Determinants of FDI in China: Intellectual Property Rights or Deng Xiaoping?

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Abstract

Foreign direct investment (FDI) has been a valuable resource for many firms in China. This paper analyzes the determinants of FDI inflows into China and finds that while the implementation of new intellectual property rights laws has had no statistically significant impact on increased inflows, Deng Xiaoping’s Southern Tour of February, 1992 may have had a surprisingly large influence on China’s economic boom.
**Introduction**

China’s extraordinary economic growth in recent decades can be attributed to several significant changes in both the political structure and legal system. Beginning in the early 1980s, China transitioned from a closed economy to one that increasingly participates in the global markets. Considered an untapped resource, China has attracted increasingly more investments from abroad. In 1983, annual utilized foreign direct investment (FDI) inflows into China were just above 600 million dollars\(^1\). By 1990, that amount rose to almost 3.5 billion dollars, and today FDI inflows have reached almost 70 billion dollars. In the past, China’s stringent government policies made it difficult for private firms to get funding. FDI has made it easier for private firms to acquire investment funds and thus has played a major role in the recent development of China. Continued inflows of FDI have allowed private firms to produce more than fifty percent of China’s yearly GDP (Poncet and Hericourt, 2007).

In recent decades, China has made significant improvements in intellectual property rights laws. In preparation for its accession to the World Trade Organization (WTO), China was forced to further open its economy to the world by breaking down trade barriers and developing intellectual property rights laws. These advances in legislation are a signal to foreign investors of increased security in their investments (Qin, 2007). It would seem that further developing intellectual property rights would attract more investors and thus higher amounts of FDI inflows. Did intellectual property rights have a significant correlation with the surge of FDI in the early 1990s?

With this question in mind, I surveyed existing literature on FDI and possible determinants of FDI. Surprisingly little has been written on this topic; however I was

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\(^1\) All statistical data is taken from various editions of the *China Statistical Yearbook* unless otherwise noted.
able to find literature on determinants of FDI in a few countries. Using variables suggested by these papers along with variables that I believe are particularly important for China, I created my own model. After several trial and error runs, I narrowed down my variables to five: exports, college graduation rate, state-owned enterprise (SOE) output, WTO status and the Trade-Related aspects of Intellectual Property Rights (TRIPS) legislation. The regression results showed most variables to be insignificant. It was not until after graphing FDI over time that I noticed a possible omitted variable.

**Figure 1:**

![FDI over Time](image)

Figure 1 shows that between 1991 and 1992 FDI abruptly jumped from approximately 4.4 billion USD to over 11 billion USD. The following year FDI once again more than doubled, reaching 27.5 billion USD.

None of the variables I had included explained this mysterious surge in FDI.

After further research into China’s political history, I found that in spring of 1992, Deng
Xiaoping went on his now-famous Southern Tour. He traveled along the southern coast and gave his well known speech, often paraphrased as, “To get rich is glorious.”

Promoting economic reconstruction and a more market driven approach of boosting the economy, he opposed the post-Tiananmen Crisis trend toward reversing reform policies (Zhou, 1993). These speeches had a surprisingly large impact, not only changing the opinions of economic decision makers, but undeniably affecting China’s economy and the inflows of FDI.

The amount of FDI increased from just fewer than two billion dollars in 1983, to over 60 billion dollars in 2006. In the past couple of decades China has consistently been among the world’s top recipients of FDI (CIA, 2007). What explains the large increase in FDI since the early 1980s? This paper analyzes the roles of intellectual property rights and Deng Xiaoping’s speech as well as human capital, exports, composition of industry, and WTO status on the amount of FDI contracted and utilized yearly in China.

**Literature Review**

While China has one of the fastest growing economies in the world, many Chinese domestic firms still face financial and legal hurdles. Poncet and Hericourt (2007) examine the financial constraints on Chinese domestic firms and the effects of FDI on two levels: state-owned enterprises and private firms. Traditionally, the Chinese banking sector offered loans only to state-owned enterprises largely for the purpose of preserving jobs. In a survey taken in 2000, 80 percent of Chinese private firms claimed financial constraints as their biggest obstacle, making China the most financially constrained country in the world. Poncet and Hericourt (2007) use the debt-to-asset ratio and interest
coverage ratio to measure the financial constraint of Chinese firms. In addition, this paper studies whether foreign investment in these firms mitigated this constraint. Using the World Bank’s 2003 Investment Climate Survey, the paper identifies Chinese firms according to size, industry, location and whether they were private or state-owned. The results show that state-owned firms had no financial constraints, and were not affected by incoming foreign investment. On the other hand, private firms in China faced significant financial constraints. However, FDI in Chinese private firms alleviated much of their financial limitations. This suggests that relations with foreign firms significantly helped Chinese domestic private firms receive the funding they needed to grow.

Additional research further suggests that the effects of FDI inflows into China vary greatly depending on the management of a firm. Long (2006) studies the effects of FDI on wages and the skill level of workers in private domestic Chinese firms compared to state-owned enterprises and examined how FDI affected a firm’s performance, closely looking at sales and interactions with foreign companies and consumers. Using data from the World Bank’s 2001 survey, Study of Competitiveness, Technology and Firm Linkages, Long (2006) uses a random sample of 300 firms from each of five cities in China. Long (2006) categorizes these firms by location, industry, and employment, and uses the average foreign share in each firm weighted according to employment to determine “FDI presence” in a given area. The findings suggest that the areas with the most FDI inflow have significantly higher wages and better quality of labor. Long (2006) associates this inconsistency with state-owned enterprises’ traditional wage constraints. The presence of FDI increases the demand for skilled workers and gives private firms more flexibility in wages, allowing them to attract talent. The paper also
finds that FDI inflows to private firms are positively associated with sales to foreign firms and consumers, but not for state-owned enterprises. Long (2006) assumes this was because the presence of FDI provided a link between domestic and foreign firms, as well as foreign firms’ exporting partners.

During the 1990s, China was the world’s second largest recipient of FDI. Investment in China accounted for 50 percent of all inflow into developing countries. Chinese officials credit this phenomenon to the reforms made in China’s corporate policies. However, Huang (2003) looks for other possible reasons for such large amounts of inflow and suggests it is a sign of weakness in the Chinese economy. Using a wide range of data, Huang (2003) looks at different aspects of incoming FDI. Data from firms with various types of ownership are measured for relative FDI size, and also divided by industry to see if certain industries are more likely to attract FDI. Like Long (2006), Huang (2003) also takes into consideration the location of firms, how labor-intensive the firms are and the amount of capital already invested in the firm. Huang (2003) finds that FDI inflows into China increased significantly during the 1990s due to three substantial problems in China’s corporate sector. First, China allocated domestic resources towards less efficient state-owned enterprises while denying funds to efficient private firms. Second, China’s legal system put constraints on private firms by constructing more legal obstacles for private firms seeking financial assistance, which ultimately prohibited them from growing to their potential. Since private firms now produce more than half of China’s yearly GDP, this could possibly have restricted China’s GDP growth. The third problem is that China provided more growth and investment options to foreign firms rather than domestic firms. The combined impact of this bias was that China’s corporate
system provided opportunities for large FDI inflows, which private firms and China’s growth came to rely on.

Since China joined the WTO in December of 2001, vast improvements in its legal system have been made and trade and investment barriers have been lowered. Qin (2007) examines the implications and impacts of China’s accession into the WTO, focusing on major changes made to China’s intellectual property rights. With these changes, China’s trade and investment have increased almost fivefold and China’s FDI inflow has increased dramatically. The Trademark Law (2001) and Copyright Law (2001) symbolized efforts to adhere to the WTO standards. China has also added violations of intellectual property rights to criminal code and set up a government apparatus to oversee and enforce intellectual property laws. However, even with all these adjustments, violations of these laws continue to cause concern for those investing in China. Qin suggests the main reasons for this persistent problem are the lack of coordination between intellectual property enforcement agencies, inadequate deterrence penalties, poor training, and corruption. While obvious improvements have been made, intellectual property rights protection still remains the largest complaint of foreign companies who do business with China.

Even before its entry into the WTO, China was making an effort to improve its intellectual property rights protection system. As a result of global pressure, in 1994 China adopted TRIPS. You (2005) empirically examines the relationship between profit realized by Japanese invested firms, intellectual property rights protection and illegal imitation. In 1999, an investigative report stated that approximately 27 percent of all imitations of Japanese products were produced in China. As of 2005 however, Japan was
the second largest source of FDI into China. You (2005) uses data obtained by a 2001 survey of Japanese firms which invested in China in the year 2000. From the surveys, investment data from 228 Chinese firms varying in industry and location were obtained. Survey questions included information on industry, location, amount of investment, investment share and duration, as well as whether the investing firm was in the same industry as the Chinese target. The survey also included questions on intellectual property rights protection, such as whether illegal imitation of their product had been observed, whether firms patented or registered for trademark, and the impact of imitation on overall profits. The results implied that there was a positive correlation between patent and trademark registration and imitation. The possible explanation given for this unexpected result is that in order to register for a patent or trademark a firm must divulge details about the production of all goods. This being the case, You (2005) suggests that patents, rather than protecting a product, might in fact facilitate imitation because it is easier to acquire the information.

While FDI into China steadily increased throughout the 1990s, the effects were quite different depending on the location in China. Dayal-Gulati and Husain (2000) seek to test how FDI inflows affect China as a whole and each province individually. Using a revised version of the Solow growth model, Dayal-Gulati and Husain look at income growth to determine whether the coastal regions which receive the majority of FDI benefit more than inland China. Their findings suggest that per capita income is not constant across the provinces, nor are the growth rates of income. The results also show that FDI positively impacts both per capita income and the rate at which it grows. In areas with a higher percentage of FDI the average income is much higher than regions
dominated by state-owned enterprises. As a result, areas such as inland China, with the highest concentration of state-owned enterprises, have reduced growth rates compared to the booming economy in the coastal regions.

While it is hard to deny that increased FDI inflows have had a large effect on China economy, it is important to take a closer look at where these funds are coming from and where exactly they are going. Graham (2001) takes a more in depth look at the makeup of these investments. According to Graham (2001), between 1992 and 1996, a majority of FDI inflows into China originated from developing Asian countries. Most of this investment was concentrated on domestic markets where China showed no comparative advantage. However, since 1996, a higher percentage of FDI inflows have been coming from Europe, North America and Japan. These investments were predominantly in export industries where China has shown a comparative advantage. Graham (2001) also reported that most of China’s growth in exports can be attributed to increased FDI. However, results also showed that FDI in the late 1990s was not increasing at the same rate as in the beginning of the 1990s. This slowdown or lack of growth is shown by decreased investments from the United States as well as from Japan. Graham (2001) finds that this may have been a result of discouraging policies made by China’s government. China’s strict requirements for foreign invested enterprises deterred many investors. While policies in the late 1990s were increasingly lenient, entry of foreign enterprises was limited by location and industry with many other conditions. China did not encourage any foreign firms that would create competition for domestic state-owned enterprises. The government also required the use of local suppliers for all manufacturing supplies. Graham (2001) negated the hypothesis that the lack of increase
in FDI is due to saturation. Similar to Dayal-Gulati and Husain (2000), Graham (2001) finds that the benefits of FDI inflows are not evenly distributed. FDI is generally grouped into four main areas—Guangdong, Jiangsu, Fujian and Shanghai. It is also noted that FDI per capita is much smaller in China than in some other countries in Southeast Asia; it is less than one tenth of Malaysia’s per capita FDI and about half of Thailand’s. Graham (2001) argues that the most effective method to distribute FDI into inland China would be to privatize state-owned enterprises and allow foreign ownership. This would not only increase the benefits of FDI, but also increase competition and incentive for domestic firms.

Many Asian countries follow a similar pattern of development. Often these countries share many of the same comparative advantages and therefore attract FDI in a similar fashion. Binh and Haughton (2002) research the possible determinants of FDI inflows into Vietnam, focusing on the effects of the bilateral trade agreement between the United States and Vietnam. Binh and Haughton (2002) estimate a model for determining per capita FDI inflows using data from 1990 to 1999. Variables included were measures for economic openness, WTO status, trade relations with the United States, market size, exchange rate, domestic savings rate and macroeconomic discipline. This model was estimated for 16 other Asian countries during the same period in order to measure the FDI determinants in related countries. The regression finds that WTO status contributes substantially to the amount of FDI inflows into Vietnam and the openness of a country is extremely important to investors. Openness was measured by the ratio of exports to GDP. Binh and Haughton (2002) also find that exchange rates and savings rates also play a role in estimating the yearly FDI inflows. The results suggest that Vietnam’s
accession into the WTO and proper trade relations will likely double Vietnam’s FDI inflows as well as increase annual GDP growth by approximately 0.6 percent.

**Model Description**

Utilized FDI is estimated using the following model:

\[
\text{lagFDI}_t = \beta_0 + \beta_1 \text{soe}_t + \beta_2 \text{colgrad}_t + \beta_3 \text{exports}_t + \beta_4 \text{wto}_t + \beta_5 \text{trips}_t + \beta_6 \text{speech}_t + e_t
\]

where lagFDI is FDI lagged by one year, soe is percentage of GDP from state-owned enterprises, colgrad is the ratio of people who have graduated from college, exports is the percentage of GDP from exports, and wto, trips and speech are dummy variables for China’s accession into the WTO, the TRIPS intellectual property rights laws implemented in 1996, and Deng Xiaoping’s Southern Tour in the spring of 1992, respectively.

State-owned enterprise data is included in the regression to reflect the composition of industry during the specified year. It is expected that as the percentage of GDP from state-owned enterprise output decreases, FDI would be increasing. State-owned enterprises are generally inefficient and often money-losing. Higher amounts of FDI would allow private firms the funding to produce more and therefore private firms’ output would constitute a higher percentage of GDP. Therefore we would expect the soe variable to be negatively related to FDI.
College graduate data is included in the regression to account for human capital. It is expected that with increased human capital there is an increase in innovation and a larger supply of potential laborers for white-collared positions. While a higher college graduation rate may attract potential investors, many investors are looking for cheap labor rather than educated workers.
Data on exports is included in the regression to measure the openness of China. As Binh and Haughton (2002) suggest, the ratio of exports to GDP is a good measure of how open a country is. Investors are interested in this measure because it signals that the government’s policies are open to trade and competition. Many companies invest in China with the intention of exporting the goods they manufacture. A higher ratio of exports to GDP reassures investors of an open environment.

**Figure 4:**

![Exports over Time](image_url)

WTO status is included as a binary variable in the regression as a measure of foreign perception. WTO membership requires reduced import barriers and increased transparency. Investors are more likely to invest in countries with WTO membership because the WTO regulates and establishes a set number of rules to increase trade fluency. It is expected that WTO status would greatly increase the number of investors willing to invest in China because WTO membership gives investors a sense of security.
TRIPS is included as a binary variable to measure the environment of intellectual property rights. For many years China has dealt with issues of intellectual property piracy. It is expected that with the introduction of TRIPS, improvements in China’s patent, trademark, and copyrights laws would attract previously uneasy investors. Intellectual property rights laws signal security in investments, especially in manufacturing and industries where innovation is necessary to succeed.

A dummy variable for Deng Xiaoping’s speeches in 1992 is included in the regression as a measure of attitudes towards foreign investment in China. FDI data show a significant increase in FDI inflows after 1992. A survey of the literature reveals Deng Xiaoping’s speeches as a significant event in this time period.

Data Description

All data were collected by the National Bureau of Statistics of China. Utilized FDI data from 1985 through 2006 are from the 2007 China Statistical Yearbook. Data for 1983 and 1984 are taken from the 1988 China Statistical Yearbook. Utilized FDI statistics are measured in billions of dollars. This data is deflated using CPI data from the 2007 China Statistical Yearbook to account for inflation. FDI data is then lagged one year to account for the time it takes for the invested funds to be put to use. Data for the value of state-owned enterprise output from 1998 through 2006 are from the 2007 China Statistical Yearbook, 1990 through 1997 data are from the 2000 China Statistical Yearbook, and 1983 through 1989 data are from the 1992 China Statistical Yearbook. Output statistics are measured in billions of Yuan. These statistics are divided by GDP to find the ratio of GDP coming from state-owned enterprises. The college graduation data for 1983
through 1984, and 1985 through 2006 are taken from the China Statistical Yearbooks of 1985 and 2007, respectively. The annual college graduation total is divided by the total population in order to find the percentage of people who have graduated college. Export data for the years 1985 and 1990 through 2006 are taken from the 2007 China Statistical Yearbook. Data for 1986 through 1989 are taken from the 2000 China Statistical Yearbook. 1983 and 1984 statistics are from the 1988 China Statistical Yearbook.

Export data is measured in billions of Yuan. These statistics are divided by GDP to find the ratio of exports to GDP. Three dummy variables are also included to account for significant events in China’s recent history. One dummy variable represents China’s December 2001 accession to the WTO while another represents the introduction of the intellectual property rights law, TRIPS, or trade-related aspects of intellectual property rights in 1995. TRIPS established a minimum level of protection for all countries in the WTO that must be upheld by each member’s government. TRIPS covers areas from patents and trademarks to copyrights and trade secrets. WTO and TRIPS dummy variables are chosen because they signal government stability and transparency, and are expected to increase investor confidence. The final dummy variable represents Deng Xiaoping’s Southern Tour in 1992. The aim of the tour was to further open China’s economy and to revive the momentum of market-based reform policies.
### Regression Results

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<td><strong>488.336791</strong></td>
<td><strong>22</strong></td>
<td><strong>22.1971269</strong></td>
</tr>
</tbody>
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|                      | lagfdi    | Coef. | Std. Err. | t   | P>|t| | [95% Conf. Interval] |
|----------------------|-----------|-------|-----------|-----|---|----------------------|
| soe                  | -14.136620 | 6.087863 | -2.32 | 0.034 | -27.042320 | -1.230929 |
| colgrad              | 9.885625 | 12.109760 | 0.82 | 0.426 | -15.785910 | 35.557170 |
| exports              | 11.604960 | 10.387970 | 1.12 | 0.280 | -10.416560 | 33.626480 |
| wto                  | 0.060957 | 0.916077 | 0.07 | 0.948 | -1.881039 | 2.002954 |
| trips                | -0.609632 | 1.155411 | -0.53 | 0.605 | -3.058995 | 1.839730 |
| speech               | 4.072940 | 0.924440 | 4.41 | 0.000 | 2.113215 | 6.032665 |
| _cons                | 9.398289 | 4.655488 | 2.02 | 0.061 | -0.470904 | 19.267480 |

- The $r^2$ of the regression is 97.5 percent, meaning 97.5 percent of the variation in FDI is explained by the model. Value of state-owned enterprise output is statistically significant with a coefficient of -14.137. This is expected because this variable is a good indicator of the economic environment. Although the number of college graduates has increased with each passing year, the regression indicated that it has not had a significant effect on FDI. This may imply that investors in China are less interested in human capital than in cheap labor. A large percentage of FDI inflows are into manufacturing industries. The ratio of exports to GDP is also found to be statistically insignificant with a p-value of 0.280.

- The regression results also indicate that WTO status has a statistically insignificant coefficient of .0609. A possible reason for this is because China has only recently joined the WTO and is still adjusting to WTO requirements. Perhaps in the future, China’s membership in the WTO will have a significant positive effect on FDI inflows into China. Likewise, the regression also finds the TRIPS dummy variable with a coefficient of -.6096 to be statistically insignificant with a p-value of -0.53. This implies...
that the introduction of TRIPS in 1995 has had little effect on FDI inflows. This may indicate that although intellectual property rights laws have been in place, they are not well enforced nor are the punishments significant enough to deter piracy. The regression finds that the Deng Xiaoping speech variable is statistically significant with a coefficient of 4.07 and a p-value of 0.000.

Analysis
Initially, the main focus of this paper was to look at improvements in intellectual property rights laws and measure their effects on FDI inflows into China. In order to measure this effect I had to estimate a model for FDI. The variables I began with were per capita GDP, total employment, WTO status, TRIPS, total trade, education and percentage of privately owned firms. Per capita GDP was chosen to measure the wealth of the population, total employment was chosen to reflect the economic involvement of the population, WTO status was chosen to measure economic openness and transparency, as well as foreign opinion, TRIPS was chosen to measure the intellectual property rights environment, total trade was chosen to measure the openness of China’s economy, education was chosen as a measure for human capital and the percentage of privately owned firms was chosen to measure the demand for FDI.

After performing several regressions, I found that the results showed that most variables were insignificant. The data for the number of privately owned firms were inconsistent so data for the number of state-owned enterprises was substituted. Instead of per capita GDP and total trade, data for the ratio of exports to GDP was used. This reduced the likelihood of multicollinearity. Education was initially the number of high
school graduates, however, this data was not consistent because different editions of the *China Statistical Yearbook* had different definitions of secondary schools. Some editions included vocational schools and specialty schools, while other editions did not. Data for the number of college graduates was used instead in the final regression. WTO status and TRIPS were kept in the final regression as well.

The final variable added was the variable for Deng Xiaoping’s speeches in Southern China. This variable was not added until after looking more closely at FDI (see Figure 1). Deflated FDI data begins in 1983. The amount of utilized FDI increased by over one billion dollars between 1983 and 1985. However, in the aftermath of the Tiananmen crisis, the government cracked down on market-based sectors of the economy and deflated FDI decreased by 200,000 dollars in 1990. The following year saw little change. FDI inflows remained around 3.3 billion dollars per year. In the spring of 1992, following the series of speeches by Deng Xiaoping, the amount of FDI increased from 4.37 billion dollars to over 11 billion dollars per year. The following year FDI continued to increase to 27.52 billion dollars. After this, the amount of utilized FDI increased steadily until 1999 when the effects of the 1997-1998 Asian Financial Crisis were felt. Nonetheless, after 1998 the amount of contracted and utilized FDI continued to grow. In 2002, FDI inflows reached approximately 53 billion dollars and by 2006, FDI had reached almost 70 billion dollars.

After analyzing the model, the results indicate that the two variables that best determine FDI inflows into China between 1983 and 2007 are the ratio of the value of state-owned enterprise output to GDP and Deng’s speech. The significance of state-owned enterprise output value is that as there are fewer state-owned enterprises there are
more opportunities for private funding. Private firms, who face financial constraint, rely on FDI for survival. The regression coefficient tells us that for every one percent decrease of the ratio of state-owned enterprises output to FDI, the amount of deflated FDI increases by over 140 million dollars.

Of all the variables, the binary variable for Deng Xiaoping’s speeches is the most significant. There may be a number of reasons. After the Tiananmen Square Incident in 1989, the Chinese economy was shaky. Deng had largely retired from active leadership and conservative members of the Communist party began trying to undo the free market reforms previously put in motion and bring control back to the government. Politics remained unsteady. Deng Xiaoping and the conservative Prime Minister, Li Peng, could not come to a consensus on China’s future. While Deng Xiaoping supported modernization through the use of market mechanisms, Li Peng strongly believed in remaining true to China’s conservative socialist path. Deng’s campaign promoted renewed economic reforms and fast-paced development. His speech changed views within China and set China on a path of rapid economic growth (Zhou, 1993). In the aftermath of the speeches, FDI quadrupled in just two years. These speeches served as a catalyst for future economic growth.

Conclusion

Since the opening of China’s economy in the early 1980s, FDI inflows have significantly helped alleviate funding issues for many firms. FDI inflows have increased from 600 million dollars in 1983 to nearly 70 billion dollars in just over 20 years. Looking closely at the data, a large surge in the amount of FDI is evident between 1992 and 1994. The
The econometric model presented in this paper indicates that Deng Xiaoping’s 1992 Southern Tour may have motivated this growth.

While not much has been written on the determinants of FDI inflows into China, FDI has played an important role in China’s economic growth and therefore should be further investigated. The most critical shortcoming of this study is that not much time has passed since China’s reforms. It would be interesting to run this regression after another ten or twenty years has passed. This would leave a longer time after the changes in China’s political and economic systems so see which variables have a long lasting effect on FDI inflows. It would be interesting to see how China’s economic path is affected as China continues to grow politically and make progress in its intellectual property rights enforcement.
References


