Foreign competition and productivity of Chinese firms

Bin Xu

1 Introduction

The last two decades of the twentieth century saw China emerge as an important force in the world economy. China's exports increased more than ten times, from \$18 billion in 1980 to \$249 billion in 2000. China's share in world exports increased from 0.9 percent (ranked 26) in 1980 to 3.9 percent (ranked 7) in 2000.² The share of exports in GDP increased from 6 percent in 1980 to 23 percent in 2000 (Figure 7.1).³ The fast growth of foreign trade was accompanied by even faster growth of foreign direct investment (FDI) inflows. China's utilization of FDI increased from \$916 million in 1983 to \$41 billion in 2000, making it the world's second largest host country of FDI next only to the US.4

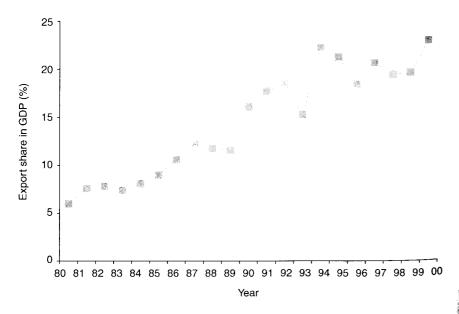


Figure 7.1 China's export share in GDP (1980–2000).

Trade and investment openness has been widely cited as one of the most important reasons for China's extraordinary GDP growth at around 10 percent over the past two decades. As is well known, GDP growth can come from factor accumulation and productivity increase. China had a GDP growth of over 5 percent before 1978, the year that economic reform started. GDP growth during that period, however, was driven mainly by factor accumulation (Chow 1985). In contrast, many studies of China's productivity growth in the period after 1978 find a positive and significant contribution of productivity growth to GDP growth. For example, Li (1997) uses a sample of 272 state-owned firms and estimates that TFP growth was 4.68 percent per year between 1980 and 1989 and accounted for over 73 percent of output growth.

The existing literature has established a link between China's TFP growth and economic reform.⁵ Li (1997) shows evidence that over 87 percent of the TFP growth in his sample of state-owned firms was attributable to improved incentives, intensified market competition, and improved factor allocation resulted from China's economic reform. While acknowledging the contribution of trade and investment openness as an important part of China's economic reform, there has been little research linking the TFP growth explicitly to trade and investment openness. Because of data availability, previous studies are based mainly on samples of state-owned firms. As China's economic reform progresses, however, the non-state part of the Chinese economy, including foreign-funded firms, joint ventures, and private firms, has grown significantly and accounted for half of the gross output value of industrial enterprises in China in 2000.6 Moreover, the share of exports by foreign-funded firms in China increased from near zero in 1980 to 50 percent in 2000 (Figure 7.2). These new developments call for a study of the impact of trade and FDI (and their interactions) on the TFP growth of Chinese firms.

This chapter is an attempt to meet this demand. Based on a recent World Bank survey, we study a sample of 822 non-state-owned Chinese firms. In section 2 we describe the sample. In section 3 we run growth regressions to estimate TFP growth of firms. In section 4 we investigate the link between TFP growth and export participation. In section 5 we examine the link between TFP growth and foreign ownership. In section 6 we divide samples by industry and by city to show further evidence of effects of trade and FDI on TFP growth. In section 7 we conclude.

2 The sample

Our data comes from a World Bank survey of 1,500 Chinese firms.⁸ The World Bank conducted the survey in 2001, which drew 300 firms each from five large cities: Beijing, Chengdu, Guangdong, Shanghai, and Tianjin. Firms in the sample belong to five manufacturing sectors and five service sectors. The five manufacturing sectors are apparel and leather

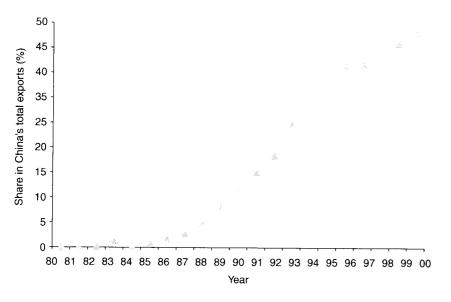


Figure 7.2 Exports of foreign-funded enterprises in China (1980–2000).

goods, consumer goods, electronic components, electronic equipment, and vehicles and vehicle parts. These sectors reflect China's current or potential comparative advantage in manufacturing. The five service sectors are accounting and related services, advertising and marketing, business logistics, communication services, and information technology services.9 The data covers the period 1998 to 2000. After 20 years of economic reform, the non-state-owned part of the Chinese economy was very much marketoriented. The state-owned part, however, was still running in a nonmarket way to a great degree. The sharp difference between state-owned and non-state-owned firms makes it inappropriate to pool them together in a cross-section study. Thus, we choose to focus on a sample of nonstate-owned firms.

Table 7.1 provides summary information about our sample. In the 1,500 firms surveyed by the World Bank, 323 are state-owned firms. Our study requires information on sales, unskilled labor, skilled labor, fixed assets, and R&D expenditure, however, 355 non-state-owned firms in the survey do not have the necessary information. This leaves us a sample of 822 nonstate-owned firms. Among them, 283 firms are majority foreign owned with foreign ownership exceeding 50 percent and account for 34.3 percent of the sample; 81 firms are minority foreign owned with foreign ownership above zero but below (including) 50 percent and account for 9.9 percent of the sample. The remaining 459 firms are non-foreign, non-state-owned firms and account for 55.8 percent of the sample.

Table 7.1 also reports the export status of firms in the sample. During

	Number	Percentage
Sample	822	100.0
Ownership status:	V-2	100.0
Foreign majority owned	282	34.3
Foreign minority owned	81	9.9
Non-foreign, non-state-owned	459	55.8
Exporting Status:		
Exporting in 1998	283	34.4
Exporting in 2000	309	37.6
Exporting in 1998 or 2000	320	38.9
Exporting in 2000 but not in 1998	37	4.5

the sample period, 320 firms (38.9 percent of the sample) had positive export sales; 283 firms (34.4 percent of the sample) exported in 1998, and 309 firms (37.6 percent of the sample) exported in 2000. There are 37 firms (4.5 percent of the sample) that had zero export sales in 1998 but became exporters during 1999 or 2000.

Table 7.2 provides summary statistics of key variables for our study. The sample mean of sales is RMB163,400 in 1998 and RMB265,200 in 2000. The sample mean of sales growth over the two years is 26.8 percent. The average firm employed 431 unskilled workers in 1998 and the number dropped to 400 in 2000. The average firm employed 123 skilled workers in 1998 and the number rose to 129 in 2000. Although the sample mean of unskilled labor falls over the two years, the sample mean of its growth rate is positive and equal to 7.5 percent. The sample mean of growth rate of skilled labor is 9.1 percent. The average firm had RMB149,400 fixed assets in 1998 and RMB169,500 fixed assets in 2000.10 Fixed assets grew by 25.2 percent in the sample mean. The sample mean of R&D intensity or export intensity does not change much from 1998 to 2000, but the sample mean of their growth rates is 13.1 percent and 3.6 percent, respectively. Notice that there are large variations across firms in all these variables, as indicated by the large standard deviations.

3 Growth regressions

We ran a log linear growth regression to estimate the output elasticities of major inputs, assume a Cobb-Douglas production function with three production factors, unskilled labor, skilled labor, and physical capital. Without data on output, we used sales as a proxy. We measured capital by fixed assets. All values are in 1998 prices.

Table 7.3 reports regression results. The estimation method is OLS with heteroskedasticity adjustment. The dependent variable is growth rate of sales from 1998 to 2000. Regression (1) indicates that the estimated output

Table 7.2 Summary statistics

Variable	Definition	8661	2000	1998–2000, growth (%)
X	Sales (in thousands)	163.4 (1,157.8)	265.2 (1,665.4)	26.8 (99.3)
	Unskilled labor	431 (1,722)	400 (940)	7.5 (51.0)
I	Skilled labor	123 (498)	129 (459)	9.1 (40.6)
¥	Fixed assets (in thousands)	149.4 (1,462.2)	169.5 (1,401.0)	25.2 (53.0)
R/Y	R&D expenditure/sales	0.090 (1.361)	0.091 (1.481)	13.1 (128.3)
X/X	Exports/sales	0.202 (0.365)	0.208 (0.364)	3.6 (102.9)

Notes All value in 1998 price. Mean reported and standard deviation in parenthesis.

Table 7.3 Regression results, OLS, N = 822

	(1)	(2)	(3)
Δlog L	0.41 (0.15)***	0.40 (0.15)***	0.38 (0.15)***
Δlog H	0.45 (0.17)***	0.43 (0.16)***	0.44 (0.16)***
Δlog K	0.41 (0.10)***	0.40 (0.10)***	0.39 (0.10)***
R&D intensity in 1998	,	15.4 (3.4)***	14.9 (3.55)***
Exporting in 1998		14.0 (6.8)**	15.8 (8.0)**
Majority foreign ownership		15.3 (7.0)**	12.6 (7.3)*
Industry dummies	No	No `	Yes
City dummies	No	No	Yes
R^2	0.23	0.29	0.30

The dependent variable is $\Delta \log Y \equiv \log Y(2000) - \log Y(1998)$. R&D intensity is defined as R/Y. Numbers in parentheses are heteroskedasticity-adjusted standard errors. *** indicates statistical significance at the 1% level, ** 5% level, and * 10% level.

elasticities of unskilled labor (L), skilled labor (H), and physical capital (K) are all around 0.4. This implies increasing returns to scale for the sample. In regression (2), we introduce three more independent variables: R&D intensity (R/Y), exporting dummy, and dummy for majority foreign ownership. These variables are included in the regression to explain the growth in output not accounted for by growth in factor inputs, i.e. the growth in total factor productivity (TFP). The 1998 value of these variables is used to alleviate the endogeneity problem.

Regression (2) shows that TFP growth depends positively on R&D intensity, export participation, and majority foreign ownership. The level of R&D intensity measures a firm's capability of technology innovation and absorption. Since TFP growth is driven mainly by technological progress, we expect firms' R&D intensity to be significant to TFP growth. Export participation is a measure of exposure to international competition and technology diffusion. International competition drives firms to adopt new technology, which is a source of TFP growth. Exporting also exposes firms to international technology diffusion, which is another source of TFP growth. We find that majority foreign ownership enters the regression significantly, while minority foreign ownership and non-foreign, non-state ownership do not. One interpretation is that majority foreign ownership facilitates transfer of foreign technology.

Regression (2) shows that the estimated output elasticities remain at around 0.4 for all three production factors. This is still true when we include industry dummies and city dummies in regression (3). The three variables important to TFP growth, namely R&D intensity, export participation, and foreign majority ownership, remain statistically significant. Most industry dummies and city dummies are statistically indifferent from zero, and the R-squared does not increase much after controlling for these dummies.

132 Bin Xu

The growth regressions in Table 7.3 allow us to estimate TFP growth rates for firms in the sample. Under the assumption that firms share the same Cobb-Douglas production function, we can compute TFP growth as equal to $\Delta \log Y - a_L \Delta \log L - a_H \Delta \log H - a_K \Delta \log K$, where a_L , a_H , and a_K are estimated output elasticities of unskilled labor, skilled labor, and capital, respectively. In the following analysis, we will use TFP growth rates computed from regression (3).

4 Export competition

China has had phenomenal growth in international trade since the early 1980s. Casual observation suggests that China has benefitted greatly from trade openness not only in consumption but also in production technology. There has not been much firm-level research on how China's trade openness affects its total factor productivity. We make an attempt here with our data.

In Table 7.4 we show TFP growth and its contribution to output growth. For the full sample of 822 firms, TFP grew by 10.1 percent over the period of 1998 to 2000. During the same period sales (a proxy for output) grew by 26.8 percent. Thus the contribution of TFP growth to output growth is about 38 percent. Looking at the sample of 320 exporting firms, we find that on average they grew significantly faster than firms in the full sample in both TFP and sales. Moreover, the contribution of TFP growth to output growth is 55 percent for exporting firms. In contrast, the 502 non-exporting firms in the sample, while achieving 15 percent growth in sales, grew only by 0.6 percent in TFP. The contribution of TFP growth to output growth is merely 4 percent for non-exporting firms.

The higher TFP growth and TFP contribution of exporting firms was due partly to their higher R&D intensity. As Table 7.4 shows, the average R&D intensity of exporting firms is 0.14 compared with 0.06 of non-exporting firms. The fact that 61 percent of the exporting firms are majority foreign owned may have also contributed to its extraordinary TFP performance. In comparison, only 17 percent of the non-exporting firms are majority foreign owned. As argued before, majority foreign ownership better positions a firm in receiving transfer of foreign technology than minority foreign-owned firms and non-foreign-owned firms.

For our study of the relationship between exporting and productivity growth, it is important to discuss the issue of causality. Is exporting making firms more productive, or more productive firms become exporters? In the first two rows of Table 7.4 we show the TFP levels of firms in 1998 and 2000. Notice that exporting firms had on average *lower* TFP levels than non-exporting firms in both 1998 and 2000. In the last column of Table 7.4, we have a sample of 37 firms that switched from non-exporting in 1998 to exporting in 2000. These firms had an average TFP level of 0.56 in 1998, and their average TFP level increased to 0.70 in 2000.

able 7.4 TFP growth and export status

	All firms	Exporting firms	Non-exporting firms	New exporting firms
TFP 1998 TFP 2000 TFP growth (%) Sales growth (%) TFP contribution R&D intensity Foreign majority Number of firms	0.56 (1.36) 0.66 (2.10) 10.1 (87.3) 26.8 (99.3) 38% 0.09 (1.36) 34% 822	0.50 (1.02) 0.62 (1.22) 25.0 (91.5) 45.2 (107.2) 55% 0.14 (2.02) 61%	0.60 (1.54) 0.68 (2.51) 0.6 (83.2) 15.0 (92.0) 4% 0.06 (0.67) 17% 507	0.56 (1.18) 0.70 (1.39) 26.7 (76.8) 61.0 (91.1) 44% 0.07 (0.18) 41%

Mean reported and standard deviation in parenthesis. TFP is computed based on regression (3) of Table 7.3. R&D intensity is R&D expenditure to sales in 1998. TFP contribution is computed as the ratio of mean of TFP growth to mean of sales growth. that exported in 1998 or 2000. New exporting firms are firms that exported in 2000 but not in 1998.

These firms experienced an average 26.7 percent growth in TFP and 61 percent growth in sales; TFP contributed 44 percent to total growth. Notice that the average R&D intensity of these firms is 0.07, similar to that of non-exporting firms. While 41 percent of these firms are majority foreign owned, which is higher than the 17 percent of the non-exporting group, the number is significantly lower than the 61 percent of the exporting group. Based on these observations we may conclude that the high TFP growth of these 37 firms is mainly a result of their becoming exporters. The entry into the international market brings a higher standard and more competition, pushing firms to use resources more efficiently and become more productive.

5 Foreign production

China's opening to the outside world has been impressive in both international trade and foreign direct investment. In our sample period of 1998 to 2000, China became the second largest destination of FDI next only to the US. To understand the TFP growth of Chinese firms, one cannot neglect the role of FDI.

In Table 7.5 we display the results for three groups: majority foreignowned firms, minority foreign-owned firms, and non-foreign, non-stateowned firms. It is clear that the group of majority foreign-owned firms experienced the fastest growth in both TFP (25.3 percent) and sales (49.5 percent). The contribution of TFP growth to total growth is 51 percent for this group. By contrast, the group of minority foreign-owned firms had only 6.1 percent growth in TFP and 16 percent growth in sales, and a TFP contribution of 38 percent. The performance of non-foreign, non-stateowned firms was even poorer. Their TFP grew by merely 1.4 percent although their sales grew by 14.7 percent. TFP growth contributed to total growth by only 10 percent. The poor TFP performance of the non-foreign firms may be traced to their low R&D intensity (0.03) and low exporting participation ratio (19 percent).

Table 7.5 provides evidence that majority foreign ownership matters for TFP growth. Notice that the average R&D intensity of minority foreign-owned firms (0.21) is higher than that of majority foreign-owned firms (0.15). Despite this higher R&D intensity, the TFP growth of minority foreign-owned firms (6.1 percent) is significantly lower than that of majority foreign-owned firms (25.3 percent). One reason is that export participation ratio is significantly higher in the group of majority foreignowned firms (70 percent) than in the minority foreign owned firms (48 percent). Exporting is not the entire reason for majority foreign-owned firms to be more productive. Recall the regression results reported in Table 7.3, which show that when export participation is controlled for, the effect of majority foreign ownership is still positive and statistically significant.

Table 7.5 TFP growth and foreign ownership

	Majority foreign-owned	Minority foreign-owned	Non-foreign, non-state-owned
TFP 1998	0.82 (1.81)	0.41 (0.82)	0.42 (1.06)
TFP 2000	1.11 (3.25)	0.37 (0.50)	0.43 (1.10)
TFP growth	25.3 (101.1)	6.1 (78.7)	1.4 (77.9)
Sales growth	49.5 (118.1)	16.0 (79.1)	14.7 (86.8)
TFP contribution	51%	38%	10%
R&D intensity	0.15 (2.15)	0.21 (1.64)	0.03 (0.14)
Exporting	70% ` ′	48%	19%
Number of firms	282	81	459

6 Industries and cities

The 822 firms in our sample belong to ten industries and five cities. In Table 7.6 we report TFP growth of firms by industry and by city. In the five manufacturing industries, the industry of vehicles and vehicle parts had the highest TFP growth (24.5 percent) and TFP contribution (65 percent). This can be explained mainly by its high R&D intensity (0.39). The electronic equipment industry and the electronic components industry had low R&D intensities (0.03) but TFP growth around 14 percent. This may be explained by the high exporting participation and majority foreign ownership ratios, both above 40 percent. Despite 59 percent of the firms were exporting and 37 percent of them were majority foreign-owned, the industry of apparel and leather products had a TFP growth rate of only 7.9 percent, probably due to its very low R&D intensity (0.004). The relatively low export participation ratio (36 percent) and majority foreign ownership ratio (33 percent) may explain the relatively low TFP growth rate (4 percent) of the consumer product industry.

Not surprisingly, the five service industries had little exporting. Because of government regulation, the service sectors did not have many majority foreign-owned firms, especially in the communication service industry. The information technology (IT) industry had the highest TFP growth (18.8 percent) among the five service industries because of its high R&D intensity (0.16). The communication service industry shows a negative growth in both TFP and sales. It should be pointed out that our model may not fit well with industries that are heavily regulated by the government so caution should be taken in interpreting the results for such industries.

Table 7.6 also reports results by city. Among the five cities in the survey, Shanghai saw the highest average TFP growth (25.3 percent) and TFP contribution (58 percent) in its firms. This is not surprising considering the average R&D intensity (0.28) of the sample firms from Shanghai, which is significantly higher than that of the firms from other four cities.

Table 7.6 TFP growth by industry and by city

	Apparel and leather	Electronic components	Electronic equipment	Consumer products	Vehicles and parts
TFP growth	7.9	13.9		4.0	24.5
Sales growth	13.4	45.0		13.8	37.8
TFP contribution	%65	31%		29%	%59
R&D intensity	0.004	0.03		0.03	0.39
Exporting	%65	45%		36%	44%
Foreign majority	37%	40%	44%	33%	36%
Number of firms	139	107	131	110	140
	IT services	Communication services	Financial services	Marketing services	Logistics services
TFP growth	18.8	-40.0	14.6	7.1	-0.2
_	51.9	-36.5	38.5	32.5	8.5
itior	36%	NA	38%	22%	Y Z
R&D intensity	0.16	0.01	0.03	0.01	0.00
Exporting	7%	0	0	0	2%
ajority	24%	8%	26%	25%	28%
Number of firms	42	38	35	40	40
	Beijing	Chengdu	Guangzhou	Shanghai	Tianjin
TFP growth	6.0	4.2	7.1	25.3	11.1
_	18.8	22.8	31.6	43.7	19.7
ation	32%	18%	22%	58%	%95
R&D intensity	0.10	0.03	0.04	0.28	0.02
Exporting	24%	19%	62%	62%	33%
Foreign majority	27%	%9	43%	%69	36%
Number of firms	179	181	170	141	151

Shanghai also had the highest export participation ratio (62 percent) and foreign majority ownership ratio (69 percent), which contributed to TFP growth according to our model. Among the five cities Chengdu had the lowest TFP growth rate (4.2 percent) and TFP contribution (18 percent). This can be explained by the fact that Chengdu had the lowest export participation ratio (19 percent) and foreign majority ownership ratio (6 percent) among the five cities. It is interesting to observe that although Guangzhou had higher R&D intensity, higher export participation ratio, and higher foreign majority ownership ratio than Tianjin, its TFP growth was lower than that of Tianjin and its TFP contribution is even lower. This suggests that there are unobserved city effects that contributed to variation in TFP growth across firms. Recall that we controlled for the city effects in regression (3) of Table 7.3 and our analysis has been based on that regression.

7 Conclusion

In this chapter we investigate the effects of international trade and foreign direct investment on total factor productivity growth of Chinese firms. Our investigation uses a sample of 822 non-state-owned Chinese firms from five large cities, covering five manufacturing industries in which China has a current or potential comparative advantage, and five service industries. Using estimates from a growth regression, we obtain estimates of TFP growth rates for these firms. We then examine if TFP growth is associated with export status and foreign ownership of firms.

Our study yields two main findings. First, exporting enhances TFP growth. In our sample, exporting firms had significantly higher TFP growth rates than non-exporting firms. The contribution of TFP growth to output growth was also significantly higher for exporting firms than for nonexporting firms. We find evidence that the causality runs from exporting to productivity. In the sample 37 firms were non-exporting firms in 1998 and became exporting firms in the following two years. Their 1998 TFP level was similar to other non-exporting firms but their 2000 TFP level was significantly higher than the firms that remained non-exporting. The effect of exporting on TFP growth remains positive and statistically significant when we control for R&D intensity, foreign ownership, and unobserved industry and city effects.

Second, we find that majority foreign ownership enhances TFP growth. Majority foreign-owned firms had significantly higher TFP growth rates than minority foreign-owned firms and non-foreign firms. One reason for this link is that many majority foreign-owned firms are also exporting firms. Our results show, however, that majority foreign ownership has a positive effect on TFP growth even after controlling for the effects of exporting. This finding supports the view that majority foreign ownership facilitates transfer of foreign technology and hence enhances TFP growth.

Notes

- 1 Almanac of China's Foreign Economic Relations and Trade (2001: 579).
- 2 Almanac of China's Foreign Economic Relations and Trade (2001: 581).
- 3 World Merchandise Trade by Region and Selected Economy (2001), World Trade Organization.
- 4 Almanac of China's Foreign Economic Relations and Trade (2001: 764).
- 5 See a recent literature survey by Zhang et al. (2003).
- 6 China Statistical Yearbook (2001: 403).
- 7 World Merchandise Trade by Region and Selected Economy (2001), World Trade Organization.
- 8 We thank the World Bank and the Davidson Data Center & Network (DDCN) for providing the data.
- 9 For more descriptions of the data, see Hallward-Driemeier et al. (2003).
- 10 All values are converted to 1998 value using the GDP deflator computed from the *China Statistical Yearbook* (2001). The GDP deflator is 0.978 for 1999 and 0.986 for 2000, with 1998 as the base year. Notice that China experienced deflation in 1999 and 2000 with respect to 1998. We use the book value of a firm's fixed assets as a proxy for its capital stock. The fixed assets cover buildings, production machinery and equipment, office equipment, vehicles, etc.
- 11 This is a strong assumption and may cause biased estimates. An alternative approach, developed by Gordon and Li (1995), allows the production function to differ arbitrarily across firms. Preliminary estimation using the Gordon–Li approach yields similar qualitative results. For this chapter we report only the results from the conventional approach, which is widely used in productivity study despite its limitation.
- 12 See Bernard and Jenson (1999) for a discussion of the causality between exporting and productivity.

References

- Bernard, A. and Jensen, B. (1999) 'Exceptional exporter performance: cause, effect, or both', *Journal of International Economics* 47: 1–25.
- Chow, G. (1985) 'A model of Chinese national income determination', *Journal of Political Economy* 93: 782–792.
- Gordon, R.H. and Li, W. (1995) 'The change in productivity of Chinese state enterprises, 1983–1987', *Journal of Productivity Analysis* 6: 5–26.
- Hallward-Driemeier, M., Wallsten, S., and Xu, L.C. (2003) 'The investment climate and the firm: firm-level evidence from China', Working Paper, World Bank.
- Li, W. (1997) 'The impact of economic reform on the performance of Chinese state enterprises, 1980–1989', *Journal of Political Economy* 105: 1080–1106.
- Zhang, J., Shi, S., and Chen, S. (2003) 'The industry reform and efficiency change in China: methodology, data, literatures and conclusions', *China Economic Quarterly*, 3: 1–38.

8 The role of FDI in China's export performance

Kevin Honglin Zhang

China's export boom has been accompanied by huge inflows of foreign direct investment (FDI) since its opening-up in the late 1970s. As China became the third largest exporting nation (\$594 billion) in the world in 2004 from the thirty-second (\$18 billion) in 1978, its FDI inflows rose from zero to \$61 billion in the same period, with the accumulated FDI being as much as \$560 billion by the end of 2004 (Figure 8.1 and Table 8.1). The exports generated by foreign-invested enterprises (FIEs) in 2004 were \$339 billion, comprising 57 percent of China's total exports. What role does FDI play in China's export expansion? How does FDI affect China's export performance? This chapter attempts to address the questions.

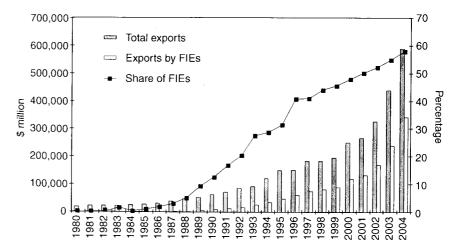


Figure 8.1 Share of foreign-invested enterprise (FIEs) in China's total export (1980–2004) (sources: China Statistical Yearbook 2003 (SSB, 2004) and China Foreign Economic Statistical Yearbook 1979–2003 (SSB, 1979–2003). The data for 2004 are taken from the official website of China's Ministry of Commerce (http://www.mofcom.gov.cn).