Chapter 10

Globalization and Performance of Small and Large Firm: Case of Vietnamese Firms

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CHAPTER 10

Globalization and Performance of Small and Large Firm: Case of Vietnamese Firms

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This paper intends to study the productive performance of small (SMEs) versus Larger domestic and foreign firms. In particular, the paper also examines the determinants of productive performance of firms in terms of its linkages, spillovers, and ownership structures in form of foreign and public ownership. The findings suggest that there is no horizontal spillovers on the domestic firms from foreign activities in the Vietnamese manufacturing sector. However, we do observe positive backward linkages if we account the dynamic effects of the spillovers. We also observe state-owned enterprises play an important role in the backward spillover on the domestic economy. This directly relates to the role of SOEs in the development process of the Vietnamese economy.

1. Introduction

Globalization provides ample opportunity for domestic firms to increase their innovation capabilities and compete in the global environment. The opportunity to create linkages and network in the global production chain directly affect the investment decisions and hence the ability to improve their productive performance in the global environment. In particular, SMEs (Small Medium Sized Enterprises) play an important role to create the backward and forward linkages with larger domestic and foreign firms in the global production network. For the overall economy, the domestic capacities to absorb and diffuse technologies of SMEs are very important to increase the overall productive performance of the domestic industries and hence create a sustainable growth in the long-run.

In an open economy, the impact of globalization affects the smaller firms more than larger ones; since the larger ones have the investment capacity, economies of scale and scope to hedge the risk of external shocks. In contrast, the smaller ones are more vulnerable to the shocks due to smaller scale and lack of scope to move their operations and investments around.

Hence, the capacity of small firms to raise finance for investments and hence hedge the risk of investments and external volatilities is important for domestic firms to improve their productive capacity.

Foreign direct investment (FDI[1]) can enhance local SME development through beneficial linkages between foreign affiliates[2] and domestic SMEs. Such benefits can include increasing the purchase of local supplies, upgrading SME management skills, transferring technology, facilitating SME access to capital and markets, and assisting local SMEs to internationalize their business. These linkages can also benefit the affiliates of transnational corporations (TNCs) by lowering transaction costs,

[1] FDI includes wholly-owned and joint venture enterprises as well as substantial non-equity arrangements such as long-term subcontracting. However, non-equity modes of investment are more directly related to other sets of FDI policies and mechanisms rather than creating linkages between foreign affiliates and domestic SMEs and therefore are not specifically covered in this study.

[2] As discussed in this study, linkages are relations that go beyond arm's length, one-off transactions to incorporate longer-term business arrangements between firms that can involve sustained exchanges of information, technology, skills and other assets. See UNCTAD (2001), p. 127.

providing greater flexibility, spurring local adaptations, and demonstrating corporate social responsibility.

This paper intends to study the productive performance of small (SMEs) versus Larger domestic and foreign firms. In particular, the paper also examines the determinants of productive performance of firms in terms of its linkages, spillovers, and ownership structures in terms of foreign and public ownership.

While the relationship between FDI and economic growth is apparent for Vietnam, the mechanism on a micro level is less clear. One prominent conjecture, suggested by many studies, looks at the domestic enterprises' potential productivity gains which arose from FDI inflows (Crespo & Fontoura, 2007; Okamoto, 1999). For instance, foreign investors can facilitate productivity spillovers to local private enterprises when these foreign conglomerates transfer advanced technology and expertise to the domestic firms. Alternatively, the entry of foreign competition in the domestic market can also induce local firms to improve their productivity in order to retain their competitive edge. Subsequently, the improvement in firm's productivity is the fundamental channel through which FDI had spurred economic growth at the aggregate level. This paper serves to investigate the extent to which the entry of foreign firms improve the productivity level of domestic firms, so as to gain a clearer insight into the link between FDI inflows and economic growth.

Productivity spillovers from FDI can be differentiated according to the two main types of production linkages between foreign and domestic enterprises - horizontal and vertical. Horizontal linkages refer to the relationship between foreign and domestic firms in the same industry. Vertical linkage[3] refers to the relationship multinational enterprises (MNEs) create with domestic firms either in the upstream sectors (known as backward linkage) or downstream sectors (known as forward linkage). Previous studies on developing countries have shown support for FDI-induced positive productivity spillovers for domestic firms through such production linkages. Lin et al. (2009) found that FDI from OECD countries resulted in positive horizontal productivity spillovers for domestic firms in China; while Thangavelu & Pattnayak (2006) showed the existence of similar positive horizontal spillovers in the

[3] The idea of backward and forward linkages were introduced by Hirschman (1958) as part of his advocacy for the unbalanced growth theory where slower-growing sectors form linkages with faster-growing sectors as a means for development.

Indian pharmaceutical industry; and Wang (2010) showed that there is evidence of positive backward and forward spillovers from FDI in Canadian manufacturing industries. However, this paper takes caution with oversimplifying the relationship between production linkages and improvement in domestic firms' productivity. The studies by Havránek & Iršová (2011) and Iršová & Havránek (2013) have also shown that many empirical studies had instead found non-significant positive spillovers or even negative effects of linkages. Hence, the authors emphasized that the presence and strength of the spillover effects are also dependent on control variables which are firm-, country- or industry-specific. Therefore, the inclusion of such variables would allow one to identify important determinants of productivity spillovers and derive important policy implications in terms of identifying the type of FDI to attract and the kind of domestic firms most likely to benefit from these FDI.

In this study, in addition to the impact of foreign firms, we also address the role of the state-owned enterprises (SOEs) in the Vietnamese economy, and its possible influence on the production linkages between foreign and local enterprises, which is largely unexplored in the literature. The role of SOEs were prominent in the development of experiences of Vietnam in terms of creating manufacturing base in the domestic economy. SOEs were used to manage and direct industry policies in the domestic economy, and it is also used to create industrial linkages and employment. As Adams & Tran (2010) and Vu Quoc Ngu (2002) highlighted, SOEs participate actively in various key industries and their prominence are apparent through their contribution to nearly half of the industrial output during the 1991-2000 period. However, it has been suggested that SOEs can potentially crowd-out foreign investments or production linkages between foreign and local enterprises (Hakkala & Kokko, 2007). While there is evidence of reforms taking place to reduce the dominance of SOEs in many sectors, the paper intends to explore the impacts of SOEs on the productivity spillovers from foreign firms and examine the role of SOEs in the manufacturing sectors.

The purpose of this paper is to investigate the productivity spillovers of horizontal and backward linkages on the Vietnamese manufacturing firms and this is done via a two-stage empirical strategy. First, with the use of micro-level panel data of 4146 firms from the *Annual Statistical Censuses & Surveys* during the period of

2004 to 2008, we employ the Generalized Method of Moments (GMM) estimation of total productivity factor (TFP) to control for the possible endogeneity of production inputs. In doing so, we also address several gaps in the literature as previous Vietnamese studies mainly used data up till 2005 and many were reliant on industry-level data which would not control for time-specific and firm-specific differences in TFP. Subsequently, proxies for horizontal and backward foreign linkages are incorporated into the empirical model, along with firm-specific characteristics such as quality of labor, and industry-level variables such as the presence of SOEs and level of competition. Econometric issues such as heteroskedasticity, unobservable firm-specific characteristics and endogeneity biases of the control variables are also controlled for to ensure robustness of results.

The rest of this paper can be outlined as follows. Section 2 provides an overview of the development in Vietnam. Section 3 details data construction and measurement. Section 4 estimates the productive performance of firms using two stage estimations: (a) estimating the firm level TFP and (b) identifying the sources of productive performance such as linkages and spillovers. Section 5 presents the parameter estimates and discusses the main findings. Section 6 concludes with some policy implications.

2. Leterature on Linkages and Spilovers

2.1. Key Trends in Vietnam

Vietnam transited into a market economy in the early 1990s via the Doi Moi Policies (Economic Renovation policies), which facilitated the inflows of FDI through initiatives such as the promulgation of Law on Foreign Investment as well as membership into ASEAN, APEC and WTO (Nguyen, Vu, Tran & Nguyen, 2006). Since then, Vietnam has experienced rapid GDP growth and FDI inflow.

Vietnam's economy has consistently achieved a high rate of economic growth, in addition to improved standards of living and rapid poverty reduction. During the period 2000-2010, the economy enjoyed an impressive GDP growth rate of 7.22

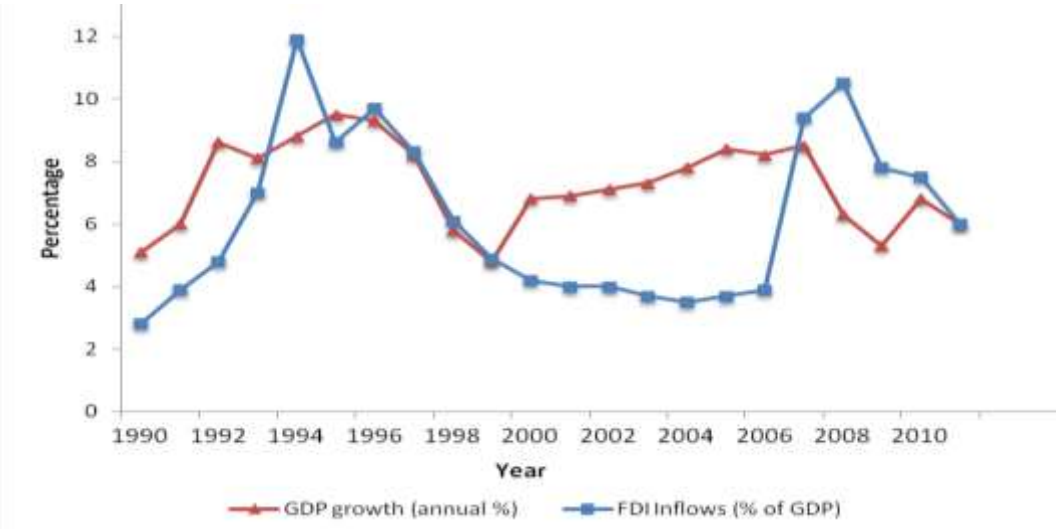
percent – the second highest among ASEAN+3 countries following China.[4] The accelerated pace of economic growth is fuelled largely by growth in the manufacturing and construction sectors which accounted for approximately 40 percent and realized the value added growth of 10.6 percent, on average, during the same period. As portrayed in Table 1, firm performance is equally remarkable in terms of output growth and contributions to employment. During 2000-2010, output and employment growth among firms in Vietnam reached the average rate of 7.5 and 2.3 percent, respectively. A breakdown of Vietnamese firms by types of ownership further indicates that firm performance is striking among foreign-owned enterprises.

Table 1: Output and Employment Growth by Ownership, 2000-2008.

	Output Growth (% p.a.)	Employment Growth (% p.a.)
Total	7.5	2.3
State	6.8	1.85
Non-state	7.3	1.93
Foreign Firms	10.4	20.41

Source: General Statistics Office, Vietnam.

Figure 1: Trends of GDP Growth (annual %) and FDI inflows (% of GDP) in Vietnam from 1990 to 2011.



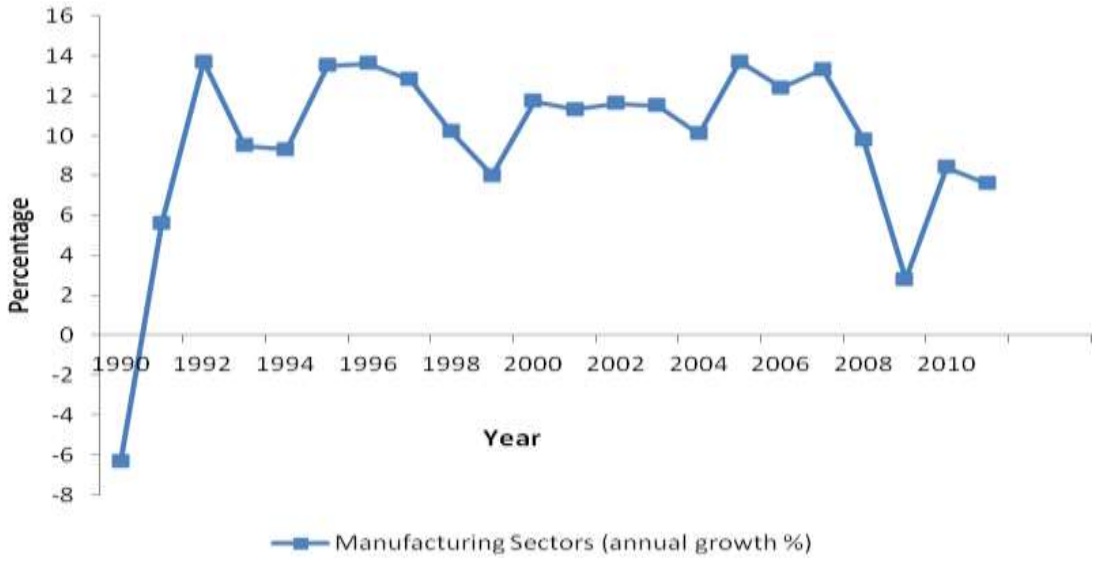
Source: World Development Indicators (WDI), the World bank

[4] The figure of the average GDP growth rate is calculated from *World Development Indicators*, the World Bank.

The trends of GDP growth and FDI inflows as a percentage of GDP in Vietnam since the transition in 1990 are given at Figure 1. The relationship is positive and strong up till the end of 1990s. However, it is also important to note that the correlation is less apparent thereafter; for instance, while FDI inflows grew steeply as a percentage of GDP from 2006 to 2008, GDP growth slowed. Thus, this calls to question the assumed positive relationship between FDI inflows and economic growth.

In addition, the manufacturing sector is also the key recipients of these FDI inflows across the industries. According to the Foreign Investment Agency (FIA) in Vietnam, the processing and manufacturing industries received the most newly and additionally registered FDI capital in 2012, accounting for 65.5 per cent of the total FDI. Figure 2 shows the value added growth of the manufacturing sectors since the Doi Moi policies facilitated the FDI inflows. From the beginning of 1990s, the annual growth largely remained above 8 per cent, except for the dip during the global recession in 2009. This provides preliminary signs of a positive correlation between the entry of foreign investments and the output productivity of enterprises.

Figure 2: Trends of Annual Growth (%) of Manufacturing Sectors in Vietnam from 1990 – 2011



Source: World Development Indicators (WDI), the World bank

2.2. Linkages between Foreign and Domestic Firms

Production linkages are important conduits for the positive impact and spillovers of multinational activities in the domestic economy. MNEs and foreign affiliates typically have more advance technology and better distributional networks than domestic firms in developing countries, which creates a potential for productivity spillovers on domestic firms when different production linkages are formed with their foreign counter-part (Girma, Gorg & Pisu, 2008).

As aforementioned, this paper focuses on horizontal and backward production linkages. Horizontal linkages have been widely researched on and positive productivity spillovers through such intra-industry relationship can occur through 4 channels – (a) competition effects, (b) demonstration effects, (b) labour mobility and (b) exports (Crespo & Fontoura, 2007).

The first channel refers to the entry of foreign firms into the domestic market as a form of competition with the domestic firms. As a result, domestic firms are incentivized to enhance productivity through better utilization of resources and usage of more advanced technology, thereby creating positive competition effects. However, as Aitken & Harrison (1999) suggested, domestic firms' market share can also be eroded by the entry of large foreign firms, especially when there is imperfect competition in the product market. Consequently, the competition effects become negative as firms either function with less efficiency due to higher average operating costs or exit the market.

On the other hand, demonstration effects occur when domestic firms adopt advanced technology or imitate better practices used by foreign firms, which subsequently improved their productivity. Similarly, domestic firms may also tap on knowledge and expertise of workers previously from MNEs for improving their productivity. Görg and Strobl (2005) did a relevant empirical investigation and found that owners of domestic firms who had worked in an MNE immediately prior to starting their firms in the same industry were more productive than their counterparts without the MNE experience. But as Sinani & Meyer (2004) highlighted, such labor mobility can be limited if foreign firms offer higher wages and attract skilled labor from domestic firms instead. In such cases, the entry of foreign firms may further drain the level of human capital in local companies. Lastly, the presence of MNEs

and foreign affiliates can provide distributional networks and relevant knowledge which facilitate export performance. Hence, with horizontal linkages with the foreign firms, domestic firms can boost their export capacity and productivity levels as well (Anwar & Nguyen, 2011).

Vertical linkage had been mainly neglected in the earlier part of the empirical research but it is increasingly emphasized, as recent studies find positive and statistically significant vertical spillovers despite non-significant horizontal spillovers from FDI (Smarzynska, 2002; Havranek & Irsova, 2011). This is especially so for backward linkages. Similar to horizontal linkages, they can facilitate positive productivity spillover through the demonstration effect, competition effect, and labor mobility. A prominent example was highlighted by Lin & Saggi (2007), which examined foreign firms' engagement in contractual agreements with domestic suppliers for exclusive transfer of knowledge and technology. In such instances, the productivity of domestic suppliers can improve due to the adoption of higher quality technology and more efficient production processes. Ivarsson & Alvstam (2005) supported this by showing that foreign transnational corporation, Volvo, renders technical assistance to its local component suppliers in developing countries to improve their operations. Additionally, the entry of foreign firms in downstream sectors can create a competition effect amongst domestic suppliers to meet the increased demand for inputs, thereby encouraging domestic suppliers to enhance their output productivity. This is seen in Okamoto (1999) as U.S. parts suppliers in the automobile industry are observed to enhance their productivity with the entry of Japanese car makers in the market.

Several papers have highlighted the importance of domestic absorptive capacity in creating positive spillovers and linkages in the domestic economy. The analysis by Iršová & Havránek (2013) found that factors such as technology gap between domestic and foreign enterprises, full foreign ownership of firms, and trade openness of the host country limit the local firms' absorptive capacity and access to imitation of the expertise in foreign firms, and subsequently lessen the positive horizontal spillovers from linkages. On the other hand, enhancing factors of domestic firms' absorptive capacity such as high level of human capital in the country can encourage greater positive horizontal spillovers from demonstration effects. Correspondingly,

Havránek & Iršová (2011) examined the literature on vertical linkages and their meta-analysis revealed that technology gap and wholly foreign ownership of firms also had a negative impact on vertical spillovers while trade openness of the host country instead enhanced the positive backward spillovers.

The study by Crespo & Fontoura (2007) highlighted that wholly foreign-owned firms may generate lesser positive spillover effects than partially-owned foreign firms. This is possibly because wholly foreign-owned firms operate as enclaves, which restricts the demonstration effects arising from transfer of technology or knowledge to domestic firms. The size of a domestic firm may also determine its scale of operation, technology capacities and labor quality, and thereby affecting its ability to compete with foreign firms in the same industry. Therefore, consistent with Aitken & Harrison (1999), Crespo & Fontoura (2007) found that smaller firms are likely to experience more negative horizontal spillover effects than its larger counterparts. However, smaller firms also tend to have larger technology gap as compared to their foreign counterparts and therefore, they have greater potential to benefit from the demonstration effects from the MNCs (Sinani, & Meyer, 2004; Girma & Wakelin, 2001). Hence, the overall impact of the firm's size is dependent on the trade-off between benefits of technology transfer and costs of eroded market share.

Other antecedents of spillover effects such as firm's export-orientation have also found to play a significant role. Girma et al. (2008) examined the influence of firms' export-orientation on spillover effects in United Kingdom's manufacturing sector and found that significant horizontal spillovers occur between export-oriented MNEs and domestic exporters but not with domestic non-exporters. This is consistent with the analysis in Crespo & Fontoura (2007), as the authors emphasized that export-oriented domestic firms already face immense competition in the international markets and are less likely to experience significant negative horizontal spillover effects arising from foreign competition effects as compared to their non-exporting counterparts. Le Quoc Hoi (2008) also found that exporting foreign firms did not significantly worsen the labor productivity of domestic firms while domestic-market-oriented foreign firms imposed more negative effects of competition as they edge out private local enterprises in the domestic market. With regards to backward spillovers,

Girma et al. (2008) found that export-oriented MNEs have a negative backward spillover effect on domestic suppliers likely due to their enclaves operations[5], while domestic-market-oriented MNEs have a positive backward spillover effect for domestic suppliers.

Industry-level characteristics also played a part in determining the spillover effects, as Girma et al. (2008) found that non-exporting domestic firms generally face more negative competition effects than positive transfer of knowledge and technology, especially as the level of competition increases in the industry or in high-technology sectors where the technology gaps between foreign and local enterprises are likely to be smaller.

2.3. The linkages and Spillovers in Vietnam

As an emerging economy, the impact of foreign firms on the domestic economy of Vietnam critically depend on its domestic capacity. This is highlighted in Nguyen et al. (2006), where large FDI inflows had mainly entered the industrial sectors and were restricted in the form of joint ventures with state-owned enterprise before the 1997. In particular, the growth rate of industrial output produced by these FDI enterprises mostly exceeded the growth rate of the entire industrial sector from 1995 – 2003. Therefore, their greater level of productivity would impact positively on local firms.

Giroud (2007) conducted semi-structured interviews and found that initial linkages formed in Vietnam were weak and productivity spillovers were not as extensive as Malaysia due to lack of collaborative schemes and large technology gap between foreign and domestic firms. For example, foreign firms may have demand for higher quality inputs which domestic suppliers with limited technology capacities cannot produce. Hence, the backward linkages are not formed and productivity spillovers are limited. On the other hand, domestic-market-oriented FDI also enter the Vietnamese market with an advantage over domestic firms in terms of technology and knowledge. Consequently, this negative competition effect led to domestic firms experiencing a negative horizontal spillover.

[5] This was also suggested in Kokko, Zejan & Tansini (2001), as the authors suggested that export-oriented foreign firms in Uruguay may be operating in enclave sectors with few contacts with local suppliers.

Several empirical studies have shown that backward spillover effects are the dominating type of positive spillover in Vietnam, whether the spillover effects are in the form of labor productivity, output productivity or wages (Nyguen et al., 2008; Le Quoc Hoi, 2008; Le Quoc Hoi, 2007). However, the results for horizontal spillover effects remained mixed and inconclusive as it mainly depended on the aspect of spillovers examined and the empirical specification used (Pham, 2009).

Firms' heterogeneity constitutes an important part of the analysis as many studies included control variables at firm-level to investigate the possible determinants of spillover effects. The existing technology gap between domestic firms and their foreign counterparts remain an important part of many analyses on Vietnam as it consistently predicted negative spillover effects for domestic firms (Nguyen, 2008; Le Quoc Hoi, 2008). The scale of firms as a firm-specific factor was also found to be influential for the spillover effects on domestic firms in Vietnam. In Nguyen (2008), larger high-technology domestic firms have more opportunities to receive technology transfers from foreign firms than its smaller counterparts. Similarly in Le Quoc Hoi (2008), larger domestic firms are able to benefit more in terms of backward productivity spillovers.

The importance of state-owned enterprises is also highlighted as an important component of industry policy to attract FDI. The Vietnamese government plays an important role in the industry policy in terms of employment creation and driving the key industries in the economy. The breakdown of ownership structure from the *Annual Statistical Censuses & Surveys: Enterprises* from 2004 to 2008 is given at Table 1 below. It is very clear that SOEs play an important role in the industry policy of Vietnam.

Therefore, it is important to examine the possible impacts they have on domestic firms as well as the linkages formed between foreign and domestic enterprises. As pointed out by Nguyen & Dijk (2012) and Hakkala & Kokko (2007), SOEs typically have better access to market and financing as they are favored by state authorities. Hence, this unfair competition with domestic firms would directly create negative productivity spillovers for domestic firms which are not able to compete with SOEs. An example is the state-owned corporation Vinatex which has expanded its production of fibers, garments and textiles, so as to ensure competitive quality and

supply for downstream industries, and edged out less productive private enterprises in the same sector. Indirectly, it is also likely to worsen the negative competition introduced by the foreign conglomerates, which can result in overall negative productivity spillovers from foreign enterprises.

SOEs might also crowd out positive foreign backward spillovers if many MNEs prefer to form partnership with SOEs instead of private local firms so as to tap on the fast access to market and regulatory authorities (Knutsen & Nguyen, 2004). However, while SOEs can crowd out positive productivity spillovers from foreign to domestic firms, SOEs also have the capacity to generate spillovers for local enterprises as well. For example, SOEs can support local firms by forming partnership with domestic suppliers which are not attractive to foreign investors and produce SOE-induced positive productivity spillovers through backward linkages. Therefore, from the existing literature, the preliminary hypotheses are that it is likely that the presence of SOEs indirectly lessen the positive horizontal and backward spillovers from foreign firms on domestic companies, as well as imposing a negative horizontal spillover on local firms in the same industry. However, there is a potential for positive backward spillovers as SOEs form production linkages with domestic suppliers.

3. Data Construction and Empirical Methodology

We construct our dataset of firms from *Annual Statistical Censuses & Surveys: Enterprises* from 2004 to 2008, gathered by the General Statistics Office of Vietnam. It provides firm-level information on foreign ownership and production characteristics, like the number of workers, gross revenue, working capital, materials, profits, and export/import status, on top of financial attributes such as liquid asset, fixed asset, liabilities and equity, among many others. In total, the panel data from 2004-2008 consisted of 4146 firms and span across 23 manufacturing sectors based on the Vietnam Standard Industrial Classification 2007 (VSIC 2007)[6]. Firms are

[6] VSIC (2007) is based on International Standard Industrial Classification revision 4 (ISIC Rev.4)

differentiated into three categories, (i) domestic-owned, if there is an absence of state and foreign capital, (ii) state-owned, if the enterprise owns central state or local state capital and (iii) foreign-owned, when there is the presence of foreign capital in the firm. This classification provides nearly 1446 domestic firms, 890 foreign firms, and nearly 1810 state-owned enterprises.

As discussed in next section, a set of variables is utilized in our empirical framework. First, the measurement of TFP rests with an estimation of a Cobb-Douglas production function which requires information on a firm's gross output as well as production inputs. Net output is measured by sales of goods produced net of materials and components purchases. There are three production inputs in the empirical model, labor, intermediate materials, and capital. Labor is the number of workers employed within a firm. Intermediate materials include parts and components that are used in the production processes. Capital is the values of land, building and construction, and machinery and equipment, less the depreciation of assets. All variables are deflated using GDP deflators in 2004 prices[7].

Several studies have highlighted the weakness of using the Ordinary Least Square (OLS) estimations for the measurement of TFP, it has been pointed out that the estimators might be biased since the OLS method assumes that the input levels are exogenous. Studies including Griliches & Mairesse (1998), Girma et al. (2008) and Lesher & Miroudot (2008) have pointed out that productivity shocks observable by firms may affect both their decisions for inputs level and the respective firm's TFP, thereby creating a simultaneity problem where the input variables in the OLS estimation are endogenous. Hence, to address this issue, the two-step Blundell-Bond GMM estimation was employed instead.

The simplest way to obtain parameter estimates in our base-line econometric specification (3) is to carry out the standard Ordinary Least Squares (OLS) estimations. However, our concern is that OLS estimations tend to convey biased estimates due to firm heterogeneity. The unobservable firm heterogeneity seems plausible given the knowledge that firms operate in a wide range of economic activities like manufacturing, financial intermediation, trade, real estate and consultancy services. To control for unobservable firm heterogeneity, we make use

[7] GDP deflators are constructed using information available from World Bank.

of Fixed Effects (FE) and Random Effects (RE) estimations. The former is undertaken by using OLS with heteroskedasticity-robust estimators to take into account the heteroskedasticity problem that arises from variation in firm size, whereas the latter is obtained by Generalized Least Squares (GLS) with the Swamy-Arora estimators.

FE and RE estimates may also be biased and inconsistent, however. The reason is that all of our structural variables, e.g. FDI, financial characteristics, high-tech capital investment, and human capital utilization are very likely to be endogenously determined by other unobserved variables. If the potential endogeneity bias problem exists, FE and RE estimates are not consistent and asymptotically efficient. There are at least two standard approaches to accounting for the potential endogeneity biases. The first is to employ the valid instrumental variables (IVs) – ones which are exogenous and strongly correlated with endogenous explanatory variables. However, this approach is data-intensive and thus may be inappropriate for our dataset. Alternatively, we go for the second approach, whereby lags of structural variables are chosen as IVs to correct any simultaneity bias in the estimations, using Generalized Method of Moment (GMM) to obtain two-step estimators (Blundell and Bond, 1998; and Arellano and Bover, 1995).

Therefore, the specification for the firm's production can be modified as such[8]:

$$y_{it} = \beta_0 + \beta_l l_{it} + \beta_k k_{it} + \beta_m m_{it} + \alpha_t + \eta_i + v_{it} + m_{it}, \qquad (1)$$

where η_i, v_{it} and m_{it} are the additive components of the error term and represent unobserved firm-specific effect, productivity shock (potentially autoregressive) and serially uncorrelated measurement errors, respectively. The two-step Blundell-Bond GMM estimation serves to isolate effects of unobserved firm-specific effect and productivity shock through the use of IVs to resolve the endogeneity issue for the production inputs.

[8] The econometric specification is adapted from Bundell & Bond (1998).

The effects of linkages on output productivity of domestic firms are then examined through the regression of the estimated TFP against the production linkages as well as the respective control variables.

The key variables of our study are the two types of production linkages foreign firms form with their domestic counterparts. The foreign horizontal linkage (FOR_*HORZ*) variable[9] aims to measures the presence of foreign firms in a particular manufacturing sector and is defined as the share of sales of foreign firms in that sector. Such measurements were also used in Girma et al. (2008) and Nyguen Ngoc Anh et al. (2008) and can be written as follows:

$$FOR\_HORZ_{jt} = \Sigma_{\forall j=i}\, y_{j,t} / Y_{i,t},$$

where $y_{j,t}$ represents the output of foreign firm i, operating in sector j at time t and Y_{jt} is the total output of sector j at time t. Hence, the FOR_*HORZ* variable increases with rising output share of the foreign firms. The foreign backward linkage (FOR_$BACK_{jt}$) variable serves to capture the extent of potential contacts between foreign firms and domestic suppliers, and akin to Smarzynska (2002) and Girma et al. (2008), it is defined as:

$$\text{FOR\_}BACK_{jt} = \Sigma_k\, \alpha_{kj}\, FOR\_HORZ_{kt} \text{ for } k \neq j,$$

where α_{kj} is the proportion of sector j output supplied to sector k[10] . Hence, the backward linkage variable increases with rising foreign presence in sectors supplied by industry j and increasing share of intermediates supplied to sectors with foreign presence.

Aside from the linkage variables, proxies for the presence of SOEs in the same or downstream sectors are important for capturing the direct effects of SOEs. Similar to the foreign linkage variables, they are constructed in an analogous manner. The SOE horizontal linkage (SOE_*HORZ*) variable aims to measures the presence of

[9] Smarzynska (2002) and Thangavelu & Pattnayak (2006) used the foreign equity participation averaged over all firms in the same sector (weighted by each firm's share in sectoral output), which would be more sensitive to the presence of foreign investment in the industry. However, the data limitation in the dataset only allowed us to capture the horizontal linkage as the foreign firm's share in sectoral output.

[10] α_{kj} is constructed with the use of an input-output table on Vietnam in early 2000s, retrieved from http://stats.oecd.org

SOEs in a particular manufacturing sector and is defined as the share of sales of SOEs in that sector. It can be written as follows:

$$SOE\_HORZ_{jt} = \Sigma_{\forall j=i}\, y_{j,t} / Y_{i,t},$$

where $y_{j,t}$ represents the output of SOE *i*, operating in sector *j* at time *t* and Y_{jt} is the total output of sector *j* at time *t*. Hence, the SOE*_HORZ* variable increases with rising output share of the SOEs. Correspondingly, the SOE backward linkage (SOE*_BACK*$_{jt}$) variable serves to capture the extent of potential contacts between SOEs and domestic suppliers, and it is defined as:

$$SOE\_BACK_{jt} = \Sigma_k\, \alpha_{kj}\, SOE\_HORZ_{kt} \text{ for } k \neq j,$$

where α_{kj} is the proportion of sector j output supplied to sector k. Hence, the backward linkage variable increases with greater state presence in sectors supplied by industry *j* and increasing share of intermediates supplied to sectors with SOEs.

Additionally, firm-specific characteristics are important in accounting for the presence and size of spillover effects on productivity as discussed in section 2. This study included a proxy for quality of labor in the empirical framework. While studies have used the ratio of skilled workers as a measurement of labour quality, this information is not available in our dataset. Hence, as suggested in Le Quoc Hoi (2008), the average wage of a firm is used a proxy instead, with the assumption that firms with higher average labour costs per worker employ higher skilled labour. The variable (*Labour_Q*$_{ijt}$) is measured as such:

$$Labour\_Q_{ijt} = W_{ijt}/L_{ijt},$$

where W_{ijt} refers to the total wages paid in firm *i,* industry *j* at time *t* while L_{ijt} refers to the total number of employees in firm *i,* industry *j* at time *t.* This variable aims to capture the quality of human capital in each domestic firm. It is predicted that firms

with higher quality of labor is likely to have greater output productivity due to increased efficiency.

An industry-level characteristic is examined through the *Concentration* variable ($CONC_{jt}$) and intends to capture the effects of industry concentration and competition. It is proxied by the Herfindahl index[11] as:

$$CONC_{jt} = \Sigma_i \, (x_{ijt}/X_{jt})^2$$

where x_{ijt} is the sales of domestic firm i in industry j; X_{jt} denotes the total sales of industry j. A higher value of the Herfindahl index indicates a high degree of industry concentration and thus, the presence of big firms withholding large market shares. Hence, it is predicted that a higher value of Herfindahl index is likely to have a negative impact on the productivity of domestic firms as they are unable to compete with larger firms.

The estimated model can be represented by the econometric specification as follows:

$$TFP_{ijt} = \alpha_0 + \alpha_1 \text{FOR\_}HORZ_{jt} + \alpha_2 \text{FOR\_}BACK_{jt} + \alpha_3 SOE\_HORZ_{jt} + \alpha_4 SOE\_BACK_{jt} + \alpha_5 LABOR\_Q_{ijt} + \alpha_6 CONC_{jt} + \delta_t + \delta_j + u_{it} \quad (3)$$

where the subscript i, j and t refer to firms, industries and time respectively. δ_t and δ_j are the time and industry dummies, respectively, and u_{ijt} denotes the stochastic error term in the regression model.

However, there can be considerable unobserved firm-specific heterogeneity given that the firms span across the various segments of the manufacturing industry. Hence, Fixed Effects (FE) and Random Effects (RE) estimations are used to control for such time-invariant firm-specific effects. There are also concerns of the possible endogeneity of the explanatory variables as they might be determined by unobserved variables. In such cases, the FE and RE estimates will be biased. Hence, to address

[11] The Herfindahl index is a concentration ratio which captures the level of competition in a market or industry by comparing market shares of firms using the relative firm size. A high Herfindahl index indicates the presence of firms with large market shares and hence, a lower level of competition in the industry. Correspondingly, a low Herfindahl index indicates firms each having low market share and thereby, implying a high level of competition.

this issue, the two-step Blundell-Bond GMM estimation was employed again. So the final econometric specification can be written as follows:

$$TFP_{ijt} = \alpha_0 + \alpha_1 TFP_{ijt-1} + \alpha_2 \text{FOR}\_HORZ_{jt} + \alpha_3 \text{FOR}\_BACK_{jt} + \alpha_4 SOE\_HORZ_{jt} + \alpha_5 SOE\_BACK_{jt} + \alpha_6 LABOR\_Q_{ijt} + \alpha_7 CONC_{jt} + \eta_i + v_{it} + m_{it} \quad (4)$$

where TFP_{ijt-1} is included to account for the dynamic adjustments of the TFP in time period, *t*. Similar to the TFP estimation, η_i, v_{it} and m_{it} are the additive components of the error term. η_i and m_{it} represent unobserved firm-specific effect and serially uncorrelated measurement errors, respectively. v_{it} refers the unobserved variables which determine the explanatory variables. Two additional robustness checks are undertaken: The Sargan statistics[12] test is undertaken to test the null hypothesis that the over-identifying restrictions are valid and the Arellano-Bond (AR) Test examines the null hypothesis of no serial correlation.

3.2.Descriptive Statistics

Before proceeding to the econometrical tests, it is useful to perform preliminary descriptive analysis on the firms in the sample.

3.2.1. Comparisons between Foreign, State-owned and Domestic Firms

Firstly, a comparison is done among the foreign firms, state-owned enterprises and local enterprises with respect to their firm-specific characteristics. The descriptive statistics are presented in Table 1 below.

[12] Also known as Hansen test, it tests for the validity of instrumental variables used by checking for correlation between the residuals and exogenous variables to affirm the exogeneity of the instrumental variables.

Table 1: Descriptive Statistics

Type of ownership	**Quality of Labour* (mil. Dongs)**	**Wage to Sales Ratio* (%)**	**Employment Growth (% p.a.)**	**High-technology Investment***	**No of Observations**
Total	16.4	0.18	10.68	0.11	4146
Domestic	11.7	0.19	10.55	0.09	1446
Foreign	24.4	0.24	11.35	0.13	890
State-owned	16.3	0.16	10.53	0.11	1810

Note: Table 1: Firm-specific characteristics by type of ownership.
*Labor quality is measured as the average wage in each firm. Wage level is proxied by wages as a proportion of total firm sales. High-technology investment is taken as the number of computers per employee

Quality of Labor - Skilled workers require higher wages than low-skilled workers. Therefore, the average wage in a firm is an indicator for the level of human capital in a firm as firms with relatively more skilled workers are likely to also pay higher average wages. Correspondingly, average wage are used as a proxy for the quality of labor in each firm, which in turn signals the firm's level of productivity and ability to compete with its counterparts in the same industry (Foxs & Smeets, 2011). In our sample, the labor quality of domestic firms is below average while foreign enterprises comparatively employ higher quality labor. Hence, MNEs may impose a negative competition effect on the domestic firms as they gain a competitive edge and enjoy higher productivity.

Employment Creation – Employment creation across firms is dependent on the comparative attractiveness of the firms. An indicator of a firm's appeal is the relative wage level offered to employees of similar qualifications, and it is often observed that MNEs offer higher wages than local private enterprises (Lipsey & Sjoholm, 2004). In this case, the relative wage level is captured by the ratio of wages to firm's total sales, which proxied the firm's willingness to pay for each dollar of labor output. Hence, enterprises which offer higher wages to employees of similar caliber

will have greater ratio of wages to their total sales. In our sample, the foreign firms have the highest ratio and therefore, they may have a draining effect on domestic and state-owned firms by better attracting more skilled workers. This limits the positive effect of labor mobility for which production linkages can facilitate. This trend is also consistent with the labor growth observed across the firms as foreign enterprises have faster labor growth than its domestic and state-owned counterparts.

High–technology Capital Accumulation – Accumulation of High–technology capital contributes to operating performance, research and development, and ultimately, improved productivity (Oliner & Sichel, 1994; Siegel & Griliches, 1992). While the dataset lacks information on the expenditure on all high–technology capital in the firms, a proxy can be constructed to examine the trends amongst firms of different ownership. In this case, the number of computers available in the firm per employee is used to compare the incentive for innovation and efficiency. Foreign enterprises display the highest average while domestic firms have the lowest mean.

However, greater high-technology capital accumulation does not necessarily translate into higher TFP. In the last panel, we see that SOEs has the highest average TFP despite fewer numbers of computers per employee than foreign firms. In fact, foreign enterprises have the lowest average TFP in our sample while domestic firms fared slightly better. Hence, with larger technology gap from SOEs, domestic firms may be able to receive greater productivity spillovers from the technology and knowledge transfers from SOEs than foreign companies.

3.2.2. GMM TFP and Production Linkages

Scattered plots between TFP estimates and the 4 production linkages are also constructed[13] to provide a preliminary illustration of the extent to which the presence of foreign and state firms affect the output productivity of domestic enterprises.

In Figure 3, the fitted plot between TFP of domestic firms and the foreign horizontal linkage showed a negative correlation. Therefore, it is likely that the effects of negative competition over-compensates for the positive effects of technology transfer.

[13] The figures are provided in Appendix 1.

On the other hand, in Figure 4, the fitted plot between TFP of domestic firms and the foreign backward linkage showed almost no correlation. This is indicative of the lack of productivity spillovers from foreign investors to domestic suppliers. Hence, the overall effects of FDI did not seem to improve the domestic firm's output productivity.

In Figure 5, the fitted plot between TFP of domestic firms and the SOE horizontal linkage showed a very slight positive relationship. Therefore, as compared to foreign firms, it is likely that SOEs induced less negative competition effects and more positive transfer of technology and expertise on the local private enterprises.

However, in Figure 6, the fitted plot between TFP of domestic firms and the SOE backward linkage also showed a modest negative relationship. Therefore, domestic suppliers do not seem to gain productivity spillovers from both foreign and state-owned enterprises. This could be due to the inability of domestic suppliers to meet the standards and variety of intermediate inputs demanded by foreign firms and SOEs (Rodriguez-Clare, 1996).

4. Empirical Results

4.1. Estimations of Production Technology

Table 2 provides the results of the estimation of the Cobb-Douglas production function. The first panel reports the OLS estimates with heteroskedasticity-robust estimators. However, as aforementioned, OLS estimates are likely to be biased due to potential endogeneity of input levels. For instance, in the context of a positive productivity shock which simultaneously affects both the production input choices and output levels, the input coefficients are likely to be biased upwards in OLS estimation. Therefore, to control for these biases, the second panel reports the GMM estimates, where the lagged dependent variable is used as a regressor and the lagged input variables are chosen as IVs. The input coefficients are lower than the OLS estimates and this suggests that there is likely to be simultaneity biases in the OLS estimation. Therefore, we adopt the GMM-estimated TFP for subsequent empirical analysis.

Table 2: Estimations of Production Technology by OLS and GMM for Manufacturing Firms in Vietnam: 2004 –2008

Dependent variable: y_{it}	**OLS**	**Two-Step GMM**
Labor, l_{it}	0.618***	0.318***
	(0.009)	(0.031)
Material inputs, m_{it}	0.258***	0.021***
	(0.0056)	(0.0077)
Capital, k_{it}	0.231***	0.128***
	(0.0067)	(0.0193)
Total	1.106	0.476
Number of Obs.	16172	13139

Note: 1) Heteroskedasticity-robust standard errors in parentheses 2)***, ** and * denote statistical significance at 1, 5, and 10 percent, respectively.

4.2.Baseline estimations of GMM TFP for domestic firms

Table 3 reports the baseline estimations of GMM TFP in econometric specifications (3) and (4). The first panel provides the OLS estimates with the heteroskedasticity-robust estimators. However, due to unobserved firm-specific differences and endogeneity of control variables, OLS estimates are inclined to be biased. Therefore, the second and third panels report the fixed effects (FE) and random effects (RE) estimates respectively, to control for effects of firm heterogeneity. There could also be lagged effects from the activities of MNCs and SOEs on the domestic firms. We also take the lag of spillover variables to understand the dynamic effects of spillovers of foreign and SOEs on the domestic firms. The results of the lagged effects are reported at Table 4.

Table 3: Baseline Estimations of GMM TFP by OLS, FE and RE for Domestic Manufacturing Firms in Vietnam: 2004 – 2008

Using GMM TFP	OLS	FE	RE	GMM
Constant	0.0520	-0.406	0.411**	-0.470
	(0.994)	(0.384)	(0.169)	(0.429)
TFP_{t-1}	0.574***	-0.328***	0.486***	0.0562
	(0.030)	(0.047)	(0.034)	(0.104)
FOR_HORZ	0.501	-0.205	-0.488**	-0.523
	(1.0231)	(0.329)	(0.156)	(0.340)
FOR_BACK	-2.0309	-0.765	-0.621***	-0.560
	(2.2818)	(0.893)	(0.168)	(0.884)
SOE_HORZ	-0.730	-0.179	-0.570**	-0.282
	(0.691)	(0.437)	(0.186)	(0.469)
SOE_BACK	1.4636	1.2964*	-0.107	1.963**
	(2.099)	(0.960)	(0.136)	(0.940)
LABOUR_Q	0.015***	0.014***	0.017***	0.014***
	(0.002)	(0.003)	(0.003)	(0.0029)
CONC	-2.5142	-2.3587***	-1.3353***	-2.1304***
	(2.602)	(0.487)	(0.377)	(0.557)
Number of observations	2029	2029	2029	1195
R-squared	.4829	.1472	.4563	----

Note: 1) Heteroskedasticity-robust standard errors in parentheses 2)***, ** and * denote statistical significance at 1, 5, and 10 percent, respectively.

Table 4: Estimations of GMM TFP by OLS, FE and RE for Domestic Manufacturing Firms in Vietnam (lagged): 2004 – 2008

Using GMM TFP	OLS	FE	RE	GMM
Constant	0.0425	-0.307	0.114**	-0.354
	(0.832)	(0.360)	(0.011)	(0.389)
TFP_{t-1}	0.560***	-0.310***	0.408***	0.052
	(0.021)	(0.038)	(0.035)	(0.140)
FOR_HORZ_{t-1}	0.411	-0.413	-0.486**	-0.523
	(0.053)	(0.323)	(0.160)	(0.340)
FOR_BACK_{t-1}	1.009**	0.850*	0.624***	0.512**
	(0.418)	(0.320)	(0.163)	(0.248)
SOE_HORZ_{t-1}	-0.621	-0.180	-0.512**	-0.223
	(0.616)	(0.473)	(0.185)	(0.430)
SOE_BACK_{t-1}	1.466**	1.264*	0.877**	1.635**
	(0.710)	(0.760)	(0.136)	(0.407)
LABOUR_Q	0.014***	0.013***	0.017***	0.015***
	(0.003)	(0.003)	(0.003)	(0.003)
CONC	-2.500	-2.387***	-1.353***	-2.304***
	(2.154)	(0.488)	(0.377)	(0.577)
Number of observations	1409	1409	1409	815
R-squared	0.490	0.172	.3563	----

Note: 1) Heteroskedasticity-robust standard errors in parentheses 2)***, ** and * denote statistical significance at 1, 5, and 10 percent, respectively.

Table 4 suggests the use of RE estimates over OLS estimates is more efficient. The statistics are statistically significant and rejects the null hypothesis that there is no random effect. Hence, the difference in estimates can be attributed to firm-

specific differences not observed in OLS estimations. However, the Hausman's test also showed that FE estimates are favored over RE estimates since the statistics are statistically significant and rejects the null hypothesis that RE estimates are consistent. Lastly, we also observe that FE estimates are qualitatively similar to GMM estimates in Table 3, which suggests that any endogeneity biases did not qualitatively bias the FE estimates. However, to ensure the robustness of the estimates, the remaining discussions are focused on the GMM estimations of GMM-TFP to ensure firm heterogeneity and endogeneity biases are fully controlled.

Firstly, the coefficient estimates associated with foreign horizontal and backward linkages are negative in the FE and GMM estimations, albeit not statistically significant at Table 3. This suggests that there are generally no foreign productivity spillovers on the domestic manufacturing firms. However, at Table 4, the lagged of foreign backward variable indicates positive spillovers on the domestic firms for both the fixed effects and GMM estimation. This indicates that there is lagged effects of spillovers on the domestic firms and this might due to the learning-by-doing effects in the economy. Thus, we do observe technology and expertise spillovers to the domestic firms from foreign firms in Vietnam.

The results of the impact of SOEs are also reflected in Tables 3 and 4. Similarly, the negative but statistically insignificant parameter estimates for SOEs' horizontal spillovers on domestic enterprises. However, it is interesting to note that the relevant coefficient estimates for SOE backward spillovers are positive and statistically significant in the empirical model, and also with the lags, which suggests that SOEs have a positive impact on the output productivity of domestic suppliers. This implies that, unlike foreign conglomerates, SOEs have established production linkages with local private suppliers and induced productivity improvement. One possible explanation is the existing network and ties between SOEs and local private suppliers due to proximity. As Girma et al. (2008) proposed, exporting foreign firms often tap on the same distributional networks of the parent companies in their home countries for expediency and ease. Therefore, in the context of SOEs, it is more likely that they would approach local suppliers which they have worked with for continued partnership. Subsequently, the contact with SOEs can induce spillovers of knowledge

and incentivize these local suppliers to improve the quality of their products by improving their productivity.

At the same time, the coefficient of quality of labor is found to be positive and statistically significant across all specifications. This highlights the importance of investment in human capital in local firms to improve their output productivity. Consistent with Iršová & Havránek (2013) and P. Nguyen (2008), this suggests that higher levels of human capital facilitate innovation and imitation of technology and expertise from MNEs and SOEs. On the other hand, the industry-level attribute (level of concentration) is shown to be negative and statistically significant for both the FE and GMM estimations. This provides evidence that high level of concentration in an industry would favor larger firms and disadvantage firms with small market shares, which subsequently impact negatively on the latter's productivity. This is especially true for industries where majority of market shares is dominated by large foreign or state-owned enterprises. In such instances, domestic firms are unable to compete and their productivity is affected by falling profit margins.

4.2.1. GMM Estimations of GMM TFP for Domestic and Foreign Firms by Scale

Given the negative horizontal spillovers from foreign and state-owned firms, it is apparent that the competition effects have a negative effect on domestic firms. However, as the literature review in section 2.2 suggested, the scale of a firm often determine its scale of operation, technology capacities and labor quality, which in turn affects each firm's ability to compete with MNEs and SOEs in the same industry. For that reason, small domestic firms are likely to experience more negative impacts as compared to the large domestic firms. Similarly, the negative backward spillovers from foreign firms may be indicative of the domestic suppliers' lack of appeal to foreign enterprises in terms of product quality and variety. Analogously, smaller firms would tend to experience more adverse impacts than their large counterparts due to relatively lower quality of products and less diversity of options. Therefore, we partition the sample into two groups by defining small domestic firms as firms with less than 100 employees and large domestic firms as those with more than 100 employees. GMM estimations based on the prior empirical

framework are carried out on the groups separately to investigate any differential impacts on the productivity spillovers.

Our findings in Table 5 substantiate our hypothesis. The first panel shows the parameter estimates for small domestic enterprises and they correspond with the results in table 5; foreign firms have negative horizontal and backward productivity spillovers on domestic firms while SOEs in the same industry imposed negative productivity spillovers as well.

However, the second panel which provides the coefficient estimates for large domestic firms showed positive spillovers across the 4 types of linkages, albeit not statistically significant. This suggests that the adverse impacts of spillovers from foreign horizontal and backward linkages, as well as SOEs backward linkage in the previous estimates are mainly driven by the negative effects on small domestic firms. This is consistent with the explanations in Aitken & Harrison (1999) and Crespo & Fontoura (2007), where the scale of the domestic enterprises can determine the influence of spillovers through the firm's ability to compete in the market and attract partnerships with downstream firms.

Table 5: GMM Estimations of GMM-TFP by Scale of Domestic Manufacturing Firms in Vietnam: 2004 – 2008

Using GMM TFP	Small Domestic Firms	Large Domestic Firms	Foreign Firm
Constant	-0.696 (0.552)	-0.401 (0.490)	-0.305 (0.500)
TFP_{t-1}	0.075 (0.121)	-0.084 (0.138)	0.101 (0.090)
FOR_HORZ	-0.675 (0.422)	0.368 (0.513)	
FOR_BACK	-1.1168 (1.315)	0.099 (0.538)	
SOE_HORZ	-0.236 (0.665)	0.103 (0.531)	0.090 (0.523)
SOE_BACK	2.754** (1.265)	0.269 (0.539)	0.340* (0.205)
LABOUR_Q	0.018***	0.007***	0.080**

	(0.004)	(0.003)	(0.030)
CONC	-2.245***	1.414	1.500
	(0.622)	(2.102)	(2.130)
No. of observations	883	312	1530

Note: 1) Heteroskedasticity-robust standard errors in parentheses 2)***, ** and * denote statistical significance at 1, 5, and 10 percent, respectively.

The parameter estimates for SOE backward spillovers and the effects of labor quality remains qualitatively the same as the previous GMM estimation. However, it is important to note that the positive SOE backward spillovers are now only statistically significant for small domestic firms. This highlights that partnerships with SOEs are likely to benefit smaller domestic suppliers more, since small local enterprises tend to have greater technology gaps with SOEs and thus, greater potential for transfer of technology and knowledge. The coefficient estimates for effects of quality of labor remained positive and statistically significant, which emphasizes that high labor quality remains an important factor for productivity improvement for both small and large domestic firms. However, effects of concentration in the industry is only negative and statistically significant for small domestic firms, which supports the proposition that firms operating on a smaller scale have less ability to compete, especially when there are large competitors in the same market. Conversely, the positive parameter estimate for large domestic firms suggests that they are more able to contest other large competitors by improving their productivity. We also observe that SOEs create positive backward spillovers for the foreign firms. The industrial base is created by the SOEs and there is greater join ventures and collaborations between SOEs and foreign firms. Hence it is not surprising to observe that there is positive spillovers from SOEs on the foreign firms.

5. Policy Discussions

There are several policy implications for the development of small and medium sized enterprises for emerging economies such as Vietnam. In fact, the development

of SMEs will be very crucial for Vietnam to attain sustainable development for its economy. The ability to create crucial linkages between local firms and foreign firms will be important for Vietnam to link to the global production network. This study will highlight the productive performance of domestic firms and the key determinants of the productivity growth.

Promoting the growth of domestic small and medium-sized enterprises (SMEs) represents an important national development objective in most countries for both economic and socio-political reasons. Although this observation applies generally, the goal has particular consequence in developing countries with limited local enterprises that may lack the resource base or sufficient market size to foster further internal expansion. Domestic SME development can increase employment, generate economic growth, create local value added, and improve national innovation and entrepreneurial capabilities. The current study will provide important insights on the growth of small and large firms in Vietnam.

In the long term, strong governmental support for relatively smaller domestic firms has to be in tandem with its FDI policies in order to tap on the full potential spillovers from FDI inflows. In particular, small and medium enterprises (SMEs) form a key part of the private sector and development of SMEs will augment these local firms' ability to compete with MNEs and SOEs. An important scheme put in place is the Fund for SMEs Credit Guarantee, which increases credit access for innovation, investments and scale expansion of SMEs. However, like many policies, the outreach and implementation remained limited in certain provinces; stricter monitoring and regulation are crucial for the effectiveness of such policies (Tran, Le & Nguyen, 2008). Given the importance of labor quality as a determinant of firm's productivity and the apparent disparity in levels of human capital between domestic and foreign enterprises, more of schemes such as the Program on Human Resource Training Support for SMEs are necessary. For instance, lower human capital investment in local private firms can manifest in the form of employees with fewer years of experience and education, and managerial personnel with less professional training. Consequently, this has a negative impact on the firm's efficiency and absorptive capacity for transfers of expertise and technology. By boosting the level of human capital through training, it encourages greater labor quality in domestic

firms and induces positive competition and demonstration effects through intra-industry linkages.

Whether, or to what extent, this "win-win" scenario materializes can depend both on the existing endowments of a prospective host country to attract FDI and on creating a policy environment that recognizes and promotes beneficial FDI-SME linkages. Host governments may choose from an array of policy options and programmatic tools that best fit their individual national conditions and priorities.

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Appendix 1

Figure 3: A Fitted Plot between TFP of Domestic Firms and the Foreign Horizontal Linakge

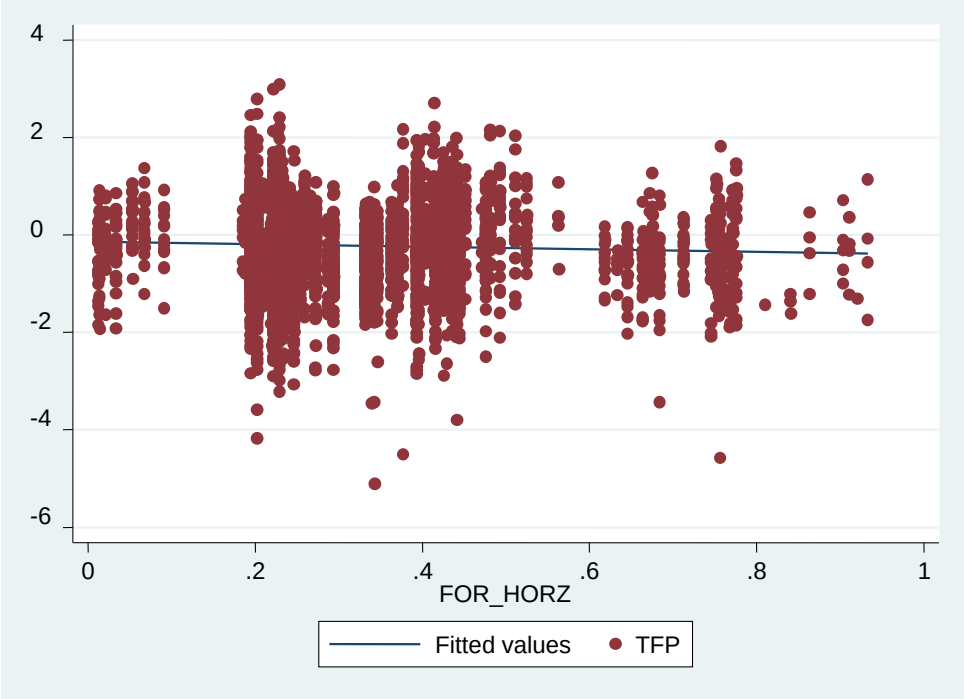

Figure 4: A Fitted Plot between TFP of Domestic Firms and the Foreign Backward Linakge

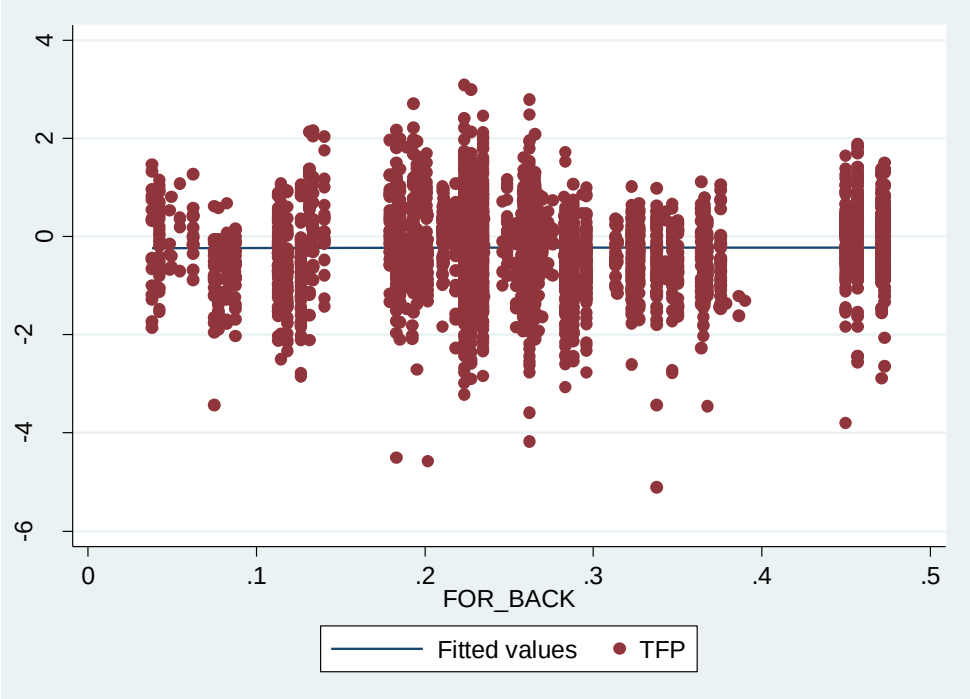

Figure 5: A Fitted Plot between TFP of Domestic Firms and the SOE Horizontal Linkage

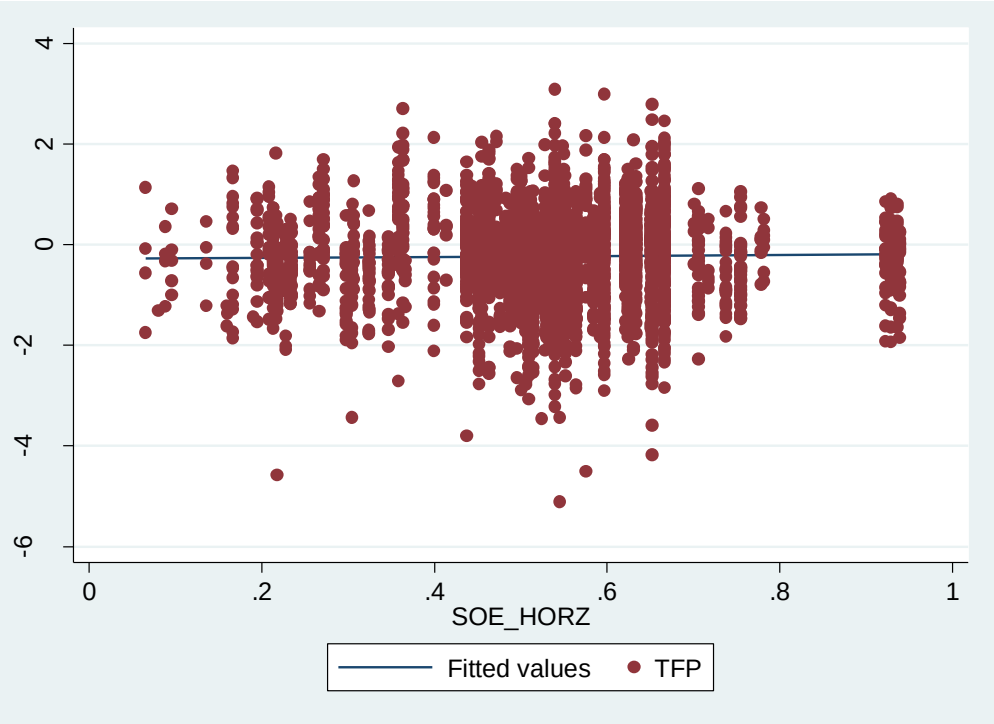

Figure 6: A Fitted Plot between TFP of Domestic Firms and the SOE Backward Linkage