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The potential impact of China–US BIT on China's manufacturing sectors

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This article finds that the overall effect of the foreign direct investment (FDI) and thereby the China–US bilateral investment treaties (BIT) on Chinese manufacturing sector is positive, which raises the productivity and profitability of the firms, using various econometric models and other evidence. The manufacturing sector as a whole has already opened up to the world economy and needs to continue this process. The industries in the manufacturing sector do not need to be protected, except for in limited fields related to national security, scarce natural resources and well-defined strategic sectors. Gradual lifting of the protection may be needed in the short-run for a small number of vulnerable sectors. A moderate relaxing of the current restrictions will increase FDI in manufacturing from all countries by 4–8% under different assumptions. This effect will be small when only considering FDI from the USA. Domestic firms need to update their technology, reduce costs and learn management skills from their foreign competitors, while using the national treatment terms in BIT to enter the fields that are not open to domestic firms under current regulations. Domestic firms also need to set up firm-level global strategies and reallocate firms' resources according to the changing investment environment, taking advantage of profit opportunities outside the domestic markets.

Keywords: BIT; manufacturing; China-US22

JEL codes: F21; F53

China has been the world's leading manufacturer of steel, garments, cement, chemical fertilizers and many other products in the past 30 years. At the same time, China has become a preferred destination for the relocation of global manufacturing facilities and manufacturing has been the most important field of foreign direct investment (FDI) in China. The cumulated FDI in all sectors, actually used, reached $117.6 billion in 2013 and $119.6 billion in 2014. However, FDI in the manufacturing sector has grown much more slowly than that in other sectors in recent years (Figure 1).

The USA has been an important investor in China's manufacturing industry in the past 20 years. Table 1 gives data of FDI from the USA to China in the past 14 years, which did not change much since 2005. The shares of US FDI decreased dramatically from 10.8% in 2000 to 2.0% in 2014.

The China–US bilateral investment treaties (BIT) are focused on market access of foreign investment, which requires a raft of China's domestic reforms. Since manufacturing is more open to FDI than that in the service sector, BIT will have less overall impact on China's manufacturing sector.

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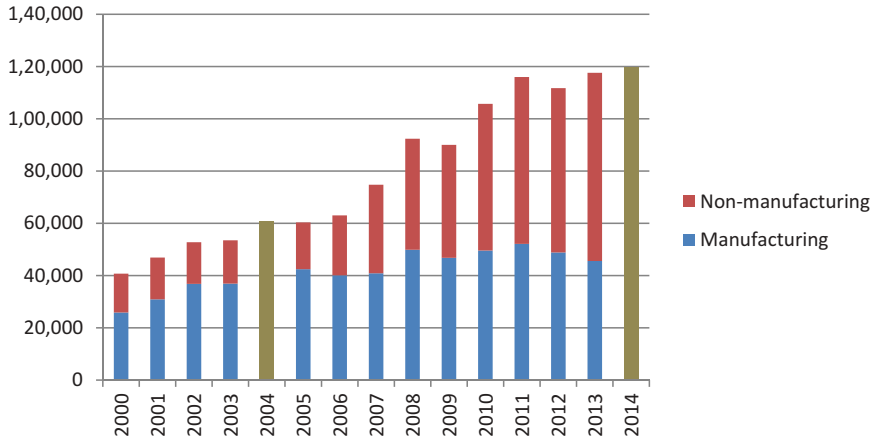

Figure 1. FDI in the manufacturing sector, actually used, China, 2000–2014, $ million.
Note: No manufacturing data in 2004 and 2014.
Source: National Bureau of Statistics of China.

Table 1. US direct investment in China, actually used, in all sectors, 2000–2014, $ million

	Total	US	US/total (%)
2000	40,715	4384	10.8
2001	46,878	4433	9.5
2002	52,743	5424	10.3
2003	53,505	4199	7.8
2004	60,630	3941	6.5
2005	60,325	3061	5.1
2006	63,021	2865	4.5
2007	74,768	2616	3.5
2008	92,395	2944	3.2
2009	90,033	2555	2.8
2010	105,732	3017	2.9
2011	116,010	2369	2.0
2012	111,716	2598	2.3
2013	117,586	2820	2.4
2014	19,562	2371	2.0

Source: National Bureau of Statistics of China.

Based on the assumed scenarios of China–US bilateral investment treaties, this article will explore the possible impacts of BIT on China's manufacturing sector, and then give suggestions on the Chinese Government's strategies in BIT negotiations and counter-measures in practice, as well as the strategy domestic firms could adopt to deal with the competition that comes with BIT.

1 Literature review

A large body of literature of international economics focuses on the fundamental factors that drive FDI behavior. Melitz (2003) developed a theoretical model of monopolistic competition with heterogeneous firms to explain the decision of FDI, which becomes the

cornerstone of the literature examining the role of heterogeneity in FDI. Helpman, Melitz, and Yeaple (2004) generalized Melitz (2003) to explain horizontal FDI. Melitz's (2003) framework has been used in explaining different issues, including trade liberalization, technology adoption (Bustos 2005), complex integration strategies (Yeaple 2003), variable markups (Ottaviano, Tabuchi, and Thisse 2002) and so on.

The empirical literature on FDI examines the internal and external factors that determine the FDI by multinational enterprises. Firm characteristics are used to explain FDI activities (Morck and Yeung 1992; Navaretti and Venables 2004). External factors are also examined by different researchers, including the effects of exchange rates (Froot and Stein 1991; Campa 1993; Blonigen 1997; Lipsey 2001), taxes (Hartman 1984, 1985; Swenson 1994; De Mooji and Ederveen 2003), institutions (Wei 2000a, 2000b), trade protection (Gtubert and Mutti 1991; Kogut and Chang 1996) and so on.

Many empirical researches are about the effects of FDI on the performants of Chinese firms, including researches on the effects on different industries (Zhang and Zheng 1999; Cheung 2010), different source countries (Jiang and Zhang 2011; Shiau, Huang, and Chen 2013), location choices (Sharma, Wang, and Wong 2014), inward FDI (Liu et al. 2014) and outward FDI (Buckley et al. 2007; Deng 2013). Based on data of 220 cities in China from 2003 to 2009, using threshold panel regression estimation, Li and Liu (2012) find significant threshold effects of FDI on China's environment. Their tests from income threshold show that, in the middle-income stage, FDI generates degradation of local environment quality.

Although there are a large number of researches on FDI in general, the literature specifically about BIT is relatively limited. Cui (2013) introduces the content of the 2012 version of the US BIT template and gives suggestions on China's strategy in US–China BIT negotiation. Huang and Zhou (2013) discuss China's new strategy of open-up to the world, including making progress in China–US BIT negotiations. Liang and Yan (2013) point out the core issues of the China–US BIT negotiations and difficulties of the negotiations due to the institutional factors. Pan and Tang (2013) introduce the national security investigation mechanism of the US Government. Wang (2013) examines the new version of the US BIT template and discusses the difference between the two sides. Yao (2013) discusses the risks of China–US BIT for China in the long run, including the internationalization of the domestic policy and the liberalization of the capital account.

On the US side, Bergsten (2005) argues that, to respond to the challenges and threats in the world, the USA should alter its priorities in the Doha Round to an important degree by placing even greater emphasis on reduction of agricultural subsidies and extensive liberalization of service markets. The Peterson Institute for International Economics and the China Development Research Foundation (2015) has a discussion on the US–China BIT, including the US national security investigation process, implications of the China–Japan–Korea investment agreement for US policy (Schott and Cimino 2015), China's state-owned enterprises and competition policy (Miner and Hufbauer 2015), the USA's service export (Jensen 2015) and China's manufacturing industry (Zhang and Yu 2015).

2 Assumptions on the scenarios of China–US BIT, focusing on manufacturing

BIT aims to extend the principle of national treatment, under which foreign firms are treated the same as domestic firms. In China's World Trade Organization (WTO)

accession agreement, that goal was met with a list of industries in which national treatment would apply. The great progress in BIT is to switch to a "negative list" approach, which allows only the businesses specified in the treaty to be exempted.

Our baseline assumption assumes that BIT will be a moderate revision of the current catalogue of industries for guiding foreign investment prepared by the Chinese Government. The current list of restricted and prohibited industries in this catalogue is shown in Appendix Table A1. The current list of restricted and prohibited industries in manufacturing is the result of considering the following factors by the Chinese Government: (1) national security and political reasons (e.g. arms production); (2) scarce resources (e.g. rare earth metal smelting); (3) natural monopoly (e.g. gas and water production); (4) control of low-scale firms' entry or over-capacity in some industries; and (5) toxic, harmful and environmental pollution. Some of the protection measures reflect the interests and pressure of domestic firms.

In this article, our baseline scenario for forecasting includes: (1) national treatment is given to all foreign investors in all sectors except sectors in the negative list; (2) moderate reductions in the products or sectors in the negative list and moderate improvements in investment revenue transfer and implementation terms; and (3) moderate improvement in the dispute settlement clauses.

3 BIT's open market requirements to China's manufacturing sector and its impacts on relevant industries

The impacts of BIT on China's manufacturing sector are quite similar to that of China's joining the WTO in 2001. Although some of the industries face negative impacts, China's experience of joining the WTO tells us that overall the opening up to the outside world will induce higher growth and productivity in the manufacturing sector, even for those industries that were predicted to become losers before joining the WTO, for example the automobile manufacturing industries.

In this article, we will analyze the impacts of BIT on Chinese domestic firms and the impacts of policy changes on FDI, using firm-level data and econometrics models.

3.1 Impacts of FDI on domestic firms

We first investigate the impacts of FDI on domestic firms' productivity, profitability and export propensity. FDI has two major impacts on firms in the domestic market. The positive impacts are that FDI will bring technology, management skills and capital to China, which will increase Chinese firms' productivity and profitability. The negative impacts are that FDI will intensify competition and may crowd out some Chinese firms in the field.

This research will do econometrics analysis to find out the effects of FDI on firms' performants in domestic markets, using a large firm-level dataset created by China's National Bureau of Statistics (NBS) 2000–2008. The main dataset includes over 2 million firm-level observations from 2000 to 2008. The dataset is collected by the National Bureau of Statistics of China. It includes all state-owned firms and non-state-owned firms with sales over RMB 5 million per year. The dataset provides 80 to 150 firm-level financial indicators, for example, output, sales, fixed investments, number of workers, exports and so on. We clean the dataset following Feenstra, Li, and Yu (2014) by eliminating observations in which: (1) firms have less than eight employees; (2) fixed assets exceed total assets; (3) current assets exceed total assets; (4) there is no identification number; and (5) no starting time.

3.2 FDI's overall impacts on performance of domestic firms

First, we find that, *overall, FDI has a positive impact on firms' productivity and profit*.

We first used a regression to estimate the effects of FDI on firms' productivity, profitability and export propensity, using the full sample of China's firm-level data in manufacturing from 2000 to 2007. Specifically, in the model the dependent variable is ln (TFP), profit/sales and export/sales, where TFP is total factor productivity. The explanatory variables are foreign invested enterprise (FIE, dummy showing whether the firm is foreign invested), and share of the sales of FIE in four-digit industries. The estimated coefficients show how much, on average, FIE performance is higher than the non-FIE. Fixed effects of year and firm are controlled. The results of estimation are presented in Table 2. The coefficients of FIE and FIE share are all positive and significant as more variables are controlled. We also estimate the regressions with TFP estimated by other methods, which support the results presented here.

Next the performance of FIEs from the US investments is estimated. We calculated the share of FDI from the USA in total FDI in China in 2013 (a), and the share of FDI from the USA in total FDI in China in the sampling period (b). Assuming after signing BIT, the share of FDI from the USA increases by t%, then the effects of the US FDI on manufacturing firms' TFP (E_{US}) will be

$$E_{US} = t\frac{a}{b}\alpha \tag{1}$$

where α is the coefficient of FIE estimated in our previous regression in Table 2. Using equation (1), we estimated E_{US} under different assumptions as shown in Table 3.

Since the share of FDI from the USA has decreased dramatically in recent years, the effect of BIT on firms' productivity is lower than the average of all foreign investors.

We also estimated the effects of FDI on firms' profitability and export propensity. The results are presented in Table 4.

The results in Table 4 show that *FIEs have a positive effect on firms' profit rate*, when export, SOE, labor and asset are controlled. On the other hand, the relation between export propensity and FIE is not significant. To check the robustness of the relation between productivity and FIE, we also estimated models using alternative methods (Levinsohn-Petrin Approach; Levinsohn and Petrin 2003) to calculate TFP, which received similar results.

The results show that, *overall, FDI improves the performance of Chinese manufacturing firms*.

3.3 FDI's impacts on specific industries

Figure 2 and Table 5 show the basic conditions of selected manufacturing industries, from which readers can see the size of the industry, the FIE and non-FIE production, and the share of foreign capital. The last column in Table 5 gives us the number of current restricted and forbidden industries/products in the catalogue for the guidance of FDI.

Figure 2 shows that FIE production accounts for a large percentage in computer and communication equipment (industry code 39) and automobile (36).

Econometrics analysis shows that the direct impact of FDI on firms' productivity is positive for almost all industries. However, the indirect impacts of FDI (the effect of the share of FDI in an industry on firms in that industry) on some industries are negative. (Lack of space forbids further discussion on these regressions for each industry.)

Table 2. Effects of FDI on performance of firms, productivity, China

Dependent var: ln *TFP*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIE	0.191***	0.013***	0.096***	0.008***	0.101***	0.012***	0.007**	0.011***
	(148.21)	(4.42)	(64.67)	(2.67)	(60.03)	(3.12)	(2.37)	(2.88)
Export			0.054***	0.024***	0.060***	0.025***	0.024***	0.025***
			(52.55)	(16.24)	(51.47)	(14.49)	(16.24)	(14.54)
SOE			0.029***	–0.023***	0.060***	–0.018***	–0.022***	–0.018***
			(20.81)	(–7.81)	(37.75)	(–5.32)	(–7.60)	(–5.18)
Log(Labor)			–0.049***	0.015***	–0.046***	0.016***	0.015***	0.016***
			(–93.66)	(14.39)	(–76.02)	(12.93)	(14.23)	(12.80)
Log(Asset)			0.113***	0.017***	0.109***	0.016***	0.017***	0.016***
			(283.67)	(18.56)	(233.48)	(14.41)	(18.55)	(14.38)
Research					0.023***	0.010***		0.010***
					(15.09)	(7.65)		(7.51)
FIE share							0.002***	0.002***
							(32.32)	(25.12)
E year	N	Y	N	Y	N	Y	Y	Y
FE firm	N	Y	N	Y	N	Y	Y	Y
Ob	2,096,406	2,096,406	1,661,369	1,661,369	1,272,206	1,272,206	1,661,369	1,272,206
R-squared	0.01	0.06	0.07	0.05	0.07	0.04	0.05	0.04

Notes: FIE in this regression does not include investment from Hong Kong, Taiwan and Macao. TFP calculated using the Olley–Pakes (OP) approach, robust t statistics are reported in parentheses. Columns (5), (6) and (8) use the sample from 2001–2007 (since there are no data on research and development expenditure in 2000, 2004 and 2008, we use the average of 2003 and 2005 for the research expenditure in 2004). FIE is a dummy indicating whether a firm is foreign invested; FIE share is the share of FIE in total sales for four-digit industries; Export shows whether a firm engaged in export; SOE indicates whether a firm is state owned; labor is total number of employees in a firm; asset is total value of asset in a firm. ***, ** and * show significance at the 1, 5 and 10% level, respectively. FE – fixed effect.

Table 3. Estimates of the effects of BIT on firms' productivity.

Assumed increase in US FDI after BIT assignment	Coefficient from Table 2	E_{US} (%)
1.5 times	0.013	0.7
2 times	0.013	0.9

Notes: The share of US FDI in China reduced from an average of 6.8% to 2.4% from 2000–2007 to 2013. The coefficient from Table 2 is the sum of coefficients of FIE and FIE share in last column of Table 2.

Most of the industries in the manufacturing sector are already opened up to the world market and do not need protection in BIT. However, some of the industries are vulnerable when facing the competition of FIEs, including:

(1) China's comparative advantage is changing as labor costs are rising in China. Therefore, there may be less FDI over time in labor-intensive industries, as global firms shift to lower-wage economies elsewhere. This is not the result of the signing of a BIT. For example, the textile industry is one of these labor-intensive industries. As China's comparative advantage changes, labor costs increase and these labor-intensive industries have lost their advantages gradually as the economy transfers to capital- and technology-intensive sectors. FDI helped this structural change. The labor-intensive firms are vulnerable to FDI competition. What the government needs to do is to help these firms upgrade their products, but not to set protection measures in BIT.
(2) The second group of industries or sub-industries is vulnerable to the competition of the foreign investments due to the large technology gaps. These industries or sub-industries are in capital- and technology-intensive sectors but have large technology gaps compared with the world technology frontier. These firms may need some temporary protection measures in BIT in the short-run.
(3) The third group of industries will face environmental problems caused by FDI and need some regulations to control the size of damages, for example the chemistry industry. BIT or domestic regulations are needed to prohibit FDI in the chemistry industry which causes serious environmental pollution.

3.4 The effects of changes in policies on scale or shares of FDI

To explore the impacts of protection policies on FDI in China, we did a regression in which the dependent variable is the level of foreign capital in the industry and the explanatory variables are total sales in the industry and the dummies for protection policies. We use a four-digit industry-level dataset collected from the manufacturing firm database.

In our model, the dependent variable is foreign capital. Explanatory variables are the policy variable Forbidden (dummy, restricted and forbidden products/industries in the catalogue for the guidance of FDI), total sales in the industry and the concentration level of the industry or Herfindahl–Hirschman Index (HHI). We transfer the products in the catalogue into four-digit industries. The estimated coefficients of the variable Forbidden shows how much more foreign capital will be created if China eliminates one restriction item.

Table 4. Effects of FDI on performance of firms, profitability and export propensity, China.

Dependent var.	Sales profit rate				Export propensity			
FIE	26.644	2.375**	2.303**	4.185***	0.078	–0.594	–0.599	–0.600
	(1.24)	(2.38)	(2.29)	(2.59)	(0.22)	(–1.55)	(–1.57)	(–1.57)
Export		40.916	40.912	41.652		38.517***	38.517***	38.529***
		(1.42)	(1.42)	(1.11)		(37.63)	(37.63)	(37.46)
SOE		–17.229***	–17.181***	–9.655***		–0.080	–0.078	–0.079
		(–4.10)	(–4.09)	(–2.78)		(–0.26)	(–0.26)	(–0.26)
Log(Labor)		11.041	11.026	–3.104		0.073	0.072	0.083
		(0.64)	(0.64)	(–0.12)		(0.57)	(0.57)	(0.63)
Log(Asset)		16.120	16.118	8.485*		–0.072	–0.073	–0.063
		(1.50)	(1.50)	(1.84)		(–0.51)	(–0.51)	(–0.45)
FIE share			0.191	0.099			0.012*	0.012*
			(1.02)	(0.41)			(1.86)	(1.88)
Research				12.783*				–0.635**
				(1.74)				(–2.24)
FE year	Y	Y	Y	Y	Y	Y	Y	Y
FE firm	Y	Y	Y	Y	Y	Y	Y	Y
Ob	2,251,355	1,684,364	1,684,364	1,278,782	2,195,895	1,654,682	1,654,682	1,278,782
R-squared	0.001	0.001	0.001	0.00	0.00	0.00	0.00	0.00

Notes: FIE in this regression does not include investment from Hong Kong, Taiwan and Macao. In this table, the division of industry is according to the two-digit industrial code in "Classification of national economic industries" (GB/T 4754–2002, the second edition). The division of industry before 2003 is according to "Classification of national economic industries and code" (GB/T4754) and is transferred to the second edition. TFP is calculated using augmented OP approach, t statistics are reported in parentheses. ***, ** and * show significance at the 1, 5 and 10% level, respectively. The sample period used in columns (4) and (8) is 2001–2007 (since there are no data on research expenditure in 2000, 2004 and 2008, we use the average of 2003 and 2005 for the research expenditure in 2004). Sales profit rate = operating profit/total industry output*100. See notes under Table 2 for meanings of variables.

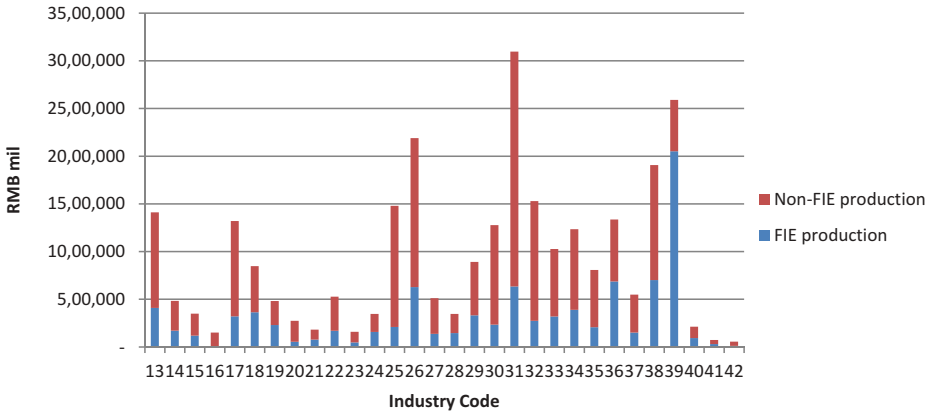

Figure 2. Size of production, manufacturing, 2007.
Source: Firm dataset by NSB. See Table 5 for names of the industries.

The last fixed effect regression in Table 6 shows that if the FDI in a four-digit industry is forbidden or restricted, the total foreign capital will be reduced by RMB 1176 million. Using the coefficients estimated in our regression, we calculated the scale of extra FDI from the USA into China when BIT reduced the protection under different scenarios.

The regression results show that if 10 out of 51 restricted and forbidden items are lifted (scenario I), total FDI from all countries in manufacturing will increase 4.2% (Table 7). Since the USA accounts for only 2.4% of total FDI, the effect of China–US BIT on FDI from the USA will be trivial. These estimate effects may increase if considering other possible contents in BIT, for example, tax law changes and improvement in the dispute settlement clauses.

To sum up, the basic logic behind the models above is that policy determines the inflow of FDI (Table 6), and FDI improves the performance of Chinese firms (Table 2).

4 Suggestions on negotiation strategy

The negative list in BIT can be based on current the Foreign Investment Industry Guidance Catalogue established by the Chinese Government, with moderate revisions. Base on the above research, we have some suggestions for China on its negotiation strategies of BIT with the United States.

4.1 Make it firm and steadfast that China is serious in joining BIT

In the long-run, BIT is beneficial for Chinese firms to improve their productivity and profitability. Therefore, Chinese negotiators must make it firm and steadfast that China is serious in joining BIT with the USA through negotiations.

4.2 Protection measures in the long-run

The Chinese side also needs to negotiate to keep some of the protection measures in the treaty in the long-run for industries with a natural monopoly and for national security

Table 5. Shares of foreign capital and restrictions, manufacturing, 2007.

Industrial code	Name of industry	Share of foreign capital (%)	FIEs' share, in numbers of firms (%)	Number of restrictions and forbidden items, 2011
13	Processing of food from agricultural products	29.0	12.7	2
14	Manufacture of foods	35.4	19.5	1
15	Manufacture of beverage	34.1	13.9	3
16	Manufacture of tobacco	0.4	4.8	1
17	Manufacture of textile	24.4	15.5	3
18	Manufacture of textile wearing apparel	43.0	35.8	0
19	Manufacture of leather	47.8	30.7	0
20	Processing of timber	19.7	12.8	0
21	Furniture	42.5	27.1	0
22	Paper	32.0	14.9	0
23	Printing	30.1	13.4	1
24	Products for culture and education	45.3	34.5	4
25	Processing of petroleum	14.1	8.7	2
26	Chemical materials and products	28.7	14.5	10
27	Medicine	27.0	15.9	7
28	Chemical fibers	42.3	19.6	2
29	Rubber and plastics	37.2	22.1	1
30	Non-metallic mineral products	18.3	10.7	0
31	Ferrous metals	20.5	7.4	4
32	Non-ferrous metals	18.0	10.8	4
33	Metal products	31.1	17.2	2
34	General purpose machinery	31.5	15.7	2
35	Special purpose machinery	25.6	19.0	1
36	Automobile	51.4	20.6	0
37	Transportation equipment	27.4	15.0	0
38	Electrical machinery	36.8	21.7	0
39	Computer and communication equipment	79.2	45.6	1
40	Instruments	43.8	27.0	0
41	Other manufacturing	41.6	29.3	0
42	Recycling of waste	21.1	17.7	0
	Ave	32.6	19.1	1.7
	Total			51

Source: Firm dataset by NSB and Catalogue for the Guidance of FDI by Ministry of Commerce 2011.

Table 6. Regression results: effects of policy variables on FDI.

Dependent var: foreign capital	OLS		FE	
Total sales	0.0346**	0.0334**	0.0300**	0.0300**
Forbidden	–962,826**	–1,069,518**	–1,164,730**	–1,176,522**
HHI		2,025,509**		–739,410
FE two-digit industries			Y	Y
FE year			Y	Y
Obs	2747	2747	2747	2747
R^2	0.4265	0.4424	0.4327	0.4333

Notes: *, ** significant at 10% and 5% level. Sample: 2002–2007. Total sales – total sales of the four-digit industry. Foreign capital – total amount of foreign capital in the four-digit industry. Forbidden – dummy which is 1 if the four-digit industry is restricted or forbidden from FDI.

Table 7. Estimates of the effects of BIT on FDI under different scenarios.

% US in total FDI, all industries, 2013	2.40%
Estimated coefficient ($1000/restriction item)	1,176,522
Coefficient/2013 FDI in manufacturing	0.424%
Effect on FDI, scenario I	4.236%
Effect on US FDI, scenario I	0.102%
Effect on US FDI, scenario II	0.203%

Notes: Scenario I: lifting 10 out of 51 restricted and forbidden items. Scenario II: lifting 20 restricted and forbidden items.

reasons. However, the number of these protected industries should be limited. Protection measures should be in limited fields, including:

(1) fields related to national security, for example, production of military weapons;
(2) fields related to scarce natural resources, for example, processing of rare metals.

4.3 Gradual lifting process of protection for certain vulnerable sectors

In the short-run, however, joining BIT will hurt some of the Chinese firms or industries, even though it is beneficial for Chinese firms to improve their productivity and profitability in general. Studies on industries show that firms in some of the manufacturing industries, especially those with large gaps in technology, will be harmed in the short-run. Therefore, there may need to be a gradual lifting of the protection in a small number of industries.

4.4 Cooperating in BIT negotiation with the domestic reform

BIT and domestic regulations have different functions, and needed to be treated separately. *Some of the restrictions on FIEs' activities can be done by domestic regulations, when the FIEs are given national treatment. Therefore, items already restricted by domestic regulation can be removed from the negative list of BIT*, for example, capacity requirements for petroleum refinery equipment.

The Chinese Government will use the requirement of BIT to reform domestic administration, the judicial system and the state-owned enterprises. To do that, the domestic law and regulation need to cooperate with the foreign economic policies.

5 Suggestions to manufacturing firms regarding how to face the challenges of BIT

The numerous entries of multinationals have threatened local Chinese companies' existing market positions. China's joining BIT may make domestic firms face more intensive competition from FIE in certain fields.

5.1 Suggestions for domestic firms

(1) Domestic firms need to make contingency plans to meet the challenges of BIT. They need to update their technology, reduce costs and learn management skills from their foreign competitors.
(2) Domestic firms need to do research on BIT and gain benefit from it, for example, using the national treatment terms in BIT to enter the fields that are not open to domestic firms under current domestic regulations. Domestic firms also need to learn how to use legal means, including the dispute settlement clauses in BIT, to protect their interests.

5.2 Suggestions for government

The government should provide more detailed information to firms about the changes made by BIT and provide financial support to assist firms to make their structural adjustments.

In the fields of gradual lifting of protection, the government should make it clear that the protection will be gradually lifted and the firms need to prepare for the competition from FIE in the near future.

6 Conclusions

Using various econometric models and a large firm-level dataset, we find the overall effect of FDI and thereby BIT on Chinese manufacturing sector is positive for firms in the domestic market. As evidence shows, FDI raised the productivity and profitability of the firms significantly in the manufacturing sector. A moderate relaxing of the current restrictions on FDI will increase FDI in manufacturing from all countries by about 4%. This effect will be smaller when only considering FDI from the USA in manufacturing.

China's manufacturing sector as a whole has already opened up to the world economy and that process needs to be continued. The industries in the manufacturing sector do not need to be protected, except for fields related to national security, scarce natural resources and well-defined strategic sectors. Gradual lifting of protection may be needed in the short-run for a small number of vulnerable manufacturing industries.

Domestic firms need to update their technology, reduce costs and learn management skills from their foreign competitors. They need to learn to gain benefits from BIT, using the national treatment terms in BIT to enter the fields that are not open to domestic firms under current domestic regulations.

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Appendix 1

Table A1. Current list of restricted and prohibited industries, manufacturing, 2011.

Fields	Regulations	Restricted	Prohibited	Equity controlled by Chinese party
Farm and sideline food processing	Processing of edible oils	x		x
	Production of biological liquid fuels (ethanol fuel, biodiesel)	x		x
Alcohol, drinks and refined tea manufacturing	Production of yellow rice wine ("huangjiu"), famous and high-quality Chinese spirits	x		x
	Processing and production of green tea with Chinese traditional handicraft, processing and production of special tea (including white tea, yellow tea, oolong tea, dark tea, pressed tea, etc.)		x	
Tobacco products manufacturing	Processing and production of leaf tobacco (i.e. threshing and redrying)	x		
Printing and reproduction of recorded media	Printing of publications, equity controlled by Chinese party with minimum registered capital of RMB 10 million	x		x
Oil processing, coking and nuclear fuel processing	Atmospheric and vacuum distillation (≤10 million tons/year), catalytic cracking (≤1.5 million tons/year), continuous catalytic reforming (containing aromatic extraction, ≤1 million tons), hydrogen cracking production (≤1.5 million tons)	x		
Chemical raw material and chemical products manufacturing	Production of calcined soda, caustic soda and sulphuric acid, nitric acid and potassium carbonate with limited capacity and backward technology	x		
	Production of photosensitive materials	x		
	Benzidine production	x		
	Production of precursor chemicals	x		
	Hydrogen fluoride and other low-end chlorofluorocarbon or chlorofluoro-compounds	x		
	Production of butadiene rubber (excluding high cis-butadiene rubber), emulsion polymerized styrene butadiene rubber and thermoplastic styrene-butadiene-styrene rubber	x		

(*continued*)

Table A1. (*Continued*).

Fields	Regulations	Restricted	Prohibited	Equity controlled by Chinese party
	Acetylene PVC and below scale ethylene and processing production	x		
	Pigment and paint production using backward technology, containing harmful substances and below scale	x		
	Boron magnesium ore processing	x		
	Inorganic salt production with high resource usage, serous environmental pollution and backward process	x		
Pharmaceutical manufacturing	Production of Chloramphenicol, penicillin G, lincomycin, gentamicin, dihydrostreptomycin, amikacin, tetracycline, oxytetracycline, midecamycin, leucomycin, ciprofloxacin, norfloxacin, ofloxacin	x		
	Production of analgin, paracetamol, vitamin B1, vitamin B2, Vitamin C, vitamin E, multi-vitamin preparation and oral calcium agent	x		
	Vaccines which fall inside the scope of the national immunization plan	x		
	Production of narcotic drugs and active pharmaceutical ingredients for first class of psychotropic drugs	x		x
	Production of blood products	x		
	Processing of materials for traditional Chinese medicines as listed in the "Regulations on Protection of Wild Medical Resources" and the "Catalogue of Rare and Endangered Chinese Plants"		x	
	Processing of traditional Chinese medicines (through steaming, frying, moxibustion, calcination, etc.); and production of traditional Chinese medicine patent drugs with secret formulas		x	
Chemical fiber	The conventional slice spinning chemical fiber spinning production	x		
	Viscose fiber production	x		

(*continued*)

Table A1. (*Continued*).

Fields	Regulations	Restricted	Prohibited	Equity controlled by Chinese party
Non-ferrous metal smelting and rolling processing	Tungsten, molybdenum, tin (tin compounds excepted), antimony (including antimony oxide and antimony black) and other rare metals smelting	x		
	Smelting and processing of radioactive minerals		x	
	Electrolytic aluminum, copper, lead, zinc and other non-ferrous metal smelting	x		
	Rare earth metal smelting and separation	x		x
General equipment manufacturing	All kinds of ordinary level (P0) bearing and parts (ball bearing, retainer), blank manufacturing	x		
	Production of wheeled or crawler cranes (400 tons and below)	x		x
Specialty equipment manufacturing	General polyester filament, short fiber equipment manufacturing	x		
	Manufacturing of bulldozers (≤320 horsepower), hydraulic excavator (≤30 tons), wheeled loaders (≤6 tons), graders, rollers, folk lifts (≤220 horsepower), electric drive off-highway self-dumping trucks (≤135 tons), hydraulic mechanical transmission and off-highway self-dumping trucks (≤60 tons), asphalt concrete mixing and paving equipment and aerial work machinery, garden machinery and equipment and concrete machinery (pump, mixer vehicle, mixing station, pump vehicle)	x		
	Arms and ammunition manufacturing		x	
Electrical machinery and materials manufacturing	Manufacturing of vented lead-acid batteries (i.e. direct acid mist discharge), silver oxide batteries with mercury button, alkaline zinc-manganese batteries with mercury button, paste zinc-manganese battery and Cd-Ni battery		x	
Transportation equipment manufacturing	Repairing, design and production of ships	x		x

(*continued*)

Table A1. (*Continued*).

Fields	Regulations	Restricted	Prohibited	Equity controlled by Chinese party
Communications equipment, computers and other electronics manufacturing	Manufacturing of ground satellite TV broadcasting receiving facility and key parts	x		
Arts and crafts and other manufacturing	Ivory carving		x	
	Tiger bone processing		x	
	Production of bodiless lacquer ware		x	
	Production of enamelwork		x	
	Production of Chinese art paper and ink ingot		x	
	Production of carcinogenic, teratogenic, mutagenic products and persistent organic pollutants		x	

Source: Ministry of Commerce.