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## China and FDI*

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**Abstract**

That China's economy is now deeply integrated into the wider global economy and that inward FDI flows and trade growth have been mechanisms for this integration over the last 15 years is hardly news. The growth of exports, imports, and GDP increasingly reflect FDI inflows. China's deep integration into the global economy must therefore be judged not only by trade growth, but also by capital flows. In the paper we discuss three issues related to FDI, and primarily FDI inflows. The first is their contribution to growth, which we suggest is substantial and if any plateauing of FDI growth occurs then GDP growth may be significantly reduced. We also discuss the links between regional inequality and geographic concentration of FDI. Macro data suggests limited linkage, while micro studies claim to find it. Finally, we discuss recent proposals to remove tax preferences to FDI and RMB revaluation suggesting potential negative effects on FDI inflows. FDI has become so central to Chinese economic performance that what happens on the FDI front in the short term will likely determine the speed of China's development.

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## 1. Introduction

That China's economy is now deeply integrated into the wider global economy and that inward FDI flows and trade growth have been mechanisms for this integration over the last 15 years is hardly news. But the dimensions and speed of change continue at a torrid pace. Here we discuss the size and geographical concentration of the FDI, and raise several key issues linking FDI and wider economic performance. One is whether FDI lead growth can continue to be the prime developmental path for China, or do constraints on global aggregate flows, rising wage rates, limits on the absorptive capacity abroad for Chinese exports at some point serve to limit growth. If this is the case, there is an issue of when this may occur and what an alternative growth path may be. Another is whether regionally concentrated location specific FDI has been a prime contributor to the growing inequality which threatens to politically constrain growth. Yet another is whether proposed or likely policy change, such as the removal of substantial tax preferences towards FDI under the proposed unified tax, and / or significant Renmimbi revaluation could also serve to limit FDI inflows.

In what follows, we first document the dimensions of FDI inflows into China in recent years emphasizing its links to China's large processing trade. FDI inflows to China now account for nearly half of all OECD outflows, are split between horizontal (serving the

Chinese market) and vertical (export oriented), and are highly regionally concentrated. We then go on to discuss the contribution of FDI inflows to China's growth drawing on an earlier growth accounting paper of ours (Whalley and Xin (2006)) which argues that a plateauing of FDI inflows to China could reduce growth rates by 3-4 percentage points. We then use this as a bridge to discussion of potential constraints on China's future growth linked to FDI and trade. We note that for more than 20 years western economists have been predicting the demise of Chinese high growth, which has not happened. Sections follow on regional concentration of FDI and inequality in China, and the potential impacts of tax preference removal and Renminbi revaluation on FDI inflows.

## 2. Inward and Outward FDI in China

### *Inward FDI*

Before 1979 FDI was prohibited in China, a restriction which was lifted as part of China's open door policy of 1979, when a new foreign investment law was adopted. In its early stages, FDI was restricted to China's Four Special Economic Zones and limited to equity joint ventures. Most of the FDI went into hotel construction and energy. In 1984, a new foreign investment law accelerated FDI growth and a number of preferential policies were also used by both central and local governments to attract FDI.

A sharp increase in FDI only occurred after 1992 when China reaffirmed the policies of openness and market-oriented reforms introduced earlier. Significant tax preferences towards FDI introduced in 1991 and 1994 were also instrumental in the post-1992 surge.

The resulting growth in China's inward FDI has been spectacular. In 1985, annual FDI inflows were less than US$ 2 billion; while in 2006, they were around US$ 70 billion (MOFCOM, 2007), 35 times those of 20 years earlier. Between 1985 and 1991, the annual growth rate of FDI inflows into China was 14%. Annual FDI inflows during this period were less than US$ 4.5 billion, but increased sharply to US$ 11 billion in 1992 and again to US$ 28 billion in 1993, with growth rates of over 150% in both years.

The sharpest increases in inflows occurred in the early 1990s, and the late 1990s saw a small decrease in FDI inflows. But by 1997, China had FDI inflows of US$ 49 billion. China's FDI inflows increased again after China joined into the WTO in 2001. During the three years 2001, 2002 and 2003, world FDI inflows declined sharply by 41%, 26% and 10% respectively each year, but China saw FDI inflows grow at 15%, 13% and 1.4% (UNCTAD, 2006). China again saw inward FDI grow at13% in 2004 and 19.4% in 2005[†], but a small decrease of 4% in 2006 as the result of inward FDI in financial services falling by 47%. China is now the world's largest developing country FDI recipient and was the world's 2nd largest FDI recipient overall after the US in 2004, 3rd in 2005 and 4th in 2006. By contrast, FDI inflows into India were only US$ 5.5 billion in 2004 and 6.6 billion in 2005 (UNCTAD, 2006).

A feature of China's inward FDI is the large and increasing share involved with manufacturing. Before China's accession to the WTO, less than 60% of inward FDI went to the manufacturing sector. But after China joined the WTO, more inward FDI went to the

[†] China's official inward FDI data did not include FDI inflows to financial services (including banking, securities, and insurance) before 2005 since FDI inflows to these service sectors are relatively small. FDI Inflows to financial services soared to US$12.1 billion in 2005 and declined to US$ 6.45 billion in 2006 (MOFCOM, 2007).

manufacturing sector and this reached over 70% in 2005 as the share of FDI going to the real estate sector decreased. Because labour productivity in China's FIEs is sharply higher than elsewhere in the economy, maybe by a factor of four compared to the rest of the industrial sector, one can argue that the primary attraction of FDI is access to a high quality low wage labour pool which they can use effectively with foreign technology in processing trade of various forms. In 2005 FIEs accounted for only 3% (25 million out of 778.8 million labour force) of China's workforce (including agriculture), but over 20% of GDP and over 58% of exports.

The size distribution of the Foreign Invested Enterprises (FIEs) funded by FDI is a further feature. By 2005 553 thousand FIEs using FDI had been established, with around 47% (260 thousand out of 553 thousand) of them still in operation. Among the 260 thousand functioning FIEs 186 thousand are industrial enterprises, though the large majority are small. Only 56 thousand FIEs with annual sales income of over 5 million Yuan (US$ 0.61 million equivalent) are tracked by statistical agencies in China for data purposes.

A key link between FDI and overall world economic performance is that a large portion of China's trade is conducted via foreign invested enterprises (FIEs). MOFCOM (Ministry of Commerce of China) estimates that 46% of the output of FIEs in the manufacturing sector is for export from China, while for non-FIEs it is only 17% (MOFCOM, 2004). The export growth rate of FIEs in most years since the early 1990's has been over 30% and over 40% in some years; a much higher growth rate than that for non-FIEs. Whalley and Xin (2006) note the sharp change in share of China's exports of FIEs from less than 2% in 1990 to nearly 60% in 2005. The share of exports from FIEs has thus increased steadily since 1990, reaching 30% in 1995, more than 40% in 1996, 50% by 2001, and 58% by 2005. Since 1990 FIEs have also accounted for most of China's export growth. Without growth in FIE exports, China's export growth rate would have been only about 10% in most years after 1990, and negative in some years.

Along with rapid export growth, FIEs have also accounted for progressively more of China's imports. FIEs are heavily involved in component import, assembly and re-export as processing trade. In 2005, the ratio of imports by China's FIEs to total imports was about 60%, although compared to exports, the ratio of imports by FIEs to China's total imports is more volatile. This ratio was 55% in 1998, declined to 37% by 2001, and rebounded by almost 20 percentage points in 2002.

Lenovie (2000) reports that most of the vertical and export oriented FDI inflows to China originate from elsewhere in Asia (primarily from Hong Kong, Korea, and Taiwan)[‡]. But while Hong Kong, Macao and Taiwan accounted for 66% of FDI inflows between 1979 and 1992, and later this share declined, it still was around 40% in 2004. Many of these businesses are owner managed from initial investments, with the core business growth occurring inside rather than outside of China. Fung (2004) also reports that, in contrast to the 1990s, the majority of foreign investment inflows to China now take the form of wholly foreign owned entities rather than joint ventures. He reports that in 2002, 64% of FDI was of this form. Also, FDI in China from North America and Europe is claimed to be more heavily horizontal and aimed more at the Chinese domestic market rather than exports. Fung

[‡] Eichengreen and Tong (2005) demonstrate that China's emergence as a destination for foreign direct investment also affects the ability of other countries to attract FDI. Their results suggest that China's rapid growth and attractions as a destination for FDI also encourages FDI flows to other Asian countries, as if producers in these economies belong to a common supply chain.

(2004) reports an estimate that US origin FIEs sold more than 80% of their products locally in 2002, while Japanese origin FIEs sold only 45% of their production locally.

A large amount of China's FDI related trade is conducted through middlemen and distribution arrangements centered on Hong Kong, Korea and Taiwan. Fung (2004) notes that 28.3% of China's exports in 2002 were re-exported via Hong Kong and 21.9% of Chinese imports were imported via Hong Kong. Trade through middlemen is a reflection of trade in textiles and apparel and the impact of bilateral multilateral fibre agreement (MFA) quota restraints on China in the US and EU markets. As Whalley (2006) notes the termination of the MFA in January 2005 has seen large increases in China's exports of clothing to the US and EU, accompanied by sharp falls in exports to Hong Kong as these quotas are removed. But at the same time this Hong Kong trade also involves considerably more products than apparel, and especially electronics.

A considerable amount of China's trade is also related to processing and assembly, with sourcing via retailers in OECD and other markets abroad the common organizational form. Processed exports typically largely embody labour as the domestic value added, and have smaller value added content than non processed exports. Processed exports are typically products for final rather than intermediate sale, as again typified by consumer electronics and clothing. Fung (2004) reports official estimates that 55.2% of China's exports in 2003 were processed exports, while 39.5% of China's imports were inputs for processing. Feenstra and Hanson (2005) report similar estimates that 55.6% of China's exports between 1997 and 2002 were processed. The most recent official data indicates that in 2005 78% of China's FIE exports are processed exports and 60% of FIE imports are inputs to processing. FIE processed exports and imports accounted for 83% and 84% of China's total processed exports and imports respectively in 2005 (MOFCOM, 2006) indicating the importance of FDI to processing trade.

As Fung (2004) notes, there has been substantial growth in China's technology trade within this component. He notes that 2003 data from China's Custom Statistics report 25.9% of China's exports as high technology products, along with 28.9% of imports as high technology products. Two way trade in high technology products would thus seem to be substantial. MOFCOM (2006) estimates that 88% of China's exports of high technology products are conducted by FIEs and in 2005 43% of China's FIE exports are high technology products (of which 94% are processed exports).

While Tomiura (2005) finds that relatively few Japanese firms outsource directly to China, Xing (2004) found that Japanese affiliated manufacturers in China operating as subsidiaries sold about 1/3 of their products back to Japan. In industrial machinery, more than half of the products were exported to the Japanese market either as final goods or intermediate inputs. In the textile and transportation equipment sectors ratios of re-export increased between 1997 and 2002. In 1997, only 31 percent of textile products were produced for the Japanese market while the share rose to 47 percent in 2002. In transportation equipment, Japanese affiliated manufacturers also exported 47 percent of their products to Japan in 2002, much higher than the 27 percent re-export ratio in 1997. Re-exports increased by 23 percent in 2000, and continued to grow in 2001 and 2002 with 36 percent and 16 percent growth respectively. This suggests growing Japanese affiliate production in China for the Japanese market via FDI.

**Table 1: The Shares of FDI by province/ city in total FDI (%), 2000, 2003, and 2005**

| | 2000 | 2003 | 2005 |
|---|---|---|---|
| **Eastern China** | **86.50** | **85.73** | **88.78** |
| Guangdong | 27.97 | 14.78 | 20.50 |
| Jiangsu | 15.93 | 19.95 | 15.75 |
| Shandong | 7.37 | 11.36 | 14.73 |
| Shanghai | 7.84 | 10.33 | 11.12 |
| Zhejiang | 4.00 | 9.41 | 8.64 |
| Beijing | 4.17 | 4.14 | 5.85 |
| Tianjin | 2.89 | 2.90 | 4.03 |
| Liaoning | 5.07 | 5.33 | 3.82 |
| Fujian | 8.51 | 4.91 | 3.42 |
| Hebei | 1.68 | 1.82 | 0.85 |
| Hainan | 1.07 | 0.80 | 0.07 |
| **Central China** | **7.65** | **11.02** | **8.00** |
| Hunan | 1.68 | 1.92 | 1.90 |
| Jiangxi | 0.56 | 3.04 | 1.71 |
| Hubei | 2.34 | 2.96 | 1.25 |
| Anhui | 0.79 | 0.69 | 0.89 |
| Henan | 1.40 | 1.02 | 0.86 |
| Heilongjiang | 0.26 | 0.61 | 0.67 |
| Jilin | 0.36 | 0.36 | 0.55 |
| Shanxi | 0.26 | 0.40 | 0.16 |
| **Western China** | **4.59** | **3.25** | **3.22** |
| Sichuan | 1.08 | 0.78 | 1.01 |
| Guangxi | 1.30 | 0.79 | 0.62 |
| Inner Mongolia | 0.26 | 0.17 | 0.44 |
| Chongqing | 0.61 | 0.49 | 0.37 |
| Shaanxi | 0.72 | 0.63 | 0.32 |
| Yunnan | 0.32 | 0.16 | 0.29 |
| Ningxia | 0.04 | 0.03 | 0.07 |
| Guizhou | 0.06 | 0.09 | 0.06 |
| Gansu | 0.15 | 0.04 | 0.03 |
| Xinjiang | 0.05 | 0.03 | 0.01 |
| Qinghai | 0.00 | 0.05 | 0.01 |
| Tibet | 0.00 | 0.00 | 0.00 |

Source: NBSC (2001,2004) and MOFCOM (2006).

Finally, the geographical concentration within China of both China's trade and FDI inflows is pronounced. The majority of FDI inflows still go to the Eastern and South Eastern coastal areas, although the picture is changing. As Table 1 indicates in 2000 nearly 44% of FDI located in two provinces (Guangdong and Jiangsu); by 2003 the share in Guangdong has fallen sharply, but five provinces still account for 56% of FDI in 2003 and 59% in 2005 (NBSC, 2006). Fung (2004) also notes that Guangdong accounted for 31.7% of China's imports in 2003, and 34.9% of China's exports in the same year. These two figures are relatively stable and are 30% and 32% in 2005 for imports and exports respectively. Among both these exports and imports over 60% are conducted via FIEs in 2005 (NBSC, 2006).

All these studies and data thus suggest that China has indeed become a significant production base both for final products consumed abroad (and largely in OECD markets) and intermediate inputs purchased by foreign firms using FDI. Both Roach (2003) and Rauch (2001) characterize China as now being part of a global supply chain network in certain key industries and engaged in both importing and exporting of various components and parts and FDI is at the heart of this. This suggests increasing vertical integration between OECD and Chinese industrial activity, and the creation of linkage between firms through FDI. A significant portion of this is affiliate activity and a further portion involves owner operated firms from Taiwan and Hong Kong.

*Outward FDI*

In contrast to inward FDI, Chinese outward foreign direct investment (FDI) has been relatively small until recently (US$5.5 billion in 2004, 12.3 billion in 2005 and 16.1 billion in 2006, NBSC (2006)) and also heavily concentrated on both greenfield and joint venture activity abroad, much of it focused on Hong Kong. But, in the last year or two, direct acquisition of foreign firms by Chinese entities involving potentially large transactions have become prominent, in some instances in the US$ 15-20 billion range, and with a focus well beyond Hong Kong. Examples include: the Lenovo buyout of IBM's PC business, CNOOC's bid for Unocal, a prospective bid by MinMetals for Noranda, the Haier Group bid for Maytag, and others (Antkiewicz and Whalley, 2006). In part, the motivation is for the Chinese acquirer to combine the acquired foreign distribution system with growing lower wage Chinese manufacturing output which slowly displaces higher wage supplies abroad. Access to foreign brands in the distribution process is an element behind this.

Chinese outward FDI has previously been concentrated outside of the OECD (Table 2). Data in geographical locations for Chinese FDI are made hard to interpret by the sizeable amount flowing through intermediary tax haven locations such as the Cayman Islands. By the end of 2003, 84.3% of China's accumulated outward FDI was in Asia, 8.2% in Latin America (and mainly in the Cayman Islands), around 2% each in Europe, Africa, and North America, and 0.8% in Oceania. The top five destinations of China's cumulative outward FDI by 2003 were Hong Kong, Cayman Islands, Macao, the U.S., and Virgin Islands (77.2%, 6.3%, 1.4%, 1.2%, and 0.9% in that order). China's outward FDI share in different regions has changed rapidly in recent years. The largest changes have happened in Latin America

Table 2: China's Outward FDI (US$)

| | Accumulated Outward FDI at the End of 2003 | | Outward FDI in 2004 | | Outward FDI in 2005 | | Accumulated Outward FDI at the End of 2005 | |
|---|---|---|---|---|---|---|---|---|
| | Amount (million) | Share (%) | Amount (million) | Share (%) | Amount (million) | Share (%) | Amount (million) | Share (%) |
| **Total** | **39446.5** | **100.0** | **5498.0** | **100.0** | **12261.2** | **100.0** | **57205.6** | **100.0** |
| **Asia** | **33254.1** | **84.3** | **3000.3** | **54.6** | **4374.6** | **35.7** | **40629.0** | **71.0** |
| Hong Kong | 30459.0 | 77.2 | 2628.4 | 47.8 | 3419.7 | 27.9 | 36507.1 | 63.8 |
| Indonesia | 67.1 | 0.2 | 62.0 | 1.1 | 11.8 | 0.1 | 140.9 | 0.2 |
| Japan | 118.2 | 0.3 | 15.3 | 0.3 | 17.2 | 0.1 | 150.7 | 0.3 |
| Macao | 563.8 | 1.4 | 26.6 | 0.5 | 8.3 | 0.1 | 598.7 | 1.0 |
| Singapore | 257.2 | 0.7 | 48.0 | 0.9 | 20.3 | 0.2 | 325.5 | 0.6 |
| Republic of Korea | 253.2 | 0.6 | 40.2 | 0.7 | 588.8 | 4.8 | 882.2 | 1.5 |
| Thailand | 191.0 | 0.5 | 23.4 | 0.4 | 4.8 | 0.0 | 219.2 | 0.4 |
| Vietnam | 191.6 | 0.5 | 16.9 | 0.3 | 20.8 | 0.2 | 229.2 | 0.4 |
| **Africa** | **886.2** | **2.2** | **317.4** | **5.8** | **391.7** | **3.2** | **1595.3** | **2.8** |
| Algeria | 75.1 | 0.2 | 11.2 | 0.2 | 84.9 | 0.7 | 171.2 | 0.3 |
| Sudan | 113.7 | 0.3 | 146.7 | 2.7 | 91.1 | 0.7 | 351.5 | 0.6 |
| Guinea | 13.4 | 0.0 | 14.4 | 0.3 | 16.3 | 0.1 | 44.2 | 0.1 |
| Madagascar | 36.2 | 0.1 | 13.6 | 0.2 | 0.1 | 0.0 | 49.9 | 0.1 |
| Nigeria | -4.7 | 0.0 | 45.5 | 0.8 | 53.3 | 0.4 | 94.1 | 0.2 |
| South Africa | 47.0 | 0.1 | 17.8 | 0.3 | 47.5 | 0.4 | 112.3 | 0.2 |
| **Europe** | **922.3** | **2.3** | **170.9** | **3.1** | **505.0** | **4.1** | **1598.2** | **2.8** |
| United Kingdom | 53.8 | 0.1 | 29.4 | 0.5 | 24.8 | 0.2 | 108.0 | 0.2 |
| Germany | 112.1 | 0.3 | 27.5 | 0.5 | 128.7 | 1.0 | 268.4 | 0.5 |
| France | 17.4 | 0.0 | 10.3 | 0.2 | 6.1 | 0.0 | 33.8 | 0.1 |
| Russia | 184.9 | 0.5 | 77.3 | 1.4 | 203.3 | 1.7 | 465.6 | 0.8 |
| **Latin America** | **3240.7** | **8.2** | **1762.7** | **32.1** | **6466.2** | **52.7** | **11469.6** | **20.0** |
| Bahamas | -51.8 | -0.1 | 43.6 | 0.8 | 23.0 | 0.2 | 14.7 | 0.0 |
| Cayman Islands | 2486.7 | 6.3 | 1286.1 | 23.4 | 5162.8 | 42.1 | 8935.6 | 15.6 |
| Mexico | 111.2 | 0.3 | 27.1 | 0.5 | 3.6 | 0.0 | 141.9 | 0.2 |
| Virgin Is. (E) | 372.0 | 0.9 | 385.5 | 7.0 | 1226.1 | 10.0 | 1983.6 | 3.5 |
| **North America** | **815.9** | **2.1** | **126.5** | **2.3** | **320.8** | **2.6** | **1263.2** | **2.2** |
| Canada | 65.7 | 0.2 | 5.1 | 0.1 | 32.4 | 0.3 | 103.3 | 0.2 |
| United States | 470.9 | 1.2 | 119.9 | 2.2 | 231.8 | 1.9 | 822.7 | 1.4 |
| **Oceania** | **327.3** | **0.8** | **120.2** | **2.2** | **202.8** | **1.7** | **650.3** | **1.1** |
| Australia | 269.4 | 0.7 | 125.0 | 2.3 | 193.1 | 1.6 | 587.5 | 1.0 |
| New Zealand | 36.6 | 0.1 | -4.9 | -0.1 | 3.5 | 0.0 | 35.2 | 0.1 |

Source: NBSC (2006, Table 18-20,)

where the share rose to 52.7% from 32.1% during the same period, of which 42.1% was to the Cayman Islands. The share in Europe changed from 3.1% to 4.1%, North America from 2.3% to 2.6%, Africa 5.8 to 3.2%, and Oceania 2.2 to 1.7%.

China's outward FDI has been heavily concentrated in five sectors: leasing and business services (28.9% of China's accumulated outward FDI by 2005), distribution, wholesale and retail (20.0%), mining (15.1%), transport, storage and post (12.4%), and manufacturing (10.1%). In 2006, Chinese outward investment was only US$16.1 billion, only one-fifth of FDI flowing into China, despite the growth rate of outward FDI shares outpacing that of inward FDI for several prior years (in 2006, 32% and -4% respectively, year on year; in 2005, 123% and 20% respectively).

A recent joint study undertaken by the Chinese Academy of International Trade and Economic Cooperation (CAITEC) and the Welsh Development Agency (WDA) used a questionnaire to investigate key factors involved in Chinese outward FDI. These included market expansion, implementation of long-term development strategies for firms, access more to technology, accessing advanced management methods, avoiding trade barriers, taking advantage of foreign preferential investment policies, achieving cost reductions, acquisition of material inputs (resources), and transferring excess production capacity abroad. The use of overseas investment as a way around official Chinese restrictions on access to foreign exchange and foreign capital markets was also cited as a factor (CAITEC, 2005).

Other studies have pointed to non-economic reasons for Chinese enterprises investing abroad, such as the possibility of gaining residency rights and other benefits in the host country for managerial staff (such as health services, social security, access to education). But the decision by a Chinese company to buy a foreign company is also often linked to an intent to move manufacturing activity to China to benefit from lower labour costs while keeping existing distribution networks of the acquired business in the host country; similar considerations to that involving foreign firms in their outsourcing activities in China.

Recent widely publicized Chinese bids for large firms in the OECD are also portrayed in Chinese media as involving a prestige factor; going abroad to either buy a recognizable foreign brand (Lenovo's takeover of IBM) or to build their own brand's identity by establishing manufacturing plants in the target country (such as Haier's factory in South Carolina).

However, recent Chinese outward FDI also reflects official Chinese government policy to encourage domestic enterprises to invest abroad. Government regulatory approval processes for overseas investment projects have been significantly simplified in the recent years, increasing outward FDI flows. Chinese companies are also supported by low interest loans if their overseas activity involves, among other things resource exploration and acquisition of advanced foreign technology. This use of low interest loans made available to Chinese SOEs reflects China's large and growing foreign reserves. These reserves today stand at close to US$1 trillion reflecting both large Chinese trade surpluses in recent years and inward foreign investment. With concerns in China over security of supply of resource inputs, and the prospect of possible further falls in the US dollar and the impact on the large holdings of US treasuries in the reserve portfolio, deploying Chinese reserves in this way is seen in China as reasonable policy.

Chinese government policy is now to use outward oriented investment largely by large state owned enterprises (SOEs) to secure access to resources and raw materials (especially iron ore, coal, oil and natural gas), acquire new technology for transfer back to China, expand Chinese export markets, and strengthen international relationships with and gain more influence in other countries. In 2003, SOEs accounted for only 43% of total Chinese investments abroad with limited liability, shareholding and private companies taken together accounting for another 43%. With the recent large scale acquisition activity abroad these proportions seems poised to change.

Political resistance to these transactions has emerged in the OECD with questions of subsidization, lack of transparency, and national security all being raised. National security issues regarding foreign acquisitions are not new and in the US go back to the Exxon-Florio provisions of the American Defense Production Act of 1998 following concerns in the US in the late 1980's over Japanese buyouts. However, issues of subsidization of foreign acquisitions through low interest loans from central banks and the transparency of organizational form of acquiring entities (state owned enterprises) are new.

For now, outward FDI from China (insourcing to China) is still relatively small but growing much more rapidly that inward FDI, and the size of China's foreign reserves suggests this could change significantly in future years. Here the linkage to distribution and marketing networks seems even more marked than in the inward FDI area.

## 3. Inward FDI and Growth Performance in China

How much of China's strong growth performance can be attributed to inward FDI is an issue discussed in a recent joint paper of ours (Whalley and Xin (2006)). In it, we use an extension of the growth accounting approach long associated with Solow (1957) and Dennison (1967), extending the original Solow framework by using a two stage production growth accounting approach.

Solow's original purpose was to investigate the contribution of technical progress relative to factor accumulation in U.S. long term growth, which he put at 87.5% of growth. Dennison (1967) later used Solow's framework to explore the factors explaining why growth rates differed across OECD counties and Jorgenson and Griliches (1967) investigated the role of embodied technical progress on growth, concluding it was substantial. Young (1995) later used this growth accounting approach to analyze growth experiences more broadly in Asia, finding that the higher growth in the newly industrializing countries of east Asia was not due to rapid technological progress and other factors affecting the Solow residual, but rather capital accumulation. The Solow framework has recently been extended to open economies by Kohli (2003a and 2003b) to capture terms of trade effects in growth performance of open economies.

Following the trade literature, at the first stage we use a GDP function in which the outputs of the FIE and non-FIE portions of the Chinese economy aggregate to yield GDP,

$$O(t) = g(FIE(t), NFIE(t)) \tag{1}$$

where O(t) refers to aggregate output, and FIE(t) and NFIE(t) are outputs of the FIE and non-FIE portions of the economy.

In the second stage we use separate production functions for each sector, i.e.

$$FIE(t) = A^F(t) f(FDI(t), L^F(t)) \tag{2}$$

$$NFIE(t) = A^N(t) h(K(t), L^N(t)) \tag{3}$$

where $A^F(t)$ and $A^N(t)$ are the Hicksian neutral technical change terms, $L^F(t)$ and $L^N(t)$ are the labor inputs used in the FIE and non-FIE parts of the economy, FDI(t) and K(t) are the stocks of accumulated FDI and capital used in the FIE and non-FIE parts of the economy. The strong assumption is made that foreign supplied capital (FDI) is the only non-labor input in the FIE portion of the economy. .

Taking time derivatives through (2) and (3) yields,

$$\frac{\dot{FIE}}{FIE} = \frac{\dot{A}^F}{A^F} + S^F_{FDI}\frac{\dot{FDI}}{FDI} + S^F_L\frac{\dot{L}^F}{L^F} \tag{4}$$

and,

$$\frac{\dot{NFIE}}{NFIE} = \frac{\dot{A}^N}{A^N} + S^N_K\frac{\dot{K}}{K} + S^N_L\frac{\dot{L}^N}{L^N} \tag{5}$$

where $S^F_L$ and $S^F_{FDI}$ are the shares of labor and FDI in FIE production and $S^N_L$ and $S^N_K$ are the shares of labor and capital in non-FIE production.

The economy wide growth accounting equation for this two stage production structure can thus be expressed as,

$$\frac{\dot{O}}{O} = g^F\left(\frac{\dot{A}^F}{A^F} + S^F_{FDI}\frac{\dot{FDI}}{FDI} + S^F_L\frac{\dot{L}^F}{L^F}\right) + g^N\left(\frac{\dot{A}^N}{A^N} + S^N_K\frac{\dot{K}}{K} + S^N_L\frac{\dot{L}^N}{L^N}\right) \quad (6)$$

where $g^F$ and $g^N$ are shares of FIE and non-FIE output in the GDP function. If (1), (2), and (3) are Cobb Douglas, then the associated share parameters are constant. If (1), (2), and (3) are CES then the share parameters in (6) change over time.

If $g^F$ is the share of FIE output in national income, $g^N$ can then be obtained by residual since the sum of $g^F$ and $g^N$ is one. The labor share parameters, $S^F_L$ and $S^N_L$ in FIE and non-FIE production functions are calculated using the labor force wage bill divided by value added for the two parts of the economy, and $S^F_{FDI}$ and $S^N_K$ are obtained by residual. The wage bill of FIEs is estimated by multiplying wage rate (NBSC, 2005, p174) and labor force data (NBSC, p506, p121). The wage bill of non-FIEs is China's total labor remuneration (NBSC, 2005, p62; and other various years) minus the FIE wage bill. Data on China's labor force is from NBSC (2005, p118) and the labor force in non-FIEs is taken to be the total labor force minus that in FIEs.

To determine the capital stock and growth variables, we first estimate the Chinese total capital stock along with the FIE capital stock as accumulated FDI net of depreciation. We use the total capital stock minus the FDI stock as our estimate of the non-FIE capital stock.

The Chinese capital stock is obtained by firstly deflating annual capital formation data using a fixed investment price index NBSC (2005, p301). A depreciation rate of 0.04, similar to that used by Chow (1993 and 2003), is assumed for the depreciation of the annual capital stock after 1985. Before 1985, a depreciation factor of 0.10 is used instead to account for outmoded fixed equipment. Annual capital formation is from the World Bank database (World Bank, 2005) in US$.

The resulting growth rates of variables from 1995 to 2004, along with the estimated share parameters are reported in Table 3. These data indicate that while FIEs produce one fifth of China's total GDP, the FIE subpart of the Chinese economy grew three times faster than the non-FIE portion between 1995 and 2004, and considerably faster than China's economy as a whole. In the two years 2003 and 2004, over 40% of China's growth comes from FIEs and in the last decade (from 1995 to 2004), over 30% of China's economic growth.

A further striking feature of these data is the high capital share in the non-FIE portion of the economy (declining from 70% to only 50% in 2004), and the even higher share of FDI in FIE output (over 80% in most years after 1995). The high (and volatile) $\dot{L}^F/L^F$ variable reflects rapid labor growth forces in FIEs from a low base, and the high $\dot{K}/K$ variable reflects high rates of domestic saving in China.

Following Solow's original procedure of specifying no functional form for the production functions (4) and (5), and allowing shares to vary each year, we use data from Table 4 and (6) to decompose the growth performance of the FIE and non-FIE parts of China's economy and assess their respective contributions to the total GDP growth. If we instead assume (2) and (3) to be Cobb Douglas, and time invariant, shares are constant over time. If we assume CES, then shares vary over time in ways which reflect the elasticity of substitution, output, and factor input data and need not be the same as observed shares.

**Table 3: Growth rates of output and accumulated FDI, capital stock and labor force in FIEs and the non-FIEs portion of the Chinese economy and share parameters**

| | $\frac{\dot{FIE}}{FIE}$ | $\frac{\dot{NFIE}}{NFIE}$ | $g^F$ | $g^N$ | $S_L^F$ | $S_{FDI}^F$ | $S_L^N$ | $S_K^N$ | $\frac{\dot{L}^F}{L^F}$ | $\frac{\dot{FDI}}{FDI}$ | $\frac{\dot{L}^N}{L^N}$ | $\frac{\dot{K}}{K}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | - | - | 10.3 | 89.7 | 19.6 | 80.4 | 29.9 | 70.1 | 41.0 | 41.8 | 0.5 | 14.0 |
| 1996 | 18.9 | 8.5 | 11.2 | 88.8 | 20.8 | 79.2 | 30.2 | 69.8 | 26.4 | 32.6 | 1.0 | 14.2 |
| 1997 | 24.8 | 6.8 | 12.8 | 87.2 | 19.8 | 80.2 | 30.3 | 69.7 | 5.3 | 26.6 | 1.2 | 13.3 |
| 1998 | 23.5 | 5.5 | 14.7 | 85.3 | 21.1 | 78.9 | 32.8 | 67.2 | 7.6 | 20.7 | 1.1 | 12.3 |
| 1999 | 15.9 | 5.6 | 15.9 | 84.1 | 20.1 | 79.9 | 34.9 | 65.1 | 2.2 | 14.2 | 1.1 | 11.4 |
| 2000 | 17.4 | 6.2 | 17.2 | 82.8 | 18.4 | 81.6 | 36.9 | 63.1 | 7.7 | 11.9 | 0.8 | 10.5 |
| 2001 | 12.5 | 6.5 | 18.0 | 82.0 | 18.7 | 81.3 | 40.4 | 59.6 | 10.1 | 12.4 | 1.1 | 11.2 |
| 2002 | 12.3 | 7.4 | 18.7 | 81.3 | 19.5 | 80.5 | 42.7 | 57.3 | 12.3 | 12.5 | 0.7 | 11.5 |
| 2003 | 20.4 | 6.7 | 20.6 | 79.4 | 18.5 | 81.5 | 45.2 | 54.8 | 19.4 | 10.6 | 0.5 | 13.0 |
| 2004 | 18.8 | 7.1 | 22.4 | 77.6 | 15.9 | 84.1 | 48.8 | 51.2 | 14.8 | 10.4 | 0.6 | 13.3 |

Source: Whalley and Xin (2006).

Table 4 reports growth accounting results using the conventional Solow methodology. These suggest that over 90% of growth in the non-FIE sub-economy in China between 1995 and 2004 has been from growth in the capital stock. In contrast, 20-40 percent of FIE growth came from technological progress and a further 15% from growth in the FIE labor force. These decomposition results also suggest that without FDI inflows, in 2004 growth in China would be lowered by the 1.8% attributed to the $\dot{FDI}/FDI$ term. If TFP growth in the FIE portion of the economy of 1.6% is attributed to technical progress embodied in FDI, this component of growth would also be lost. This yields an estimate of forgone growth were FDI growth to have been interrupted in 2004 of 3.4%. The 3% labor force growth rate in the FIE portion would remain as a growth contribution through redeployment of labor elsewhere[4].

**Table 4: A two stage Solow decomposition of FIE and non-FIE growth rates in China by year and component (%)**

| | GDP growth rate | Growth rate (A) FIE | | | | Growth rate (A) Non-FIE | | | | Contribution to GDP growth (B) FIE | | | | Contribution to GDP growth (B) Non-FIE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | TFP | L | FDI | Total | TFP | L | K | Total | TFP | L | FDI | Total | TFP | L | K |
| 1996 | 9.6 | 18.9 | -12.4 | 5.5 | 25.8 | 8.5 | -1.7 | 0.3 | 9.9 | 1.9 | -1.3 | 0.6 | 2.7 | 7.7 | -1.5 | 0.3 | 8.9 |
| 1997 | 8.8 | 24.8 | 2.4 | 1.0 | 21.3 | 6.8 | -2.8 | 0.4 | 9.3 | 2.8 | 0.3 | 0.1 | 2.4 | 6.0 | -2.5 | 0.3 | 8.2 |
| 1998 | 7.8 | 23.5 | 5.5 | 1.6 | 16.4 | 5.5 | -3.1 | 0.3 | 8.2 | 3.0 | 0.7 | 0.2 | 2.1 | 4.8 | -2.7 | 0.3 | 7.2 |
| 1999 | 7.1 | 15.9 | 4.2 | 0.4 | 11.3 | 5.6 | -2.2 | 0.4 | 7.4 | 2.3 | 0.6 | 0.1 | 1.7 | 4.8 | -1.8 | 0.3 | 6.3 |
| 2000 | 8.0 | 17.4 | 6.3 | 1.4 | 9.7 | 6.2 | -0.7 | 0.3 | 6.6 | 2.8 | 1.0 | 0.2 | 1.5 | 5.2 | -0.6 | 0.3 | 5.6 |
| 2001 | 7.5 | 12.5 | 0.5 | 1.9 | 10.1 | 6.5 | -0.7 | 0.5 | 6.7 | 2.2 | 0.1 | 0.3 | 1.7 | 5.3 | -0.6 | 0.4 | 5.5 |
| 2002 | 8.3 | 12.3 | -0.2 | 2.4 | 10.0 | 7.4 | 0.5 | 0.3 | 6.6 | 2.2 | 0.0 | 0.4 | 1.8 | 6.1 | 0.4 | 0.3 | 5.4 |
| 2003 | 9.3 | 20.4 | 8.2 | 3.6 | 8.6 | 6.7 | -0.6 | 0.2 | 7.2 | 3.8 | 1.5 | 0.7 | 1.6 | 5.5 | -0.5 | 0.2 | 5.8 |
| 2004 | 9.5 | 18.8 | 7.7 | 2.4 | 8.8 | 7.1 | -0.1 | 0.3 | 6.8 | 3.9 | 1.6 | 0.5 | 1.8 | 5.6 | 0.0 | 0.2 | 5.4 |

(Table 4 continued)

| | GDP | Contribution share to total GDP growth (C) FIE | | | | Contribution share to total GDP growth (C) Non-FIE | | | | Factor Contribution share inside (D) FIE | | | Factor Contribution share inside (D) Non-FIE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total | TFP | L | FDI | Total | TFP | L | K | TFP | L | FDI | TFP | L | K |

[4] As Lardy indicated in his comments, Chinese statistical authorities only reports data related to industry sector of FIEs. We thus calculate the FIE share in China's total GDP using the key assumption that the marginal revenue of per FDI dollar is equalized across aggregate sectors of the economy (agriculture, manufacturing, and services). The deviation of this assumption from the real situation, as Lardy indicates in his comments will certainly affect our decomposition results. However, since no data on the other sectors are available and the real situation is unknown and we have to make assumptions. The assumption that the marginal revenue of per FDI dollar is equalized across aggregate sectors of the economy (agriculture, manufacturing, and services) seems plausible from economics perspective. With this assumption the share of FIEs in China's industrial value added can then be estimated by using value added for FIEs divided by the value added of the industrial sector from NBSC (2005, p488; and other various issues). We multiply this share by China's industrial share in total GDP (NBSC, 2005, p52), and then divide by the industrial FDI share in total inward FDI ((NBSC, 2005, p648 and other various issues) to estimate the FIE share in China's total GDP. In 1995, the FIE share was around 10%, and reached over 20% in 2003 and 2004. We then can calculate the growth rates of the two parts of Chinese economy and arrive at the result that China's FIEs may have contributed over 40% of China's economic growth in 2003 and 2004. The two stage decomposition approach we employed in this paper is from top to bottom. This 40% thus does not depend on the magnitudes of labor shares in FIEs and non-FIEs economy.

The magnitudes of labor shares do matter for the calculation of the contributions of TFP, labor growth and capital growth to China's economy growth. However, even we double the labor share of output in FIEs and correspondingly adjust the labor share of output in the non-FIEs sector, the yielding decomposition results are not substantially different from those in Table 4.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1996 | 100 | 20.2 | -13.3 | 5.9 | 27.6 | 79.8 | -15.7 | 2.7 | 92.7 | -65.8 | 29.1 | 136.7 | -19.7 | 3.4 | 116.2 |
| 1997 | 100 | 31.4 | 3.0 | 1.3 | 27.0 | 68.6 | -28.5 | 3.7 | 93.4 | 9.7 | 4.2 | 86.1 | -41.5 | 5.3 | 136.2 |
| 1998 | 100 | 38.5 | 9.0 | 2.6 | 26.8 | 61.5 | -34.2 | 3.9 | 91.9 | 23.5 | 6.8 | 69.7 | -55.7 | 6.3 | 149.3 |
| 1999 | 100 | 32.7 | 8.5 | 0.9 | 23.3 | 67.3 | -25.8 | 4.4 | 88.7 | 26.1 | 2.7 | 71.2 | -38.3 | 6.5 | 131.8 |
| 2000 | 100 | 34.5 | 12.5 | 2.8 | 19.2 | 65.5 | -7.6 | 3.3 | 69.8 | 36.3 | 8.2 | 55.5 | -11.6 | 5.0 | 106.6 |
| 2001 | 100 | 28.8 | 1.2 | 4.3 | 23.2 | 71.2 | -7.8 | 5.0 | 74.0 | 4.2 | 15.1 | 80.7 | -11.0 | 7.1 | 103.9 |
| 2002 | 100 | 26.7 | -0.4 | 5.2 | 21.8 | 73.3 | 5.0 | 3.1 | 65.2 | -1.4 | 19.6 | 81.8 | 6.8 | 4.2 | 89.0 |
| 2003 | 100 | 41.1 | 16.5 | 7.2 | 17.3 | 58.9 | -5.6 | 2.0 | 62.5 | 40.3 | 17.5 | 42.2 | -9.5 | 3.3 | 106.1 |
| 2004 | 100 | 40.8 | 16.6 | 5.1 | 19.1 | 59.2 | -0.5 | 2.6 | 57.1 | 40.8 | 12.5 | 46.7 | -0.8 | 4.4 | 96.4 |

Source: Whalley and Xin (2006).

While the FIE sub-economy in China is still only 20% of the whole economy, it nonetheless accounts for over 40% of China's recent economic growth, and this part of the Chinese economy thus has substantial implications for the sustainability of China's future economic growth, and whether rapid growth will continue into the future in turn depends on both continued growth in inward FDI along with access to international export markets abroad.

While China's FDI inflow growth rate has averaged over 10% since 2002 and China's accession to the WTO, in the years ahead it seems likely to plateau or slightly decline. An important feature of China's FDI performance has been the falling share of OECD FDI going to other non-OECD countries (in Brazil it fell to US$ 10 billion in 2003 and 18 billion in 2004 from US$33 billion in 2000). As overall OECD FDI has increased little, the prospects seem to be for plateauing or even falling FDI flows to China as some further FDI moves to other low wage countries such as Vietnam and Indonesia.

China's WTO commitments imply both capital market liberalization (in banking) and further progress on commitments on rule-based WTO issues, including TRIPs and TRIMs, and these changes may help attract more FDI. China is also continuing to see changes in the legal forms that FIEs take, and this may also help with continued FDI inflows. The share of inward FDI occurring through wholly foreign owned enterprises at the end of 2000 was 46.9% of accumulated FDI, and in recent years, wholly foreign owned enterprises provide the dominant legal form (over 66% of inward FDI in 2004) (NBSC, 2005 and various issues). This increasing share of wholly owned FIEs may accelerate technology transfer and product upgrading, and access to foreign equipment and technology and intermediate goods will improve with trade liberalization and lower tariffs will apply to imports.

China's rapid export growth which FDI inflows have generated also raises concerns over the continued absorptive capacities of the OECD. China's share of world exports is now around 8% and with a 35% growth rate in exports is doubling every three years. Continued FDI flows thus may also encounter problems here if they are export oriented. China's large trade surplus with the EU and the US also fuels protectionist pressure in these countries.

This leaves the issue of whether the non-FIE part of the economy can generate higher growth in the future to compensate for slowing growth in the FIE sub-economy. The reform process for SOEs and labor market and competition related reforms provide the major hope, but results from these reforms thus far are not conclusive.

Overall then, plateauing or falling FDI, limits to FDI diversification from other non-OECD countries, and continued growth of exports all raise cautions for continued high growth in China in the future based on FDI inflows. These negatives are counterbalanced by an ever improving policy environment for FDI in China, but they seem unlikely to support yet more FDI growth into China. Whether growth in the non-FIE sub-economy can compensate is the issue.

### 4. FDI and Regional Inequality

A central policy concern in China is growing inequality and whether FDI plays a central role is a topic now much debated. While absolute poverty in China measured by headcount ratios (fraction of the population below various poverty lines) has been falling sharply, relative inequality has grown quickly. A widely used measure is the ratio of urban to rural incomes, which has increased from around 1.8 in the mid 1980s to around 3.2 today (calculation based on Table 10-1 (NBSC, 2006)). The national Gini coefficient has increased from under 0.28 in the 1981 to 0.41 today (World Bank, 2007).

The geographically concentrated nature of China's development which has occurred primarily in a relatively small number of Western and Coastal provinces is widely thought to be a key determinant in this outcome. In turn, as these same provinces are the largest recipients of inward FDI, the link between FDI inflows and relative inequality surfaces as an issue.

In Table 5, we report real GDP / capita by province for the years between 1978 and 2004. Provinces are stratified by Coastal and Interior with interior provinces showing GDP / capita well below the national average and coastal provinces well above the national average. The gap between highest and lowest provinces in 2004 is approximately 10 times, narrowing from approximately 15 times in 1978. The trend indicates a narrowing over time in the dispersion of provincial GDP / capita both within the two groups of coastal and interior provinces and across the two groups. As national inequality has been increasing in China, this seems to indicate increasing inequality within provinces over time, and especially across the urban rural divide within provinces.

In Table 6 we report FDI inflows by province for individual years from 1978 onwards, cumulating them forward after allowing for 4% depreciation. These are in real terms after adjustments by the GDP deflator for the year. These data show substantial growth through the 1990s in FDI by province, as well as extreme concentration with Guangdong, Fujian, Jiangsu, Shangdong, and Shanghai, accounting for nearly 70% of the FDI stock in 2003.

Table 5: Real Provincial Per Capital GDP in China, Various Years

| | Per Capita GDP (in 1978 RMB) | | | | As Per Cent of National Average | | | |
|---|---|---|---|---|---|---|---|---|
| | 1978 | 1990 | 2000 | 2004 | 1978 | 1990 | 2000 | 2004 |
| **National Average** | 374.57 | 888.98 | 2099.9 | 2858.14 | 100 | 100 | 100 | 100 |
| **Coastal** | | | | | | | | |
| Beijing | 1248.2 | 2558.6 | 4811.4 | 6666.8 | 333.24 | 287.81 | 229.13 | 233.26 |
| Tianjin | 1141.6 | 1951.6 | 4393.2 | 6653.4 | 304.78 | 219.53 | 209.21 | 232.79 |
| Liaoning | 675.3 | 1350.6 | 2955.4 | 3787.2 | 180.29 | 151.93 | 140.74 | 132.51 |
| Changhai | 2484.6 | 3090.2 | 7293.1 | 9938.5 | 663.32 | 347.61 | 347.31 | 347.73 |
| Jiangsu | 427.2 | 1078.8 | 3095.4 | 4849.7 | 114.05 | 121.35 | 147.41 | 169.68 |
| Zhejiang | 329.8 | 1114.0 | 3462.2 | 5535.3 | 88.05 | 125.31 | 164.87 | 193.67 |
| Fujian | 270.6 | 839.4 | 2039.6 | 3954.0 | 72.24 | 94.42 | 144.27 | 138.34 |
| Shangdong | 314.9 | 871.0 | 2524.0 | 3921.3 | 84.07 | 97.98 | 120.20 | 137.20 |
| Guangdong | 364.8 | 1286.8 | 2999.2 | 4488.5 | 97.39 | 144.75 | 142.83 | 157.04 |
| Hainan | 310.6 | 795.1 | 1767.3 | 2185.6 | 82.92 | 89.44 | 84.16 | 76.47 |
| **Interior** | | | | | | | | |
| Hebei | 362.0 | 753.2 | 2024.2 | 3015.9 | 96.64 | 84.73 | 96.40 | 105.52 |
| Shanxi | 363.0 | 765.3 | 1337.4 | 2187.1 | 96.91 | 86.09 | 63.69 | 76.52 |
| Inner Mongolia | 318.4 | 735.5 | 1581.8 | 2643.6 | 85.00 | 82.74 | 75.33 | 92.49 |
| Jilin | 381.5 | 880.3 | 1790.8 | 2720.0 | 101.85 | 99.02 | 85.28 | 95.17 |
| Helongiang | 558.4 | 1031.9 | 2365.5 | 2985.8 | 149.08 | 116.08 | 112.65 | 104.47 |
| Anhui | 241.8 | 593.0 | 1361.5 | 1731.7 | 64.55 | 66.71 | 64.84 | 60.59 |
| Jiangxi | 273.3 | 610.9 | 1297.9 | 1900.9 | 72.96 | 68.72 | 81.81 | 66.51 |
| Henan | 230.5 | 574.6 | 1489.0 | 2108.1 | 61.54 | 64.64 | 70.91 | 73.76 |
| Hubei | 330.1 | 807.0 | 1903.0 | 2447.1 | 88.13 | 90.78 | 90.62 | 85.62 |
| Hunan | 284.5 | 636.2 | 1537.8 | 1947.1 | 75.95 | 71.57 | 73.23 | 68.12 |
| Guangxi | 223.0 | 511.1 | 1225.1 | 1578.1 | 59.53 | 57.54 | 58.34 | 55.21 |
| Chongqin | | | 1379.8 | 2043.4 | | | 65.71 | 71.49 |
| Sichuan | 252.2 | 587.9 | 1291.6 | 1746.1 | 67.33 | 66.13 | 61.51 | 61.09 |
| Guizhou | 173.6 | 432.7 | 756.1 | 947.6 | 46.35 | 48.67 | 36.01 | 33.15 |
| Yunnan | 223.3 | 588.9 | 1223.1 | 1557.7 | 59.62 | 66.24 | 58.25 | 54.50 |
| Xizhang | 371.5 | 611.1 | 1202.7 | 1794.1 | 99.18 | 68.74 | 57.27 | 62.77 |
| Shaanxi | 291.6 | 625.8 | 1235.9 | 1808.6 | 77.85 | 70.40 | 58.86 | 63.28 |
| Gamsu | 346.1 | 575.6 | 1029.6 | 1383.2 | 92.40 | 64.75 | 49.03 | 48.40 |
| Qinghai | 425.8 | 821.6 | 1365.0 | 2007.9 | 113.68 | 92.42 | 65.00 | 70.25 |
| Ningxia | 365.2 | 721.3 | 1267.6 | 1819.3 | 97.50 | 81.14 | 60.36 | 63.65 |
| Xinjiang | 316.9 | 914.0 | 1901.3 | 2604.5 | 84.60 | 102.81 | 90.54 | 91.13 |

Sources: NBSC (various years)

Table 6: Cumulative FDI capital stock by province by year (1990 prices, and assuming a 4% depreciation rate), US$, million

| Province | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|
| Beijing | 668.40 | 983.003 | 1220.633 | 1401.953 | 1654.9 | 2078.136 | 2825.8665 | 3285.968 |
| Tianjin | 42.34 | 70.67025 | 102.7734 | 222.9011 | 309.1879 | 747.1675 | 1332.1312 | 2085.983 |
| Hebei | 22.24 | 50.14094 | 87.4853 | 125.6964 | 220.5618 | 502.739 | 799.68934 | 1057.818 |
| Shanxi | 8.67 | 17.77465 | 20.46367 | 23.21735 | 29.84592 | 130.4785 | 144.46224 | 172.5575 |
| Inner Mongolia | 4.48 | 4.558158 | 15.01583 | 15.44927 | 19.42449 | 81.23989 | 102.23989 | 128.8293 |
| | | | | | | | | |
| Liaoning | 153.21 | 274.1738 | 506.9369 | 814.6281 | 1238.2 | 2127.358 | 2914.6571 | 3554.092 |
| Jilin | 8.24 | 11.50332 | 28.64318 | 44.41857 | 109.1902 | 306.8286 | 441.10332 | 639.99 |
| Helongjiang | 53.30 | 75.18416 | 96.6668 | 101.6649 | 161.3466 | 325.38 | 522.92438 | 776.2981 |
| | | | | | | | | |
| Shanghai | 309.98 | 750.0233 | 894.0324 | 994.7586 | 1390.978 | 3654.478 | 5006.4224 | 6341.235 |
| Jiangsu | 136.97 | 231.793 | 346.6813 | 532.408 | 1962.597 | 3970.941 | 6091.7064 | 8602.737 |
| Zhejiang | 39.31 | 93.27012 | 137.9693 | 218.579 | 421.6352 | 1161.916 | 1812.2325 | 2407.379 |
| Anhui | 15.30 | 19.81286 | 28.63034 | 36.45332 | 83.27676 | 269.014 | 482.38829 | 719.1809 |
| Fujian | 173.05 | 518.5472 | 787.8254 | 1194.654 | 2404.379 | 4417.603 | 6490.2311 | 8376.666 |
| Jiangxi | 6.89 | 12.90258 | 18.59648 | 36.17442 | 122.8108 | 270.6633 | 418.35463 | 554.9252 |
| Shangdong | 57.28 | 195.7465 | 338.7566 | 493.9474 | 1360.518 | 2681.421 | 4120.3436 | 5382.536 |
| | | | | | | | | |
| Henan | 85.32 | 127.6334 | 183.018 | 211.3351 | 249.8383 | 463.602 | 679.23729 | 906.1143 |
| Hubei | 29.66 | 53.07147 | 79.94861 | 120.3977 | 295.008 | 679.874 | 1017.2676 | 1308.83 |
| Hunan | 10.25 | 16.73169 | 27.22242 | 47.52933 | 162.3749 | 476.9085 | 658.42683 | 901.5353 |
| Guangdong | 1273.39 | 2461.97 | 3823.491 | 5384.152 | 8438.003 | 13645.25 | 18832.104 | 23523.72 |
| Guangxi | 27.45 | 75.60513 | 101.2409 | 120.9936 | 276.9246 | 914.9793 | 1385.0036 | 1686.559 |
| Hainan | 151.83 | 247.5512 | 340.6692 | 492.6437 | 872.6786 | 1356.675 | 1858.5588 | 2347.843 |
| | | | | | | | | |
| Sichuan | 31.39 | 38.71735 | 53.20866 | 74.00842 | 170.1021 | 582.6255 | 1117.6828 | 1360.39 |
| Guizhou | 5.85 | 13.62205 | 17.75717 | 23.94694 | 40.46971 | 70.36231 | 106.09295 | 132.1143 |
| Yunnan | 4.12 | 11.88792 | 14.0224 | 16.24409 | 40.9894 | 110.5477 | 145.50079 | 191.5235 |
| Xizhang | 0.04 | 0.038287 | 0.036756 | 0.035285 | 0.033874 | 0.032519 | 0.0312183 | 0.02997 |
| | | | | | | | | |
| Shaanxi | 148.54 | 278.805 | 278.805 | 297.3493 | 325.6723 | 484.5858 | 609.86019 | 757.4454 |
| Gansu | 2.66 | 4.442522 | 4.442522 | 5.139079 | 5.242673 | 13.80244 | 66.4127 | 97.67769 |
| Qinghai | 3.59 | 3.308006 | 3.308006 | 3.175685 | 3.649307 | 5.880999 | 7.105664 | 7.691754 |
| Ningxia | 0.40 | 0.617556 | 0.617556 | 0.762065 | 3.840824 | 12.41997 | 16.327117 | 17.74371 |
| Xinjiang | 6.70 | 12.45043 | 12.45043 | 12.15923 | 11.67286 | 50.09983 | 77.35452 | 103.395 |

(Table 6 continued)

| Province | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|
| Beijing | 3925.989 | 4544.906 | 5428.39 | 6189.589 | 6756.058 | 7317.344 | 7825.075 | 8298.674 |
| Tianjin | 3071.991 | 4172.507 | 5044.161 | 5716.093 | 6051.211 | 6812.481 | 7274.183 | 7674.219 |
| Hebei | 1427.947 | 1908.191 | 2533.867 | 2948.621 | 3159.081 | 3347.75 | 3577.104 | 3868.078 |
| Shanxi | 234.2515 | 355.8898 | 461.7979 | 637.1306 | 720.2966 | 801.4958 | 867.6605 | 929.1307 |
| Inner Mongolia | 159.3752 | 188.6837 | 225.7621 | 248.708 | 289.8555 | 328.5947 | 397.6033 | 421.5638 |
| Liaoning | 4275.254 | 5257.004 | 6123.034 | 6403.984 | 7316.313 | 8034.125 | 9296.16 | 10195.85 |
| Jilin | 838.7143 | 1001.13 | 1162.137 | 1264.835 | 1377.184 | 1480.89 | 1535.213 | 1559.616 |
| Helongjiang | 1026.879 | 1343.784 | 1548.682 | 1644.378 | 1724.068 | 1815.534 | 1907.723 | 1976.303 |
| Shanghai | 8045.392 | 9781.946 | 11160.32 | 12118.89 | 13162.05 | 14653.79 | 16050.46 | 17870.59 |
| Jiangsu | 10846.93 | 13060.75 | 15796.95 | 18175.27 | 20554.96 | 22984.62 | 26794.34 | 30478.79 |
| Zhejiang | 3066.448 | 3676.19 | 4176.772 | 4620.214 | 5215.12 | 6046.581 | 7232.372 | 9185.539 |
| Anhui | 942.0907 | 1116.038 | 1207.372 | 1288.503 | 1390.942 | 1493.44 | 1612.012 | 1712.861 |
| Fujian | 10070.75 | 11712.52 | 13313.71 | 14774.25 | 15842.59 | 17051.44 | 18150.81 | 18594.98 |
| Jiangxi | 682.3901 | 889.4267 | 1082.315 | 1197.913 | 1259.866 | 1395.582 | 1841.914 | 2494.04 |
| Shangdong | 6475.547 | 7568.629 | 8348.234 | 9133.071 | 10204.31 | 11451.93 | 13190.98 | 15372.08 |
| Henan | 1129.967 | 1421.894 | 1667.964 | 1859.468 | 2057.796 | 2190.536 | 2290.708 | 2441.774 |
| Hubei | 1594.194 | 1943.848 | 2344.163 | 2703.534 | 3051.658 | 3488.559 | 4011.141 | 4557.065 |
| Hunan | 1235.729 | 1633.023 | 1969.717 | 2214.724 | 2454.105 | 2736.914 | 3045.24 | 3381.936 |
| Guangdong | 28422.04 | 33440.23 | 38008.8 | 42262.37 | 46026.15 | 49796.42 | 53064.81 | 54464.45 |
| Guangxi | 1948.531 | 2302.099 | 2645.429 | 2854.184 | 2993.688 | 3054.601 | 3126.072 | 3189.483 |
| Hainan | 2645.934 | 2883.798 | 3120.828 | 3235.961 | 3314.813 | 3401.796 | 3503.331 | 3552.863 |
| Chongqin | 0 | 203.637 | 407.3044 | 509.3534 | 607.1264 | 703.4617 | 766.1778 | 852.9678 |
| Sichuan | 1525.008 | 1585.044 | 1704.666 | 1805.38 | 1944.424 | 2140.29 | 2312.645 | 2405.779 |
| Guizhou | 142.4189 | 160.9674 | 176.8121 | 189.9973 | 194.4896 | 200.0141 | 209.7472 | 221.7219 |
| Yunnan | 216.3375 | 288.3847 | 348.4314 | 410.6956 | 456.2133 | 468.3303 | 501.4337 | 519.1248 |
| Xizhang | 0.028771 | 0.02762 | 0.026515 | 0.025455 | 0.024436 | 0.023459 | 0.022521 | 0.02162 |
| Shaanxi | 889.1447 | 1159.585 | 1260.66 | 1330.081 | 1416.328 | 1525.088 | 1631.188 | 1715.377 |
| Gansu | 138.4913 | 153.139 | 165.9998 | 179.6868 | 202.6453 | 229.5231 | 248.7505 | 249.3452 |
| Qinghai | 7.88088 | 8.768897 | 8.418141 | 10.35483 | 9.940634 | 26.70328 | 47.56907 | 57.02146 |
| Ningxia | 19.79113 | 22.26824 | 30.49725 | 54.70589 | 60.93532 | 66.3985 | 73.95301 | 78.84265 |
| Xinjiang | 131.0039 | 137.806 | 142.9417 | 149.1309 | 152.4053 | 155.8791 | 158.8791 | 159.0259 |

Sources: NBSC (various years) and authors' calculations

These two tables suggest however that while FDI is concentrated by province on both a stock and a flow basis, changes in regional inequality run opposite to FDI trends. Among coastal provinces there is more relative income growth in those provinces receiving relatively smaller amounts of FDI. In addition, there is generally a narrowing of income disparities between coastal and non coastal provinces. This leaves the issue of whether the concentration of FDI inflows into urban areas within provinces is a more critical determinant of growing relative inequality that is not revealed in this data.

For these FDI flows the resulting foreign invested enterprises also employ a relatively small amount of labour, even though they account for a majority of China's exports and imports. Whalley and Xin (2006) report this figure at 3% of the workforce (including agriculture). If the channel for FDI to impact on inequality is through wage rate effects in localized labour markets effectively segmented by an absence of labour mobility, the aggregate impact on inequality of 3% of the workforce being hired by FIEs would at first sight appear to be small.

At the micro level, a recent paper by Ma (2006) analyzes in some detail the geographical location of trade flows involving FIEs in an effort to capture regional inequality change resulting from both FDI and transportation costs. Ma notes the dramatic changes in Guangdong with wage rates growing from only 97% of the national average in 1978 to 172% of the national average by 1997. Reflecting its proximity to Hong Kong, by 1997 Guangdong accounts for 43% of China's total exports, and 88% of exports from coastal provinces. Guangdong in 1999 accounted for 58 and 55% of exports and imports used in processing trade in which domestic value added is applied to imported components which are reshipped. These dramatic changes in the Guangdong case seem to suggest a link between FDI and wage inequality despite the small size of the FIE labour force in aggregate.

Ma (2006) uses an economic geography model based on Redding and Venables (2004) to test the two hypotheses that provinces where due to transport cost differentials there is lower cost market access abroad will have FIEs who pay higher wages reflecting competitive pressures on wage rates, and in turn FIEs with lower cost supplier access will also have FIEs who pay higher wages. Ma uses the same structure as Redding and Venables to generate a wage equation which implies that the maximum wage a representative FIE in any province would pay is a function of two distance weighted market capability measures on the import and export side. Higher market and supplier access reduce production costs and with immobile labour wage rates in FIEs will rise. Market and supplier access variables are estimated from a gravity model since they are not directly observable and applied to a dataset of trade between 29 Chinese provinces and120 export receiving and import supplying countries for the 10 years 1990-2000. Results suggest that the interaction between transport costs and FDI through FIE behaviour explains around 1/3 to 1/4 of the provincial wage differentials. Ma also finds similar transport related access impacts involved in processing trade for local firms (State Owned Enterprises, Communally Owned Enterprises) and attributes these to competitive effects from FIE wage behaviour even though their involvement in processing trade is small.

Overall then, the links between FDI and relative inequality in China seem hard to support from broad macro data and the orders of magnitude for the workforce involved, but in more detailed micro studies these effects do seem to emerge. Despite this, it is hard to envisage a policy of limiting FDI flows into China being consciously used by the National Government as a way of reducing inequality given the developmental strategy now so central to China's growth. But the issue does highlight the potentially central role that labour market segmentation (due either to policy or other factors) plays in Chinese performance and hence the importance of how this interacts with FDI inflows.

## 5. Future Policy Change and impacts on FDI inflows

A key issue for the future is whether policy change in China might retard further growth in FDI inflows. Here we discuss two key elements in this: tax policy change and renmimbi revaluation.

### Tax Policy Change

While a central element in China's recent strong growth performance has been large inflows of foreign direct investment, a key factor in attracting foreign investment has been substantial tax preferences. Currently there is a proposal for a unified and single equal yield tax rate to apply to all enterprises and for tax preferences towards FIEs to be removed. This suggests possible negative impacts on future FDI inflows.

The tax preferences currently given to FIEs are both substantial and complex. If they are in special economic zones, national hi-tech industrial zones and national grade economic and technical development zones, they pay a reduced enterprise tax rate of 15% compared to the general rate of 30%. FIEs in coastal regions and all provincial capitals pay 24%. FIEs also receive extensive tax holidays with a full exemption for 2 years, a 50% exemption for the next 3 years and (if in particular geographical zones) a tax reduction of 15-30% for a further 3-5 years. In addition, local governments frequently exempt them from local surcharges applied to other enterprises of 3% of taxable income, and taxable income can again be reduced if income is reinvested. There is also differential tax treatment of wages paid to employees between FIEs and other enterprises. There are no formal estimates for effective tax rates on Chinese enterprises comparable to those for OECD economies, but instead indications that widely circulate that FIEs on average may face tax rates in the 10-15% range, while non FIEs face tax rates of between 22% and 28%.

Converting these tax preferences into effective tax rates by enterprise type is treacherous, as the effective tax rate varies with the time profile of returns to investment (most FIEs make no profit in their first two years, for instance), their location, their financing, and labor costs. There are no estimates of effective tax rates for Chinese enterprises comparable to those of OECD economies (such as in King and Fullerton (1984) and the studies which have followed), but various Chinese sources put the capital tax rates faced by FIEs in the range of 10%-14%, while for the non-FIEs a range of 22-28% is widely used. In 2004, 23% of total enterprise taxes were paid by FIEs, and 77% were paid by the other types of enterprises, even though FIEs accounted for a significantly larger part of the total return to capital.

With more than two decades of reform completed and accession to the WTO accomplished the government position now is that FDI inflows are mainly attracted by non tax factors. These include China's economic environment, a growing domestic market, low wage rates, well trained and hard working labor, a market system and a stronger judicial system. With tax preferences seen as less important, the government proposal is thus to unify enterprise tax rates and to remove what are seen as distortions associated with the various incentive schemes for FIEs.

The most recent proposal on unified tax reform has been discussed by members of the Standing Committee of the National People's Congress in the end of December, 2006, and they produced a draft of a new corporate income tax law which includes following. (1) The draft bill suggests a unified tax rate of 25-percent for both domestic and foreign-funded businesses. (2) For small business enterprises, according to the draft law, the income tax for small businesses will be 20 percent. Depending on what region and what industry they are active in, small businesses now pay either 18 percent or 27 percent. (3) The bill allows domestic companies to deduct employees' full salaries from taxable income as foreign companies now do. (4) There will be transitional measures for FIEs under which the current two-year full tax exemption and three-year partial tax exemption for foreign manufacturers will be removed and export-oriented foreign-funded businesses will no longer enjoy an additional 50-percent tax reduction. But existing FIEs will continue to receive tax preferences for five years after the new law is implemented and will only gradually face increased income taxes. (5) The bill also extends some existing tax preferences. For instance, all hi-tech companies will enjoy a 15-percent tax rate to stimulate innovation, while at present only those in state hi-tech zones enjoy this privilege. Investments in equipment for environmental protection and water conservancy purposes and for production safety will be able to be used to offset taxes payable. (6) The new enterprise tax structure is expected to take effect in 2008 if the bill is adopted by the NPC plenary session in March 2007.

How large the impact of these tax changes will be on FDI flows into China is conjectural and has not been the source of study but the indications are that it could be substantial. A relevant consideration would seem to be that China's FDI growth has partly come from reduced FDI flowing elsewhere (such as Brazil), and so if the aggregate FDI outflows from the OECD remain largely unchanged tax induced intercountry reallocation effects could be key. There are already indications that FDI inflows into India are beginning to grow, and in the textile and apparel area, inflows to Cambodia, Vietnam, Indonesia and economies with wage rates lower than those in China are increasing.

The largest yearly increases in FDI in China occurred in 1992 and 1993 immediately after the introduction of tax preferences towards FIEs in 1991. While the more general policy reform package and market orientation of those reforms is usually taken to be the main trigger for these FDI surges, the issue remains as to how important the tax component was. If it was significant, unwinding it now could also have large effects in the other direction, although the attraction of FDI is to a high skilled and reliable low wage labour force, good infrastructure, and an ever deepening judicial structure remains as well as tax preferences.

Renminbi Revaluation and FDI

A second key policy area which could impact FDI inflows is renmimbi (RMB) revaluation. A commonly hold view is that China's RMB is under-valued and a number of studies further indicate that the undervaluation is on the order of 10-30% (Chang and Shao, 2004; Goldstein, 2004; Funke and Rahn, 2005). In response to both international and internal pressures, The People's Bank of China allowed an effective nominal 2.1% appreciation of the RMB against the U.S. dollar in July 2005 and the RMB had appreciated by 5.6% by the end of 2006. China's rapid export growth and associated trade surplus have brought with it pressure to revalue the RMB to reduce the trade surplus, especially since 2003 and especially from the U.S.

Existing literature in general suggests that RMB revaluation may reduce China's inward FDI flows. Both theoretical and empirical studies from other countries (e.g. Cushman, 1985; Froot and Stein, 1991; Klein and Rosengren, 1994; Blonigen, 1997; Goldberg and Klein, 1997; Bayoumi and Lipworth, 1998; Xing, 2006a and 2006b; Xing and Wan, 2006) imply that the revaluation of host county's currency can substantially decrease its a FDI inflows The revaluation of a FDI host country's currency increases production costs (measured in foreign currency) and limits inward FDI flows through a relative production cost effect. For the Chinese case, Xing (2006a) sets up a theoretical model and then empirically test the model projections of the effects of devaluation of RMB on FDI inflows from Japan. His results imply that RMB revaluation will significantly reduce China's inward FDI flows from Japan.

The size of such effects will also depend on how heavily China's inward FDI has been involved with China's processing trade since imports used in processing are denominated in foreign currency and the relative production cost effect will be reduced. Both exports from and imports by FIEs in China are heavily involved in processing trade. MOFCOM (2006) estimates that 78% of China's FIE exports are processed exports and 60% of FIE imports are processed imports in 2005. FIE processed exports and imports accounted for 83% and 84% of China's total processed exports and imports respectively in 2005. Moreover, FIEs account for more than 50% of China's trade surplus in 2005. These data suggest that China's total trade is composed of distinct parts; processing trade which involves imports receiving upgrading via added value, and other trade, and the impacts of RMB revaluation on these two types of trade differ. This suggests differentiated studies of the impacts of RMB revaluation on FDI since the trade-FDI link reflects the nature of the trade. There is for now little literature on the trade impacts of RMB revaluation other than econometric models which specify no structural form for trade patters. These are discussed in Marquez and Schindler (2006). Willenbockel (2006) uses a CGE framework to assess the structural effects on trade and production of a real exchange rate revaluation in China but does not differentiate processing trade and general trade and does not directly evaluate FDI impacts. Quantitative estimates of the effects are thus for now missing. But if FDI is heavily trade driven, then the null hypothesis renmimbi revaluation of the size speculated in the literature can have significant effects which will compound tax related effects.

## 7. Concluding Remarks

We discuss recent literature and policy debate on FDI and China. FDI inflows have grown rapidly in recent years and China now accounts for nearly 50% of OECD outflows. In turn, growth of exports, imports, and GDP increasingly reflect FDI inflows. China's deep integration into the global economy must therefore be judged not only by its trade growth, but also by the size of capital flows. These are also now starting to grow on the outward FDI side also.

In the paper we discuss three issues related to FDI, and primarily FDI inflows. The first is their contribution to growth, which we suggest is substantial and if any plateauing of FDI growth occurs then GDP growth may be significantly reduced. We also discuss the links between regional inequality and geographic concentration of FDI. Macro data suggests limited linkage, while micro studies claim to find it. Finally, we discuss recent proposals to remove tax preferences to FDI and RMB revaluation suggesting potential negative effects on FDI inflows.

FDI has become so central to Chinese economic performance that what happens on the FDI front in the short term will likely determine the speed of China's development. Many factors influence these flows including global factors not discussed here. How these all interact and play out remains to be seen.

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