# Chinese Overseas Direct Investment: Is There a China Model?*

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[**Abstract**] Chinese overseas direct investment (ODI) appears to be different from those by advanced economies. But is there a unique China model? By reviewing industry distribution of the ODI data for 2003-09, we found that Chinese ODI did not concentrate in industries which performed well in either export market or domestic economy. Statistical analyses also confirmed that traditional variables such as market size, production cost and legal environment did not matter for Chinese investors' location choice. Instead, they selected places where they could either learn advanced technologies or secure stable commodity supply. We tentatively concluded that the main purpose of the China model of ODI was not to expand production overseas but to strengthen industries at home.

**Key words**: Overseas direct investment, China, revealed comparative advantage, location choice

**JEL Codes:**

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## Introduction

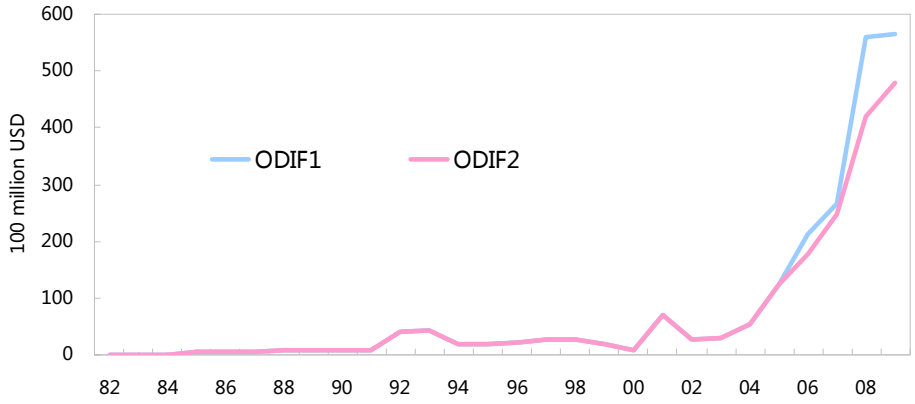
Overseas direct investment (ODI) has mainly been a phenomenon of advanced economies. Developed countries like the US and Japan are not only abundant in capital but also enjoy significant advantages in technology and management. They invest overseas either to take advantage of low labor costs or to increase market share in host countries (Reference). Meanwhile, developing countries are often on the recipient side.

This traditional pattern started to shift gradually when China started economic reform in the late 1970s. Hong Kong, Korea and Taiwan, still developing economies at that time, gradually relocated their labor-intensive manufacturing factories to mainland China. These and other neighboring Asian emerging market economies accounted for more than half of foreign direct investment (FDI) inflows to China in the 1980s and 1990s.

FDI has been one of the important factors contributing to the Chinese economic miracle. However, despite rapid economic growth of the past three decades, China is still a lower middle-income economy. Its GDP per capita was ranked the 95$^{th}$ in the world, according to IMF data.

But China is already an important player in the global scene of ODI. Of course this is a relatively recent phenomenon. Before 2004, the size of Chinese ODI was rather trivial. From 2004, ODI grew significantly, alongside dramatic expansion of China's current account surplus. Total ODI increased from US$2.85 billion in 2003 to US$56.53 billion in 2009, registering an average growth rate of 55 percent (see Figure 1). Its share in global ODI also rose from 0.45 percent to 5.1 percent during the same period. In 2009, was not only the largest developing country investor but also the fifth largest investor in the world, following the US, France, Japan and Germany.

**Figure 1, China's Outward Direct Investment flows (ODIF), 1982-2009**




Source: data from 1982 to 2001 are from UNCTAD; data from 2002 to 2009 are from Bulletin of China's Outward Foreign Direct Investment published by Ministry of Commerce, China.

Note: (1) In ODIF1, data from 2002 to 2005 are non-financial outward direct investment, while data from 2006 to 2009 are all the outward direct investment. (2) In ODIF2, data from 2002 to 2009 are all non-financial outward direct investment from China.

The Chinese case indeed poses an interesting question to the conventional perception that ODI is dominated by developed countries after they accumulate enough capital, technology and management skills. China does enjoy comparative advantages in certain manufacturing industries, evidenced by its export competitiveness. Surprisingly, however, these are not the areas where Chinese ODI concentrates. According to the official statistics, most of Chinese ODI is in the service industry, including commercial services, finance, ad retail and wholesale. But service industry is a lagger even within the Chinese economy.

Study of Chinese ODI is a relatively new but rapidly growing field. Most studies in this area were descriptive in nature, reviewing historical trends, changing composition and evolution of government policies (see, for instances, Wu and Chen 2001; Deng 2003 and 2004). Some focused on very useful in-depth case studies, especially those high profile ODI cases (Liu and Li 2002). A number of recent studies examined empirically determinants of Chinese ODI (Buckley et al. 2007). All these analyses provided valuable insights for understanding the pattern and characteristics of Chinese investment.

However, the big question remains: why do Chinese enterprises invest so much overseas at such an early stage of economic development? Existing theories offers useful starting point for understanding Chinese ODI. But given all the unique features, are existing theories really applicable to the Chinese experiences? For instance, existing theories suggest that the main motivation for ODI is to increase market share or to lower labor cost in host countries or both. Casual observations of Chinese ODI, however, do not support such hypotheses.

There are a number of potential explanations for China's prominent role in global ODI. For instance, it could simply be result of the size effect. Since China is a large country, even relatively low propensity to invest overseas could add up to a big number. It might be consequence of financial repression at home. Repressive financial policies reduce cost of capital and make abundant capital available to the state-owned enterprises (SOEs). Finally, it could also be motivated by strengthening domestic production. Seeking advanced technology, brand names and management skills and stable supply of raw materials are some of the examples. These potential explanations may not be mutually exclusive.

The central research question of this paper is if Chinese ODI follows a unique model, different from ODI by developed countries. We try to answer this question in several steps. We first examine industry composition of Chinese ODI to see if overseas investment concentrates in areas where China does well in either domestic economy or export market. We then apply statistical analyses to explore which characteristics of host countries attract Chinese ODI, such as market size, income level, legal environment, etc.

This study arrives at a preliminary but clear conclusion. Chinese ODI is indeed very different from ODI by developed economies. The main motivation is not necessarily to seek high profits from these investment projects. Traditional factors determining FDI

flows, such as market size, labor cost and legal environment, generally do not matter. Instead, international competitiveness of advanced economies and resource endowment of developing economies are important features attracting Chinese ODI. We conclude that the direct objective of Chinese overseas investment is to strengthen competitiveness and sustainability of domestic production. The channels for realizing such objective could include acquiring advanced technology, securing commodity supply or even facilitating exports.

This is only a first-step analysis. And the conclusion should be treated as tentative hypothesis, which need to be validated by further research. In this study, we only use industry level ODI data. It will be helpful if we could test this hypothesis using firm level data. Meanwhile, this China model of ODI may also be a transitional phenomenon. As the Chinese economy develops further, its ODI behavior may converge with that of developed countries. Nevertheless, the Chinese experiences should provide useful reference for the understanding of ODI by other developing countries.

This paper is organized as follows. The next section reviews the literature. Section three describes ownership composition of investors and industry distribution of Chinese ODI. Section four explores the question if Chinese ODI concentrate in industries which perform relatively better in either export market or domestic economy. Section five conducts some statistical analyses on determinants of location choices, followed by some concluding remarks in the final section.

**Literature Review**

We may divide the existing literature on ODI into two broad strands. One focuses on determinants of ODI (Blonigen, 2005), while the other concentrates on effects of ODI (Lipsey, 2004). Theoretical and empirical analyses in these two areas applied country or industry or firm-level data and tackled the question from source or host country perspectives or both.

Majority studies on determinants of ODI attempt to address three important questions. First, which firms are qualified to invest abroad? Second, what are their motives of ODI and what determine their location choices? And, third, why do countries or enterprises choose the form of FDI, instead of export or licensing?[1] In this paper our discussion focuses more on the first two questions.

Which companies can invest overseas? Bain (1956) and Hymer (1960) believed that firms engaging in ODI should possess and exploit some monopoly power that stem from, or create, some kind of barriers to entry to final product markets by firms not possessing them. Dunning (1958) and Safarian (1966) further pointed out that those investing firms usually possessed scarce, unique and sustainable resources and capabilities, such as patents, brand or production process capabilities. Some organizational experts argued that identifying, evaluating and harnessing resources

[1] The third question is mainly related to the field of industry organization theory, which is beyond the scope of this study. Therefore we only discuss issues related to the first two questions in the current study.

from the world, combined with existing resources and capabilities, is an effective way to advance the investing firms (Prahalad and Doz 1987; Bartlett and Ghoshal 1989).

All these aspects of competitiveness are often firm-specific or ownership-specific advantages. By making use of either or combination of the above advantages, this type of ODI exhibits important features of "asset exploiting". The ultimate intended result is to improve efficiency of the entire firm operation.

Since the early 1990s, developing countries, especially the Asian developing countries, have seen very rapid growth in ODI (WIR 2006). Transnational corporations (TNCs) from developing countries usually do not possess those firm-specific or ownership-specific advantages, such as monopoly in final products, patents, management competency, and etc.

Dunning (2000) accepted that the competitive advantages of TNCs from developing countries, which might be country as well as firm specific, were probably different from those that the prevailing theory usually considers. World Investment Report 2006 summarizes three segments of the competitiveness of the TNCs from developing countries (WIR, 2006):

1) The first type is expertise and technology-based ownership advantages in a number of industries, including consumer electrical and electronic products, food and beverages, heavy industries and transportation equipment.
2) The second type is advantages gained from access to home country resources and activities where the government could exert great influence. Some of advantages derive from early application of new technologies (a latecomer advantage). Others come from availability of cheap funds, which are ultimately results of high saving rates, trade surpluses, or high commodity prices.
3) And the third type is achieved through specialization in part of the production value chain. This is often seen in industries like electronics, automobile components, and garments.

With these advantages, some of the TNCs from developing countries might be able to compete with TNCs from developed countries and engage in "asset exploiting" ODI.

Some firms engaging in ODI do not have those competitive advantages, especially firm-specific ones. Instead, they seek to acquire those firm-specific strategic assets such as R&D facilities, technologies, brands, distribution networks and managerial competences. This type of ODI is often identified as "asset augmenting".

Dunning (2000) argued that even for "asset augmenting" ODI, the firms, especially TNCs from developing countries, should also have to possess some unique, sustainable resources and capabilities. He further pointed out that China's ODI was both asset exploiting and asset augmenting (Dunning 2006). For the latter, the advantages lie in the ability to generate funds and a favored access to large markets across Chinese economic space.

The empirical work of ODI firms' competitive advantages concerns mainly TNCs from developed countries, such as US, Japan and Sweden. Little investigation has been done on those TNCs from developing economies. One important reason is lack of firm level data. After all, TNCs from developing countries are still new-players in the international market.

What are the motivations and determinants of locations of ODI? The literature often identifies market size or market potential of the host country as an important determinant (see, for instance, Chakrabari 2001). But such positive relationship might also change over time. For example, Sethi et al. (2003) studied the changing pattern of US FDI to Western European and Asian regions during the period of 1981-2000. They found that US ODI to Western Europe was driven by high political and economic stability and high GNP. Meanwhile, US ODI also went to low income countries, mainly low-labor-cost regions.

Some studies examined the relationship between ODI and trade, as the purpose of some investment was to better service existing external markets. In theory, ODI and exports are two alternative means of penetrating foreign markets: exporting goods to satisfy external demand or exporting capital and producing locally. Empirical analyses, however, do not always support this hypothesis. For instance, Fukao and Xun (1997) asserted that Japanese TNCs' production abroad and Japan's exports did not appear to be substitutes. This was because producing abroad actually increased demand for the firm's products. Blonigen (2001, 2005) believed the existing trading relationship between the investing economy and host country could affiliate ODI because of the experience gained in trade.

To seek resources, abundance of natural resources and labor could impact the choice of investment location significantly (Buckley and Casson 1976). In the 1970s, the main motivation for Japan's ODI was to acquire resources and raw materials to support domestic economic growth. Similar considerations might apply to today's China and India (Duanmu and Guney 2009).

Therefore, characteristics of host countries including market size, natural resources and labor costs are often regarded as critical determinants of location choice.

Recently, researchers began to pay attention to the impacts of basic macroeconomic conditions on ODI decisions. Important macroeconomic indicators considered for such studies include exchange rate, inflation rate, tax rate and legal environment. Dunning and Lundan (2006) also emphasized importance of institutional environment of the host country. They asserted that the institutional capabilities of firms and the incentive structure and enforcement mechanisms of home and host countries were increasingly affecting the clustering, leveraging and learning aspects of TNCs activity and particularly, that of the third world TNCs.

Johanson and Vahlne (1977) and Sharma and Blomstermo (2003) argued that the pattern of internationalization was largely determined by dynamic interaction between increasing foreign market commitments and the knowledge and experience gained from other countries. For example, enterprises, especially those inexperienced ones

from developing countries, tend to engage in ODI in economies which are geographically proximate, similar culture or language (Davidson 1980; Culpan and Akcaoglu 2003).

Poor institutional factors and associated risks usually deter ODI (Wheeler and Mody 1992; Lipsey 1999; Wei and Shleifer 2000). But Baniak et al. (2003) found that macroeconomic as well as institutional inefficiency of host countries deterred ODI from enterprises aiming for the long-term development in the host country. But these same factors promoted those enterprises seeking short term rents.

**Who Invest Overseas and Where?**

Before we analyze the pattern and determinants of Chinese ODI, we want to first review some basic information of overseas investment. First, who are the main investors? Available data confirm that SOEs dominated stock of China's ODI, while limited liability companies (LLCs) held the largest share in total number of investment projects in 2008-09 (see Table 1).

**Table 1. Investor Structure by Industrial and commercial registration, 2008-2009**

| | Share in Number | Share in China's ODI Stock |
|---|---|---|
| **State-owned Enterprises** | 14.8% | 69.40% |
| **Limited Liability Company** | 54.0% | 21.05% |
| **Private Enterprises** | 8.4% | 1.00% |
| **Stock Limited Corporation** | 8.0% | 6.10% |
| **Cooperative Enterprises** | 5.7% | 1.10% |
| **Foreign Investment Enterprises** | 3.3% | 0.65% |
| **Collective-owned Enterprises** | 1.4% | 0.35% |
| **Hong Kong, Macao and Taiwan-Invested Firms** | 1.8% | 0.10% |
| **Others** | 2.7% | 0.25% |

Source: Statistical Bulletin of China's Outward Foreign Direct Investment published by Ministry of Commerce, PR China, and author's calculation.

But this has not always been the case. Before 2005, SOEs had bigger share than LLCs even in number of projects. The share of SOEs declined steadily from 43 percent in 2003 to 13.4 percent in 2009.

But this does not mean SOEs' importance in Chinese ODI declined. In fact, SOEs still dominated in investment value. They accounted for 70 percent of total ODI stocks in 2008-09. Meanwhile, LLCs still only accounted for 21.05 percent of China's total ODI stocks.

The fact that SOEs dominate Chinese ODI is interesting, which deserves further investigation. Without proper firm-level data, we cannot explore this issue statistically. Nevertheless, we may still be able offer some speculations on SOEs' prominent role in Chinese ODI. It is possible that SOEs can afford to invest overseas since they have greater access to finance and pay less attention to profitability. SOEs normally receive stronger support from the government but at the same time are often tasked to

achieve the country's strategic goals (Dunning and Lundan 2006). If that is the case, then these SOEs investors would not necessarily invest in areas where China does well.

The industry distribution of China's ODI differs markedly from those of other counties. The primary sector accounts for 18.72 percent of total China's ODI between 2006 and 2008. In comparison, those of developed countries and developing economies were only 7.84 percent and 8.38 percent, respectively. These large differences were mainly contributed by investment in mining, quarrying and petroleum industry. The latter contributes 97 per cent of China's ODI in Primary sector (See Table 2). This may reflect the widely suggested strategy for Chinese ODI to secure long-term supply of resources (Buckley and Casson 1976).

**Table 2, Industry Distribution of Outward Direct Investment Flows, 2006-2008**

| Sector/industry | Developed country | Developing economy | World | China |
|---|---|---|---|---|
| **Primary** | 7.84% | 8.38% | 7.95% | 18.72% |
| Agriculture, hunting, forestry and fishing | 0.04% | 0.29% | 0.07% | 0.62% |
| Mining, quarrying and petroleum | 7.80% | 8.09% | 7.89% | 18.10% |
| **Manufacturing** | 24.12% | 15.02% | 23.21% | 4.72% |
| **Services** | 60.01% | 69.25% | 60.93% | 76.57% |
| Electricity, gas and water | 0.51% | 0.93% | 0.55% | 1.55% |
| Construction | 0.42% | 1.36% | 0.53% | 1.08% |
| Trade | 5.61% | 8.17% | 5.88% | 13.98% |
| Hotels and restaurants | 0.20% | 0.15% | 0.19% | 0.04% |
| Transport, storage and communications | 3.23% | 3.77% | 3.29% | 7.95% |
| Finance | 24.38% | 18.10% | 23.74% | 18.91% |
| Business activities | 23.46% | 33.37% | 24.42% | 31.28% |
| Public administration and defense | 0.06% | 0.00% | 0.05% | 0.00% |
| Education | 0.03% | 0.00% | 0.02% | 0.01% |
| Health and social services | 0.01% | 0.00% | 0.01% | 0.00% |
| Community, social and personal service activities | 0.33% | 0.16% | 0.31% | 0.15% |
| Other services | 0.87% | 0.54% | 0.84% | 1.60% |
| Unspecified tertiary | 0.92% | 2.67% | 1.09% | - |
| **Private buying and selling of property** | 0.17% | 0.00% | 0.16% | - |
| **Unspecified** | 7.85% | 7.35% | 7.80% | - |

**Source:** UNCTAD and author's calculation.

More surprising was distribution of Chinese ODI between manufacturing and service industries. Manufacturing sector accounted for an extremely low share, only 4.72 of the total. Meanwhile, the same share for developed countries averaged 24.12 percent. Even for developing economies it was 15.02 percent (see Table 2). This pattern is strange given that China is now widely regarded as the global manufacturing center.

But the most astonishing fact was dominance of service sectors in Chinese ODI. Services accounts for 76.57 percent in total China's ODI, The proportion of service

industries in total ODI was often 60.01 percent for developed countries and 69.75 percent for developing economies (see Table 2). Within the service sector itself, the proportions of industries such as “electricity, gas and water”, “trade”, “transport, storage and communications” are much higher than their counterparts in both developed countries and other developing economies.

Enterprises engaged in ODI always have some monopolistic market power (Hymer 1960), or possess assets which their competitors (or potential competitors) do not enjoy (Dunning, 1980). In fact, the most productive firms would enter the foreign markets by direct investment, and the less productive ones would satisfy the external demand by export, while the least productive ones produce only for the domestic market (Melitz 2003). We certainly could not make the same argument for the Chinese ODI.

**Do Chinese Enterprises Invest in Areas Where They Do Well?**

In order to see if Chinese ODI occur in areas where China does well, we provide comparison of industry composition of ODI with two sets of indicators: (1) revealed compared advantage; and (2) relative strength of domestic production. The first measures the Chinese industry’s competitiveness in international markets. And the second reveals importance of individual industries in the Chinese economy. We brought in the second set of indicators because not all service activities are exportable.

The ‘revealed’ comparative advantage index was originally proposed by Balassa (1965). He suggested that the comparative advantage of a country’s industry could be revealed by the ratio of the share of individual sector’s exports in total exports to that share for the world. Generally speaking, an index less than 1 implying relative disadvantage, while an index greater than 1 indicating relative advantage.

We follow the definition of (Balassa, 1965):

$$RCA_{c,i,t} = \frac{EX_{c,i,t}}{\sum_c EX_{c,i,t}} \Big/ \frac{\sum_i EX_{c,i,t}}{\sum_i \sum_c EX_{c,i,t}}$$

where, $EX_{c,i,t}$ denotes export of industry i in year t of country c. $RCA_{c,i,t}$ denotes the revealed comparative advantage of industry i in year t of country c. We calculated each $RCA_{c,i,t}$ , and then obtained the average value (see Table 3). Unfortunately industry classification of the Chinese data is quite aggregate This is unfortunate but they still offer some useful insights.

**Table 3, Calculated Average RCA, 2003-2009**

| | Goods | Services | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Total | Transportation | Communication | Construction | Financial Services | Computer and IT | Comm Serv |
| **Home Country** | | | | | | | | |
| **China** | 1.13 | 0.46 | 0.98 | 0.41 | 1.78 | 0.03 | 0.65 | 1.04 |
| **Major host economies** | | | | | | | | |
| **Algeria** | 1.19 | 0.26 | - | - | - | - | - | - |
| **Australia** | 0.97 | 1.12 | 0.84 | 0.88 | 0.12 | 0.34 | 0.68 | 1.02 |
| **Bahamas** | 0.26 | 3.95 | 0.12 | - | - | - | - | 1.06 |
| **Canada** | 1.08 | 0.70 | 0.77 | 1.64 | 0.17 | 0.51 | 1.48 | 1.05 |
| **Germany** | 1.06 | 0.75 | 1.09 | 0.96 | 2.79 | 0.61 | 1.22 | 1.04 |
| **Hong Kong** | 1.01 | 0.95 | 1.43 | 0.57 | 0.27 | 1.52 | 0.10 | 1.04 |
| **Indonesia** | 1.12 | 0.53 | 0.86 | 3.47 | 1.87 | 0.29 | 0.23 | 1.04 |
| **Kazakhstan** | 1.15 | 0.40 | 2.20 | 1.31 | 0.16 | 0.18 | 0.02 | 0.97 |
| **Korea** | 1.07 | 0.71 | 2.46 | 0.47 | 0.11 | 0.56 | 0.06 | 1.05 |
| **Luxembourg** | 0.37 | 3.54 | 0.28 | 1.53 | 0.35 | 8.63 | 0.88 | 1.07 |
| **Macao** | 0.23 | 4.06 | 0.18 | 0.28 | - | 0.06 | - | - |
| **Malaysia** | 1.09 | 0.65 | 0.94 | 0.99 | 1.73 | 0.06 | 0.51 | 1.04 |
| **Mongolia** | 0.93 | 1.30 | 1.64 | 1.20 | 0.07 | 0.14 | 0.09 | 1.03 |
| **Myanmar** | 1.17 | 0.32 | 1.75 | - | - | - | - | 0.96 |
| **Nigeria** | 1.18 | 0.29 | 2.31 | 0.63 | - | 0.10 | - | 0.88 |
| **Pakistan** | - | - | 1.37 | 2.41 | 0.40 | 0.18 | 0.49 | 0.61 |
| **Russia** | 1.12 | 0.51 | 1.55 | 1.26 | 3.99 | 0.27 | 0.47 | 1.07 |
| **Saudi Arab** | 1.18 | 0.26 | 0.83 | 0.85 | - | 0.98 | - | 1.07 |
| **Singapore** | 1.00 | 1.00 | 1.65 | 0.53 | 0.52 | 0.89 | 0.30 | 1.04 |
| **South Africa** | 1.05 | 0.79 | 0.61 | 0.80 | 0.16 | 0.73 | 0.28 | 1.05 |
| **Sudan** | 1.21 | 0.17 | 0.48 | 1.86 | 0.57 | 0.86 | 0.03 | 0.91 |
| **Turkey** | 0.94 | 1.22 | 0.88 | 0.75 | 1.68 | 0.21 | 0.01 | 1.07 |
| **UK** | 0.79 | 1.85 | 0.65 | 1.38 | 0.27 | 3.01 | 1.13 | 1.06 |
| **US** | 0.87 | 1.51 | 0.73 | 0.72 | 0.55 | 1.34 | 0.49 | 1.02 |
| **Zambia** | 1.13 | 0.48 | 1.38 | 2.01 | 1.38 | 0.40 | 0.66 | 0.79 |
| **% China ODI** | 0.33 | 0.79 | 0.50 | 1.00 | 0.17 | 1.00 | 0.37 | 0.65 |
| **All host economies** | | | | | | | | |
| **Max** | 1.23 | 5.04 | 2.70 | 5.56 | 16.91 | 8.63 | 9.60 | 1.18 |
| **Min** | 0.07 | 0.05 | 0.05 | 0.22 | 0.01 | 0.00 | 0.00 | 0.43 |
| **Average** | 0.93 | 1.3 | 1.18 | 2.06 | 1.29 | 0.5 | 0.65 | 0.99 |
| **% China ODI** | 0.18 | 0.79 | 0.49 | 0.96 | 0.17 | 0.95 | 0.26 | 0.44 |
| **Num Econ** | 130 | 130 | 122 | 111 | 81 | 94 | 93 | 112 |
| **% China ODI** | 0.06 | 0.71 | 0.06 | 0.01 | 0.01 | 0.15 | 0.01 | 0.32 |

Source: UNCTAD and author's calculation

Note: (a) "the major host economies" refers to those economies which have been the top 10 destinations of China's ODI in any year from 2003 to 2009.

(b) "All host economies" refers to those economies which are to be analyzed empirically later. In fact, compared with the full destinations of China's ODI, seventeen economies are dropped because of the unavailability of key variables.

Three industries had RCA values greater than one: goods, construction and commercial services. This implies that China had revealed comparative advantages in these three industries. The other four industries in Services sector-transport, communications, financial services, computer and information-as well as services sector itself as a whole, do not have revealed comparative advantage for China. The RCA of China in financial services is the lowest, at only 0.03.

Comparing China's RCAs with those of major host economies of Chinese ODI, we found that China did not have comparative advantage in communications and financial services, relative to the host economies. In addition, 79 percent (or 50 percent) major host economies had higher RCAs than China in services sector (or transport sector).

Although China's RCA in commercial services was 1.04, it was still lower than those of major host economies of Chinese ODI. In fact, about 65 percent of major host economies had higher RCA than China in commercial services. Similarly, in spite of the less-than-one RCA for China in computer and information, only 37 percent major host economies performed better than China.

We conclude that China enjoyed strongest revealed comparative advantages, relative to its host economies, in construction, which was followed by goods, computer and information. Meanwhile, China enjoyed weakest comparative advantages in communications, financial services and services sector.

To validate these findings, we also compare China's RCAs with those of all host economies of Chinese ODI. The results are very similar. But China's revealed comparative advantages were more significant for goods, computer and information, while the revealed comparative disadvantages were less obvious for communications, financial services and commercial services.

Does China make more ODI in industries with stronger revealed comparative advantages? Or does China made less ODI in industries with weaker revealed comparative advantages?

The answer is clearly no. In industries in which China revealed the highest comparative advantages – construction, goods, computer and information – ODI only accounted for 8 percent of China's total ODI. In comparison, in industries where China enjoyed weakest comparative advantages – communications, financial services and services sector – ODI accounted for 1%, 15% and 71%, respectively of China's total ODI.

But RCAs may not accurately reflect the Chinese industry's strength, especially the case of tradable sectors. To overcome this problem, we construct a relative industry concentration index (ICI). Following RCA, ICI is defined as the proportion of an industry's share in the economy to the average share in the world (or a group of

countries). Again, an ICI greater than one implies more advanced activity development of the industry, while an ICI less than one suggests less advanced activity development of the industry.

We first calculate the share of selected industries/sectors in GDP for each economy from 2003 to 2008. We then obtain the average value (denoted by "S"). At the same time, like the calculation of RCA above, we divide the share of those industries/sectors in GDP of each economy by that of the world average, and obtain the relative share (denoted by R_S). Again, the results reveal some interesting findings (see Table 4).

The share of secondary sector, especially manufacturing, was the highest, accounting for more than 40%. Comparable but a little smaller was the portion of tertiary sector in GDP, which was 39%.

Looking at China's R_S, "agriculture, hunting, forestry, fishing" had the largest ICI reading, 3.15, which was significantly greater than one. "Construction" also enjoyed greater-than-one ICI. ICI for agriculture was close to one. These three industries were developed in a relative terms in China.

However, ICI in tertiary sector as a whole, "wholesale" and "wholesale, retail trade, restaurants and hotels" and "transport, storage and communications" were all less than one. They were underdeveloped industries in China.

Comparing the investing industries' shares in GDP of China with those of major host economies, the remarkable features included extremely high share for manufacturing (41 percent in China vs. 13 percent for the world as a whole), and surprisingly low share for tertiary sector (39 percent vs. 55 percent).

In fact, no major host economies had higher shares of manufacturing in total GDP than China. In addition, only 28 percent (or 35 percent) major host economies had higher share of "agriculture, hunting, forestry, fishing" (or "construction") in GDP. Meanwhile, about 81 percent major host economies have a higher ratio of tertiary sector in GDP. This similar pattern existed in comparison of ICI.

We should note that, although China's ICI in "agriculture, hunting, forestry, fishing" was lower than one, the average of ICI for that industry in China's major host economies was even smaller (0.98 vs. 0.86). Hence, China enjoyed relatively more advanced development in "agriculture, hunting, forestry, fishing" than in "Construction", although ICI for construction was also greater than one.

**Table 4, Share and Relative Share (R_S) in GDP, 2003-2008**

| | Primary | | Secondary | | | | Tertiary | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | | Manufacture | | Construction | | Total | | Sales & Trad | | TSC | |
| | S | R_S | S | R_S | S | R_S | S | R_S | S | R_S | S | R_S |
| **Home Country** | | | | | | | | | | | | |
| **China** | 0.12 | 0.98 | 0.41 | 3.15 | 0.05 | 1.08 | 0.39 | 0.77 | 0.09 | 0.61 | 0.06 | 0.71 |
| **Major Host Country** | | | | | | | | | | | | |
| **Algeria** | 0.08 | 0.70 | 0.05 | 0.36 | 0.08 | 1.56 | 0.30 | 0.59 | 0.10 | 0.72 | 0.07 | 0.83 |
| **Australia** | 0.03 | 0.22 | 0.10 | 0.79 | 0.07 | 1.34 | 0.63 | 1.24 | 0.12 | 0.88 | 0.07 | 0.88 |
| **Bahamas** | 0.02 | 0.14 | 0.04 | 0.33 | 0.09 | 1.84 | 0.78 | 1.54 | 0.22 | 1.55 | 0.09 | 1.12 |
| **Canada** | 0.02 | 0.16 | 0.14 | 1.11 | 0.06 | 1.10 | 0.62 | 1.22 | 0.13 | 0.95 | 0.07 | 0.83 |
| **Germany** | 0.01 | 0.07 | 0.21 | 1.60 | 0.04 | 0.74 | 0.63 | 1.23 | 0.11 | 0.77 | 0.05 | 0.65 |
| **Hong Kong** | 0.00 | 0.01 | 0.03 | 0.24 | 0.03 | 0.58 | 0.87 | 1.71 | 0.27 | 1.90 | 0.09 | 1.17 |
| **Indonesia** | 0.14 | 1.15 | 0.28 | 2.12 | 0.07 | 1.42 | 0.40 | 0.79 | 0.16 | 1.11 | 0.06 | 0.81 |
| **Kazakhstan** | 0.06 | 0.52 | 0.12 | 0.96 | 0.08 | 1.58 | 0.52 | 1.03 | 0.13 | 0.92 | 0.12 | 1.44 |
| **Korea** | 0.03 | 0.25 | 0.25 | 1.89 | 0.07 | 1.37 | 0.53 | 1.04 | 0.10 | 0.71 | 0.06 | 0.78 |
| **Luxembourg** | 0.00 | 0.04 | 0.08 | 0.62 | 0.06 | 1.10 | 0.75 | 1.46 | 0.10 | 0.74 | 0.08 | 1.06 |
| **Macao** | - | - | 0.03 | 0.26 | 0.07 | 1.45 | 0.69 | 1.34 | 0.09 | 0.66 | 0.04 | 0.44 |
| **Malaysia** | 0.09 | 0.78 | 0.29 | 2.23 | 0.03 | 0.60 | 0.44 | 0.87 | 0.13 | 0.92 | 0.07 | 0.85 |
| **Mongolia** | 0.21 | 1.74 | 0.04 | 0.29 | 0.02 | 0.43 | 0.39 | 0.77 | 0.09 | 0.65 | 0.11 | 1.31 |
| **Myanmar** | 0.50 | 4.17 | 0.11 | 0.81 | 0.04 | 0.77 | 0.35 | 0.68 | 0.23 | 1.61 | 0.10 | 1.21 |
| **Nigeria** | 0.33 | 2.78 | 0.03 | 0.21 | 0.01 | 0.24 | 0.24 | 0.47 | 0.13 | 0.96 | 0.03 | 0.39 |
| **Pakistan** | 0.20 | 1.64 | 0.18 | 1.35 | 0.02 | 0.48 | 0.49 | 0.97 | 0.17 | 1.18 | 0.12 | 1.46 |
| **Russia** | 0.05 | 0.40 | 0.16 | 1.21 | 0.05 | 1.02 | 0.51 | 1.01 | 0.19 | 1.34 | 0.09 | 1.11 |
| **Saudi Arabia** | 0.03 | 0.28 | 0.10 | 0.73 | 0.05 | 0.97 | 0.35 | 0.68 | 0.06 | 0.39 | 0.03 | 0.42 |
| **Singapore** | 0.00 | 0.00 | 0.24 | 1.84 | 0.04 | 0.79 | 0.70 | 1.36 | 0.18 | 1.30 | 0.13 | 1.67 |
| **South Africa** | 0.03 | 0.23 | 0.17 | 1.29 | 0.02 | 0.47 | 0.58 | 1.14 | 0.12 | 0.87 | 0.08 | 1.03 |
| **Sudan** | 0.33 | 2.78 | 0.09 | 0.67 | 0.04 | 0.81 | 0.43 | 0.85 | 0.16 | 1.14 | 0.12 | 1.45 |
| **Turkey** | 0.09 | 0.73 | 0.17 | 1.31 | 0.05 | 0.91 | 0.55 | 1.08 | 0.15 | 1.04 | 0.14 | 1.71 |
| **UK** | 0.01 | 0.07 | 0.12 | 0.92 | 0.05 | 1.05 | 0.68 | 1.33 | 0.13 | 0.91 | 0.06 | 0.79 |
| **US** | 0.01 | 0.09 | 0.13 | 1.03 | 0.05 | 0.94 | 0.77 | 1.51 | 0.15 | 1.09 | 0.06 | 0.75 |
| **Zambia** | 0.20 | 1.71 | 0.10 | 0.80 | 0.12 | 2.38 | 0.48 | 0.94 | 0.20 | 1.45 | 0.04 | 0.56 |
| **Average** | 0.10 | 0.86 | 0.13 | 1.00 | 0.05 | 1.04 | 0.55 | 1.07 | 0.14 | 1.03 | 0.08 | 0.99 |
| **% China ODI** | 0.28 | - | 0.00 | - | 0.35 | - | 0.81 | - | 0.92 | - | 0.77 | - |
| **All Host Economies** | | | | | | | | | | | | |
| **Max** | 0.63 | 5.25 | 0.41 | 3.15 | 0.12 | 2.40 | 0.87 | 1.71 | 0.27 | 1.93 | 0.21 | 2.63 |
| **Min** | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.20 | 0.04 | 0.08 | 0.01 | 0.07 | 0.00 | 0.00 |
| **Average** | 0.12 | 1.00 | 0.13 | 1.00 | 0.05 | 1.00 | 0.51 | 1.00 | 0.14 | 1.00 | 0.08 | 1.00 |
| **% China ODI** | 0.36 | - | 0.00 | - | 0.38 | - | 0.80 | - | 0.90 | - | 0.78 | - |
| **No. of Econ** | 129 | - | 130 | - | 130 | - | 130 | - | 130 | - | 130 | - |
| **% China ODI** | 0.01 | | 0.07 | | 0.01 | | 0.73 | | 0.14 | | 0.08 | |

Source: UNCTAD and author's calculation

Note: (a) "the major host economies" refers to those economies which have been the top 10 destinations of China's ODI in any year from 2003 to 2009.

(b) "All host economies" refers to those economies which are to be analyzed empirically later. In fact, compared with the full destinations of China's ODI, seventeen economies are dropped because of the unavailability of key variables.

So which industries are relatively more advanced in China? The answer is the following: "manufacturing", "agriculture, hunting, forestry, and fishing" and "construction". In contrast, tertiary sector, especially "wholesale, retail trade, restaurants and hotels" and "transport, storage and communications", were underdeveloped in China.

But does Chinese ODI concentrate in industries which are more advanced domestically? Again, the answer is clearly negative. In industries where China was more advanced or had higher share of GDP – "agriculture, hunting, forestry, fishing", "manufacturing" and "construction" – China's ODI only accounted for 9 percent of its total ODI. In particular, the share of China's ODI in "manufacturing" industry only amounted for 7 percent of the total.

By comparison, in industries where China was underdeveloped – "wholesale, retail trade, restaurants and hotels" and "transport, storage and communications" – aggregate ODI amounted to 22 percent of total Chinese ODI. In particular, when 80 percent host countries enjoyed more advanced development in tertiary sector than China. But China's ODI in that area was 73 percent of the total.

To summarize the findings in this section, we conclude that Chinese ODI did not concentrate in industries where China was stronger, whether measured by export market performance or domestic activity strength.

**What Determine China's ODI Destination?**

We now turn to explore determinants of Chinese ODI's location choices, in order to further our understanding of the pattern of Chinese overseas investment. We conduct this analysis by applying the popular gravity model approach. The basic specification of the gravity model for Chinese ODI is as follows:

(1)

$$In(odif_{i,t}) = \alpha + \beta_1 In(r\_service_{i,t}) + \beta_2 In(\exp ortotal_{i,t}) + \beta_3 In(importotal_{i,t}) + \beta_4 In(gdp_{i,t}) + \beta_5 In(pgdp_{i,t}) + \beta_6 raw_{i,t} + \beta_7 law_{i,t} + \beta_8 contig_i + \beta_9 comlang_i + \beta_{10} In(dis_i) + \varepsilon_{i,t}$$

(2)

$$In(odif_{i,t}) = \alpha + \beta_1 In(serviceingdp_{i,t}) + \beta_2 In(\exp ortotal_{i,t}) + \beta_3 In(importotal_{i,t}) + \beta_4 In(gdp_{i,t}) + \beta_5 In(pgdp_{i,t}) + \beta_6 raw_{i,t} + \beta_7 law_{i,t} + \beta_8 contig_i + \beta_9 comlang_i + \beta_{10} In(dis_i) + \varepsilon_{i,t}$$

where "i" denotes host country of China's ODI (in our sample, there are 130 host countries); and "t" denotes time (the time period of our sample is from 2003 to 2009). During this period, Ministry of Commerce (MOCOMM) publishes "Statistical Bulletin of China's Outward Foreign Direct Investment" every year (for descriptive statistics and description of the variables and their source are shown in Table 5). And the correlation matrix also indicates xxx (WHAT)(see Table 6).

**Table 5, Descriptive statistics**

| Variable | Label | Mean | Std.dev | Source |
|---|---|---|---|---|
| Annual outflow of Chinese Outward Direct Investment, US, ten thousand | odif | 182.7301 | 1965.90 | MOFCOM, PRC |
| Relative Revealed Comparative Advantage in Services | r_service | 2.71 | 2.20 | UNCTAD and Author's Calculations |
| Share of Tertiary Sector in GDP | serviceingdp | 0.54 | 0.16 | UNCTAD |
| China's export to the host country , $US, millions | exportotal | 7162.46 | 23372.52 | UNCTAD |
| China's import to the host country, $US, millions | importotal | 5564.80 | 16319.10 | UNCTAD |
| GDP, $US, millions | gdp | 352101 | 1272091 | UNCTAD |
| GDP per capita, $US | pgdp | 12484.99 | 18009.35 | UNCTAD |
| Host country's ratio of raw material exports to its total merchandise exports, including fuels, ores and metals) to its total merchandise exports and is a proxy for the abundance of natural resources. | raw | 28.03 | 30.84 | World Bank World Development Indicators |
| Rule of Law, [-2.5-2.5], the higher the better | law | -0.02 | 1.02 | World Bank Institute (WBI) Governance Indicators |
| Whether the two countries are contiguous, "1" denotes contiguous | contig | 0.09 | 0.29 | CEPII |
| Whether the two countries share a common official language, "1" denotes share a common language | comlang | 0.04 | 0.19 | CEPII |
| Distance between capital of host country and Beijing, kilometer | dis | 8915.19 | 4067.27 | CEPII |

Source: author's calculation using stata 10.

**Table 6, Descriptive Statistics of Data**

| | odif | r_service | serviceingdp | exportotal | importotal | gdp | pgdp | raw | law | contig | comlang | dis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Odif | 1 | | | | | | | | | | | |
| r_service | -0.04 | 1 | | | | | | | | | | |
| serviceingdp | 0.20 | 0.44 | 1 | | | | | | | | | |
| exportotal | 0.49 | -0.06 | 0.34 | 1 | | | | | | | | |
| importotal | 0.07 | -0.15 | 0.17 | 0.64 | 1 | | | | | | | |
| gdp | 0.01 | -0.02 | 0.29 | 0.77 | 0.57 | 1 | | | | | | |
| pgdp | 0.10 | 0.15 | 0.56 | 0.35 | 0.28 | 0.37 | 1 | | | | | |
| raw | -0.02 | -0.44 | -0.54 | -0.15 | -0.12 | -0.14 | -0.18 | 1 | | | | |
| law | 0.13 | 0.23 | 0.66 | 0.36 | 0.30 | 0.33 | 0.78 | -0.40 | 1 | | | |
| contig | 0.23 | 0.03 | 0.00 | 0.14 | -0.02 | -0.05 | -0.10 | 0.07 | -0.13 | 1 | | |
| comlang | 0.43 | 0.15 | 0.34 | 0.30 | 0.04 | -0.05 | 0.18 | -0.12 | 0.24 | 0.30 | 1 | |
| dis | -0.13 | 0.03 | 0.00 | -0.21 | -0.28 | -0.03 | -0.16 | 0.13 | -0.17 | -0.46 | -0.25 | 1 |

Source: author's calculation using stata 10.

The key variables are "r_service" and "serviceingdp", which are relative revealed comparative advantages in service sector and the share of service sector in GDP,

respectively. These two variables are related to the discussions about performance of the Chinese service sector in both export and domestic markets.

"Exportotal" and "importotal" reflect impacts of trade. "Ddp" and "pgdp" proxy for market size and labor cost. "Raw" represents the resource seeking motivation. "law" is used to describe the institutional environment. "Contig" and "dis" are to show the effects of geographically proximate on China's ODI. "Contig" and "comlang" display similar culture or language influence.

In order to capture the interaction between institutional factors and industry development/revealed comparative advantages of service sector, we also include the interaction terms – the product of law and relative revealed comparative advantages in services/share of service sector in total GDP – and are expressed by "lawr_service" and "lawserviceingdp", respectively.

We use both the pooled ordinary least squares (POLS) and the random effects (REs) generalized least squares method to estimate the Equations (1) and (2). We do not use a fixed effects (FEs) model for two reasons. First, we want to investigate the effects of those time invariant variables, such as "contig", "comlang" and "dis", to have a better understanding of China's ODI. But if the REs are used, they will all be eliminated. Second, in our sample, the time span is short, only from 2003 to 2009, while the number of country is large, reaching 130. In that case, the within effects are limited, it should be acceptable not to use FEs.

We conduct a Lagrangian multiplier (LM) test to see whether POLS or REs better fit the data. The significant value for the LM test means that REs estimation is preferable to that of POLS.

We then estimate the Equations (1) and (2) by using three different country samples: the entire sample, OECD countries, and non-OECD economies (see Table2 7, 8 and 9).

For the full sample, neither the host countries' relative revealed comparative advantages in service sector nor their development of service sector is significant for attracting China's ODI. Although the interaction terms of the two key variables with legal environment are significantly positive under POLS, they are not significant under RES. Since Res is a better method than POLS, indicated by LM test, we conclude these terms do not have significant impacts on location choice of Chinese ODI.

Trade, especially China's export to the host economies, has an influential impact on China's ODI. The more China exports to the host economies, the more China's ODI go there. However, similar argument does not hold for China's import to the host economies. This is consistent with the argument that some of the Chinese ODI is to facilitate exports.

However, seeking market is not a driving force for ODI. All coefficients for GDP are not significant. This probably indicates that Chinese investors do not care about market sizes of the host countries.

**Table 7, Results for the determinants of China's ODI, full sample**

| | (1)POLS | (2)REs | (3)POLS | (4)REs | | (5)POLS | (6)REs | (7)POLS | (8)REs |
|---|---|---|---|---|---|---|---|---|---|
| r_service | -0.0231 | -0.0256 | | | serviceingdp | -0.769 | -1.78 | | |
| | (0.0553) | (0.0879) | | | | (1.1790) | (1.5360) | | |
| lawr_service | | | 0.0691* | 0.0484 | lawserviceingdp | | | 0.557** | 0.373 |
| | | | (0.0383) | (0.0563) | | | | (0.2720) | (0.4480) |
| lnexportotal | 0.512*** | 0.387** | 0.511*** | 0.385** | lnexportotal | 0.475*** | 0.444** | 0.463*** | 0.438** |
| | (0.1120) | (0.1690) | (0.1110) | (0.1680) | | (0.1180) | (0.1840) | (0.1180) | (0.1840) |
| lnimportotal | 0.0539 | 0.0472 | 0.0714 | 0.056 | lnimportotal | 0.142** | 0.0587 | 0.153*** | 0.0723 |
| | (0.0534) | (0.0655) | (0.0512) | (0.0633) | | (0.0581) | (0.0709) | (0.0566) | (0.0698) |
| lngdp | -0.0399 | 0.058 | -0.0282 | 0.0829 | lngdp | -0.171 | -0.0464 | -0.166 | -0.0467 |
| | (0.1130) | (0.1810) | (0.1120) | (0.1800) | | (0.1230) | (0.1990) | (0.1220) | (0.1980) |
| lnpgdp | -0.255** | -0.198 | -0.283*** | -0.265* | lnpgdp | -0.129 | -0.0551 | -0.269** | -0.222 |
| | (0.1040) | (0.1750) | (0.0921) | (0.1530) | | (0.1300) | (0.2110) | (0.1120) | (0.1950) |
| raw | 0.0151*** | 0.0112** | 0.0149*** | 0.0121*** | raw | 0.0146*** | 0.0116* | 0.0171*** | 0.0160*** |
| | (0.0034) | (0.0055) | (0.0029) | (0.0047) | | (0.0042) | (0.0066) | (0.0034) | (0.0058) |
| law | 0.189 | 0.0558 | | | law | 0.135 | 0.0724 | | |
| | (0.1560) | (0.2500) | | | | (0.1760) | (0.2890) | | |
| contig | 1.076*** | 1.133* | 0.997*** | 1.086* | contig | 0.916** | 1.109 | 0.908*** | 1.013 |
| | (0.3410) | (0.6660) | (0.3330) | (0.6490) | | (0.3580) | (0.6980) | (0.3430) | (0.6840) |
| comlang | 3.146*** | 3.386*** | 3.131*** | 3.379*** | comlang | 2.711*** | 3.126*** | 2.444*** | 2.761** |
| | (0.5500) | (1.0600) | (0.5480) | (1.0490) | | (0.6280) | (1.1500) | (0.6040) | (1.1260) |
| lndis | 0.108 | 0.0844 | 0.0922 | 0.0749 | lndis | 0.0188 | 0.0829 | 0.0113 | 0.0286 |
| | (0.1860) | (0.3440) | (0.1840) | (0.3380) | | (0.2020) | (0.3750) | (0.1940) | (0.3660) |
| Observations | 559 | 559 | 559 | 559 | Observations | 476 | 476 | 476 | 476 |
| R-squared | 0.459 | 0.4558 | 0.461 | 0.4578 | R-squared | 0.439 | 0.4343 | 0.443 | 0.4382 |
| LM Test | chi2(1) = 207.53*** | | chi2(1) = 208.02*** | | LM Test | chi2(1) = 160.42*** | | chi2(1) = 152.39*** | |

Notes: Standard errors in parentheses

*** , **, * indicate that the coefficient is significant at the 1%, 5% and 10% levels, respectively

Most coefficients for GDP per capita are also insignificant. In fact, some of the coefficients for GDP per capita are significantly negative. which means the richer are host economies, the less are China's ODI. GDP per capita may indicate an economy's market potential. For this study, however, this is probably a more important indicator for the cost level, since in most countries there exists positive correlations between wage rates and GDP per capita.

Seeking for raw materials, or more specifically, seeking for fuels, ores and metals, is an important motivation for Chinese ODI. All the coefficients of "raw" are significantly positive. The more raw materials the host economy exports (potentially the more natural resources this economy possesses), the more China's ODI it attracts.

Chinese investors also do not care about institutional risks in host economy. The coefficient of "law" is not significant, though it's positive. But inexperienced China's TNCs indeed prefer to take direct investment in host economies where they are more

familiar. An alternative explanation, however, is that economies with better legal environment are more restrictive on Chinese ODI.

Both the common language ("comlang") and the border connection ("contig") play a positively significant role in China's ODI. These are consistent with the conventional FDI literature. However, distance is not a consideration for China's ODI, as evidenced by the insignificant coefficient of "dis".

**Table 8, Results for Determinants of China's ODI, OECD countries**

| | (1)POLS | (2)REs | (3)POLS | (4)REs | | (5)POLS | (6)REs | (7)POLS | (8)Res |
|---|---|---|---|---|---|---|---|---|---|
| r_service | 0.396** | 0.367 | | | serviceingdp | 10.48** | 10.39* | | |
| | (0.1660) | (0.2460) | | | | (4.6430) | (6.2260) | | |
| lawr_service | | | 0.338*** | 0.321** | lawserviceingdp | | | 1.795** | 1.487 |
| | | | (0.0993) | (0.1430) | | | | (0.8000) | (1.1600) |
| lnexportotal | 1.404*** | 1.446*** | 1.336*** | 1.361*** | lnexportotal | 0.809** | 0.911 | 0.952** | 1.106** |
| | (0.3290) | (0.5130) | (0.3230) | (0.4940) | | (0.3770) | (0.5690) | (0.3650) | (0.5440) |
| lnimportotal | 0.593** | 0.617 | 0.510** | 0.517* | lnimportotal | 0.561** | 0.627* | 0.331 | 0.358 |
| | (0.2500) | (0.3860) | (0.1980) | (0.2940) | | (0.2450) | (0.3630) | (0.2240) | (0.3260) |
| lngdp | -0.641* | -0.72 | -0.423 | -0.45 | lngdp | -0.185 | -0.4 | 0.022 | -0.204 |
| | (0.3290) | (0.4940) | (0.3000) | (0.4560) | | (0.3570) | (0.5190) | (0.3580) | (0.5200) |
| lnpgdp | -0.245 | -0.0292 | -0.654* | -0.555 | lnpgdp | -0.83 | -0.521 | -0.781 | -0.539 |
| | (0.4630) | (0.6760) | (0.3840) | (0.5700) | | (0.5390) | (0.7470) | (0.5170) | (0.7250) |
| raw | 0.0109 | 0.00841 | 0.0127 | 0.0103 | raw | 0.0247 | 0.0227 | 0.0104 | 0.00625 |
| | (0.0107) | (0.0163) | (0.0104) | (0.0156) | | (0.0149) | (0.0214) | (0.0125) | (0.0176) |
| law | 0.278 | 0.109 | | | law | 0.568 | 0.265 | | |
| | (0.5060) | (0.7590) | | | | (0.5670) | (0.8300) | | |
| lndis | 0.391 | 0.506 | 0.193 | 0.276 | lndis | -0.279 | -0.0551 | -0.155 | 0.0718 |
| | (0.3710) | (0.5940) | (0.3470) | (0.5460) | | (0.4080) | (0.6250) | (0.3980) | (0.6100) |
| Observations | 150 | 150 | 150 | 150 | Observations | 120 | 120 | 120 | 120 |
| R-squared | 0.529 | 0.5265 | 0.545 | 0.5434 | R-squared | 0.517 | 0.5122 | 0.509 | 0.5042 |
| LM Test | chi2(1) = 15.16*** | | chi2(1) = 14.26*** | | LM Test | chi2(1) = 6.95*** | | chi2(1) = 7.06*** | |

Notes: Standard errors in parentheses

*** , **, * indicate that the coefficient is significant at the 1%, 5% and 10% levels, respectively

OECD countries and Non-OECD economies demonstrate rather different characteristics in our empirical results.

First, for OECD countries, both their relative revealed comparative advantages in service sector and their service shares in GDP have positive effects on attracting Chinese ODI. It means that the more comparative advantageous and better development of service sector in OECD countries, the more outward direct investment China will engage.

But for non-OECD economies, it's just opposite: the more comparative advantageous and better development of service sector in non-OECD countries, the less outward direct investment China will engage.

**Table 9, Results for the determinants of China's ODI, Non-OECD countries**

| | (1)POLS | (2)REs | | (3)POLS | (4)REs |
|---|---|---|---|---|---|
| r_service | -0.0928* | -0.0674 | serviceingdp | -2.207* | -2.435* |
| | (0.0549) | (0.0880) | | (1.1360) | (1.4720) |
| lawr_service | 0.0312 | 0.0363 | lawserviceingdp | | |
| | (0.0498) | (0.0769) | | | |
| lnexportotal | 0.362*** | 0.232 | lnexportotal | 0.374*** | 0.317* |
| | (0.1100) | (0.1650) | | (0.1160) | (0.1780) |
| lnimportotal | 0.0383 | 0.0416 | lnimportotal | 0.119** | 0.0598 |
| | (0.0510) | (0.0614) | | (0.0552) | (0.0668) |
| lngdp | 0.0493 | 0.183 | lngdp | -0.111 | 0.0244 |
| | (0.1170) | (0.1900) | | (0.1250) | (0.2000) |
| lnpgdp | -0.203* | -0.182 | lnpgdp | 0.00851 | 0.0386 |
| | (0.1040) | (0.1740) | | (0.1260) | (0.2060) |
| raw | 0.0122*** | 0.00922* | raw | 0.0139*** | 0.0128** |
| | (0.0036) | (0.0056) | | (0.0042) | (0.0065) |
| law | 0.188 | 0.0525 | law | 0.364* | 0.371 |
| | (0.2210) | (0.3550) | | (0.2080) | (0.3200) |
| contig | 1.432*** | 1.404** | contig | 1.339*** | 1.387** |
| | (0.3370) | (0.6630) | | (0.3550) | (0.6790) |
| comlang | 3.253*** | 3.484*** | comlang | 2.668*** | 2.807** |
| | (0.5390) | (1.0410) | | (0.6430) | (1.1390) |
| lndis | 0.278 | 0.199 | lndis | 0.27 | 0.214 |
| | (0.2190) | (0.3970) | | (0.2360) | (0.4240) |
| Observations | 409 | 409 | Observations | 356 | 356 |
| R-squared | 0.541 | 0.5371 | R-squared | 0.534 | 0.5303 |
| LM Test | chi2(1) = 131.79*** | | LM Test | chi2(1) = 104.90*** | |

Notes: Standard errors in parentheses

*** , **, * indicate that the coefficient is significant at the 1%, 5% and 10% levels, respectively

Our speculation is that Chinese firms intend to learn experiences and technologies of development of the service sector from OECD countries. Through learning process as well as spill-over effects, it is hoped to promote development of China's own service sector.

China also invests large amount of money in service industry in non-OECD economies. But that is not because the non-OECD economies enjoy better development in service sector. On the contrary, the more developed service sector of non-OECD economies, the less direct investment will be placed there.

Second, although both China's export to OECD countries and to non-OECD economies displays a positive indicator for China's ODI, the situation of import is different. For OECD countries, the more China imports from the host economy, the more China invests. However, even if China has imported a lot from non-OECD economies, China's ODI is not affected by this factor.

Third, China's ODI in non-OECD economies is driven by resources seeking. This, however, does not hold, at least not statistically, for OECD economies. Such pattern is evident according to the coefficient of "raw". For all the eight specifications' coefficients of "raw", none of them are statistically significant for OECD countries. In contrast, the coefficients of "raw" for Non-OECD economies all are positively significant.

OECD countries and non-OECD economies also share some common characteristics with regard to attracting Chinese ODI. For instance, both OECD and non-OECD economies' GDP and GDP per capita have no effect to attract China's direct investment; both OECD and non-OECD economies' rule of law ("law") and their distance to China are insignificant to influence Chinese ODI.

In addition, the estimation results for "contig" and "comlang" for the non-OECD sample are almost the same as those for the entire sample. This was not surprising since no OECD country shares the same border with China, or speak the same language.

**Concluding Remarks**

The emergency of China in the global economy has attracted worldwide attention to its development and large number of researches on its growth miracle. Most of them centers on China's ballooning trade surplus, accumulating foreign reserves, reform of state owned enterprises (SOEs) and financial system, the ability of drawing and making use of foreign direct investment (FDI).

But the research on the role of China as an outward direct investor is still insufficient and incomplete. In general, there are two strands with regards to the research on a country's/industry's/firm's ODI. One is its determinants (Blonigen 2005); the other is its effects (Lipsey 2004). For researching the determinants of ODI, they are mainly trying to answer two questions. First, why the firms are qualified to invest abroad? Second, what are their motivations and what determines their location choices?

The existing literatures on China's ODI typically jump the discussions of the first question, and directly address its motivations and location choices. One important reason is the lack of firm level data. After all, China's TNCs are still new-players in the international market.

By comparing the distribution of industries invested with their revealed comparative advantages as well as their development in terms of share in GDP, we find that neither China's ODI follow its revealed comparative advantages, nor it concentrates on the industries with higher development. Admittedly, such findings derive from a very rough comparison. But this will help to fill a vacancy in the existing literatures and more detailed work could follow afterwards.

We incorporate the "revealed" comparative advantages (RCA) of the selected industries and their share in GDP in China and its host economies into the standard model of ODI determinants. We find China's ODI is significantly with Chinese characteristics.

First, although the majority of China's ODI centers on service sector, its response to the development/revealed comparative advantages of service sector in host economies is different for OECD countries and Non-OECD economies. For OECD countries, the more comparative advantageous and better development of service sector, the more outward direct investment China will engage. It could be inferred that Chinese firms intend to learn experiences and technologies of the development of services sector in OECD countries. In contrast, for Non-OECD economies, the more comparative advantageous and better development of service sector, the less outward direct investment China will engage. It seems that Chinese firms intend to compete in Non-OECD countries.

Second, China's export to host economies displays a significantly positive indicator for China's ODI. The more China export to, the more China invests to. There are two interpretations for such pattern. On the one hand, the more China export to the market, the better knowledge and experience China could gain through export. For the new player of outward investment, such knowledge and experience could facilitate, just like saying the common language or sharing the common border, direct investment. On the other hand, China's ODI may be used to service export.

Third, Seeking for market is not a driving force of China's ODI. Both the host economies' GDP and GDP per capita have no influence on China's ODI decision. Instead, seeking for raw materials, more specifically, seeking for fuels, ores and metals is an influential motivation of China's ODI. But the statement is only hold for Non-OECD countries.

Findings from this study prompt us to suggest that there probably is a 'China model' in ODI, which differs significantly from conventional understanding of motivation and determinants of ODI from developed countries. For instance, empirical estimation in this study confirms that Chinese investors do not pay close attention to either market size or cost advantage of host economies. In fact, they don't invest in industries where they do well in either domestic or international markets. Rather, they are attracted by advanced development in OECD countries and resources in non-OECD countries.

The central theme for the 'China model' is to strengthen domestic industry (or production) through ODI. ODI does this by acquiring management skills, technology, brands or raw material supply. Clearly, the purpose is not to directly expand overseas markets, certainly not for the invested projects. Similar phenomenon happened before to Japanese ODI in the 1970s. But Japanese ODI was not as prominent in the 1970s in the world economy as the Chinese ODI is today.

Such investment is probably based on strategic decisions. But it is also made possible by some special institutional features, such as dominance of SOEs in certain Chinese industries and existence of financial repression, which not only repressed costs of capital but also made large amount capital available to the SOEs. Therefore, SOEs are still a dominant player in Chinese ODI.

'The China model' may be a transitional phenomenon. If wages continue to rise rapidly, China may eventually move its textile and clothing, toys and travel goods factories to

other low cost countries. That investment would be more consistent with the market- or low cost-seeking motivations in traditional FDI theory. Again, if further liberalization of the financial industry quickly leads to rise of costs of capital and decline of the state sector, importance of the China model may also decline.

In any case, the hypothesis of the China model proposed in this study is only a preliminary one. It requires further studies to validate or reject this hypothesis.

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