | Purchasing Power Parity                            |
| RoO    | Rules of Origin                                    |
| SIDS   | Small Island Developing State                      |
| SPS    | Sanitary and Phytosanitary                         |
| TBT    | Technical Barrier to Trade                         |
| UNCTAD | United Nations Conference on Trade and Development |
| USA    | United States of America                           |
| USD    | United States Dollar                               |
| WITS   | World Integrated Trade Solution                    |
| WTO    | World Trade Organization                           |

## 1. INTRODUCTION

Three decades (1949-1979) of China's self-imposed isolation, followed by two decades (1980-2000) of slow integration into the international economy, precluded one-fifth of the global population from meaningful participation in the global trade and investment systems (Woo 2003). One of the logical extensions of the gradual, but extensive economic reforms unleashed in the country since late 1970s was the decision of China to resume its contracting party status in the General Agreement on Tariffs and Trade (GATT) in June 1986.<sup>1</sup> Through a tortuous process of one and a half decade of negotiations, China eventually acceded to the World Trade Organization (WTO) in December 2001 (Wang 2011). Admittedly, being the second largest economy of the world<sup>2</sup>, China's integration into the global market was expected to have an enormous impact on both itself and the world's trading system (Martin and Ianchovichina 2003). Thus, China's decision to join the WTO gave rise to an intense debate – both at home and abroad regarding the economic consequences of this very important event.

While China's inclusion in the multilateral rule-based trading system was largely viewed as a positive development, there were specific concerns among certain countries regarding loss of competitiveness in particular sectors. For example, concerns were expressed by agricultural products and automobile-producing countries, such as USA and Germany, in anticipation of enhanced competition from Chinese exports (Elwell *et al.* 2007). Apparel and clothing-exporting countries, such as Bangladesh, were apprehensive that they might face greater competition from China in the global market (Haider 2007). Many of the findings of the numerous *ex-ante* studies on welfare gains from China's accession to the WTO are now being subjected to fresh scrutiny on the occasion of the tenth anniversary of the event. However, it needs to be recognised that there is hardly any study which specifically focuses on implications of China's accession to WTO for the least developed countries (LDCs).

The LDCs, as a group of structurally disadvantaged countries – characterised by low income, poor human assets and high economic vulnerabilities, was first identified by the United Nations in 1971. Over the last four decades, the list of LDCs has expanded from 25 to 48 countries, with only three countries graduating from the group. Out of 48 LDCs, 16 are land-locked developing countries (LLDCs) and another 10 are small island developing states (SIDSs). While most of the LDCs are located in Africa (33), 14 are in Asia and the Pacific. The only LDC in the America is Haiti. The LDCs, home to 12 per cent of global population in 2010, account for less than 2 per cent of world's gross domestic product (GDP), and around 1 per cent and 0.5 per cent of world trade in goods and services respectively.<sup>3</sup>

In this context, the broad objective of the present paper is to delineate the implications of China joining the WTO on its trade relationship with the LDCs. To this end, the paper seeks to do the following. *First*, it takes a brief stock of the existing analytical perspectives of examining China's accession to the WTO, particularly in the area of trade. *Second*, it analyses the post-accession trends in flow of goods between China and the LDCs – at both aggregate and disaggregate levels. *Third*, it takes a close look at the effectiveness of China's tariff regime and the duty-free quota-free (DF-QF) scheme in promoting trade with the LDCs. *Further*, certain econometric analyses are performed to rigorously tease out the effect of China's accession to the WTO on its trade relationship with LDCs. Finally, the paper attempts to reflect on the policy implications of the findings.

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<sup>1</sup>China was one of the 23 founding Members of GATT, and thus became a contracting party in May 1948. In May 1950, the Kuomintang Government moved to Taiwan and withdrew from GATT. In 1982, China was accorded observer status in GATT ([http://www.wto.org/english/news\\_e/pres01\\_e/pr243\\_e.htm](http://www.wto.org/english/news_e/pres01_e/pr243_e.htm)).

<sup>2</sup>When China joined the WTO in 2001, it was the third largest economy of the world in terms of GDP-PPP (gross domestic product-purchasing power parity), and sixth in terms of nominal GDP. China progressed to the second place in 2010 in terms of both PPP and nominal GDP (The Economist (2010) and IMF historical data (April 2011)).

<sup>3</sup>See for details: <http://www.unohrlls.org> and Bhattacharya and Hossain (2011).



The structure of the present paper has been developed according to the stated objectives of the research. It draws on the existing literature on China's accession to WTO, and analyses relevant data collated from various international sources. It needs to be underscored that the present study is not an exhaustive analysis of the implications of China's entry into the WTO for the LDCs in all its manifestations. The study is limited to an exposition of the China-LDC trade relationship, and seeks to explain its recent trends, particularly against the backdrop of the evolving tariff regime in post-accession China.

## 2. CHINA'S ACCESSION TO THE WTO: ANALYTICAL PERSPECTIVES ON TRADE IMPLICATIONS

The policy and institutional reforms undertaken by China as a precursor, as well as a part of the WTO accession process, had far reaching and mutually reinforcing implications. Understandably, these reforms were to have impact on the direction, pace and composition of exports and imports to and from China, including for both rural and urban areas. These new trends were to have effects on employment and income, as well as welfare gains and poverty situation, at household level.

A number of ex-ante exercises were undertaken to estimate the welfare gains to be accrued from China's accession to WTO. However, these estimates varied widely as they were based on different assumptions, reference periods and methodological approaches. Table 1 indicates that the estimates of welfare enhancement for China have ranged from as low as USD 4 billion to as high as USD 30 billion. These amounts would lead China's GDP to increase anything from 1.5 per cent to 10.8 per cent. Whilst the estimates as regards the range were different, all these studies suggest that Chinese economy was to gain significantly from its accession to WTO. At the same time, the studies cited in Table 1 reveal that the world economy as a whole would gain remarkably from China's inclusion in the multilateral trading system. These estimated gains, depending on the source, ranged from USD 20.5 billion to USD 57 billion.

**Table 1: Estimates of Welfare Gain from China's Accession to WTO**

| Study                           | Effect on China   | Global Effect   |
|---------------------------------|---|---|
| Walmsley and Hertel (2000)      | Welfare: USD 23.7-25.6 billion<br>GDP increase: 8.7-10.8 per cent | Welfare: USD 35.7-38.2 billion                          |
| Wang (1997)                     | Welfare: USD 12.4-30.3 billion                                    | Welfare: USD 25.3-56.7 billion                          |
| Zhai and Li (2000)              | Welfare: 1.2 per cent of GDP<br>GDP increase: 1.5 per cent        |   |
| Walmsley <i>et al.</i> (2001)   | Welfare: USD 3.9-10.5 billion                                     | Welfare: USD 20.5-25.7 billion                          |
| Ianchovichina and Martin (2001) | Welfare: USD 25.9 billion<br>GDP increase: 2.2 per cent           | Welfare: USD 56.1 billion<br>GDP increase: 0.2 per cent |

Source: Compiled by Yang (2003).

According to Martin *et al.* (2004), five basic policy reforms were required to be undertaken by China in connection with its accession to the WTO. The five reforms were to focus on the following features of China's trade regime: (i) non-discrimination, giving equal treatment to competing suppliers (the Most Favoured Nation (MFN) provision) and no discrimination between domestic and imported goods and services (National Treatment provision); (ii) market opening, reducing tariffs and non-tariff barriers (NTBs); (iii) transparency and predictability of the trade regime; (iv) undistorted trade involving, among others, overall disciplines in subsidies and anti-dumping and safeguards; and (v) preferential treatment for developing countries. It may be noted that despite having a low per capita income, China's size and economic growth performance did not allow it to have a full development country treatment regarding the terms of accession.

The aforementioned policy reforms consequently influenced other countries through the following four channels: (i) expansion of markets in China for exports of other countries; (ii) increase in the supply of Chinese exports into others' markets; (iii) increasing competition in third markets; and (iv) expansion of foreign investment in China along with potentially outward foreign investment from China (Martin *et al.* 2004).

## **2.1 Impact on Developing Countries**

China's integration to the world trade system raised both hopes and fears for the developing countries (Khan 2004). Being an economic giant, China was expected to be influential in setting the agenda or outcome of various trade negotiations. According to the *People's Daily*, China's participation in the WTO was to strengthen the developing countries' collective negotiating capacity in the international trading system and elsewhere.<sup>4</sup> However, along with such optimism, a fear loomed large that exports of the developing countries will face immense competition due to China's comparative advantage, underpinned by low-cost labour and other factors of production.

OECD (2001) reckoned that effects of China's accession on other developing countries were to be felt in two areas. Firstly, in global markets of goods and services, they would face increasing competition from Chinese exporters; and secondly, there would be increasing export opportunities for them in China. It was also maintained that greater specialisation of production would emerge among Asian economies, with China being the central link between its Asian trading partners and the industrial country markets (Yoshitomi 2003).

One of the major concerns among the developing countries is related to the overlapping of China's entry into WTO with steady liberalisation of Multi-Fibre Arrangement (MFA) quotas, culminating in the total phase-out in 2005. There were concerns that MFA phase-out would lead to further expansion of Chinese exports, probably at the expense of some other developing countries (IMF and World Bank 2002). In other words, for a number of LDCs (e.g. Bangladesh, Cambodia and Lesotho) where textile and clothing are their major export items, it was anticipated that most of their export losses would be caused by the removal of quotas on China's textile and clothing exports in USA, Canada and the European Union (EU).<sup>5</sup> Thus, some worried that industrial countries and the more advanced developing countries in Asia (e.g. Japan and South Korea) would gain from China's accession to the WTO, while the less advanced developing countries would suffer losses, even though at a marginal level (Walmsley *et al.* 2001).

Our literature survey could not locate any empirical research that would provide any estimate of effects of China's WTO entry on the LDCs – either positive or negative. As mentioned earlier, a number of studies alluded to the possible increase in competitive pressure on the low-income developing countries that engage in exporting of low-cost items, including textile and clothing, but there were no concrete estimates. There was also no indication regarding how much the LDC exports in particular would benefit from the opening up of the Chinese market to the world.

Against the backdrop of such anticipations and apprehensions, it becomes pertinent to explore how China and the LDCs performed in the area of trade after China's entry into the WTO. It is also of particular applied policy interest to examine how did China-LDC trade relationship evolve during China's first decade in the WTO and what had been its determinants.

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<sup>4</sup>Quoted in The Guardian (2001).

<sup>5</sup>As Chinese textiles and clothing exports surged in the post-accession period, in June 2005, EU signed an agreement to restrict the growth level at 7.5 per cent for 10 categories of Chinese textile and clothing imports. The agreement was held until end of 2007. On the other hand, in November 2005, USA and China agreed to a memorandum of understanding (MoU) that placed quotas on 34 categories of Chinese textile and clothing imports beginning 1 January 2006; the quotas are increased annually 8-10 per cent in 2006, 10-16 per cent 2007, and 15-17 per cent 2008 (Hufbauer *et al.* 2006).

### 3. CHINA-LDC TRADE RELATIONSHIP: TRENDS AND COMPOSITION

#### 3.1 An Aggregate Level Analysis

##### 3.1.1 Export Performance

The decade of 2000s was a period of extraordinary trade expansion. Global exports<sup>6</sup> experienced a significant growth, until it plummeted in 2009, as the global financial and economic crisis set in. Table 2 shows that global exports grew by 2.4 times – from USD 6,375 billion in 2000 to USD 15,242 billion in 2010 – over the decade. The export growth for China over the same time period was about 6.3 times – from USD 249 billion to USD 1,578 billion. On the other hand, LDCs’ total export grew by 4.4 times – from less than USD 36 billion to about USD 160 billion.

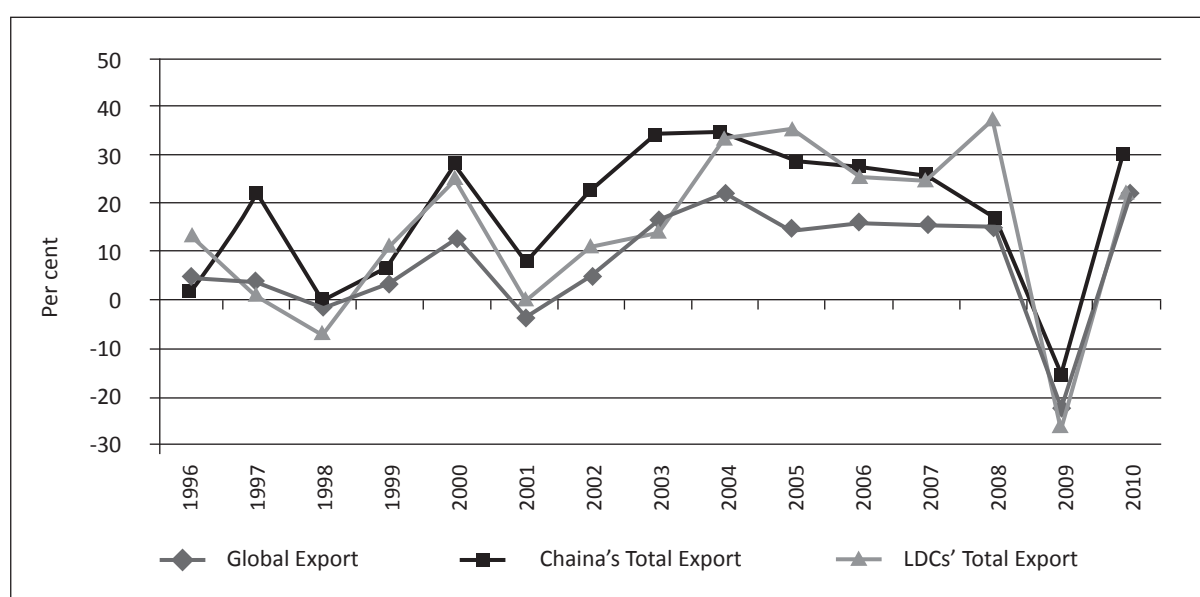
**Table 2: Trends in Export Performance: World, China and LDCs**

| Indicator                          | 1995    | 2000    | 2005     | 2010     |
|------------------------------------|---------|---------|----------|----------|
| Global export (billion USD)        | 5122.39 | 6374.72 | 10457.10 | 15242.50 |
| China’s total export (billion USD) | 148.78  | 249.20  | 761.95   | 1578.19  |
| China’s share in global export (%) | 2.90    | 3.91    | 7.29     | 10.35    |
| LDCs’ total export (billion USD)   | 24.295  | 35.91   | 82.24    | 159.65   |
| LDCs’ share in global export (%)   | 0.47    | 0.56    | 0.79     | 1.05     |

**Source:** Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database: <http://unctadstat.unctad.org>

As it can be seen from Figure 1, the 2000-2010 export growth rates of China and the LDCs closely approximate the global trend. It may be further noted that both exports of China and the LDCs were growing at a faster rate than the global average during the last decade. It is widely acknowledged that the robust export growth of the LDCs was largely underpinned by high commodity prices (Bhattacharya and Hossain 2011). Thanks to these relatively high growth rates, the share of China in global exports experienced an increase – from 3.9 per cent in 2000 to 10.4 per cent in 2010. The share of the LDCs in global exports also increased, albeit marginally – from 0.56 per cent in 2000 to 1.05 per cent in 2010.

**Figure 1: Annual Export Growth Rates: World, China and LDCs**



**Source:** Based on the United Nations Conference on Trade and Development (UNCTAD) database.

<sup>6</sup>World total export supply plus a shipping margin equals world total import demand.

Interestingly, as China and the LDCs expanded their market shares in total global exports, they also started to play greater role as each other's export destinations. Chinese exports to LDCs increased from USD 3.4 billion in 2000 to USD 34.67 billion in 2010, i.e. by more than 10 times over the decade. Concurrently, LDCs' exports to China increased from USD 3.75 billion to USD 43.88 billion, i.e. by 11.7 times (Table 3).

**Table 3: Trends in China-LDC Bilateral Export Performance**

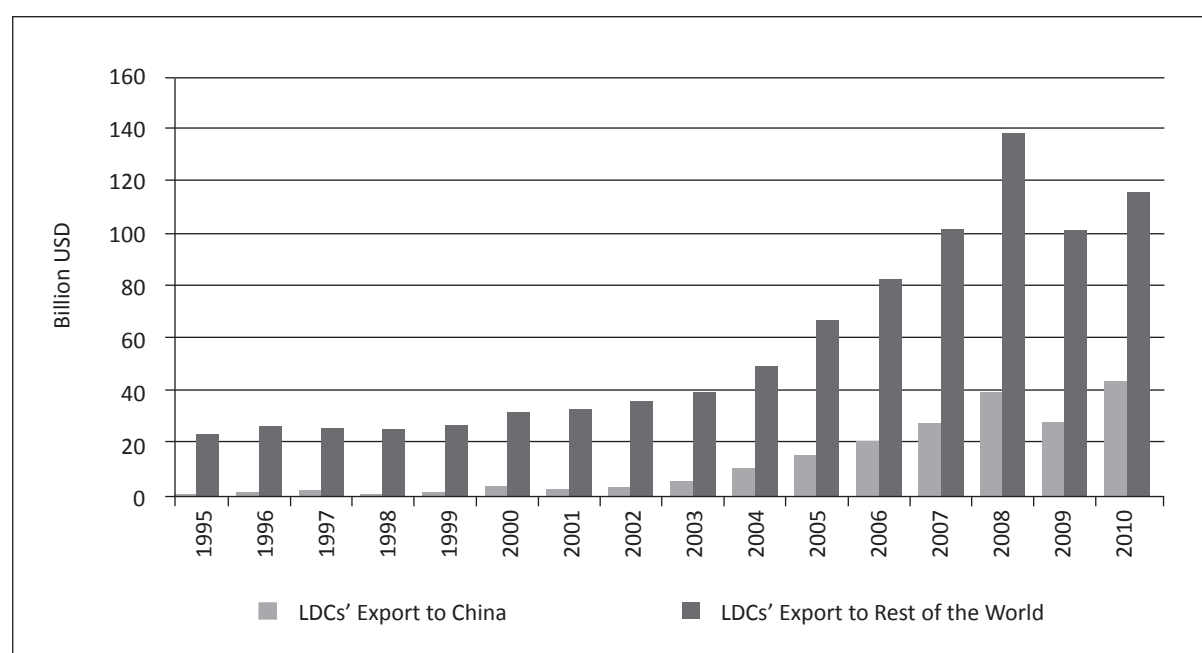
| Indicator                               | 1995 | 2000  | 2005  | 2010  |
|---|------|-------|-------|-------|
| China's export to LDCs (billion USD)    | 2.27 | 3.40  | 10.07 | 34.67 |
| LDCs' share in China's total export (%) | 1.52 | 1.36  | 1.32  | 2.20  |
| LDCs' export to China (billion USD)     | 0.89 | 3.75  | 15.29 | 43.88 |
| China's share in LDCs' total export (%) | 3.64 | 10.43 | 18.60 | 27.48 |

Source: Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

As a result, LDCs' share in China's export increased from 1.36 per cent in 2000 to 2.2 per cent in 2010. During the same time period from 2000 to 2010, LDCs' export attributable to China went up from 10.43 per cent to 27.48 per cent. Thus, in the post-accession period, the bilateral export flow between China and the LDCs demonstrated robust expansion, where the growth rate was almost equal for both sides. In sum, between 2000 and 2010, both China and the LDCs emerged as relatively large export markets for each other, even if the high pace of overall growth of global exports is taken cognisance of.

Figure 2 presents LDCs' exports to China and rest of the world during 1995-2010. The post-2000 surge of LDCs' exports to China suggests that the WTO accession-related trade policy measures might have a role in the export expansion. More interestingly, Figure 2 allows us to reflect on the third market. As both the volume of LDCs' exports to the world (without China) and its share in the global export continued to rise from 2001 onward, it might be concluded that the 'substitution concern' is not valid. The fall in LDCs' exports to both China and rest of the world in 2009 was the result of the global

**Figure 2: LDCs' Export to China and Rest of the World: 1995-2010**



Source: Based on the United Nations Conference on Trade and Development (UNCTAD) database.

economic crisis. Subsequently, increase in China's share in LDC export portfolio, against the backdrop of slower recovery of the rest of the world's share in the same portfolio, indicates that China may have partly shielded the LDCs from the negative consequences of the recession, in absence of which LDCs would have perhaps suffered lower level of exports.

### 3.1.2 Trade Balance

As mentioned earlier, Chinese exports posted a faster pace of growth during the last decade (2000-2010) in comparison to the global exports growth. As Table 4 reveals, this resulted in China's global trade surplus growing from approximately USD 24 billion to about USD 184 billion between 2000 and 2010. During the same period, although the LDCs' exports grew at an even faster rate, given their overwhelming import dependence, their trade balance did not demonstrate any appreciable change. While the LDCs in 2000 experienced a trade deficit of about USD 8 billion, it rose to around USD 9 billion in 2010.

**Table 4: China-LDCs: Global and Bilateral Trade Balance**

(Billion USD)

| Trade Balance                   | 1995   | 2000  | 2005   | 2010   |
|---------------------------------|--------|-------|--------|--------|
| China's global trade balance    | 16.70  | 24.11 | 102.00 | 183.99 |
| LDCs' global trade balance      | -10.28 | -7.93 | -4.52  | -8.99  |
| China's trade balance with LDCs | 1.40   | -0.61 | -5.20  | -8.53  |

**Source:** Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

Looking at Table 4, it is interesting to note further that, while the aggregate trade deficit of the LDCs experienced an increase during 2000-2010, this group of countries was enjoying a trade surplus with China over the same time period. LDCs' trade surplus with China was about USD 0.6 billion in 2000, while the comparable figure for 2010 was more than USD 8.5 billion. This is particularly remarkable given that the LDCs had a trade deficit of USD 1.4 billion with China not so long ago in 1995.

As our subsequent analyses will reveal, the LDCs' trade balance with China as a group is not uniform across regions, i.e. Asia and Africa. African LDCs registered trade surplus with China, as their exports to China exceed the amount of imports from the country. The situation appears to be opposite in the case of Asian LDCs, where their imports from China are more than their exports to the country.

Nonetheless, we observe that China's first decade in the WTO witnessed broadening and deepening of the country's overall trade relationship with the LDCs as a group. However, for a better understanding of the dynamics of this expanding trade linkages, one would need to take a closer look at a disaggregated level, i.e. to explore the product composition of the enhanced trade flow, as well as relative importance of specific LDCs as far as China was concerned.

## 3.2 A Disaggregated Analysis by Region, Country and Product

### 3.2.1 Relative Performance of Asia and Africa

A disaggregated analysis of burgeoning trade relationship between China and the LDCs draws our attention to a number of new aspects of the trade pattern. According to Table 5, during the pre-accession period, Asian LDCs dominated LDCs' export volume to China – around 71 per cent in 1995. By 2000, this share has reduced to 25 per cent as the African LDCs accounted for about three-fourth of the total LDCs' exports to China. Indeed, the gradual marginalisation of the Asian economies becomes

**Table 5: Share of Asian and African LDCs in Total LDCs' Export to China***(in Per cent)*

| Region                                    | 1995  | 2000  | 2005  | 2010  |
|---|-------|-------|-------|-------|
| Africa (including Haiti)                  | 28.97 | 74.46 | 84.17 | 90.88 |
| Asia (including Pacific Island countries) | 71.03 | 25.54 | 15.56 | 9.12  |

Source: Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

extremely evident by 2010 when their share in China's total import from all LDCs was diminished to less than 10 per cent. As we will see later, this phenomenal structural change happened around the time when China switched from Yemen to Angola (and Sudan) for sourcing liquid fuel.

However, this is not to say that the Asian LDCs did not increase their export volume to China over the last decade. Indeed, exports from the Asian LDCs to China went up from less than USD 0.7 billion to about USD 5 billion (i.e. more than seven times) between 2000 and 2010. The issue is, during the same period, exports from African LDCs to China expanded from around USD 2 billion to more than USD 38 billion (i.e. more than 17.5 times). As a result, while the share of China in both the export and import portfolio of the Asian LDCs stagnated, the reverse was true for the African LDCs. In other words, while the Chinese exports to the Asian LDCs, and vice versa, rose at an even pace, African exports to China grew much faster – even outstripping the fast-growing Chinese exports to the African LDCs. This is, in part, a reflection of the growing prominence of China in the African continent in general.<sup>7</sup>

### 3.2.2 LDC Ranking in China's Trade Structure

Changes in the ranking of LDCs in terms of each of their share in the group's total exports to China had been dramatic before and after China's accession to WTO. For example, as Table 6 reveals, Yemen

**Table 6: Top Ten LDCs Exporting to China**

| Ranking | 1995                   |                    | 2000              |                   | 2005                   |                   | 2010                   |                   |
|---------|------------------------|--------------------|-------------------|-------------------|------------------------|-------------------|------------------------|-------------------|
|         | Country                | % of Total Export* | Country           | % of Total Export | Country                | % of Total Export | Country                | % of Total Export |
| 1       | Yemen                  | 47.81              | Angola            | 46.58             | Angola                 | 45.88             | Angola                 | 56.32             |
| 2       | Angola                 | 16.93              | Yemen             | 20.90             | Sudan                  | 17.13             | Sudan                  | 13.94             |
| 3       | Myanmar                | 11.91              | Sudan             | 17.65             | Yemen                  | 14.21             | Dem. Rep. of the Congo | 5.72              |
| 4       | Sudan                  | 7.59               | Equatorial Guinea | 7.26              | Equatorial Guinea      | 9.80              | Yemen                  | 5.68              |
| 5       | Bangladesh             | 4.68               | Myanmar           | 2.73              | Chad                   | 2.00              | Zambia                 | 5.05              |
| 6       | Afghanistan            | 2.44               | Cambodia          | 1.22              | Myanmar                | 1.83              | Equatorial Guinea      | 2.06              |
| 7       | Cambodia               | 1.62               | Zambia            | 1.09              | Dem. Rep. of the Congo | 1.78              | Mauritania             | 1.73              |
| 8       | Benin                  | 1.43               | Bangladesh        | 0.44              | Benin                  | 1.11              | Myanmar                | 1.44              |
| 9       | Equatorial Guinea      | 1.23               | Liberia           | 0.40              | Mali                   | 1.07              | Tanzania               | 1.42              |
| 10      | Lao People's Dem. Rep. | 0.96               | Guinea            | 0.39              | Tanzania               | 1.04              | Lao People's Dem. Rep. | 1.35              |
|         | <b>Total</b>           | <b>96.60</b>       |                   | <b>98.65</b>      |                        | <b>95.85</b>      |                        | <b>94.71</b>      |

Source: Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

Note: \*Percentage of LDCs' total export to China.

<sup>7</sup>For details on China's engagement in African economies, see, among others, Broadman (2006), Helstrom (2009) and Looy (2006).



alone accounted for about half of China's imports from the LDCs in 1995, whereas its share was diminished to around 5 per cent in 2010. In fact, Yemen was replaced by Angola, which has pushed up its share in the group's total exports to China from around 16.93 per cent in 1995 to more than 55 per cent in 2010. Similarly, Sudan's share shot up from around 7.59 per cent in 1995 to about 13.94 per cent in 2010. Such remarkable switching in export sourcing has, possibly, little to do with changes in trade policy, and is more guided by geo-political and security-related considerations. Exports from Yemen, which are exclusively petroleum products, were abandoned in favour of that from Angola and Sudan, most probably due to deterioration of internal political and security situation in Yemen over the last decade. Conversely, as the political scenario in Democratic Republic of Congo stabilised, China tapped into the country's natural resource supplies more vigorously.

Table 6 further shows that exports from LDCs to China are highly concentrated in certain countries. In 2000, the top 10 exporting LDCs accounted for 98.6 per cent of total LDC exports to China; in 2010 the corresponding figure was 94.7 per cent. However, the composition and the ranking within the group of top exporting LDCs changed significantly between 2000 and 2010. There are six common countries in the 2000 and 2010 top exporter groups. These countries are Angola, Sudan, Myanmar, Yemen, Zambia and Equatorial Guinea.

Among the LDCs, China's export destinations are relatively less concentrated than its importing sources. The top 10 export destinations among the LDCs for China, as may be seen in Table 7, accounted for more than 81 per cent of China's total export to LDCs in 2000, which marginally fell to a little above 75 per cent in 2010. Between 2000 and 2010, there is a common set of nine countries among China's major export markets in the LDCs, with Bangladesh steadily topping the list. The other common countries are Liberia, Myanmar, Benin, Cambodia, Tanzania, Sudan, Togo and Yemen. In that sense, China's export markets turned out to be more stable than its sources of import since the post-WTO accession. Interestingly, there is not so much commonality between the lists of China's export and import partners among the LDCs. The common set in this regard for year 2010 includes five countries – Angola, Myanmar, Sudan, Tanzania and Yemen.

**Table 7: China's Top Ten Export Destinations among LDCs**

| Ranking | 1995                   |                    | 2000       |                   | 2005       |                   | 2010       |                   |
|---------|------------------------|--------------------|------------|-------------------|------------|-------------------|------------|-------------------|
|         | Country                | % of Total Export* | Country    | % of Total Export | Country    | % of Total Export | Country    | % of Total Export |
| 1       | Bangladesh             | 27.93              | Bangladesh | 26.47             | Bangladesh | 23.86             | Bangladesh | 19.60             |
| 2       | Myanmar                | 27.27              | Myanmar    | 14.61             | Sudan      | 12.84             | Liberia    | 12.69             |
| 3       | Togo                   | 5.29               | Benin      | 10.90             | Benin      | 9.46              | Myanmar    | 10.03             |
| 4       | Yemen                  | 4.76               | Nepal      | 5.80              | Myanmar    | 9.28              | Benin      | 6.56              |
| 5       | Tanzania               | 3.27               | Yemen      | 5.19              | Yemen      | 5.43              | Angola     | 5.78              |
| 6       | Benin                  | 2.94               | Cambodia   | 4.83              | Togo       | 5.34              | Sudan      | 5.63              |
| 7       | Gambia                 | 2.56               | Sudan      | 4.66              | Cambodia   | 5.32              | Cambodia   | 3.89              |
| 8       | Nepal                  | 2.36               | Liberia    | 3.71              | Angola     | 3.70              | Togo       | 3.85              |
| 9       | Cambodia               | 2.28               | Tanzania   | 2.52              | Tanzania   | 3.01              | Tanzania   | 3.62              |
| 10      | Lao People's Dem. Rep. | 2.11               | Togo       | 2.37              | Ethiopia   | 2.82              | Yemen      | 3.53              |
|         | <b>Total</b>           | <b>80.75</b>       |            | <b>81.06</b>      |            | <b>81.08</b>      |            | <b>75.19</b>      |

**Source:** Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

**Note:**\*Percentage of China's total export to LDCs.

### 3.2.3 Product Composition

The composition of Chinese overall trade basket – both exports and imports – has undergone spectacular changes over the decades. Statistical indicators of dispersion illustrate increase in product diversification in China’s overall export structure (Rumbaugh and Blancher 2004). However, does one observe similar trends when only the Chinese exports to the LDCs are considered?

Our calculations based on ITC-Trade Map Database indicate that the share of China’s top 15 products accounted for a little above 50 per cent of total exports to the LDCs in 2010, while the share was about 53.5 per cent 10 years back in 2000. In contrast, LDCs’ exports basket remained relatively more undiversified as the concentration ratio for top 15 products continued to remain as high as 96 per cent between 2001 and 2010. Thus, the structure of LDCs’ export to China projects an entrenched product concentration. A product-level analysis will bring out this point further.

China’s exports to the LDCs are traditionally dominated by wide-ranging manufactured goods, machineries and transport equipments and miscellaneous manufactured items. Table 8 suggests that the share of these line items in total exports to LDCs increased from about 86 per cent to a little above 89 per cent between 2000 and 2010. Chemicals and related products remain another important export item (around 6 per cent) from China to the LDCs. However, among these four important groups of export products, the incremental growth of machinery and transport equipments, as well as miscellaneous manufactured products, had been particularly noticeable. The fall in share of beverages and tobacco, as well as food and live animal, in the export basket of China may also be observed. In this regard, it needs to be pointed out that fall in percentage share does not automatically imply fall in export revenue from that source.

The figures presented in Table 8 further inform us that the LDCs are essentially importing inputs from China that are useful for building production capacity. This is by and large complementary to the development needs of these low-income countries with weak manufacturing base. However, an important part of China’s exports to the LDCs constitutes low-cost consumer items, which may have ambiguous short-term effect on the growth of local manufacturing industries.

**Table 8: China’s Exports to LDCs by Broad Product Groups**

(in Per cent)

| Item  | 1995          | 2000          | 2005          | 2010          |
|---|---------------|---------------|---------------|---------------|
| Manufactured goods                              | 42.87         | 46.50         | 45.42         | 35.04         |
| Machinery and transport equipment               | 31.29         | 28.84         | 29.54         | 41.98         |
| Miscellaneous manufactured items                | 8.14          | 11.03         | 11.44         | 12.26         |
| Chemicals and related products                  | 6.48          | 6.26          | 6.44          | 5.69          |
| Beverages and tobacco                           | 4.41          | 0.57          | 0.31          | 0.18          |
| Food and live animals                           | 4.05          | 4.21          | 2.83          | 2.65          |
| Mineral fuels, lubricants and related materials | 1.26          | 1.28          | 1.46          | 1.87          |
| Crude materials, inedible, except fuels         | 0.77          | 0.75          | 0.31          | 0.28          |
| Commodities and transactions                    | 0.66          | 0.55          | 2.25          | 0.05          |
| Animal and vegetable oils, fats and waxes       | 0.01          | 0.00          | 0.00          | 0.00          |
| <b>Total</b>                                    | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> |

Source: Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.



**Table 9: LDCs' Exports to China by Broad Product Groups***(in Per cent)*

| Item  | 1995          | 2000          | 2005          | 2010          |
|---|---------------|---------------|---------------|---------------|
| Mineral fuels, lubricants and related materials | 55.60         | 88.92         | 87.43         | 76.95         |
| Crude materials, inedible, except fuels         | 31.28         | 6.61          | 10.03         | 11.38         |
| Manufactured goods                              | 8.44          | 3.19          | 2.04          | 10.41         |
| Food and live animals                           | 2.33          | 0.89          | 0.26          | 0.68          |
| Chemicals and related products                  | 1.57          | 0.03          | 0.11          | 0.15          |
| Miscellaneous manufactured articles             | 0.50          | 0.21          | 0.08          | 0.23          |
| Machinery and transport equipment               | 0.24          | 0.09          | 0.01          | 0.02          |
| Animal and vegetable oils, fats and waxes       | 0.03          | 0.06          | 0.02          | 0.07          |
| Commodities and transactions                    | 0.01          | 0.00          | 0.02          | 0.00          |
| Beverages and tobacco                           | 0.01          | 0.00          | 0.00          | 0.11          |
| <b>Total</b>                                    | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> | <b>100.00</b> |

**Source:** Calculation based on the United Nations Conference on Trade and Development (UNCTAD) database.

In sharp contrast to Chinese export basket, LDCs are essentially exporting primary and unprocessed commodities to China. Table 9 indicates that, mineral fuels, as well as other crude natural resources, continue to dominate LDCs' export basket for China overwhelmingly. The share of these two groups of products accounted for about 95.5 per cent of total LDCs' exports to China in 2000, and the 2010 figure was also as high as 88.3 per cent. The rare and redeeming feature of product composition of the LDCs' export basket was the relative growth of share of manufactured goods from 3.2 per cent to 10.4 per cent. To be specific, over the last decade, the LDCs continued to supply primary commodities, without adding further value to these export items through processing. This is, of course, particularly true for the overall export structure of the African LDCs. Admittedly, this continued overwhelming commodity dependency of the LDCs' export structure has left this group of countries highly vulnerable to volatile global prices and external demand.

However, it needs to be pointed out that our subsequent analysis will reveal that the export basket of the LDCs for China has been undergoing discernible intra-industry diversification. This is because the number of tariff lines used by the LDCs in China has increased significantly, while the broad sectoral structure has remained largely unchanged (see Section 4.2).

#### **4. EXPLAINING CHINA-LDC TRADE PERFORMANCE**

##### **4.1 Role of China's Tariff Regime for Trade with LDCs**

As mentioned earlier, China opted for speedy liberalisation of its trade regime since the mid-1990s, i.e. during the run-up to accession to WTO. Applied tariff rates, as presented in Table 10, show that the unweighted average tariff of China came down secularly from 35.6 per cent in 1995 to 7.92 in 2010. However, import duties in effect were reduced even more as the weighted average tariff rates were 21.3 per cent and 3.7 per cent respectively. Moreover, over half of China's imports came in duty-free (Yang 2003). Tariff reduction in China during the period under review was paralleled by a process of doing away with non-tariff measures (NTMs). This was most visible in the areas of import and quota, exchange control and border measures (Lardy 1992).

Indeed, tariff reduction in China over the last decade had been across the board, with deeper cuts taking place in the case of industrial raw materials. This remains particularly true for the LDC products.

**Table 10: China's Average (Weighted) Tariff Rates for LDC Exports***(in Per cent)*

| Category of Products*                | 1995  | 2000  | 2005  | 2010 |
|--------------------------------------|-------|-------|-------|------|
| Machinery and transport equipment    | 62.95 | 25.54 | 4.69  | 4.32 |
| Manufactured goods                   | 26.21 | 12.05 | 8.62  | 4.33 |
| Other manufactured goods             | 25.41 | 11.31 | 8.23  | 4.70 |
| Chemical products                    | 19.21 | 16.81 | 10.73 | 3.15 |
| Ores and metals                      | 3.37  | 1.84  | 0.89  | 0.14 |
| Manufactured goods, ores and metals  | 13.11 | 6.55  | 1.97  | 0.30 |
| Average Tariff (unweighted) – Global | 35.60 | 16.38 | 9.22  | 7.92 |
| Average Tariff (weighted) – Global   | 21.30 | 14.62 | 4.83  | 3.70 |

Source: <http://unctadstat.unctad.org>

Note: \*Based on the UNCTAD (SITC Revision 3) product groupings and World Integrated Trading Solution (WITS).

Table 10 reports China's average (weighted) tariff rates that are relevant for LDC exports. While the applied tariffs on imports of machinery and transport equipments were reduced from 25.54 per cent in 2000 to 4.32 per cent in 2010, i.e. by 83 per cent, the applied tariff cut for ores and metals was almost 96 per cent.

However, it needs to be underscored that the average (weighted) tariff facing the major LDC exports are now minimal in China at 0.3 per cent in 2010. By the time of entering into the WTO, the corresponding figure was around 6.6 per cent in 2000.

The overall liberalisation of China's trade regime benefitted the LDCs along with other suppliers. Table 11 shows that the number of tariff lines of China used by the LDC imports increased discernibly across the product groups.

**Table 11: Number of China's Tariff Lines Used by Imports from LDCs**

| Product Category*                 | 1994 | 2000 | 2005 | 2010 |
|-----------------------------------|------|------|------|------|
| Manufactured goods                | 401  | 539  | 3750 | 3755 |
| Chemical products                 | 68   | 67   | 180  | 262  |
| Machinery and transport equipment | 114  | 100  | 440  | 792  |
| Other manufactured goods          | 219  | 372  | 3130 | 2701 |
| Ores and metals                   | 54   | 49   | 223  | 301  |
| Total                             | 455  | 588  | 3973 | 4056 |

Source: <http://unctadstat.unctad.org>

Note: \*Based on the UNCTAD (SITC Revision 3) product groupings.

In 2000, LDCs were exporting under 588 tariff lines and this number had risen to 4,056 at HS (Harmonized System of Commodity Classification) code level in 2010. The most prominent increase appears to be in the case of other manufactured goods where the number of tariff lines used by the LDCs increased by more than 12 times from 1994 to 2010. These figures suggest that while there was little diversification of the LDC export market for China, quite a significant increase in diversification had taken place at intra-sectoral level.

#### 4.2 China's Duty-Free Quota-Free Scheme for LDCs

Greater market access of LDC products in China, as revealed by our earlier discussion, was significantly facilitated by the launch of the Chinese DF-QF scheme for LDCs in 2005. It needs to be pointed out that

with the sequential reduction of MFN tariff, the preference margin for the LDC products has reduced over time. With reference to Table 10, it may be pointed out that the preference margin for the LDCs was only 3.4 per cent in 2010, whereas in 2000 it was more than 7 per cent. Yet, this tariff preference did give a much needed fillip to the LDC exports to China.

Table 12 shows that the revealed performance of China's DF-QF scheme for the LDCs compares favourably with other developed countries, particularly in relation to USA. According to the WTO, as of July 2010, China has granted zero tariff treatment to 4,762 tariff lines used by the LDCs, which accounted for 60 per cent of product coverage and 98.2 per cent of LDCs' export value to China.<sup>8</sup>

**Table 12: LDC DF-QF Provisions of China and Other Countries**

| Country     | Number of Tariff Lines | Duty-Free Tariff Lines (%) | Duty-Free Import Value (%) |
|-------------|------------------------|----------------------------|----------------------------|
| USA         | 10450                  | 82.4                       | 78.8                       |
| EU          | 9699                   | 99.9                       | 98.5                       |
| Japan       | 9033                   | 98.2                       | 99.9                       |
| Australia   | 6002                   | 100.0                      | 100.0                      |
| Canada      | 8432                   | 98.9                       | 100.0                      |
| New Zealand | 7293                   | 100.0                      | 100.0                      |
| Switzerland | 8371                   | 99.9                       | 100.0                      |
| China       | 7758                   | -                          | 94.7                       |
| India       | 11277                  | -                          | 5.7*                       |
| Brazil      | 9765                   | -                          | 96.1                       |

Source: WTO (2011).

Note: \*This figure has been contested. Following India's recent moves regarding expansion of its DF-QF scheme for the LDCs, this share has definitely gone up.

As the WTO Doha Round continues to remain in a state of paralysis, it is most encouraging to note that China has been taking unilateral measures to fulfil the commitments undertaken at the Hong Kong Ministerial (2005) of the WTO. It may be recalled that at the Hong Kong Ministerial, along with developed countries, developing countries 'in a position to do so' were called upon to provide DF-QF market access for at least 97 per cent of the LDC exports. Indeed, in various preparatory meetings for the upcoming Eighth Ministerial of the WTO<sup>9</sup>, China has stated that it will reduce the phase-in period of the residual tariff lines from five years to two years, i.e. before the Ninth Ministerial Meeting which is slated for 2013.<sup>10</sup> China has also been quite vocal in asking for greater clarity regarding the DF-QF schemes offered by the developed economies to the LDCs.

China's measures in favour of exports originating from LDCs have often been announced within the framework of different regional agreements and later notified to the WTO. These platforms include *Asia-Pacific Trade Agreement (APTA)*, *Framework for Comprehensive Cooperation between ASEAN (Association of Southeast Asian Nations) and China*, and *Forum on China-Africa Cooperation*.<sup>11</sup> Further, China has announced special preferential tariff for the LDCs that are not covered by these platforms.<sup>12</sup>

It may also be mentioned that, in July 2011, China contributed USD 0.4 million to WTO for setting up a programme called 'China's LDCs and Accessions Programme', popularly known as the *China*

<sup>8</sup>See proceedings of WTO Trade Negotiations Committee's informal meeting, 22 June 2011. [http://www.wto.org/english/news\\_e/news11\\_e/tnc\\_infstat\\_22jun11\\_e.htm](http://www.wto.org/english/news_e/news11_e/tnc_infstat_22jun11_e.htm)

<sup>9</sup>The Eighth Ministerial of the WTO (MC 8) is going to be held in Geneva in mid-December 2011.

<sup>10</sup>See proceedings of WTO Trade Negotiations Committee's informal meeting, 21 October 2011. [http://www.wto.org/english/news\\_e/news11\\_e/tnc\\_infstat\\_21oct11\\_e.htm](http://www.wto.org/english/news_e/news11_e/tnc_infstat_21oct11_e.htm)

<sup>11</sup>The beneficiaries of these agreements include Bangladesh, Lao PDR, Cambodia, Myanmar and all African LDCs.

<sup>12</sup>These include Afghanistan, Maldives, Samoa, Vanuatu and Yemen.

*Programme*. The objectives of the programme are to strengthen the LDCs' participation in the WTO and to support LDCs' acceding to the WTO. This happens to be the fourth contribution by China under the Aid for Trade initiative since 2008.<sup>13</sup>

It may be safe to conclude that China's entry into the WTO has strengthened the LDCs' negotiating capacity. China has not only extended greater preferential market access to the LDCs as per the commitments undertaken at the WTO, but has also put pressure on other countries, particularly the developed economies, to do so. Recently, China has been particularly assertive in designing a 'package' in support of the LDCs for adoption at the Seventh Ministerial Meeting of the WTO (MC 7)!<sup>14</sup>

### 4.3 An Econometric Analysis of China-LDC Trade Relationship

As a part of the present enquiry, a couple of statistical and econometric tests have been implemented to assess the nature and determinants of the impact of accession on the China's trade relationship with the LDCs. In this connection, first, a T-test has been carried out to allow a preliminary examination of the impact of China's WTO accession on the country's export and import from the LDCs, without controlling for other variables. Second, controlling for other variables, a basic gravity model has been constructed to further examine the accession impact on the China-LDC trade pattern.

For undertaking the T-test, China's top 10 import trading partners among the LDCs have been chosen, five each from Africa and Asia. These sample LDCs accounted for a major share of China's trade with the LDCs. The African LDCs include Angola, Benin, Liberia, Sudan and Togo, while the sample Asian LDCs are Bangladesh, Cambodia, Myanmar, Nepal and Yemen. One has to fall back on a sample set instead of all LDCs because of data constraint. The reference period of the exercise is 1995-2010. Thus the data consists of 160 observations.<sup>15</sup>

A normal T-statistics test has been carried out to discern the difference in trade with China between the sample African LDCs and their Asian counterparts. The difference between sample African and Asian LDCs' exports to China, both during the pre and post-accession periods, has been estimated in this case, other factors affecting the trade value, such as GDP, market size, exchange rate, contiguity, distance, regional trade agreements, have not been controlled for.

The results of the exercise, presented in Table 13, show that the difference in export to China between sample Asian and African LDCs was not significant before China's greater integration into the global

**Table 13: Impact on China's Imports from LDCs**

(in USD '000)

| China's Import from LDCs          | African  | Asian    | Mean Difference | T-Statistics |
|-----------------------------------|----------|----------|-----------------|--------------|
| Pre-accession period (1995-2001)  | 182442.8 | 146277.3 | 36165.5         | 0.4786       |
| Post-accession period (2002-2010) | 2895949  | 497120.1 | 2398829***      | 2.865        |

Source: Authors' calculation.

Note: T-statistics in parentheses = \*p<0.1, \*\*p<0.01, \*\*\*p<0.001.

<sup>13</sup>See, [http://www.wto.org/english/news\\_e/pres11\\_e/pr632\\_e.htm](http://www.wto.org/english/news_e/pres11_e/pr632_e.htm)

<sup>14</sup>Members urged to agree on LDC deliverables for MC 8: Trade Negotiations Committee: Informal Meeting (28 July 2011) <http://www.twinside.org.sg/title2/wto.info/2011/twninfo110803.htm>

<sup>15</sup>Data on GDP are in USD at constant prices (2005), constant exchange rates in millions, population – absolute value in thousands, and applied rates have been collected from the UNCTAD database (<http://www.unctad.org/Templates/StartPage.asp?intItemID=2068>). Distance has been calculated in miles and collected from the CEPII database (<http://www.cepii.fr/anglaisgraph/bdd/gravity.htm>). Information on regional trade agreements have been collected from the [http://www.wto.org/english/tratop\\_e/region\\_e/region\\_e.htm](http://www.wto.org/english/tratop_e/region_e/region_e.htm)

market through the country's WTO accession. The results further suggest that the difference increased considerably after China's accession to WTO, and it is also statistically significant at 1 per cent level. The finding validates our earlier conclusion that the African LDCs have become relatively more important as source of import for China in the last decade, i.e. following China's entry into the WTO.

Regarding China's exports to the LDCs, the results reported in Table 14 indicate that before the accession period, there was a significant difference between the sample Asian and African LDCs, with the former group having a greater volume of import from China (significant at 1 per cent level).

**Table 14: Impact on China's Export to LDCs**

(in USD '000)

| China's Export to LDCs            | African  | Asian    | Mean Difference | T-Statistics |
|-----------------------------------|----------|----------|-----------------|--------------|
| Pre-accession period (1995-2001)  | 111722.1 | 322922.2 | -211200***      | -4.217       |
| Post-accession period (2002-2010) | 1118666  | 1318315  | -199649         | -0.8103      |

Source: Authors' calculation.

Note: T-statistics in parentheses = \*p<0.1, \*\*p<0.01, \*\*\*p<0.001.

It is evident that, the African LDCs exported significantly more products, compared to the Asian ones, to China after the country's entry into the WTO. As China became more open to the world in the post-accession period, the tariff rates dropped significantly and provided more market access for LDCs to export to China. Introduction of the DF-QF scheme lent a helping hand to the LDCs in this regard. As for the Asian LDCs, even though they have been less successful than their African counterparts in terms of growth in export volume, they have also increased their trade with China at an appreciable amount during the post-accession period.

### **Basic Gravity Model Analysis**

To further investigate the China-LDC trade relationship, a gravity model with limited scope has been developed in order to assess the impact of WTO accession on China's trade with the LDCs. In this regard, it may be recalled that Matyas (1997, 1998) and Egger (2000) had suggested that a panel data approach obtains better results compared to a cross-section approach since the former allows capturing business cycle phenomenon faced by the trading partners and helps to extricate time-invariant country-specific effects.

The data set consists of 158 observations covering 16 years period (1995-2010) for 10 sample (Asian (5) and African (5)) LDCs mentioned earlier.<sup>16</sup> The dependent variable used in the regression is the (log of) China's imports from the sample LDCs.

In the sample we considered China's top 10 import trading partners among the LDCs: five African (Angola, Benin, Liberia, Sudan and Togo) and five Asian (Bangladesh, Cambodia, Myanmar, Nepal and Yemen). China imports almost 91.88 per cent of its total imports from the African LDCs. However in our sample, the African LDCs account for 86.16 per cent and the Asian LDCs account for 14 per cent of China's total import volume from these LDCs during the period 1995-2010.

Traditionally, in gravity models, variables such as GDP, population, distance and contiguity are considered. The coefficient of GDPs for both exporters and importers are expected to have positive

<sup>16</sup>Data on China's import from Liberia for the years 1996 and 1998 were not available.

signs, implying that a larger economy trades more. The coefficient of population of the exporters and importers might have positive or negative values depending on whether a big country exports more compared to a small country due to economies of scale (Martinez-Zarzoso and Nowak-Lehmann 2003), or if there is an absorption effect when a country's economy expands.

In our model, the dependent variable 'China's Imports from the LDCs' (LDCs' export to China) is a component of the LDCs' GDP, as we know from the GDP accounting identity that  $GDP=C+G+I+X-M$ . Given the specification of the econometric model, the error term would capture the components C, G, I and M, and therefore the GDP variable is likely to be correlated with the error term. As a result, the regression estimates of the effect of the independent variables on China's imports from the LDCs are likely to be biased and inconsistent.

To obtain unbiased and consistent estimates, an instrumental variable approach has been adopted. An instrumental variable does not itself belong in the explanatory equation and has to be correlated with the endogenous explanatory variables, conditional on the other covariates. The variable 'LDCs' population' is not only uncorrelated with the error term of the explanatory equation, but also is correlated with the independent variable 'LDCs' GDP', which indicates that the variable meets the conditions of being an instrument for 'LDCs' GDP' in this model (McCallum 1995). Thus we have used the variable 'LDCs' Population' as an instrument for the 'LDCs' GDP' in this regression.

As the sample set is skewed in favour of the African LDCs, we chose a regional dummy 'Africa' in order to control the regional effect among the trading partners, where,

$Africa = 1$ , if African LDCs (Angola, Benin, Liberia, Sudan or Togo)

= 0 otherwise

In order to capture the effect of China's WTO accession, a dummy WTO has been used, where,

$WTO = 1$ , if year > 2001 (the year of accession)

= 0 otherwise

The regression results have been presented in Table 15.

**Table 15: China-LDC Trade Relationship: Regression Results**

| Variable                      | Log of China's Import from LDCs |
|-------------------------------|---------------------------------|
| Log of LDCs' GDPs             | 1.143***<br>(0.397)             |
| Log of China's GDP            | 1.696<br>(1.614)                |
| Log of exchange rate USD/Yuan | 0.951<br>(2.627)                |
| Log of China's Population     | -24.52<br>(31.35)               |
| Dummy for WTO accession       | 1.215*<br>(0.686)               |
| Dummy for contiguousness      | -0.429<br>(1.527)               |

(Table 15 contd.)

(Table 15 contd.)

| Variable   | Log of China's Import from LDCs |
|--|---------------------------------|
| China's effective tariff rate for manufacturing, ores and metals | -0.0828<br>(0.150)              |
| Africa Dummy   | 0.634<br>(1.064)                |
| Constant   | 318.3<br>(433.0)                |
| Observations   | 158                             |
| R-squared  | 0.488                           |

**Source:** Authors' calculation.

**Note:** Standard errors in parentheses = \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Instrumental variable (IV) approach: Exogenous variable (instrumented): LDC GDP, (IV: LDC Population).

Clustered by country with robust standard errors.

The coefficient of the log of exchange rate (USD/Yuan) being positive suggests that as the value of Chinese currencies appreciated against USD, China seems to import more from the sample LDCs. However, it did not appear to be significant.

The coefficient of the log of GDP for both China and LDCs appears to be positive as expected. The coefficient of the variable log of China's population is negative.

The two key variables in this regression exercise are the WTO dummy variable – capturing overall effect of the accession on China's import from LDCs – and the effective tariff rates of China that captures the effect of changes in the tariff rate, which has been one of the main outcomes of the accession.

The results show that the coefficient of WTO dummy variable has a positive sign with 10 per cent significance level, indicating that accession has had a positive effect on China's import from the selected LDCs. According to the result, since the accession, import from the chosen LDCs increased by 166.4 per cent:  $[100*(e^{(1.215-0.2353)}-1)]$  (Kennedy 1981; Halvorsen and Palmquist 1980).

The dummy for the African LDCs suggests that the change was more inclined to the African LDCs. In the regression, the coefficient of the contiguity appears to be negative. One explanation is the minimal contribution of the bordering countries – Myanmar and Nepal, accounting for only 2.36 per cent of the total import from the sampled LDCs. Thus, the sign appears to be insignificant.

To be more specific, China's entry into the WTO had both a direct influence, e.g. through overall trade liberalisation as well as through providing preferential market access to the LDCs, and an indirect influence, e.g. through improving the negotiating environment in favour of the LDCs in the WTO and elsewhere. The LDCs, as a result, benefitted from China's accession to the WTO through increased export, apparently without losing third markets.

## 5. CONCLUDING OBSERVATIONS

China's accession to the WTO in 2000 is a momentous event that has far reaching and diverse impact on the global economy in general, and on the multilateral trading system in particular. Notwithstanding various concerns, China's inclusion in the multilateral trading system has resulted in enhancement of global welfare gains, including in the competing economies.



The foregoing analyses allow us to conclude that the trade relationship between China and the LDCs has experienced a robust expansion since 2000. This took place against the backdrop of comprehensive liberalisation of China's trade regime. Statistical and econometric tests confirmed that China's entry into WTO had an important role to play in promoting LDCs' exports to and imports from China. China's entry into the WTO had both direct and indirect influence on improving market access of LDC exports, as well as strengthening negotiating environment in the WTO and other regional platforms in favour of the LDCs.

The surge in China-LDC trade relationship took place when global trade was experiencing an upturn. However, global economy contracted in 2009 in the face of the worldwide recession. Indeed, China's economic vibrancy helped the LDCs to sustain their export at that time. Thus, China's continued robust economic performance in the future is going to play an important role in the LDCs' exports, particularly in compensating for fall in external demand elsewhere.

During the 2000s, China has emerged as the single largest export destination for the LDCs, accounting for more than a quarter of their total exports. During this period, LDCs also enhanced their share in China's total imports from the world. However, LDCs' exports to the Chinese markets had been faster than China's export growth in the LDC markets. Consequently, LDCs ended up enjoying trade surplus with China, which is quite remarkable given that LDCs as a group suffer from large deficit in their global export-import balance. Obviously, LDCs' trade surpluses with China have a positive influence on the balance of payments situation of these countries.

However, the encouraging features of the China-LDC trade relationship at the aggregate level are underpinned by a number of disquieting trends at the disaggregate level. *First*, the Asian LDCs did not share the same level of export growth as their African counterparts when a number of Asian LDCs had been major destination of Chinese exports. This has not only resulted in relative marginalisation of the Asian LDCs, but also in trade imbalance vis-à-vis China for them. This also implies that the poor Asian neighbours are yet to be adequately integrated in the international value chain where China plays a pivotal role.

*Second*, top performing LDC exporters to China are rather limited in number. In other words, only one-fifth of all the LDCs are actually exporting to China. Moreover, China has often changed its importing sources among the LDCs, which did not always necessarily take place due to trade policy-related reasons. This certainly has to do with strength and stability of supply capacity of the LDCs concerned. Yet, China in the coming days will have to find out ways and means to reach out to the rest of the LDCs, which are large in numbers.

*Third*, notwithstanding some intra-sectoral diversifications, LDCs' export basket continued to remain dominated by primary commodities, coming mostly from the extractive industries. Relaxing the product concentration of the LDCs' export items and enhancing the value addition of these products will be one of the core challenges of China-LDC trade relationship.

### ***Need for New China-LDC Partnership***

What is the prospect of further expansion of China-LDC trade relationship? One can be fairly sure that the relationship will continue to expand in the near future. This process will be underpinned by China's increasing demand for liquid fuel and other outputs of the extractive activities that are available in a number of African LDCs. On the other hand, developmental needs of the LDCs will encourage them in the near future to access industrial and transport equipments as well as other intermediate goods from cost-effective Chinese sources in a greater scale. However, the main issue is whether LDCs' trade



relationship with China will evolve on a new footing that precipitates a structural transformation of these disadvantaged economies.

To this end, one approach could have been diversification of export supply capacity by more extensive use of tariff preference. However, we have observed that, due to the steady lowering of the MFN tariffs, preference margin under the LDC DF-QF is becoming a window of opportunity that is closing fast. Under this circumstance, one would need to devise a 'second generation' of support measures on behalf of China in favour of the LDCs. One may mention at least three elements of such enhanced trade cooperation strategy of China for the LDCs.

*First*, with the potential benefits originating from tariff preference gradually exhausting, China would now need to simplify the rules of origin (RoO) for the LDC exports. Along with this, China will have to do away with all the NTBs, including technical barriers to trade (TBTs) and sanitary and phytosanitary (SPS) measures that are affecting LDCs' exports to the Chinese markets.

*Second*, China may like to intensify its support in promoting diversification of the LDCs' export basket and improving value addition of the export items by greater domestic processing, as well as by improving the product quality. For this to happen, China will need to revisit its investment policy so that it may contribute towards building production capacities in the LDCs more effectively, along with putting in place necessary physical infrastructures in the LDCs.

*Third*, China may consider strengthening the strategic partnership with LDCs by leveraging further the feeble voice of the LDCs in various global platforms. China, in this regard, is already playing a critical role in the WTO. It now needs to do the same in the Group of Twenty (G-20) where the LDCs are not represented. It will be quite useful, if China initiates an institutional structure for regular consultation with LDCs prior to the annual G-20 meetings. Such an initiative will be quite consistent with the emerging growing global role of China.

These suggested elements of a 'new' partnership will also address, to a certain degree, the fault lines of the current trends in China-LDCs trade relationship, as established by the research findings mentioned in the foregoing paragraphs. However, these elements could only be a part of a larger set of 'second generation' support measures to be extended by China to the LDCs. One would need to undertake further research and policy analysis to develop the envisaged package. In view of China's growing economic prowess and given its commitment to South-South cooperation, an effort in this direction will not only address the development challenges facing the LDCs, but will also make a positive contribution in terms of reducing the risks currently afflicting the global economy.

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