Corruption, Governance and FDI Location in China: A Province-level Analysis

Matthew A. Cole

Robert J.R. Elliott*

Jing Zhang

Department of Economics, University of Birmingham, UK

Abstract

China's rapid growth in recent years has been matched by large increases in exports and foreign direct investment (FDI). However, within China considerable regional disparities in FDI flows exist. In this paper we use detailed province level data for China to examine the determinants of intra-country FDI flows. Specifically, we investigate whether FDI is attracted to those regions that exhibit good governance and are most strongly engaged in the fight against corruption. We first construct proxies for provincial government efficiency and the extent of a region's anti-corruption effort. Our subsequent regression results confirm that FDI is attracted to provinces with relatively high levels of government efficiency and those that are actively involved in the fight against corruption.

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Key words: FDI; corruption; governance.

*Corresponding author: Dr. Robert J R Elliott, Department of Economics, University of Birmingham, Edgbaston, Birmingham, B15 2TT, UK. Tel: 44 121 414 7700, Fax. 44 121 414 7377, e-mail: r.j.elliott@bham.ac.uk

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1. Introduction

Following the market reforms of the late 1970s, the Chinese economy and its people have undergone a dramatic transformation. The result has been the generation of wealth on a previously unimagined scale and the removal of millions from absolute poverty.[1] Much of China's growth, that has averaged approximately 9% a year over the last 25 years, has been driven by a tremendous growth in exports coupled with equally impressive increases in foreign direct investment (FDI).

Between 1980 and 2000 the volume of China's exports grew by 13% a year and by 2005 the value of China's external trade surplus had reached $1,422bn making it the third largest exporter in the world with a trade surplus in 2006 of $177.5bn (Hong Kong Trade Development Council). In terms of FDI, by 2005 Chinese inward FDI flows had reached $72bn, up from an average of $30bn between 1990 and 2000. The stock of FDI has increased similarly, rising from $20bn in 1990 to $317bn in 2005 (UNCTAD 2006).

China's relative success in attracting FDI is, however, in contrast to the experiences of some other developing and transition countries. Global geographical disparities in the location of FDI have led researchers to return to the examination of the structural determinants of FDI inflows. One factor that has received considerable attention is corruption. At the country level a number of studies examine the impact of corruption on cross-country patterns of FDI (see e.g. Wheeler and Mody 1992, Hines 1995, Wei 2000, Habib and Zurawicki 2002, and Smarzynska-Javorcik and Wei 2005). These studies use cross-country perception-based corruption indices within FDI location decision models. Whilst the earlier studies did not find a consistent negative correlation between corruption and FDI (e.g. Wheeler and Mody, 1992; Hines, 1995) more recent studies have reported a statistically significant negative impact of corruption on FDI (e.g. Wei 2000; Smarzynska-Javorcik and Wei 2005). See Amiti and Javorcik (2008) for a recent province-level study of the determinants of FDI in China.

In China, the transition to a more market based economy, known as 'socialism with Chinese characteristics', has resulted in considerable changes to how firms operate within the new commercial business environment. Inevitably, when any system undergoes such

[1] The percentage of the Chinese population living on below $1 (PPP) per day consumption has fallen from 33% in 1990 to just over 16% in 2001 (Millennium Development Goals Indicators).

rapid transition problems will arise: the huge increase in opportunities in the private sector combined with the traditional power of local and national officials has led to a proliferation of corruption at all levels of the Chinese economy. Corruption is now recognised as an emerging challenge to China's economy and to its social reforms.

In a related discussion, it is argued that corruption should not be considered in isolation as it is strongly correlated with the quality of government. As the World Bank (2006 pg. 1) state, "Bad governance is associated with corruption, distortion of government budgets, inequitable growth, social exclusion, lack of trust in authorities." Picci (2005) argues that corruption causes inefficiency because corrupt government officials aim to extract valuable rents. For example, officials may attempt to prolong large projects for personal gain or devote their time to inappropriate public projects where it is easier to extract unlawful rents. Thus, an often examined alternative to corruption is to investigate the role of governance on foreign capital flows (Globerman and Shapiro 2002, 2003, Globerman *et al.* 2006, and Fan *et al.* 2007). In these studies 'good' governance is characterised by economic freedom, secure property rights, a minimum cost of complying with regulations and restrictions on trade, honest government officials, efficient civil services, and a transparent legal system. An index of good governance based on these characteristics is developed by Kaufmann *et al.* (1999), recently updated by Kaufmann *et al.* (2003). Governance can therefore be considered as a broader measure of corruption where good governance promotes successful performance and hence encourages FDI by increasing the scope for profitable business activities (Globerman *et al.* 2006). [2]

In this paper we examine, for the first time, the effect of both corruption and governance on intra-country FDI flows for China. There are two studies that are most closely related to our own. Golden and Picci (2005) examine intra-country corruption levels for Italy in the 1990s, comparing the difference between a measure of the total amount of investment in infrastructure and a measure of the physical quantity of the public infrastructure, assuming that the difference between these two measures is an indication

[2] An alternative view of corruption is that it aids government efficiency. Aidt (2003) argues that corruption can promote allocative efficiency by allowing agents to circumvent distortions created by various government procedures or policies. Corruption enhances allocative efficiency through two channels: (1) it speeds up bureaucratic procedures and (2) it causes competition for government resources which result in more efficient services. However, this argument is based on a number of problematic assumptions the most fundamental of which is that the government failure that corruption aims to correct is exogenous and is itself unrelated to corruption but may be put in place and maintained by corrupt officials.

that money is being siphoned off via mismanagement, fraud, bribes, kickbacks, or embezzlement. In terms of governance, Kao *et al.* (2005) construct a governance efficiency index for China from 2000 to 2004 based on the definitions of government efficiency in the International Institute of Management Development's (IMD) World Competitiveness Yearbook and the methodology in Tang and Tang (2004b). In a model of FDI, Kao *et al.* (2005) find that FDI is attracted to provinces with good governance.[3]

The contribution of this paper is three-fold. First we construct a measure of corruption using the normalised number of registered cases related to corruption and dereliction of duty for the period 1998 to 2003. Second, we develop a province-level government efficiency index by combining 40 separate indices covering all aspects of governance that are aggregated to provide an overall standardized index of good governance for each province for each year. Finally, we test for the determinants of province-level FDI in China. In addition to our proxies for corruption and governance we include a standard set of control variables to capture provincial differences in income, labour costs and quality, infrastructure, agglomeration economies, population density and environmental regulations. Our results reveal that foreign capital prefers to locate in regions where the government has made more effort to fight corruption and where local government is considered to be more efficient.

The remainder of the paper is organised as follows: Section 2 outlines the extent and history of corruption in China. Section 3 describes how we construct our measures of anti-corruption and government efficiency and presents our econometric framework. Section 4 reports our main results and the final section concludes.

2. Corruption in China

This section provides a brief overview of the pattern of corruption in China. Table 1 presents the trend in Transparency International's Corruption Perception Index (CPI) between 1980 and 2006. It is evident that overall levels of corruption increased gradually during the 1980s, rose sharply in the 1990s before stabilising after 1998.

[3] In a related literature Dean *et al.* (2005) examine the relationship between province level FDI in China and environmental regulations.

Table 1 Corruption Perception Index for China

Year	*Score**	*Rank*	*No. of Survey*	*No. of Countries Ranked*
1980-1985	5.13	N/A	N/A	N/A
1988-1992	4.73	N/A	N/A	N/A
1995	2.16	40	4	41
1996	2.43	50	9	54
1997	2.88	41	6	52
1998	3.5	52	10	85
1999	3.4	58	11	99
2000	3.1	63	11	90
2001	3.5	57	10	91
2002	3.5	59	11	102
2003	3.4	66	13	133
2004	3.4	71	16	146
2005	3.2	78	14	159
2006	3.3	70	9	163

*Note: CPI Score relates to perceptions of the degree of corruption as seen by business people and country analysts and ranges between 10 (highly clean) and 0 (highly corrupt).
Source: Transparency International (http://ww1.transparency.org/)

The fight against corruption in China began almost three decades ago. In December 1978 the Communist Party of China (CPC) established the 1st CPC Central Commission for Discipline Inspection (CCDI) which is in charge of rooting out corruption and malfeasance among CPC cadres. Since 1989 anti-corruption activities have risen up the agenda of the Chinese government. On 15th August 1989, China's Supreme People's Court and the China's Supreme People's Procuratorate (CSPP) released a Circular which declared the central government's determination to severely punish corrupt officials. [4]

Following the example of Hong Kong's Independent Commission Against Corruption (ICAC), the People's Procuratorate of Guangdong Province established an anti-corruption bureau in 1989. In 1995 the CSPP established an anti-corruption general bureau, and from then on anti-corruption units were established at four levels of procuratorates throughout the country. Except for the general bureau, anti-corruption

[4] The Circular announced that criminals involved in corruption, bribery, fraudulent buying and selling etc. must surrender themselves to the police or judicial department within a fixed time period. The penalties for being caught can also be severe. Several high profile cases have also been punished by the death penalty. In 2000 a provincial deputy governor and a deputy head of the parliament were both executed for corruption ("A Long Death Row", Economist 30th May 2007).

offices have been set up under the provincial people's procuratorates, municipal people's procuratorates and county people's procuratorates. There are currently more than 40,000 procurators in China. The anti-corruption offices are in charge of the investigation and the preliminary hearing of the cases involving for example, bribery, misappropriation, unstated sources of large properties, disguised overseas savings deposits, illegal possession of public funds and the illegal possession of confiscated properties.

More recently, legal experts have suggested revising the current Anti-Unfair Competition Law and drawing up an Anti-Corruption Law and Anti-Commercial Bribery Law. Chinese President Hu Jintao has declared the fight against corruption a priority of the Chinese government. On 25th October, 2006, the International Association of Anti-Corruption Authorities (IAACA) was officially established in order to promote the United Nations (UN) Convention Against Corruption, and Jia Chunwang, procurator-general of the CSPP, was elected as president. In order to promote the UN Convention Against Corruption, the central government approved the establishment of the National Corruption Prevention Institution in 2007. The CCDI and the Ministry of Supervision are in the process of developing China's first Anti-Corruption Law.

The CSPP reported that between 1998 and 2003 anti-corruption offices investigated 203,880 corruption cases involving 225,624 people (including 13,854 government officials with a ranking of division director or county administrator) and helped to retrieve approximately 26.3 billion RMB yuan (about $3.18 billion). Approximately half of these cases went to court (123,295 cases involving 141,413 people). In 2004 43,757 government employees were investigated by prosecutors for corruption and dereliction of duty, of which 30,788 were brought to court. About 4.56 billion RMB yuan ($0.55 billion) were retrieved. However, the rate of investigation is still low. Moreover, given the relatively light penalties the risk/reward ratio is still balanced in favour of continued corruption.[5] Ni and Wang (2004) predict that the investigation rate is only around 10%,

[5] In 2006 China's Supreme People's Procuratorate investigated 40,041 government employees for corruption, bribery and dereliction of duty of whom 29,966 were bought to court. In addition, 2,736 government officials above the county level including 202 at the prefecture level and 6 at the provincial or ministerial level were investigated. Another 9,582 commercial bribery cases involving government officials were also investigated and 2,987 judicial workers were probed for power abuse and taking bribes. In total the procuratorial organs handled 477,596 petitions from the general public either by letter or in person (Embassy of the People's Republic of China in the United).

which means that the real value of corruption is ten times the amount published by the government.[6]

In terms of foreign firms, in the past ten years the procurator's offices have investigated at least 500,000 corruption cases, 64 per cent of them related to international trade and foreign enterprises (Takung Pao, Tuesday, 19, September, 2006). Bribes to local officials given by foreign investors have tended to increase in recent years and have had an adverse effect on competition and the fair allocation of resources. Under the belief that corruption is a widespread social problem, some foreign firms may consider that bribery is a 'latent rule' in China. In Section 3 we investigate the impact that province level corruption and the efficiency of regional government has on the location choice of foreign investors.

3. Methodology and Data

In this section we outline our empirical framework and describe how we construct our anti-corruption and government efficiency variables. As, to the best of our knowledge, there is no survey of province-level corruption or governance quality over time we use data from the Procuratorial Yearbook of China, China Statistical Yearbook and China Environment Yearbook. A full list of our data sources are provided in Appendix 1.

Svensson (2005) defines corruption as 'the *misuse* of public office for private gains'. This is a legal definition because misuse involves legal norms. He (2000), on the other hand, defines corruption as 'the *use* of public power and public resources for private interest'. Picci (2005) defines three types of corruption assessment: judicial, societal and corruption indices. Judicial data are rarely used since the extent to which corruption crimes are successfully prosecuted by the judiciary depends on many factors. Social assessment is that which "may follow personal experience, hearsay or the observation of indirect effects of corruption" (Picci 2005, p.3). The presence of a free press can aid this process.

[6] This prediction is considered conservative according to other researchers. Hu (2001) predicts the annual economic loss in late 1990s to be about 987.5 -1257.0 billion RMB yuan (about $119.3 – $151.9 billion), accounting for 13.2 – 16.8% of GDP. Tax evasion is considered to result in the largest economic loss accounting for 7.6-9.1% of GDP. Illegal management of public investment monies and public expenditures accounts for 3.4-4.5% of GDP while rent-seeking behaviour leads to a loss about 1.7-2.7% of GDP. Income from the underground economy in illegal goods (e.g. smuggling, drugs, and trafficking) accounts for a further 0.4-0.5% of GDP.

Most corruption indices are therefore subjective and generated from surveys, interviews or data analysis. [7]

Since we lack a subjective state-level corruption index for China we construct a measure using the normalised number of convictions of public officials to proxy the bureaucratic corruption of each state. We use the number of registered cases under direct investigation by procurator's offices to proxy anti-corruption effort. Registered cases include, for example, those charged with corruption, bribery, misappropriation of public funds, collective illegal possession of public funds, unstated source of large property, abuse of power, dereliction of duty and fraudulent practices. Assume inherent corruption levels are equal across provinces, which would be the case if individuals were equally susceptible to temptation, then cases investigated scaled by population can be considered a good proxy for the level of effort that a province expends fighting corruption. Given the high levels of corruption and the high profile public fight against it in China, we the number of corruption cases under investigation is a good indicator of how seriously a province takes the fight against corruption. We also note that China's Supreme People's Procuratorate (CSPP) also treats these data as representing the anti-corruption achievement of supreme and local procuratorates in each year

Provincial anti-corruption effort is reported in Table 2. During our period of study, 27 of 30 provinces saw cases per 100,000 people increase. However, if we compare the 2000 and 2003 figures we see that only 50% of provinces recorded an increase in anti-corruption effort with only Ningxia, Shanghai and Shandong witnessing falls. In terms of the relative rankings of provinces, the majority have tended to move within a limited range of their 1998 rank. However, there were some notable movers. For example, Beijing (25th to 15th), Tianjin (12th to 1st), Liaoning (10th to 3rd) and Henan (23rd to 7th) significantly improved their positions while Ningxia (18th to 29th), Xinjiang (3rd to 13th), Shandong (7th to 27th) and Shanghai (8th to 24th) saw their positions worsen. There appears to be no discernable geographical pattern.

[7] Golden and Picci (2005) argue that these survey-based measures of corruption such as those by Transparency International (TI) and the World Bank's Control of Corruption index have a number of weaknesses the first being that the real degree of reliability of the survey information is unknown, respondents involved in the corrupt activity may underreport such involvement, while those not involved lack accurate information. TI attempts to solve this problem by aggregating information from multiple surveys. The second concern is that the reliability of TI index may deteriorate over time. Kaufmann *et al.* (2006) argue that all efforts to measure corruption using any kind of data (subjective or objective) involve an irreducible element of uncertainty.

Table 2: Provincial Anti-Corruption Effort

Province	1998		1999		2000		2001		2002		2003	
	Cases/ 100 000 persons	Rank	Cases/ 100 000 persons	Rank	Cases/ 100 000 persons	Rank	Cases/ 100 000 persons	Rank	Cases/ 100 000 persons	Rank	Cases/ 100 000 persons	Rank
1. Beijing	2.17	25	2.95	22	3.08	21	2.30	25	2.77	18	3.27	15
2. Tianjin	3.21	12	7.03	1	6.88	1	5.24	2	4.26	3	6.15	1
3. Hebei	3.60	5	4.27	7	4.49	7	3.74	6	4.06	5	4.30	6
4. Shanxi*	3.76	4	4.50	6	3.93	8	3.56	7	4.05	6	4.98	5
5. Inner Mongolia**	2.52	20	2.92	24	3.25	16	2.94	17	2.41	25	3.14	19
6. Liaoning	3.28	10	5.05	4	5.41	4	4.62	4	4.14	4	5.43	3
7. Jilin*	4.53	1	5.12	3	4.72	6	4.25	5	5.08	1	5.40	4
8. Heilongjiang*	4.40	2	5.65	2	5.92	3	6.10	1	4.60	2	5.87	2
9. Shanghai	3.39	8	3.22	17	3.00	23	2.18	27	3.11	12	3.03	24
10. Jiangsu	2.33	22	3.31	15	3.30	13	3.03	14	2.57	23	3.26	16
11. Zhejiang	2.76	16	3.16	18	3.12	19	2.98	15	3.06	14	3.11	20
12. Anhui*	2.00	28	3.03	19	3.61	11	2.38	23	2.53	24	3.11	21
13. Fujian	3.50	6	3.67	11	3.28	15	3.42	8	3.51	9	3.85	8
14. Jiangxi*	2.59	19	3.85	10	4.91	5	4.82	3	3.27	10	3.31	14
15. Shandong	3.42	7	4.50	5	6.09	2	3.06	13	3.58	8	2.47	27
16. Henan*	2.33	23	3.86	9	3.76	10	3.34	10	3.04	16	3.90	7
17. Hubei*	3.19	13	3.49	13	3.29	14	2.81	18	3.23	11	3.37	11
18. Hunan*	2.52	21	2.59	28	3.11	20	2.09	28	2.75	20	3.03	23
19. Guangdong	2.08	26	2.28	29	2.32	29	1.99	29	2.15	28	2.20	30
20. Guangxi**	1.82	30	3.02	20	2.83	24	2.80	19	2.25	27	2.78	26
21. Hainan	3.15	14	2.88	25	2.76	25	2.33	24	2.74	21	3.18	17
22. Chongqing**	2.25	24	2.72	26	2.56	28	2.42	21	2.76	19	3.03	25
23. Sichuan**	1.89	29	2.67	27	2.61	27	2.42	22	2.30	26	3.04	22
24. Guizhou**	2.71	17	2.97	21	3.05	22	2.95	16	2.69	22	3.15	18
25. Yunnan**	2.93	15	3.66	12	2.76	26	2.29	26	3.06	15	3.37	12
27.[a] Shaanxi**	3.23	11	3.35	14	3.19	18	3.17	12	3.02	17	3.60	9
28. Gansu**	2.04	27	2.00	30	1.74	30	1.90	30	2.12	29	2.33	28
29. Qinghai**	3.32	9	3.31	16	3.31	12	3.39	9	3.10	13	3.38	10
30. Ningxia**	2.70	18	2.93	23	3.79	9	2.53	20	2.03	30	2.28	29
31. Xinjiang**	4.09	3	4.03	8	3.21	17	3.33	11	3.82	7	3.32	13

Note: * indicates central provinces and ** western provinces. [a] No. 26 would have been Tibet.

To measure government efficiency we follow Tang and Tang (2004a and 2004b) who use a system of multiple indices to measure provincial government efficiency in China. The system contains 47 indices that are aggregated into four factors: public services; public goods; government size; and national welfare. For 2001 they then calculate the standardised value (STD) of 37 indices with the help of Standard Derivation Method (SDM).[8] The aggregated STD of each province is then calculated using the weighted arithmetic mean method.

We use 40 of the 47 indices for which data are available and compute government efficiency indices across 30 provinces for 1998 to 2003.[9] See Appendix 2 for details including the relative weightings given to each category and method of calculation.[10] Table 3 shows that only 13 out of 30 provinces increased their STD score between 1998 and 2003. The provinces with the highest STD scores are Beijing (ranked 1 in 2003), Shanghai (ranked 2 in 2003), Tianjin, Jiangsu, Jilin, Liaoning, Zhejiang and Heilongjiang, provinces that tend to be located in eastern coastal regions or on China's borders. In contrast, inland provinces, such as Shanxi, Jiangxi, Henan, Hunan, Guangxi, Chongqing, Sichuan, Guizhou, Yunan and Gansu, tend to have relatively low or negative STD values. The difference in good governance levels between Chinese provinces appears to be consistent with the disparity in regional economic development.

In terms of the trend over time, the rank of provinces such as Beijing, Shanxi, Inner Mongolia, Heilongjiang, Shaanxi, Gansu, Qinghai and Xinjiang, have increased. The significant positive movers include Inner Mongolia (16^{th} to 6^{th}), Shaanxi (25^{th} to 11^{th}), Gansu (23^{rd} to 15^{th}) and Qinghai (24^{th} to 13^{th}). Those moving in the opposite direction include Guangdong (13^{th} to 21^{st}), Hainan (6^{th} to 17^{th}) Yunnan (18^{th} to 27^{th}) and Ningxia (15^{th} to 23^{rd}). Our results suggest that provinces with rapid economic development have tended to retain their advantage in government efficiency and that eastern regions have generally fared better than central and western regions. More worryingly is that the rise in the standard deviation means that provincial inequalities are widening which may further impact future growth and FDI prospects for these laggard provinces.

[8] Data were only available for 37 of the 47 indices.
[9] Tibet is not included in our estimating sample due to the lack of FDI data.
[10] Although it could be argued that one or two of the constituent indices of our governance measure (such as the number of patents granted per 100,000 citizens) could be considered correlated with FDI the weightings given to each index means we can be confident that these will not unduly influence the results or the exogeneity of the STD variable. When we re-estimated our results giving weights of zero to potentially endogenous indices the results were unchanged.

Table 3: Provincial Government Efficiency

Province	1998		1999		2000		2001		2002		2003	
	STD Value	Rank	STD Value	Rank	STD Value	Rank	STD Value	Rank	STD Value	Rank	STD Value	Rank
1. Beijing	0.38	2	0.40	2	0.49	1	0.62	1	0.81	1	0.86	1
2. Tianjin	0.37	3	0.24	5	0.25	5	0.26	4	0.29	3	0.34	4
3. Hebei	0.01	12	0.09	10	-0.01	16	0.09	9	0.15	10	0.02	12
4. Shanxi*	-0.12	21	-0.24	26	-0.21	26	-0.15	19	-0.09	19	-0.13	20
5. Inner Mongolia**	-0.04	16	0.00	16	0.07	10	0.08	11	0.24	5	0.28	6
6. Liaoning	0.15	8	0.18	7	0.17	8	0.18	6	0.23	6	0.24	8
7. Jilin*	0.33	4	0.32	4	0.25	4	0.12	8	0.16	9	0.19	9
8. Heilongjiang*	0.15	9	0.22	6	0.20	6	0.15	7	0.22	7	0.36	3
9. Shanghai	0.48	1	0.52	1	0.41	2	0.53	2	0.55	2	0.76	2
10. Jiangsu	0.32	5	0.35	3	0.25	3	0.32	3	0.25	4	0.31	5
11. Zhejiang	0.21	7	0.13	9	0.17	7	0.24	5	0.21	8	0.24	7
12. Anhui*	-0.02	14	-0.05	18	-0.07	20	-0.02	16	-0.06	17	-0.13	19
13. Fujian	-0.07	19	-0.04	17	0.03	13	0.08	10	0.01	13	0.01	14
14. Jiangxi*	-0.32	28	-0.36	29	-0.33	29	-0.24	26	-0.29	27	-0.25	24
15. Shandong	-0.06	17	0.02	15	0.07	12	-0.03	17	-0.06	18	-0.11	18
16. Henan*	-0.14	22	-0.22	24	-0.20	25	-0.21	25	-0.23	24	-0.27	25
17. Hubei*	0.10	11	0.07	13	0.08	9	0.02	15	-0.11	20	-0.11	16
18. Hunan*	-0.33	29	-0.35	28	-0.31	28	-0.27	28	-0.32	28	-0.41	28
19. Guangdong	0.00	13	0.08	11	-0.03	18	0.07	13	0.01	12	-0.14	21
20. Guangxi**	-0.26	26	-0.24	25	-0.30	27	-0.31	29	-0.35	29	-0.49	29
21. Hainan	0.21	6	0.15	8	0.07	11	0.08	12	-0.06	16	-0.11	17
22. Chongqing**	-0.28	27	-0.29	27	-0.09	21	-0.21	24	-0.23	26	-0.31	26
23. Sichuan**	-0.10	20	-0.12	21	-0.07	19	-0.19	23	-0.22	23	-0.17	22
24. Guizhou**	-0.43	30	-0.43	30	-0.40	30	-0.49	30	-0.50	30	-0.64	30
25. Yunnan**	-0.07	18	-0.11	20	-0.18	24	-0.18	22	-0.20	22	-0.33	27
27.[a] Shaanxi**	-0.25	25	-0.20	23	-0.14	22	-0.04	18	-0.01	14	0.05	11
28. Gansu**	-0.14	23	-0.13	22	-0.16	23	-0.25	27	-0.18	21	-0.08	15
29. Qinghai**	-0.16	24	-0.10	19	0.02	14	0.05	14	-0.02	15	0.01	13
30. Ningxia**	-0.03	15	0.03	14	0.02	15	-0.17	21	-0.23	25	-0.19	23
31. Xinjiang**	0.10	10	0.08	12	-0.02	17	-0.15	20	0.05	11	0.19	10

Note: * indicates central provinces and ** western provinces. [a] No. 26 is where Tibet would have been.

Econometric Framework

We now outline our econometric approach. Our basic specification is:

$$FDI = f(AntiCorruption, STD, X, \gamma, \eta) \quad (1)$$

where *FDI* is the flow of FDI into region *i* in time period *t*; *Anti-Corruption* is our measure of the level of regional anti-corruption effort; *STD* is measured as the standardized value of government efficiency index; X is a vector of other regional characteristics that may affect FDI; γ refers to location invariant time effects; and η refers to time invariant regional effects.

FDI is measured by the total amount of actually used FDI inflows into a province of the year according to the agreements and contracts, which includes the investment from Hong Kong, Taiwan, and Macao, and the investment from foreign countries. We normalise FDI by two alternative methods: provincial FDI divided by provincial GDP (*FDI/GDP*) and provincial FDI divided by the population of each province (*FDI/POP*).

In terms of our control variables in vector X we include: per capita gross regional product (*GRP per capita*) which captures income effects; manufacturing wage which proxies the factor price of labour; FDI inflows in previous year which captures the agglomeration led by FDI; regional gross industry product of domestic firms(*GIPd*) as a proxy of agglomeration of domestic industrial enterprises; population density which measures the potential market size and land prices; road density which capture the infrastructure effect; and the rate of illiteracy which proxies labour quality.[11] Following Fan *et al.* (2007), we also include the expected real per capita GDP growth rate (*ExpGrowth*) of each province, which is the average growth rate of the past four-year's growth rates. This variable is intended to capture a province's profitable investment opportunities and its track record in gaining government support (Fan *et al.* 2007).

The final estimating equation is therefore:

[11] These two measures of agglomeration follow Head and Ries (1996). We also employ an alternative measure of *GIPd*, i.e. the number of domestic enterprises. The results are similar to those of *GIPd*.

$$\begin{aligned}\ln(FDI_{it}) = {} & \alpha + \beta_1 \ln(AntiCorruption_{it-1}) + \beta_2 STD_{it-1} + \beta_3 \ln(GRPperCapita_{it-1}) \\ & + \beta_4 \ln(Wage_{it-1}) + \beta_5 \ln(FDI_{it-1}) + \beta_6 ExpGrowth + \beta_7 \ln(GIPd_{it-1}) \\ & + \beta_8 \ln(Pop.Density_{it-1}) + \beta_9 \ln(RoadDensity_{it-1}) \\ & + \beta_{10} \ln(IlliterateRate_{it-1}) + \gamma_t + \eta_i + \varepsilon_{it}\end{aligned} \quad (2)$$

where *i* refers to province and *t* refers to year. To control for possible endogeneity we lag all independent variables by one year. Of particular concern is the potential endogeneity of corrupion given the possibility that FDI, and the likely economic opportunities that it provides, may increase the likelihood of corruption taking place. Furthermore, as Fan *et al.* (2007) point out, while investment opportunities are likely to be more abundant in locations with good institutions and lower corruption, positive shocks on investment opportunities may provide an incentive for governments seeking FDI to improve institutions. Hence, corruption and STD cannot necessarily be considered to be exogenous. The options for removing such concerns are limited as are the prospects of finding suitable and convincing instruments for corruption and STD. Instead, we lag these variables by one year and also test the exogeneity of corruption and STD using Davidson-Mackinnon exogeneity tests. In all cases the null of exogeneity cannot be rejected as reported in Tables 4 and 5. Returning to equation (2), we do not take the natural log of STD because it is an index with positive and negative values. The expected signs of the coefficients are:

Coefficients	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	β_{10}
Expected Signs	+	+	+	-	+	+	-/+	-/+	+	-

We estimate both fixed and random effects models. Hausman specification tests are performed to discover whether the random effects model is appropriate. Hausman specification tests suggest that the random effects estimator is not efficient and therefore we focus on fixed effect results. Time dummy variables are included for all estimations.

4. Results

Table 4 reports the FGLS estimation results for our log specifications with FDI scaled by GDP as our dependent variable. Appendix 3 presents the Hausman specification test

and autocorrelation test results. The Hausman specification test suggests that random-effect estimations are not appropriate. We test AR(1) autocorrelation using the dynamic model, $\varepsilon_t = \rho\varepsilon_{t-1} + \nu_t, t = 2,\ldots,T$ to regressions (1) to (8) in Table 4 and regressions (8) to (12) in Table 5. The null hypothesis is H_0: $\rho = 0$. The *t* statistics show that we cannot reject the null hypothesis for all log specifications. Appendices 4 and 5 provide a table of data descriptives and a correlation matrix, respectively.

Table 4 FGLS Results; Dependent Variable: FDI/GDP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
***Anti-Corruption$_{t-1}$*†**		0.460		0.514	0.516	0.459	0.420	0.397	0.430
		(4.24)***		(4.92)***	(4.81)***	(4.19)***	(3.70)***	(3.43)***	(3.45)***
STD$_{t-1}$			0.205	0.385	0.410	0.395	0.363	0.522	0.464
			(1.02)	(2.03)**	(1.98)**	(1.91)*	(1.77)*	(2.49)**	(2.27)**
GRP per capita$_{t-1}$	1.957	2.082	1.746	1.975	2.052	2.279	2.347	1.902	2.332
	(3.63)***	(3.90)***	(3.20)***	(3.71)***	(3.21)***	(3.54)***	(3.58)***	(2.97)***	(3.63)***
Wage$_{t-1}$	-0.380	-0.971	-0.511	-1.096	-1.017	-0.835	-0.851	-0.901	-1.089
	(1.20)	(2.56)**	(1.51)	(2.66)***	(2.27)**	(1.76)*	(1.77)*	(1.89)*	(2.39)**
FDI$_{t-1}$	0.487	0.446	0.470	0.436	0.448	0.439	0.433	0.428	0.363
	(7.34)***	(6.72)***	(7.09)***	(6.69)***	(6.53)***	(6.19)***	(6.06)***	(6.00)***	(5.04)***
ExpGrowth					-0.219	0.042	0.321	1.233	0.827
					(0.16)	(0.03)	(0.24)	(0.94)	(0.65)
GIPd$_{t-1}$						-0.226	-0.231	-0.179	-0.212
						(1.92)*	(1.99)**	(1.47)	(1.89)*
Pop. Density$_{t-1}$							-0.671	-0.856	-0.934
							(0.96)	(1.22)	(1.32)
Road Density$_{t-1}$								0.211	0.209
								(2.61)***	(2.48)**
Illiterate Rate$_{t-1}$									0.253
									(2.31)**
Constant	-11.647	-7.789	-8.554	-5.891	-7.364	-9.435	-5.367	-1.900	-3.513
	(2.67)***	(1.77)*	(1.78)*	(1.23)	(1.37)	(1.78)*	(0.80)	(0.29)	(0.53)
Observations	147	147	147	147	147	147	147	147	147
Wald χ^2	9590.23	12041.88	11121.49	11723.53	10992.73	11636.34	11765.12	11833.36	11773.22
Davidson-Mackinnon Test									
Anti-Corruption$_{t-1}$		0.321		1.151	1.084	1.074	1.010	1.132	1.120
		(0.573)		(0.283)	(0.298)	(0.300)	(0.315)	(0.287)	(0.290)
STD$_{t-1}$			0.874	0.837	0.692	0.462	0.446	2.603	2.306
			(0.353)	(0.360)	(0.405)	(0.497)	(0.505)	(0.107)	(0.129)

Absolute value of z-statistics in parentheses. Time dummies are included. † All the independent variables are in logs except STD.
*significant at 10% level; ** significant at 5% level; *** significant at 1% level.

As our key variables of interest are anti-corruption and governance we include the other independent variables sequentially as a form of sensitivity analysis. We also include anti-corruption and STD together and individually.

From Table 4 we observe that the coefficient on *Anti-Corruption* is positive and statistically significant suggesting that provinces that do the most to tackle corruption attract greater levels of FDI inflows. Our full specification in column (9) shows that the marginal effect of tackling corruption is 0.43. Thus, a 10 percent increase in the effort to control corruption in a province would lead to a 4.3 percent increase in FDI inflows (relative to GDP).

The coefficient on STD is also positive and significant across nearly all specifications. The marginal effect from column (9) of 0.464 suggests that a 0.1 unit increase in the level of government efficiency is associated with a 4.75% increase in FDI inflows relative to GDP.[12] Regional government efficiency is therefore a significant determinant of foreign investment location choice.

Turning to the other control variables, as expected income has a strong positive effect on FDI inflows, indicating that the richer a province the more FDI it attracts. Manufacturing wage has a negative and significant effect on FDI flows. Lagged FDI proxies the agglomeration effects of FDI and is strongly positive and significant. Perhaps surprisingly, *GIPd*, which proxies the regional agglomeration effects of domestic firms, is negative and significant. Population density and the expected growth rate are not statistically significant, while the sign and significance of the illiteracy rate indicate that FDI is attracted by relatively low education levels.[13] Finally, the coefficient on road density shows that FDI prefers to locate in regions with good road transportation networks.[14]

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[12] $4.75\% = [\exp(0.464 \times 0.1) - 1] \times 100$.

[13] We include the percentage of enrolment in different levels of education to substitute for the rate of illiteracy. We find that the percentage of population that received primary school education and above have negative effect on FDI inflows. We find negative and insignificant coefficients on the enrolment of education at junior school and above, as well as that at senior school and above. The impact of enrolment at college and above is positive but not significant. We also construct an index to measure the average education level of the population aged 15 and above. The results suggest a negative and significant relationship between FDI inflows and average education level, which is consistent with the results of illiterate rate.

[14] As part of a sensitivity analysis we included railway density (with and without road density). The coefficient was negative. We believe this is due to the relatively low railway densities in some provinces.

For sensitivity analysis we re-estimate equation (2) using (FDI/POP) as our dependent variable. The results can be found in Appendix 6 and are broadly similar to those in Table 4. In addition, given the complex methodology required to generate our government efficiency measures, we check the sensitivity of our results by re-estimating equation (2) for the full specification splitting the STD index into its four component parts. The results are provided in Table 5.[15]

In Table 5, column (10) is a repeat of column (9) from Table 4. The four component parts that make up the overall STD index are STD1 (Government Public Services), STD2 (Government Public Goods), STD3 (Government Size) and STD4 (National Welfare). The results show that the STD indices remain generally positive and significant with the exception of STD1 (Public Services). The largest coefficient is for STD1 (public services) which may suggest that foreign capital is attracted to provinces that have the best facilities for their staff in terms of schools, hospitals and other services. The coefficients on the other variables are largely unchanged.

For example, Guangdong attracted the largest FDI inflows yet the railway length is 2112.5 km with a density of 0.01 km/km^2, which is only slightly higher than the average level for the country.

[15] The *FDI/POP* and Random Effects results for Table 5 are available from the authors upon request.

Table 5: FGLS Results; Dependent Variable: FDI/GDP

	(10)	(11)	(12)	(13)	(14)
***Anti-Corruption$_{t-1}$*†**	0.430 (3.45)***	0.331 (2.80)***	0.346 (2.85)***	0.467 (4.33)***	0.370 (3.22)***
STD$_{t-1}$	0.464 (2.27)**				
STD1$_{t-1}$		0.049 (0.23)			
STD2$_{t-1}$			-0.091 (0.97)		
STD3$_{t-1}$				0.300 (3.67)***	
STD4$_{t-1}$					0.205 (2.44)**
GRP per capita$_{t-1}$	2.332 (3.63)***	3.050 (4.95)***	3.148 (5.04)***	2.546 (4.59)***	2.829 (4.77)***
Wage$_{t-1}$	-1.089 (2.39)**	-1.131 (2.54)**	-0.989 (2.14)**	-1.074 (2.64)***	-1.069 (2.53)**
FDI$_{t-1}$	0.363 (5.04)***	0.383 (5.11)***	0.370 (5.02)***	0.382 (5.62)***	0.380 (5.25)***
ExpGrowth	0.827 (0.65)	-0.774 (0.70)	-1.150 (0.90)	-0.605 (0.65)	-0.263 (0.23)
GIPd$_{t-1}$	-0.212 (1.89)*	-0.292 (2.33)**	-0.274 (2.26)**	-0.270 (2.31)**	-0.291 (2.71)***
Pop. Density$_{t-1}$	-0.934 (1.32)	-1.033 (1.51)	-1.001 (1.44)	-0.371 (0.55)	-1.112 (1.68)*
Road Density$_{t-1}$	0.209 (2.48)**	0.128 (1.40)	0.131 (1.47)	0.300 (3.26)***	0.163 (1.79)*
Illiterate Rate$_{t-1}$	0.253 (2.31)**	0.311 (2.68)***	0.275 (2.34)**	0.278 (3.24)***	0.311 (2.71)***
Constant	-3.513 (0.53)	-7.666 (1.22)	-9.852 (1.47)	-9.143 (1.61)	-6.189 (1.01)
Observations	147	147	147	147	147
Wald χ^2	11773.22	10554.98	10547.43	15907.56	11358.74
Davidson-Mackinnon Test					
Anti-Corruption$_{t-1}$	1.120 (0.290)	0.575 (0.448)	0.043 (0.837)	0.591 (0.442)	0.018 (0.895)
STDj_{t-1}‡	2.306 (0.129)	0.784 (0.376)	0.721 (0.399)	0.837 (0.360)	0.280 (0.597)

Absolute value of z-statistics in parentheses. Time dummies are included. † All the independent variables are in logs except STD. ‡ STD*j* indicates STD, STD1, STD2, STD3 and STD4. *significant at 10% level; ** significant at 5% level; *** significant at 1% level.

6. Conclusions

In this paper we have made a comprehensive analysis of the determinants of inter-province FDI inflows for China. To enable us to examine the relationship between province level corruption and governance and FDI we first had to construct an index of good governance and corruption.

Our results from the first stage of this paper show that good governance tends to be associated with economic development, with the Eastern and coastal provinces recording the highest levels of 'good governance'. In contrast, our measure of corruption shows no discernable pattern between provinces even though the relative ranking across provinces remains relatively stable over our time period. In the second stage our econometric results reveal that FDI is attracted to provinces that have done the most to tackle corruption and that have the most efficient local government.

The policy implications are that there is a strong incentive for provinces to appear tough on corruption as this will encourage additional FDI and growth to their region. Likewise, efforts to improve the governance systems within a province appear to pay dividends in terms of future investment. In future research we would like to use more disaggregated data to investigate the effect of corruption within any given province.

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Appendix 1: Data Sources

Variable	Definition/Source
FDI/GDP	FDI divided by regional GDP (yuan per 10000 yuan). Source: China Statistical Yearbook.
FDI/POP	FDI divided by regional population (yuan per capita at 1990 price). Source: as above; GDP deflator data from Econ Stats, http://www.econstats.com
Anti-Corruption	The number of registered cases under the direct investigation of people's procuratorates divided by regional population (cases per 100000 persons). Source: The Procuratorial Yearbook of China; population data as FDI.
STD	The aggregate standardised value of government efficiency indices. Source: government efficiency indices data from China Statistical Yearbook.
STD1	The aggregate standardised value of government public services indices.
STD2	The aggregate standardised value of government public goods indices.
STD3	The aggregate standardised value of government scale indices.
STD4	The aggregate standardised value of national welfare indices.
GRP per capita	Gross regional product per capita (yuan at 1990 price). Source: as above.
Wage	Average wage of staff and workers in manufacturing (yuan at 1990). Source: as above.
ExpGrowth	Average value of the real per capita gross regional product (GRP) growth rate in the past four years of the region. Real per capita GRP growth rate is measured by the first difference of logged real per capita GRP. Source: as above.
GIPd	Regional gross industrial output value of domestic enterprises (100 million yuan at 1990 price). Source: as above.
Pop. Density	Regional population density (persons per km^2). Source: as above; area data from http://www.usacn.com
Road Density	Regional highway density (km per 10000 km^2). Source: as above.
Rail Density	Regional railway density (km per 10000 km^2). Source: as above.
Illiterate Rate	Regional illiterate rate and semi-illiterate rate aged at 15 and above. Source: as FDI.

Appendix 2:

Government Efficiency Indices

Factors	Sub Factors	Indices
Government Public Services (24 indices) (weight = 0.4)	**Education, Science & Technology, Culture, and Public Health Services** (11 indices) (weight = 0.55)	1. Per Capita Government Budgetary Expenditures for Scientific and Technology Promotion (yuan) 2. Rate of Products with Excellent Quality (%) 3. Three Types of Patent (Inventions, Utility Models and Designs) Applications Granted (item/100 000 persons) 4.Per Capita Transaction value in Technical Market (yuan) *5. Student-Teacher Ratio of Primary Schools* *6. Student-Teacher Ratio of Secondary Schools* *7. Illiterate and Semi-illiterate Rate (%)* 8. The Share of Government Appropriation for Education in GDP (%) 9. Institutions for Culture and Art (unit/100 000 persons) 10. Beds in Health Institutions (unit/100 000 persons) 11. Employed Persons in Health Institutions (person/ 100 000 persons)
	Public Security Services (8 indices) (weight = 0.15)	*12. Three Accidents (Traffic Accidents, Fires and Pollution Accidents) (case/100000 persons)* *13. Losses in Three Accidents (yuan)* ***14. Legislations (New Legislations, Revised Old Legislations, Including Laws， Regulations, etc.)(case)*** ***15. First Trial Cases Accepted by Courts (case)*** ***16. First Trial Cases Settled by Courts (case)*** ***17. Arrests of Criminal Suspects by Procurator's Offices (person)*** ***18. Criminal Cases Cracked and/or Registered in Public Security Organs (case)*** ***19.Criminal Cases (case/ 100 000 persons)***
	Meteorological Services (2 indices) (weight = 0.15)	20. Agro-Meteorological Services Stations (unit/100 000 persons) 21. Earthquake Monitoring Stations (unit/100 000 persons)
	Social Security Services (3 indices) (weight = 0.15)	22. Number of Careers Service at the end of year (unit/100 000 persons) 23. Number of Urban Community Welfare Facilities (unit/100 000 persons) 24.Rural Social Security Network (unit/100 000 person)

Government Efficiency Indices (Continued)

Factors	Sub Factors	Indices
Government Public Goods (11 indices) (weight = 0.3)	**Social Infrastructure** (6 indices) (weight = 0.5)	25. State Budgetary Appropriation in Capital Construction and Innovation (100 million yuan) 26. Local –Central Government Projects Ratio of Investment in Capital Construction and Innovation (%) 27. Ratio of Projects Completed and Put into Use in Capital Construction and Innovation (%) 28.Treatment Efficiency of Industrial Wastewater, Waste Gas and Solid Wastes **29. Reservoir Volume (100 million cubic metres/ 10 000 persons)** 30. Ratio of Area of Nature Reserves and Provincial Area (%)
	City Infrastructure (5 indices) (weight =0.5)	31. Rate of Access to Gas (%) 32. Numbers Public Transportation Vehicles per 10 000 persons in Cities (unit) 33. Per Capita Area of Paved Roads (sq.m) 34. Per Capita Green Area (sq.m) 35.Number of Public Toilets per 10 000 persons (unit)
Government Scale (5 indices) (weight = 0.2)		*36. Ratio of Staff and Workers in Government Agencies and Total Population (person/10 000 persons)* *37. Ratio of Staff and Workers in Government Agencies and Total Employed Persons (%)* *38. Ratio of Government Consumption and Final Consumption (%)* *39. Ratio of Government Expenditures and GDP (%)* *40. The Share of Penalty and Confiscatory Income and Income from Administrative Fees in Total Government Revenue*
National Welfare (7 indices) (weight = 0.1)		41. Per Capita Annual Net Income of Rural Households (yuan) 42. Per Capita Annual Disposable Income of Urban Households (yuan) *43. Engle Coefficient of Rural Households (%)* *44. Engle Coefficient of Urban Households (%)* *45. CPI (preceding year = 100)* 46.GDP per capita (yuan) 47. Ratio of Expenditure on Policy-related Subsidies and Government Expenditure (%)

Note: The indices in italic are inverse criteria. The indices in bold type are unavailable.

The measure of provincial government efficiency is developed in five steps as follows:

1) *Construction of the primary measures for Chinese provinces*. The primary measures are constructed by the available data for a type of provincial characteristic. Data are recorded in the form in which they are provided in the China Statistical Yearbook and China Environment Yearbook.

2) *Normalisation of the primary measures*. Each primary measures is either in the form of a ratio (e.g. student-teacher ratio, local-central government projects ratio of investment in capital construction and innovation, and Engle coefficients) or normalised either by present population or by the area (square kilometres) depending on the features of the indices.

3) *Standardisation of the normalised measures*. The output of the normalisation is a set of indices that are presented for different units. They are not directly comparable. Each index is standardised using the following formula.

$$STD_{i,j} = (X_{i,j} - \overline{X}_j) / S_j \quad (.3)$$

where $STD_{i,j}$ is the standardized value of index j in region i; $X_{i,j}$ is the original value of the index j in region i; $\overline{X}$ is the mean value of X; S is standard error defined as $S_j = \sqrt{\sum_{i=1}^{n} (X_{i,j} - \overline{X}_j)^2 \frac{1}{n}}$; and n is number of provincial governments.

4) *Aggregation into the sub-factors*. The arithmetic mean is used to average the STD values for each region within each sub-factor. For example, per capita income; the province with the highest standardised value is ranked first while the one with the lowest is last. However, with some criteria (in italics in the Table above), the lowest value is the most efficient, for example, Engle coefficients. In these cases, a reverse ranking is used. In the aggregation of the statistics, all missing values are replaced with a STD value equal to zero. The resulting STD value for each sub-factor are then again averaged arithmetically, standardised and normalised.

5) *Aggregation of the sub factors and four factors*. The weighted mean is then used to aggregate these sub factors and each of the four factors. The weight of each sub-factor and factor follows Tang and Tang (2004b). Finally we get the aggregated STD values and corresponding ranks for our 30 provinces for 6 years.

Appendix 3:

Table A1: Hausman Tests for FDI/GDP

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9 & 10)	(11)	(12)	(13)	(14)
Hausman Chi-2	**17.01**	**22.80**	**26.09**	14.60	**29.54**	**30.84**	**22.58**	**20.03**	**26.71**	**29.72**	**26.26**	**30.04**	**33.37**
p-value	**0.017**	**0.004**	**0.001**	0.103	**0.001**	**0.001**	**0.032**	**0.094**	**0.020**	**0.008**	**0.024**	**0.008**	**0.003**

Table A2: Autocorrelation Tests for FDI/GDP

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9 & 10)	(11)	(12)	(13)	(14)
ϱ	0.026	0.015	0.016	0.004	0.004	-0.011	-0.018	-0.039	-0.020	-0.011	-0.007	-0.058	-0.018
	(0.17)	(0.12)	(0.11)	(0.03)	(0.03)	(-0.08)	(-0.14)	(-0.31)	(-0.16)	(-0.09)	(-0.05)	(-0.47)	(-0.15)
R^2	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.003	0.002	0.002	0.002	0.005	0.002

Robust t-statistic in parentheses.

Table A3: Hausman Tests for FDI/POP

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9 & 10)	(11)	(12)	(13)	(14)
Hausman Chi-2	**13.11**	**167.27**	**14.25**	**17.23**	**30.27**	**32.70**	**25.49**	**28.00**	**31.97**	**30.22**	**26.52**	**29.74**	**27.47**
p-value	**0.070**	**0.000**	**0.076**	**0.045**	**0.001**	**0.001**	**0.013**	**0.009**	**0.004**	**0.007**	**0.022**	**0.008**	**0.017**

Table A4: Autocorrelation Tests for FDI/POP

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9 & 10)	(11)	(12)	(13)	(14)
ϱ	0.010	-0.0004	-0.002	-0.015	-0.015	-0.031	-0.036	-0.056	-0.037	-0.023	-0.018	-0.068	-0.031
	(0.07)	(-0.00)	(-0.01)	(-0.12)	(-0.11)	(-0.24)	(-0.27)	(-0.44)	(-0.29)	(-0.18)	(-0.15)	(-0.55)	(-0.25)
R^2	0.002	0.002	0.001	0.002	0.002	0.003	0.003	0.005	0.003	0.002	0.002	0.007	0.002

Robust t-statistic in parentheses.

Appendix 4: Descriptive Statistics of the Variables

Variable	Obs.	Mean	Std. Dev.	Min	Medium	Max
FDI/GDP (FDI in RMB yuan per 10 000 RMB yuan GDP)	149	256.80	271.11	6.76	140.66	1140.13
FDI/POP (FDI in RMB yuan per capita)	149	188.62	276.04	3.19	42.89	1395.25
FDI/GDP_{t-1} (FDI in RMB yuan per 10 000 RMB yuan GDP)	148	295.71	314.44	9.83	152.65	1352.72
FDI/POP_{t-1} (FDI in RMB yuan per capita)	148	190.57	277.44	3.19	46.37	1180.71
$Anti\text{-}Corruption_{t-1}$ (cases/100 000 persons)	150	3.37	1.01	1.74	3.16	7.03
STD_{t-1}	150	0.00	0.24	-0.50	0.02	0.81
$GRP\ per\ capita_{t-1}$ (RMB yuan)	150	4765.65	3591.10	1255.09	3376.21	21876.21
$Wage_{t-1}$ (RMB yuan at 1990 price)	150	4720.76	1549.53	2614.68	4399.02	11885.36
ExpGrowth	150	0.085	0.019	0.014	0.085	0.124
$GIPd_{t-1}$ (100 million RMB yuan at 1990 price)	150	1556.23	1713.53	79.41	912.00	8815.18
$Pop.\ Density_{t-1}$ (persons per km^2)	150	376.11	460.55	6.99	251.56	2700.00
$Rail\ Density_{t-1}$ (km/ 10 000 km^2)	150	151.39	145.08	8.38	109.65	690.83
$Road\ Density_{t-1}$ (km/ 10 000 km^2)	150	3341.10	2110.37	204.76	3053.05	10138.71
$Illiterate\ Rate_{t-1}$ (%)	150	13.13	6.46	4.36	12.11	42.92

Appendix 5: Correlations of the Variables

	FDI/ GDP	FDI/ POP	FDI/ GDP_{t-1}	FDI/ POP_{t-1}	Anti-Corruption$_{t-1}$	STD_{t-1}	GRP per capita$_{t-1}$	$Wage_{t-1}$	Exp Growth	$GIPd_{t-1}$	Pop. Density$_{t-1}$	Road Density$_{t-1}$	Illiterate Rate$_{t-1}$
FDI/GDP	1.00												
FDI/POP	0.86	1.00											
FDI/GDP_{t-1}	0.95	0.79	1.00										
FDI/POP_{t-1}	0.85	0.96	0.86	1.00									
Anti-Corruption$_{t-1}$	0.03	0.08	0.00	0.06	1.00								
STD_{t-1}	0.52	0.66	0.49	0.65	0.26	1.00							
GRP per capita$_{t-1}$	0.62	0.90	0.56	0.87	0.17	0.76	1.00						
$Wage_{t-1}$	0.51	0.78	0.46	0.74	0.04	0.56	0.86	1.00					
ExpGrowth	0.19	0.34	0.13	0.31	0.05	0.34	0.40	0.13	1.00				
$GIPd_{t-1}$	0.39	0.43	0.32	0.38	0.17	0.39	0.44	0.29	0.25	1.00			
Pop. Density$_{t-1}$	0.50	0.81	0.44	0.76	0.02	0.53	0.86	0.67	0.37	0.44	1.00		
Road Density$_{t-1}$	0.69	0.80	0.66	0.79	0.12	0.49	0.77	0.69	0.19	0.37	0.73	1.00	
Illiterate Rate$_{t-1}$	-0.31	-0.36	-0.29	-0.35	-0.45	-0.39	-0.43	-0.34	-0.01	-0.28	-0.27	-0.41	1.00

Appendix 6: FGLS Results; Dependent Variable: FDI/POP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9/10)	(11)	(12)	(13)	(14)
***Anti-Corruption$_{t-1}$*†**		0.451		0.512	0.503	0.424	0.415	0.375	0.408	0.304	0.328	0.488	0.351
		(4.00)***		(4.72)***	(4.51)***	(3.68)***	(3.48)***	(3.11)***	(3.12)***	(2.45)**	(2.52)**	(4.30)***	(2.89)***
STD$_{t-1}$			0.334	0.451	0.444	0.421	0.407	0.621	0.567				
			(1.65)*	(2.37)**	(2.10)**	(1.99)**	(1.92)*	(2.92)***	(2.70)***				
STD1$_{t-1}$										0.024			
										(0.11)			
STD2$_{t-1}$											-0.028		
											(0.28)		
STD3$_{t-1}$												0.310	
												(3.79)***	
STD4$_{t-1}$													0.220
													(2.50)**
GRP per capita$_{t-1}$	2.421	2.598	2.084	2.546	2.732	2.961	2.978	2.427	2.863	3.603	3.630	3.031	3.402
	(4.36)***	(4.70)***	(3.81)***	(4.57)***	(4.07)***	(4.40)***	(4.34)***	(3.75)***	(4.36)***	(5.65)***	(5.54)***	(5.59)***	(5.56)***
Wage$_{t-1}$	-0.391	-0.964	-0.568	-1.284	-1.231	-0.875	-0.873	-0.949	-1.115	-1.105	-0.994	-1.053	-1.048
	(1.14)	(2.60)***	(1.69)*	(3.18)***	(2.67)***	(1.81)*	(1.79)*	(1.98)**	(2.39)**	(2.47)**	(2.07)**	(2.67)***	(2.41)**
FDI$_{t-1}$	0.487	0.437	0.461	0.414	0.420	0.415	0.413	0.403	0.342	0.365	0.349	0.373	0.349
	(7.25)***	(6.41)***	(6.95)***	(6.12)***	(5.90)***	(5.74)***	(5.63)***	(5.62)***	(4.66)***	(4.78)***	(4.59)***	(5.50)***	(4.72)***
ExpGrowth					-0.472	-0.188	-0.120	0.941	0.384	-1.422	-1.311	-1.429	-0.882
					(0.34)	(0.14)	(0.09)	(0.73)	(0.31)	(1.33)	(1.00)	(1.59)	(0.79)
GIPd$_{t-1}$						-0.287	-0.289	-0.230	-0.261	-0.336	-0.327	-0.305	-0.340
						(2.28)**	(2.31)**	(1.83)*	(2.17)**	(2.50)**	(2.50)**	(2.43)**	(2.91)***
Pop. Density$_{t-1}$							-0.160	-0.488	-0.524	-0.620	-0.665	0.196	-0.713
							(0.22)	(0.67)	(0.71)	(0.88)	(0.91)	(0.28)	(1.03)
Road Density$_{t-1}$								0.231	0.227	0.122	0.135	0.296	0.166
								(3.07)***	(2.83)***	(1.34)	(1.55)	(3.17)***	(1.84)*
Illiterate Rate$_{t-1}$									0.214	0.276	0.224	0.298	0.279
									(2.10)**	(2.44)**	(1.93)*	(3.87)***	(2.51)**
Constant	-15.837	-12.545	-11.178	-9.421	-11.577	-14.789	-13.859	-8.472	-10.549	-15.110	-15.964	-17.202	-13.709
	(3.44)***	(2.84)***	(2.35)**	(1.95)*	(2.13)**	(2.74)***	(2.05)**	(1.31)	(1.60)	(2.38)**	(2.32)**	(2.95)***	(2.24)**
Observations	147	147	147	147	147	147	147	147	147	147	147	147	147
Wald χ^2	13859.01	17367.84	16076.69	17004.56	15860.57	16965.16	16990.52	22886.52	20381.72	16455.92	16939.08	23054.03	17539.49
Davidson-Mackinnon Test													
Anti-Corruption$_{t-1}$		0.353		1.280	1.027	1.202	1.125	1.248	1.238	0.536	0.114	0.660	0.018
		(0.554)		(0.258)	(0.272)	(0.273)	(0.289)	(0.264)	(0.266)	(0.464)	(0.736)	(0.417)	(0.893)
STDj_{t-1}‡			0.959	0.869	0.718	0.458	0.410	2.446	2.204	0.526	0.479	0.864	0.278
			(0.331)	(0.351)	(0.397)	(0.499)	(0.522)	(0.118)	(0.138)	(0.468)	(0.489)	(0.353)	(0.598)

Absolute value of z-statistics in parentheses. Time dummies are included. † All the independent variables are in logs except STD. ‡ STD*j* indicates STD, STD1, STD2, STD3 and STD4. *significant at 10% level; ** significant at 5% level; *** significant at 1% level.