Foreign direct investment and the performance of indigenous firms in China’s textile industry

Sizhong Sun\textsuperscript{a}, Sajid Anwar\textsuperscript{b,c,d,*}

\textsuperscript{a} College of Business Law & Governance, James Cook University, Townsville, QLD 4811, Australia
\textsuperscript{b} School of Business, University of the Sunshine Coast, Maroochydore DC, QLD 4558, Australia
\textsuperscript{c} School of Commerce, University of South Australia Adelaide, SA 5001, Australia
\textsuperscript{d} Shanghai Lixin University of Accounting and Finance, Songjiang District, Shanghai, China

\textbf{ARTICLE INFO}

\textbf{Article history:}
Received 6 September 2016
Received in revised form 15 January 2017
Accepted 6 March 2017
Available online xxx

\textbf{JEL classifications:}
D22
F14
L25
O12

\textbf{Keywords:}
FDI
Domestic market
Export market
China
Textile industry

\textbf{ABSTRACT}

This paper contributes to the debate on the effect of foreign direct investment (FDI) on indigenous firms in host economies. Using a Melitz-type theoretical model involving firm heterogeneity, we first show that FDI affects the revenue of indigenous firms, in both domestic and export markets, through a direct as well as indirect channel. In the presence of positive FDI-related productivity spillovers, the direct effect is positive but the indirect effect is negative. As the overall effect cannot be unambiguously determined, in stage two, we further investigate this issue by using firm level data from China’s textile industry over the period 2005–07. We find that FDI in China’s textile industry decreases (increases) the revenue of indigenous firms in the domestic (export) market. The empirical results are also robust across (i) alternative measures and (ii) sources of FDI.

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However, increased competition due to FDI can also force some domestic firms to shut down. The general perception is that, in overall terms, FDI contributes to economic growth in host developing countries.

This paper focuses on China where FDI inflow has coincided with rapid economic growth. From 1982 to 2013, the growth rate of real GDP in China has been as high as 10.07\% (\textit{World Development Indicators, 2016}). During this period, the real GDP growth rate and net FDI inflow as a percentage of GDP are positively correlated (the estimated correlation coefficient being 0.19). In addition, in the post 1995 period, this correlation is as high as 0.6. Over 1982–2013, China’s GDP per capita growth rate is also positively correlated with the net FDI inflow as a percentage of GDP (the estimated correlation coefficient being 0.30).

Given the importance of FDI inflows, a great deal of attention has been paid to the impact of FDI in host developing economies. One strand of the existing literature focuses on the productivity spillovers from FDI. Conceptually, FDI can affect the productivity of domestic firms through three channels: (i) forward/backward linkages, (ii) mobility of workers and (iii) competition and demonstration effect (\textit{Blomstrom & Kokko, 1998}). The first channel, which

1. Introduction

It is well-known that foreign direct investment (FDI) has played an important role in the rapid expansion of a number of developing economies including China and India. FDI provides not only much needed capital but also allows access to advanced technology and improved management skills. In the case of China, a large proportion of FDI takes place through partnerships with domestic firms. Domestic firms that enter into partnership with foreign firms can be categorised as foreign-invested firms. Generally speaking, FDI leads to productivity improvement in foreign-invested firms because of additional capital, advanced technology and sharing of management skills. While foreign-invested firms tend to be the direct beneficiary of FDI, domestic firms (i.e., non-foreign-invested firms) can also indirectly benefit from FDI-related spillover effects.

* Corresponding author at: School of Business, University of the Sunshine Coast, Maroochydore DC, QLD 4558, Australia.
\textit{E-mail addresses: \texttt{Sizhong.Sun@jcu.edu.au} (S. Sun), \texttt{sajidanwar@ymail.com}, \texttt{SANwar@usc.edu.au} (S. Anwar).}

http://dx.doi.org/10.1016/j.qref.2017.03.005
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Please cite this article in press as: Sun, S., & Anwar, S. Foreign direct investment and the performance of indigenous firms in China’s textile industry. \textit{The Quarterly Review of Economics and Finance} (2017), \texttt{http://dx.doi.org/10.1016/j.qref.2017.03.005}
may involve the supplier/customer relationship between foreign and domestic firms, allows domestic firms to observe and learn from the practices of foreign firms thereby resulting in improvement in their productivity. The second channel involves mobility of domestic workers who received training while working for foreign-invested firms. The third channel involves the impact of increased competition on domestic firms. In order to survive, FDI can force some domestic firms to take steps to improve their productivity including attempts to imitate foreign firms.

Since the work of Caves (1974), a large body of literature has considered the impact of FDI-related productivity spillovers in host economies. Some of these studies report positive spillovers, while others find negative or insigniﬁcant spillovers. In the case of China, a number of studies report signiﬁcant positive productivity spillovers; for example, see Anwar and Sun (2014) and Sun (2011) the references therein.

In addition to the impact on the productivity of domestic firms, FDI can also affect their export and domestic market revenue. In this paper, using a theoretical model, we establish links between FDI and the domestic market sales and export market revenue of domestic firms. Speciﬁcally, within the context of a monopolistically competitive market structure with heterogeneous ﬁrms, we show that FDI can affect the export and domestic market revenue of local ﬁrms through a direct as well as an indirect channel. As the direct and indirect effects do not reinforce each other, we further investigate this issue by means of an empirical exercise. Using ﬁrm level data from China’s textile industry, over the period of 2005–07, we ﬁnd that FDI decreases the revenue of indigenous ﬁrms in the domestic market but revenue in the export market increases.

2. Related literature

A large number of empirical studies focus on productivity spillovers from FDI to domestic ﬁrms. As far as the impact on sales of indigenous ﬁrms in the domestic and export markets is concerned, the majority of previous studies on China focus on the impact of FDI on export market performance. Our focus is on studies that use disaggregated (ﬁrm/plant level) data.

With panel data over the period of 2000–2003, Sun (2009) uses a Heckman sample selection model to explore export spillovers from FDI on the cultural, educational and sporting product manufacturing industry in China. Sun ﬁnds that the presence of foreign ﬁrms in the industry has a signiﬁcant impact on the export intensity (as measured by the share of exports in a ﬁrm’s total sales) of domestic ﬁrms. This impact was heterogeneous in that some domestic ﬁrms experienced a positive impact while others experienced a negative or insigniﬁcant impact. This heterogeneity of export spillovers is also found at the aggregate level in China’s manufacturing sector by Sun (2010).

Using ﬁrm level panel data from 2000 to 2003, Chen, Sheng, and Findlay (2013) focus on FDI-related horizontal and vertical export spillovers in China’s manufacturing sector. They report a positive impact on both the export revenue and export intensity of domestic ﬁrms. The positive impact of export revenue arises mainly due to backward technology spillovers, whereas the positive impact on export intensity can be attributed to horizontal spillovers. The positive impact on exports of domestic ﬁrms is consistent with Sun (2012), where FDI leads to an increase in exports of domestic ﬁrms through productivity and export information spillovers.

Fu (2011) examines the impact of FDI in processing on export performance of Chinese ﬁrms using panel data from 2000 to 2007, ﬁnding that processing trade-FDI generates positive and statistically signiﬁcant information spillovers to domestic ﬁrms, which enhances their export performance. On the other hand, the impact of technology spillovers arising from processing trade-FDI on export performance of domestic ﬁrms is rather limited. Mayneris and Poncet (2013), using panel data from Chinese customs from 1997 to 2007, ﬁnd that FDI inﬂow encourages domestic ﬁrms to export. Claro (2005) shows that liberalisation of FDI promotes China’s comparative advantage in labour-intensive products, which contributes to a signiﬁcant increase in exports.

While a large number of studies have explored whether FDI inﬂow in China affects exports, only a few studies have focused on the impact of FDI on domestic sales. In addition, there are even fewer studies that explore these two aspects simultaneously. Using cross-sectional survey data from 2002, Bao, Wang, and Huang (2013) ﬁnd that foreign-invested ﬁrms in China experience both productivity and domestic sales improvement, but the impact of FDI on exports is statistically insigniﬁcant. Using ﬁrm level data over the period of 2001–02 and 2005–07, Wang, Wei, Liu, Wang, and Lin (2014) argue that the presence of foreign-invested ﬁrms leads to a negative impact on domestic sales but a positive impact on the exports of indigenous ﬁrms.

Compared to previous studies, this paper differs in two important aspects. First, using a theoretical model involving ﬁrm heterogeneity, we demonstrate that FDI can affect the revenue of indigenous ﬁrm in both domestic and export markets. Second, based on the theoretical results, we use ﬁrm level data from China’s textile industry to simultaneously estimate the impact of FDI on export and domestic market revenues of indigenous ﬁrms. The use of disaggregated data allows us to identify the impact of FDI on exports and domestic market revenues relatively accurately in that the problem of potential aggregation bias is avoided. As we focus on only one relatively narrowly deﬁned industry, ﬁrms in the industry are relatively homogeneous and variations in ﬁrm behaviour are less likely to be due to factors outside of the theoretical and empirical models.

3. Theoretical model

On the demand side, we assume that consumer preferences can be described by means of a constant elasticity of substitution (CES) utility function:

\[ U = \left( \int_{0 < \omega} q^{\rho} \, d\sigma \right)^{\frac{1}{\rho}} \]

where \( U \) is the utility; \( \omega \) is the index of product variety and \( \Omega \) is the set of products in the domestic market; \( q \) is quantity consumed; and \( \rho \), which is positive but less than 1, is the preference parameter; \( \frac{1}{1 - \rho} \) is the elasticity of substitution, which is greater than 1. Utility maximisation yields the demand function:

\[ q = \phi p \]

where \( p \) is the product price, and \( \phi \) is the level of aggregate demand for the product.

Each ﬁrm is small and hence satisﬁes only a small proportion of aggregate demand. Accordingly, each ﬁrm takes the level of aggregate demand as given. In other words, \( \phi \) is exogenous.

On the supply side, the industry consists of both domestic and foreign ﬁrms, where \( \gamma (0 \leq \gamma \leq 1) \), which is the proportion of foreign ﬁrms in the industry, is a measure of FDI in that industry. Upon entering the industry, ﬁrms discover their capability \( \lambda \) from a known distribution with probability density function of \( g (\lambda) \) over the support \( (0, \infty) \). Production involves a ﬁxed cost \( f \), and a constant marginal cost of \( c(X) \), where \( \sigma \) measures the impact of FDI on the marginal cost of a domestic ﬁrm and \( c(X) \) is the cost of resources.

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1 A review of related studies can be found in, among others, Anwar and Nguyen (2014), Anwar and Sun (2013, 2016) and Smeets (2008).
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