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CONTENTS

	Page
Editor's Note: CORAZON G. ANZANO	v
Research Articles	
Test of Benford's Law and Approximate Distribution on BI-Ready Disbursement Voucher (DV) Amounts RHENOZO D. BARTE	1
The Importance of Nurturing Ethical Belief to Comply with Tax RINI HASTUTI and SHANDY JANNIFER MATIAPUTTY	22
Income Elasticity of Resource Depletion in the Philippines, Indonesia, and Thailand: 1998-2013 KRYSTEL KAYE T. LEE and GERARD L. GO	39
Impacts of Inward FDI on the Indonesian Manufacturing Sector WAHYUDI WIBOWO	67
The Impact of the Sugar-Revitalization Policy in East Java, Indonesia: A Dynamic-System Approach DUWI YUNITASARI	94
About the Contributors	111
DJBES Editorial Policy	113
Subscription Form	115

IMPACTS OF INWARD FOREIGN DIRECT INVESTMENTS (FDI) ON THE INDONESIAN MANUFACTURING SECTOR

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Abstract. Developing economies have shown increasing reliance toward FDI-assisted development policies in the recent decades. However, evidences reveal no assurance on the effectiveness of those policies. This paper aims to study the impact of inward FDI on the productivity of the Indonesian manufacturing sector, particularly on two types of FDIs, i.e. market and efficiency seeking. Another inquiry is to understand up to what extent different trade policy regimes may work as catalysts of the impacts of FDI.

This study used a panel data set of manufacturing firms during the period of 1990–2010 from the Annual Manufacturing Survey of Indonesian Central Agency on Statistics. The econometric specifications employed the augmented Cobb-Douglas production function. To check for robustness, it ran the estimations under the OLS for both the fixed-effect and random-effect models.

The findings showed that the positive impacts of inward FDI on the productivity of the Indonesian manufacturing sector during the period of study, either directly or indirectly, were not strong. It is also suggested that successive trade liberalizations had induced for more positive impacts from FDI, except in the period of crisis. Moreover, dissimilar to previous studies, it is argued that the types of FDI per se are not responsible for the positive impacts.

Keywords: FDI impacts, developing economy, market-seeking FDI, efficiency-seeking FDI, trade policy

INTRODUCTION

Adjacent to its determinants, the impacts of inward foreign direct investment (FDI) on the output and productivity of developing economies have been intensively studied in the past three decades. This is based on the fact that developing economies have increasingly relied on inward FDI as a source of assistance for economic development, but the effectiveness has been questioned. Studies on FDI impacts signaled diverse results of both positive and negative impacts.

The expected positive impacts from FDI are based on the view that FDI can directly convey output, capital, and employment growth to the host economy. In addition, FDI is also expected to bring indirect impact in terms of productivity spillovers. However, the latest findings in this field show that FDI may not always bring positive impacts on the host economy. Diverse conclusions of FDI impacts on the output growth of developing economies were surveyed in Rugraf et al. (2009). Correspondingly, surveys on the productivity spillovers of FDI in Gorg and Greenaway (2004) and Lipsey and Sjöholm (2005) also find diverse conclusions, especially for the cases of developing economies.

Hence, those findings are challenging the orthodoxy on the role of FDI in the development processes of developing economies. The positive impacts of FDI on the host economy are actually not assured but might depend on conditionals. Therefore, studies on FDI impacts have been working on identifying some of the conditionals, notably the two-pronged heterogeneity of host-economy characteristics and FDI types (Cohen, 2007; Rugraf et al., 2009; Lall & Narula, 2006). Host-economy characteristics are influential since they are associated with the degree and speed of the host economy to channel the impacts of FDI. FDI types are as well considered to be influential because they determine the distinctive objectives and strategies of the foreign investments and thus the possible kinds of impacts they can generate in the host economy.

One important features of host-economy characteristics is trade-policy regime. This characteristic is related with the degree of trade openness of the host economy. Open-trade policies usually invite a higher amount of inward FDI and are associated with greater positive impact on the output of the host economy through exports expansion.

Indonesia, which has performed dynamic phases of industrial development, is an interesting case to study. It is an economy with extensive involvement in foreign investments in its manufacturing sector (see table 1). The economy as a whole—and particularly its manufacturing sector in the period of the 1970s to the 1990s and also later in the mid 2000s—has been perceived as an attractive destination for foreign investments. This circumstance is caused by the economy's inclination toward greater openness in foreign investment.

Table 1

FDI Approval and the Presence of Manufacturing FDI in Indonesia 1970–2003

Period	Value of Approved FDI (US\$, million)	Percentage of Manufacturing FDI to Total Approval
1970–74	331.02	60.32
1975–79	1,064.42	68.89
1980–84	1,553.14	81.72
1985–89	2,460.04	82.52
1990–94	11,944.18	62.74
1995–99	25,626.44	63.45
2000–03	13,319.5	47.76

Source: Bank of Indonesia and BKPM, annual report (1990–2005)

This paper aims to study the impacts of FDI on the productivity of the Indonesian manufacturing sector, specifically by inquiring the relative importance of two different types of FDI—i.e., market and efficiency seeking. Another inquiry is to understand up to what extent different trade-policy regimes in the economy may be catalysts of the impacts of FDI.

LITERATURE REVIEW

Diverse Impacts of FDI in Developing Economies. In neoclassical literature, FDI is associated positively with output growth through either its direct effects on capital and labor augmentation or indirectly on the productivity of the host economy by transferring new technologies and sophisticated management techniques. However, while in theory, the relationship between FDI and growth in terms of output and productivity is generally positive, the empirical literature is less conclusive. The literature on FDI impacts in developing economies identified many second-best problems (Caves, 2007).

With regard to output growth, the impacts on host economies were diverse, and the positive results likely took place under conditionals such as FDI types and sector- or industry-specific characteristics (e.g., Feinberg & Keane, 2005; Alfaro, 2003). With respect to productivity spillovers from FDI, the impacts were also diverse and even inconclusive for some cases. Positive results of productivity spillovers were mostly brought by vertical-type spillovers and particularly the backward spillovers (e.g., Fillat & Woerz, 2010; Smarzynska-Javorcik, 2002).

Why do negative or inconclusive impacts exist? There are several explanations. First, foreign firms may reduce the productivity of domestic firms through competition effects. The presence of foreign firms may create crowding-out effects in the host economy (Aitken & Harrison, 1999). Second, there may be lags in domestic firms learning toward their foreign counterparts. This relates technology spillovers with the absorptive capabilities of the host economy. Moreover, technology spillovers depend on the complexity of the technology transferred by foreign firms and the technological gap between domestic and foreign firms (Damijan et al., 2001).

Third, MNCs may guard well their firm-specific advantages in preventing leakages to domestic firms. Spillovers may occur not horizontally (intraindustry) but through the vertical linkages (interindustry). MNCs can voluntarily or involuntarily help increase the efficiency of their domestic suppliers or customers through vertical input-output linkages. Fourth, there may be large varieties of impacts at the sectoral or firm level that an aggregate approach fails to consider (Gorg & Greenaway, 2004).

A recurring issue in the literature of FDI-impact studies is that positive impacts are preconditioned by three main factors. The first factor is certain host-economy characteristics are important to ensure the positive impacts of FDI. This conditional refers to the absorptive capacity of host economies to learn new technologies and management practices manifested in the foreign investment. The positive impacts hold only when host economies have reached a sufficient threshold level of development to allow them to absorb the new foreign technologies (Li & Liu, 2005; Borensztein et al., 1998).

Other studies also show that host economies will only get benefits from FDI if they possess sufficiently efficient institutions. Therefore, developing economies that propose good protection of foreign investments and property rights and display low regulations on the labor and other factor markets attract more FDI and increase the positive impacts of FDI (Rugraf et al., 2009). This feature includes the nature of trade-policy regimes. The hypothesis is the positive growth impacts of FDI are related with open-to-trade-policy regimes (Bhagwati, 1978).

The second factor is the distinctive types of FDI may have different impacts on the host economy's performance (Rugraf et al., 2009; Feinberg & Keane, 2005; Nunnenkamp & Spatz, 2003). Types of FDI are crucial in determining how linkages and externalities will be developed in the host economy. There are four types of FDI to consider: market seeking, efficiency seeking, resources seeking, and strategic-assets seeking. With regard to their stage of development, developing economies are likely to attract the first three types of FDI (Lall & Narula, 2006).

Market-seeking firms, which have highly customized products in the domestic market, tend to treat their foreign affiliates as self-contained production units rather than as part of an integrated network of cross-border activities. In consequence, the affiliates are expected to be very responsive to domestic needs. Therefore, market-seeking FDI could benefit the host economy by improving the efficiency of domestic production and marketing systems through backward linkages or competition. However, fiercer competition may crowd out the domestic competitors. Moreover, market-seeking FDI often does not generate export revenues. As a result, the growth impact of market-seeking FDI could be weaker than the other.

In contrast, efficiency-seeking FDI draws more on the relative factor endowment of host economies. Therefore, efficiency-seeking FDI is more likely to bring in technology and know-how that is compatible to the host economies' level of development and, furthermore, enables domestic suppliers and competitors to benefit from spillovers through adaptation and imitation. In addition, the world-market orientation of efficiency-seeking FDI could generate export expansion for host economies. As a result, efficiency-seeking FDI is expected to bring stronger growth impact.

The third factor that preconditioned positive impacts from FDI is that sectoral or industry-specific characteristics matter in facilitating the impacts of FDI. This factor includes the particular technology-level requirement, market orientation, market structure, or degree of linkages of the sector in question. The ambiguous impacts of FDI on the performance of the host economy may be linked to the fact that the impacts vary across sectors (Alfaro, 2003; Vu et al., 2005).

Liberalizations of Indonesian Manufacturing Sector. The Indonesian economy, with a GDP of US \$870 billion, was the sixteenth largest economy in 2015. The economy's remarkable achievement was associated with the development of its manufacturing sector. The development was made possible by the support of foreign investments, which have been initiated in the mid-1960s and then followed with the introduction of an export-oriented strategy in the mid-1980s. During the period of 1966 to 1991, the role of manufacturing sector had been increased and accompanied with high economic growth (Hill, 2000). A range of economic reforms introduced in the late 1980s brought large foreign investments into Indonesia, particularly in export-oriented and labor-intensive manufacturing industries (Dhanani, 2000). During the 1990s, the government declared some commitment toward progressive trade liberalizations through its involvements in AFTA, APEC, and WTO.

However, due to the Asian financial crisis that began near the end of 1997, Indonesia's rapid growth had been severely affected. The contraction in the manufacturing sector was about the same as for the economy as a whole—that is, at 13 percent (Aswicahyono, et al., 2011). In the postcrisis period (2002 onward), the macroeconomic policy has been set to be more prudent, and foreign investments have begun an

inflow again to the economy, though at a slower pace. Since the period of financial crisis, the share of the manufacturing sector has tended to decline, triggering worries of premature deindustrialization. After the crisis, the economy has been actively engaged in bilateral and regional trade liberalizations.

Based on the report of Indonesia Investment Coordinating Board (BKPM, 2012), the influence of FDI on Indonesian economy is worth to be examined. First, in the period before the crisis, flows of foreign investment comprised of 47 percent of total investments. In the periods of crisis and after the crisis, foreign investment flows were recorded at 78 percent and 66 percent of total investments, respectively. Total investments in the manufacturing sector were largely influenced by foreign investments for the whole period of 1990–2010.

Second, with regard to the types of FDI, for a quite long period, from 1990–2003, the presence of market-seeking FDI across industries was greater than efficiency-seeking FDI. However, in the last period, from 2004–2010, the presence of efficiency-seeking FDI in several industries had surpassed the market-seeking FDI. Third, while the distribution of the market-seeking FDI quite wandered, the distributions of efficiency-seeking FDI were concentrated in few industries, such as basic metals, metal products, wood and wood products, and others.

In summary, FDI inflows to Indonesia have played quite substantial roles, including in the development of the manufacturing sector. This was resulted from the improvements on investment climate and incentives offering (Pangestu & Anas, 2006; Triatmodjo et al., 2011; Rachbini, 2008; Ilmar, 2010; Negara & Firdausy, 2011). In addition, Indonesia had continued to liberalize its trade policy since 1985. After being temporarily stunned by the financial crisis, further trade liberalizations took place in the economy through bilateral and regional preferential trade agreements (PTAs) in the 2000s.

Various studies have explored the output growth and productivity impacts of FDI on the Indonesian economy, including its manufacturing sectors. Some were based on econometric testing on the aggregate or sectoral level of industrial survey data, while others were case studies at the firm or sectoral level.

With regard to the growth impact from FDI, there have been few studies conducted, including Bachtiar (2003) and Khaliq and Noy (2007).

While Bachtiar (2003) found evidence on the positive impact of FDI on output growth, Khaliq and Noy (2007) found diverse impacts of FDI across sectors. For the productivity impact, several studies have been exercised, including Aswicahyono (1998), Takii and Ramstetter (2000), Takii (2001), Temenggung (2006), Jacob and Meister (2005), and Negara and Firdausy (2011). The impacts of FDI on productivity reported in these studies were, in general, positive, but sectoral characteristics matter.

METHODS

Econometric Specification. To investigate the relationship between the presence of FDI and plants in the Indonesian manufacturing sector, we followed the standard approach, in which a functional form of the Cobb-Douglas production function was adopted. The workhorse of this approach was specified by the following linearized production function for industry: $j = 1, 2, \dots, J$.

$$Y_{ijt} = a_{ijt} + \beta_1 l_{ijt} + \beta_2 k_{ijt} + \varepsilon_{ijt(t)} \quad (1)$$

Where Y_{ijt} was the real value-added of plant i at time t ; a_{ijt} was the term assumed to capture technical progress, which often called total factor productivity (TFP); k_{ijt} was the real capital input, which was approximated by tangible fixed assets; l_{ijt} is the number of workers employed; and ε_{ijt} was an error term. All real variables were deflated by the GDP deflator of base year 2000, and we took the logarithmic transformation to linearize the production function.

The term for technical progress, a_{ijt} , was incorporated in equation 1 as a shift factor, which was independent of inputs. One way to model the effects of FDI presence on the productivity of a plant was to relate this term to the presence of FDI. We assumed that technical progress captured by a_{ijt} was affected by the presence of FDI. For an industry j , we specified the relationship between technical progress and the presence of FDI as follows:

$$a_{it} = \alpha_0 + \alpha_1 FDI_{j\exists i,t} + \alpha_2 FDI_{j\nexists i,t} + \delta_1 Export_{it} + \delta_2 D_t + \varepsilon_{it} \quad (2)$$

where *FDI* with some subscripts, which will be explained later, represented the presence of FDI. Furthermore, equation 2 was specified to capture two rather important factors. First, in order to capture the influence of FDI types on productivity, our specification included an indicator for an FDI-type dummy (*export*). Types of FDI were identified by the percentage of exports of the foreign plants. Referring to Indonesia Investment Coordinating Board (BKPM)'s classification, foreign plants with exports at least 65 percent were identified as efficiency-seeking FDI; everything else was identified as market-seeking FDI.

Second, time dummies (*D*) were included to investigate the influence of the changing trade regimes in the Indonesian economy. The introduction of time dummies was supposed to capture changes in business environment that applies to all firms involved in a similar way, which brought by changes in the policy regime on international trade. This approach was also used in the previous studies of Temenggung (2006) and Jacob and Meister (2005). In this study, we divided the study period of 1990–2010 into three periods: precrisis (1990–1997), crisis (1998–2002), and postcrisis (2003–2010). The time dummies were lagged by one year, in order to allow for the policy regime changes to take effect.

We opted to use time dummies to measure for the changes of the trade-policy regime in the Indonesian economy instead of using trade-openness indicators such as Sachs-Warner index (SWI) or trade bias index (TBI), with respect to the following reasons. First, the effectiveness of SWI to measure for the degree of trade openness was highly criticized in Harrison and Hanson (1999) and Rodriguez and Rodrik (2000). Second, though the use of a direct measure on trade openness such as TBI (Weerasinghe, 2005; Bhagwati, 1978; Krueger, 1978) could be more reliable, this kind of measure did not fit with our purpose. Our particular interest was to distinguish the impacts of Indonesian trade-policy regime changes in the precrisis and postcrisis periods, wherein the latter-period trade-policy regime was marked by a large tendency on bilateral and regional preferential trade agreements (PTAs). In this sense, the use of TBI alone will not be an effective measure for the postcrisis period. TBI uses the average ratios of the collection of import duties to total imports and collection of export taxes to total exports but without considering the effects of PTAs.

Plugging equation 2 into equation 1, we obtained an augmented form of production function incorporating FDI effects as well as FDI types and trade policy regime variables:

$$y_{ijt} = \alpha_0 + \beta_1 l_{ijt} + \beta_2 k_{ijt} + \alpha_1 FDI_{i,t} + \alpha_2 FDI_{j \neq i,t} + \delta_1 d_t + \delta_2 d_r + v_{ijt} \quad (3)$$

where $v_{ijt} = \varepsilon_{ijt} + \epsilon_{ijt}$. Note that the purpose of this study was to investigate the effects of FDI presence on each plant in each industry. In order to meet this purpose, equation 3 includes $FDI_{j \neq i,t}$ as the share of output that was assumed to be produced by FDI in industry j to which the firm i was affiliated, while $FDI_{i,t}$ is the share of output in all other industries except for that of industry j . We suggested that the former was assumed to represent the proxy variable for the FDI presence within an industry while the latter was the proxy variable for the FDI presence outside that industry. Detailed definitions of the FDI presence and their justifications are given in the following.

Given a panel data format, we suggested the following measure of the presence of FDI associated with industry j :

$$FDI_{j \neq i,t} = \frac{\sum_{i \in j} (w_{it} y_{it})}{\sum_{i \in j} y_{it}} \quad (4)$$

where $w_{it} = \frac{FDI_{it}}{K_{it}}$ stands for the weight of FDI for a plant i at time t , or the ratio of foreign direct investment on that plant to the value of total fixed assets, all of which were real values, with the definition of the other variables being the same as those above. This approach followed similar intraindustry spillover measurements applied in Aitken and Harrison (1999).

As well-informed readers in this field would notice immediately, the definition of $FDI_{j \neq i,t}$ was the same as the standard proxy variable for the so-called "horizontal effect" of FDI in literature. Furthermore, for the purpose of this study, we suggested an alternative to the Javorcikian measure for "vertical effect" of FDI (Javorcik, 2004), as formalized in equation 6.

$$FDI_{j \neq i,t} = \frac{\sum_{i \in j} (w_{it} y_{it})}{\sum_{i \in j} y_{it}} \quad (5)$$

For both measurements of horizontal effect (equation 5) and vertical effect (equation 6), in order to examine the effects of industry characteristics on FDI spillovers, we ran the estimations for each industry at a 2-digit level of ISIC.¹ The estimation at a high-level aggregation of ISIC was chosen to get a significant and balanced distribution of FDI presence across industries, which was important to get a more reliable result. In addition, this would allow us to do a comparison of the results with other studies that apply the same approach (e.g., Temenggung 2006). However, we were aware that this approach may oversimplify the structural difference between the horizontal and vertical effects of FDI. The vertical effect that resulted from a supply-chain linkage might also take place within the same 2-digit ISIC industry.

Next, note that estimating a production function like equation 3 by ordinary least squares (OLS) may suffer from biases caused by the endogenous nature of factor inputs. For a profit-maximizing firm, it would be the best response to increase factor inputs immediately available when it observes a positive productivity shock. Levinsohn and Petrin (2003) propose intermediate inputs (e.g., electricity, materials) as a proxy for productivity shock. The Levinsohn-Petrin procedure was used to estimate coefficients for labor and capital in equation 1. Once the parameters for input elasticities of outputs that were free from the contamination of productivity shock were estimated, we calculated a bias-free logarithm of TFP as follows:

$$\hat{a}_{it} = y_{it} - \hat{\beta}_1 l_{it} - \hat{\beta}_2 k_{it} \quad (6)$$

where \hat{a}_{it} was the estimated TFP for the firm i in j industry in the year t and $\hat{\beta}_1 \hat{\beta}_2$ s were Levinsohn-Petrin coefficients for labor and capital as associated. To be as thorough as possible, this study used both value added (equation 3) and Levinsohn-Petrin TFP (equation 2) as the dependent variables and then compared the results with each other to check the robustness of this test.

¹ISIC Code (International Standard Industrial Classification) is an international standard classification of all economic activities including both merchandise and services. In ISIC Revision 3.0, level 1 includes 17 sections, level 2 covers 62 divisions identified by two-digit numerical codes and 161 groups identified by three-digit numerical codes define level 3.

There were two hypotheses employed in this study:

H0: Market-seeking and efficiency-seeking types of FDI have the same degree of relationship with the levels of output and total factor productivity in the Indonesian manufacturing sector;

H0: Each of the different trade-policy regimes has the same degree of relationship with the levels of output and total factor productivity in the Indonesian manufacturing sector.

This empirical study was based on vast plant-level data drawing on the unpublished Annual Manufacturing Survey compiled by the Indonesian Central Agency on Statistics. Our sample covers the sample period of 1990–2010. The survey was conducted yearly and covers all registered medium- and large-scale manufacturing establishments with at least 20 employees. The number of firms covered in the data set has steadily increased over time from 16,536 in 1990 to 24,342 in 2010, with the total number of observations adding up to 453,342. After data trimming, we finally constructed a panel data set with 277,393 observations, in which 47,776 plants were each assigned their unique identification number.

The data set contained detailed information on the foreign-owned plants. Depending on the year, the survey contained up to 160 variables covering industrial classification (5-digit ISIC), ownership status, location, output, input, value added, assets, asset changes, labor, raw material, machinery, energy, income, nonproduction expenditures, investment, and other specialized questions. This study converted the data set into a 2-digit classification level of ISIC, generating 9 industrial sectors from codes 31 to 39.

RESULTS AND DISCUSSION

Foreign Plants versus Domestic Plants. Prior to investigating the FDI impacts on the productivity of domestic plants in various industries, we began our analysis by providing a rough picture of the differences between domestic plants and foreign plants. The structural differences between them were identified by estimating an augmented production function (equation 3) and a TFP equation (equation 2) that introduce the interaction terms between variables for horizontal and vertical effects of FDI and the dummy variable for foreign plants so that FDI impacts on foreign plants were distinguishable from those on domestic plants.

For robustness of estimation, we first estimated the augmented equations for pooled data by OLS and then estimated both fixed- and random-effect panel models. For the case of the pooled OLS estimation, we included 2-digit industrial dummies to allow for fixed productivity differences across industries. In order to control the plant-specific unobserved variables, we also estimated a fixed-effect model for the panel data in which all time-invariant variables were swept out.

Table 2 reported the results of these estimations with robust standard errors in parentheses. By estimating various formats of equations for output and productivity, we found interesting differences between foreign and domestic plants. First, the coefficients for dummy variables for foreign plants were statistically significant. The statistical significance of the estimated coefficients implied that the level of output and productivity of foreign plants were significantly different from those of domestic plants. Foreign plants were significantly at greater productivity than domestic plants. On the other hand, it was unfortunate in getting a consistent conclusion that the other estimations have different signs; this requires further cautious consideration of the credibility of the model specifications.

Table 2. Foreign Plants vs. Domestic Plants: Pooled Data

Variables	Pooled OLS		Fixed Effect Model		Random Effect Model	
	Value-added	TFP	Value-added	TFP	Value-added	TFP
(1) Capital	0.317*** (0.00)		0.113*** (0.00)		0.207*** (0.00)	
(2) Labor	0.929*** (0.00)		0.979*** (0.01)		1.022*** (0.01)	
(3) Foreign-Invested	0.610*** (0.04)	1.113*** (0.05)	-0.135* (0.06)	-0.257*** (0.06)	0.264*** (0.05)	0.195*** (0.05)
(4) Horizontal	-0.108*** (0.03)	-0.260*** (0.03)	-0.195*** (0.03)	-0.231*** (0.03)	0.386*** (0.02)	0.278*** (0.03)
(3)*(4)	0.006 (0.06)	0.063 (0.06)	0.674*** (0.10)	0.847*** (0.11)	0.454*** (0.08)	0.744*** (0.09)
(5) Vertical	-0.141** (0.04)	-0.188*** (0.05)	-0.155*** (0.04)	-0.300*** (0.04)	-0.653*** (0.04)	-0.755*** (0.04)
(3)*(5)	0.109 (0.13)	0.801*** (0.14)	0.089 (0.17)	0.487** (0.18)	0.023 (0.15)	0.481** (0.17)
(6) Export Share	0.029*** (0.01)	0.602*** (0.01)	-0.029* (0.01)	-0.004 (0.01)	0.024* (0.01)	0.092*** (0.01)
(3)*(6)	-0.464*** (0.02)	-0.854*** (0.02)	-0.067* (0.03)	-0.074* (0.03)	-0.190*** (0.03)	-0.174*** (0.03)
1990-1997	0.080*** (0.01)	0.091*** (0.01)	0.108*** (0.01)	0.111*** (0.01)	0.095*** (0.01)	0.118*** (0.01)
1998-2002	0.082*** (0.01)	0.042*** (0.01)	0.054*** (0.01)	0.070*** (0.01)	0.071*** (0.01)	0.076*** (0.01)
2003-2010	0.240*** (0.01)	0.126*** (0.01)	0.149*** (0.01)	0.182*** (0.01)	0.179*** (0.01)	0.175*** (0.01)

* p<0.1; ** p<0.05; *** p<0.01

Dummies for industry are included.

Source: own calculations

Moving to the FDI spillover effects, all coefficients for horizontal effects were statistically significant at a high level. Although their signs were mixed, a Hausman test for this coefficient provided a favorable result to the fixed-effect model. These results imply that when putting together both foreign and domestic plants in Indonesian manufacturing industries, the presence of FDI within the industry in which foreign plants engaged had negative effects on the levels of output and productivity of domestic plants. This is consistent with the finding of Aitken and Harrison (1999).

However, the coefficients for the interaction term between the variables for *foreign-invested* and *horizontal* indicated positive signs and were statistically significant for the estimates of both panel data models. It means the horizontal effects were relatively positive for the foreign plants. When we took the estimation results for fixed-effect model, the magnitude of the coefficients even overwhelmed the negative coefficients

for the variable *horizontal* estimated. As a result, the overall horizontal effects of FDI on foreign plants became positive. These findings suggest that foreign plants were the major beneficiaries of the horizontal effects of FDI. This is also consistent with the findings of Aitken and Harrison (1999).

In contrast to the general wisdom in the literature of FDI spillovers that vertical effects of FDI were positive, our estimates present statistically negative vertical effects of FDI. As shown, all coefficients for the vertical effects were negative and statistically significant at 1 percent significance level, implying that the presence of FDI outside the industry to which a foreign plant under consideration was affiliated affected negatively the output and productivity levels of domestic plants. However, the coefficients for interaction terms between the proxy variable for vertical FDI effects and the dummy variable for foreign plants indicated that the vertical effects were significantly different between foreign and domestic plants. It suggests that vertical effects on productivity were positive for foreign plants. This may have been resulted from a circumstance where vertical linkages took place among the foreign plants rather than the domestic plants.

For the effect of FDI types on the productivity of the Indonesian manufacturing sector, we got inconclusive results. The estimates of pooled OLS and random-effect model were positive and statistically significant, while the fixed-effect model produced negative results but was statistically a little significant. We will leave this open for further interpretations.

To sum up, we find that there were evidences of positive effects from FDI presence on both the level of output and productivity of Indonesian manufacturing plants. However, foreign plants had enjoyed more benefits from FDI spillovers.

FDI Spillovers on Domestic Plants. It would be informative to estimate FDI spillover effects for each industry separately. Therefore, we estimated both fixed- and random-effect models for 9 industries of 2-digit levels of ISIC. Furthermore, for a robustness check, we estimated models with value added as a dependent variable (Equation 3) as well as total factor productivity (equation 2).

The estimation results for the fixed-effect model are reported in two tables. The one that uses value added as a dependent variable is

presented in table 3. Another estimation that uses TFP as a dependent variable is presented in table 4. According to the fixed-effect estimation model, the horizontal spillover effects for each industry were varied. These results suggest that for some industries that were positively affected by horizontal effects of FDI, the domestic plants gained from the presence of foreign plants in the respective industry.

Regarding the vertical effects of FDI, the results showed that only few industries had positive coefficients and some with little significance. These results indicate that only few industries in the manufacturing sector had a relatively high degree of linkages to allow for some transfers of technology from foreign plants through supply-chain mechanisms.

Contrary to the traditional expectation from the effect of FDI types, the coefficients for *export* showed that only few industries had positive signs, and all were with little significance. Therefore, there was little evidence of the positive influence of efficiency-seeking FDI relative to market-seeking FDI toward the productivity of the Indonesian manufacturing sector.

The effects of trade policy regimes were also examined in the fixed-effect model estimations. All the coefficients showed positive results with a high level of significance for all industries and the three different trade regimes, except for the nonmetal-minerals industry. Moreover, the absolute values of the coefficients for the trade policy regime in the second liberalization period (2003–2010) were higher than in the first liberalization period (1996–1997) for each of the respective industries. Furthermore, the absolute values of the coefficients for the crisis period (1998–2002) were lower than for the first-liberalization period. This implies two important findings. Given the existence of FDI effects, further trade liberalization policies enhanced the performance of the Indonesian manufacturing sector across industries, but the crisis period impeded the performance.

Table 3. FDI Spillovers on Value Added: Fixed-Effect Model

Industries	31	32	33	34	35	36	37	38	39
Constant	2.490*** (0.17)	1.742*** (0.16)	2.723*** (0.18)	2.227*** (0.38)	2.649*** (0.27)	0.943*** (0.27)	-0.320 (1.29)	2.024*** (0.26)	2.525*** (0.50)
Capital	0.124*** (0.01)	0.105*** (0.01)	0.115*** (0.01)	0.107*** (0.02)	0.100*** (0.01)	0.147*** (0.01)	0.107* (0.04)	0.095*** (0.01)	0.122*** (0.02)
Labor	0.883*** (0.02)	1.002*** (0.02)	0.947*** (0.02)	1.014*** (0.04)	0.961*** (0.03)	1.008*** (0.03)	1.258*** (0.13)	1.052*** (0.03)	0.878*** (0.05)
Horizontal	-1.740*** (0.23)	-0.048 (0.07)	-3.074*** (0.15)	0.404*** (0.09)	0.325** (0.12)	0.023 (0.09)	1.225** (0.42)	0.519*** (0.12)	0.179 (0.14)
Vertical	0.484*** (0.08)	-0.185 (0.11)	-0.191 (0.10)	-0.987*** (0.24)	-0.450* (0.21)	0.008 (0.11)	0.606 (0.69)	-2.189*** (0.26)	-0.181 (0.25)
Exports	-0.101** (0.03)	-0.010 (0.03)	0.021 (0.02)	-0.170 (0.13)	0.001 (0.05)	-0.088 (0.06)	-0.143 (0.24)	-0.095 (0.08)	-0.030 (0.07)
1990-1997	0.155*** (0.02)	0.105*** (0.01)	0.001 (0.02)	0.203*** (0.04)	0.135*** (0.02)	0.027 (0.02)	0.070 (0.11)	0.169*** (0.02)	0.165*** (0.05)
1998-2002	0.061*** (0.02)	0.066*** (0.02)	-0.010 (0.02)	0.032 (0.04)	0.123*** (0.03)	-0.056** (0.02)	0.137 (0.10)	0.033 (0.03)	0.101 (0.05)
2003-2010	0.194*** (0.02)	0.186*** (0.02)	0.375*** (0.03)	0.216*** (0.04)	0.339*** (0.03)	-0.105*** (0.02)	0.385** (0.14)	0.216*** (0.03)	0.160** (0.06)

Source: own calculation

Table 4. FDI Spillovers on Total Factor Productivity: Fixed-Effect Model

Dependent Variable : Total Factor Productivity

	31	32	33	34	35	36	37	38	39
Constant	4.743*** (0.02)	4.642*** (0.02)	4.981*** (0.03)	6.160*** (0.06)	6.163*** (0.04)	4.605*** (0.03)	4.504*** (0.18)	5.120*** (0.04)	4.293*** (0.09)
Horizontal	-2.163*** (0.25)	-0.113 (0.07)	-3.100*** (0.15)	0.457*** (0.09)	0.284* (0.13)	-0.136 (0.10)	0.743 (0.44)	0.616*** (0.13)	0.185 (0.14)
Vertical	0.522*** (0.09)	-0.298** (0.11)	-0.318** (0.10)	-1.223*** (0.26)	-0.610** (0.23)	-0.060 (0.11)	0.450 (0.70)	-2.687*** (0.29)	-0.257 (0.25)
Exports	-0.083* (0.04)	0.016 (0.03)	0.044* (0.02)	-0.126 (0.12)	0.022 (0.05)	-0.021 (0.07)	-0.034 (0.28)	-0.065 (0.08)	-0.018 (0.07)
1990-1997	0.155*** (0.02)	0.107*** (0.01)	0.006 (0.02)	0.240*** (0.04)	0.160*** (0.02)	0.022 (0.02)	0.092 (0.11)	0.184*** (0.02)	0.170*** (0.05)
1998-2002	0.067*** (0.02)	0.074*** (0.02)	0.035 (0.02)	0.079 (0.04)	0.192*** (0.03)	-0.059** (0.02)	0.084 (0.11)	0.038 (0.03)	0.118* (0.06)
2003-2010	0.241*** (0.03)	0.190*** (0.02)	0.411*** (0.03)	0.269*** (0.04)	0.448*** (0.04)	-0.106*** (0.03)	0.430** (0.14)	0.266*** (0.03)	0.177** (0.06)

Source: own calculation

Table 5. FDI Spillovers on Value Added: Random-Effect Model

Industries	31	32	33	34	35	36	37	38	39
Constant	0.044 (0.11)	0.774*** (0.07)	1.498*** (0.08)	0.676*** (0.20)	1.315*** (0.16)	-0.470** (0.17)	-1.020 (0.56)	0.480*** (0.14)	1.154*** (0.25)
Capital	0.237*** (0.01)	0.171*** (0.01)	0.176*** (0.01)	0.151*** (0.01)	0.180*** (0.01)	0.222*** (0.01)	0.172*** (0.04)	0.165*** (0.01)	0.192*** (0.01)
Labor	0.981*** (0.01)	1.013*** (0.01)	0.982*** (0.01)	1.106*** (0.03)	0.980*** (0.02)	1.062*** (0.02)	1.237*** (0.09)	1.109*** (0.02)	0.936*** (0.03)
Horizontal	-1.776*** (0.22)	-0.051 (0.06)	-2.881*** (0.14)	0.434*** (0.09)	0.275* (0.12)	-0.012 (0.09)	1.263** (0.41)	0.512*** (0.11)	0.147 (0.13)
Vertical	0.575*** (0.08)	-0.190 (0.10)	-0.097 (0.09)	-0.920*** (0.22)	-0.472* (0.19)	-0.001 (0.10)	0.194 (0.60)	-2.021*** (0.26)	-0.285 (0.23)
Exports	0.029 (0.03)	0.052* (0.02)	0.003 (0.02)	-0.133 (0.11)	0.075 (0.04)	0.015 (0.05)	-0.046 (0.20)	-0.060 (0.06)	-0.051 (0.05)
1990-1997	0.131*** (0.02)	0.086*** (0.01)	-0.007 (0.02)	0.192*** (0.04)	0.129*** (0.02)	-0.002 (0.02)	0.097 (0.10)	0.139*** (0.02)	0.154*** (0.05)
1998-2002	0.076*** (0.01)	0.071*** (0.02)	-0.020 (0.02)	0.035 (0.03)	0.151*** (0.02)	-0.046* (0.02)	0.217* (0.10)	0.040 (0.03)	0.099* (0.05)
2003-2010	0.241*** (0.02)	0.187*** (0.02)	0.381*** (0.02)	0.231*** (0.04)	0.370*** (0.03)	-0.064** (0.02)	0.440*** (0.13)	0.243*** (0.03)	0.136** (0.05)

Source: own calculation

Table 6. FDI Spillovers on Total Factor Productivity: Random-Effect Model

Dependent Variable : Total Factor Productivity

	31	32	33	34	35	36	37	38	39
Constant	4.650*** (0.02)	4.624*** (0.02)	4.894*** (0.03)	6.067*** (0.05)	6.095*** (0.04)	4.606*** (0.03)	4.454*** (0.16)	5.106*** (0.04)	4.359*** (0.08)
Horizontal	-2.004*** (0.24)	-0.158* (0.06)	-3.047*** (0.14)	0.437*** (0.09)	0.288* (0.13)	-0.124 (0.10)	0.815 (0.43)	0.560*** (0.13)	0.135 (0.13)
Vertical	0.492*** (0.08)	0.332** (0.11)	0.297** (0.09)	1.137*** (0.24)	0.728*** (0.22)	0.101 (0.11)	0.191 (0.63)	2.586*** (0.29)	0.386 (0.24)
Exports	0.116*** (0.03)	0.243*** (0.02)	0.134*** (0.02)	0.059 (0.11)	0.222*** (0.05)	0.138* (0.06)	0.106 (0.23)	0.135 (0.07)	0.078 (0.05)
1990-1997	0.159*** (0.02)	0.103*** (0.01)	0.001 (0.02)	0.236*** (0.04)	0.173*** (0.02)	0.017 (0.02)	0.099 (0.10)	0.169*** (0.02)	0.170*** (0.05)
1998-2002	0.089*** (0.02)	0.085*** (0.02)	0.023 (0.02)	0.078* (0.04)	0.216*** (0.03)	-0.056** (0.02)	0.123 (0.10)	0.039 (0.03)	0.107* (0.05)
2003-2010	0.258*** (0.02)	0.159*** (0.02)	0.388*** (0.02)	0.266*** (0.04)	0.461*** (0.04)	-0.091*** (0.02)	0.416** (0.13)	0.273*** (0.03)	0.119* (0.05)

Source: own calculation

Productivity Spillovers from FDI. This study finds some evidences of productivity spillovers through both horizontal and vertical effects. This observation is more comprehensible at the industry level (table 3 and table 4), thus in support to the general findings of studies on FDI impacts that industry-specific characteristics matter. Positive productivity spillovers through the horizontal-type mechanism appeared significantly in higher-technology-level industries (ISIC codes of 34, 35, 37, and 38). This finding is in support to the absorptive capacity theory. Higher-technology-level industries may relatively have a higher capacity to learn and absorb new technologies from each other. Moreover, the presence of foreign plants may improve the efficiency and resource allocation in the respective industries (ISIC codes of 34, 35, 37, and 38). This may happen when foreign plants enter oligopolistic industries and their presence stimulates competition and efficiency.

Findings for the vertical spillovers showed that only few industries have positive impacts. Positive vertical spillovers appeared to be significant only in the industry with the ISIC code of 31, without indicating any pattern of technological level. A possible explanation is that the degree of vertical linkages in this industry was relatively higher than the others. The fact that majority of industries appeared to have negative vertical FDI spillovers implies the degree of vertical linkages in the Indonesian manufacturing sector was low. This reasoning is confirmed by the study of Dhanani and Hasnain (2002).

The Influence of FDI Types. It is predicted that the existence of efficiency-seeking FDI in a host economy would result in a greater performance of the economy, particularly through exports expansion. However, the results of this study regarding the influence of FDI types at the industry level find only little evidence in support to the prediction (table 3 and table 4, fixed-effect model). This may not be due to the fallibility of the prediction and can be related to the characteristics of the examined industries.

Recall that according to the estimation of the pooled data (table 3, fixed-effect model), the overall direction of the results indicates that the existence of efficiency-seeking FDI in the Indonesian manufacturing sector was not correlated with greater performance. When looked at in another way, the results suggest that greater performance in the Indonesian manufacturing sector was rather correlated with the market-

seeking type. This may be due to the fact that the preponderance of FDI in the Indonesian manufacturing sector was of the market-seeking type.

The Influence of Trade-Policy Regime. Findings regarding the influence of trade-policy regimes confirmed that successive trade liberalizations brought positive and significant influences on the performances of the Indonesian manufacturing sector, with one exception of the nonmetal-minerals industry. These findings are comparable with the previous studies of Temenggung (2006) and Jacob and Meister (2005).

CONCLUSION

With the expectation of the positive impacts of inward FDI, Indonesian policy makers have long been in favor for FDI-assisted development agenda. Likewise, trade policy regimes since the mid 1980s and later in the mid 1990s and after the year 2000s have been far more open compared to the previous period. Nonetheless, this study proved that the positive impacts of inward FDI on the performance of the Indonesian manufacturing sector during the period of 1990–2010, either directly or indirectly, were not strong. This study also found that the successive trade liberalizations have induced more positive impacts from FDI, but the period of crisis impeded the impacts.

Stronger spillover effects resulting from horizontal type of FDI were an interesting case. This may be a special case due to lack of vertical linkages between foreign and domestic plants in the Indonesian manufacturing sector. Moreover, dissimilar to the previous findings, types of FDI per se are not responsible for the positive impacts, especially when the degree of vertical linkages between foreign and domestic plants is low. Foreign plants seem to fulfill their need for intermediate inputs from external markets or from the other foreign plants in the host economy because domestic plants do not have the required technological level. Thus, this confirms that positive impacts from FDI depend on both FDI types and host-economy characteristics.

Though the above findings may not seem surprising since many of them have been clarified in the previous studies, one important feature of the findings needs to be exemplified. The findings revealed that throughout the dynamic period of 1990–2010, foreign plants have

enjoyed more from the presence of FDI. This may be due to two reasons. First, progressive trade liberalizations in the economy have allowed for foreign plants to exercise efficient direct productions. Second, domestic plants have not been successful in building supply-chain linkages with their foreign counterparts or have limited learning capabilities.

Policy Implication and Future Research Agenda. With respect to above conclusions, it is important for the policy makers to synergize trade and investment policies with industrial policies. Particularly, some initiatives should be taken in order to build stronger linkages between foreign and domestic plants as well as to reduce the economy's high dependency on imports of intermediate inputs.

Another important agenda for the policy makers is to improve the level of technological capabilities of the domestic manufactures. Therefore, it is imperative to provide incentives that facilitate the upgrading of domestic manufacturers' technological capabilities, such as via incorporating new technologies or machineries. Likewise, it is also important to leverage the quality of educational institutions in the economy, both in the higher education and vocational institutions.

Next, it will be useful to include considerations on the different kinds of foreign investments that operate in the host economy. That is between the greenfield and the brownfield FDI. It is also suggested to consider the importance of the host industry's market structure. These particular issues shall be addressed for future research agenda.

REFERENCES

- Aitken, B. J. and Harrison, A. E. (1999). Do domestic firms benefit from direct foreign investment? evidence from Venezuela. *American Economic Review*, 89(3): 605–618.
- Alfaro, L. (2003). “Foreign direct investment and growth: does the sector matter?” Harvard Business School, Working Paper, April. Retrieved from <http://gwww.grips.ac.jp/teacher/oono/hp/docu01/paper14.pdf>.
- Aswicahyono, H. (1998). *Total Factor Productivity in Indonesian Manufacturing, 1975–1993*. Unpublished PhD dissertation, Australian National University.
- Aswicahyono, H. (2008). “A survey of micro-data analyses in Indonesia.” In *Deepening East Asian Economic Integration*, ed. Jenny Corbett and So Umezaki, 456–472. ERIA Research Project Report, Retrieved from http://www.eria.org/publications/research_project_reports/deepening-east-asian-economic-integration.html.
- Aswicahyono, H., Hill, H., and Narjoko, D. (2011). Indonesian Industrialization: A Latecomer Adjusting To Crises. United Nations University, Working Paper, 53. Retrieved from <https://www.econstor.eu/dspace/bitstream/10419/54055/1/669168718.pdf>
- Blomstrom, M. and Kokko, A. (1998). “Multinational corporations and spillovers.” *Journal of Economic Surveys*, 12 (3): 247–77.
- Blonigen, B. A. (2005). “A review of the empirical literature on FDI determinants.” *Atlantic Economic Journal*, 33(4): 383–403.
- Borensztein, E., Gregorio, J. D., and Lee, J. W. (1998). “How does Foreign Direct Investment affect economic growth?” *Journal of International Economics*, 45: 115–135.

- Caves, R. E. (2007). *Multinational Enterprise and Economic Analysis*. 3rd ed. New York: Cambridge University Press.
- Cohen, S. D. (2007). *Multinational Corporations And Foreign Direct Investment: Avoiding Simplicity, Embracing Complexity*. New York: Oxford University Press.
- Dhanani, S. (2000). "Indonesia: Strategy For Manufacturing Competitiveness." UNIDO. Retrieved from http://www.unido.org/fileadmin/user_media/Publications/Pub_free/Indonesia_strategy_for_manufacturing_competitiveness.pdf.
- Dhanani, S. and Hasnain, S. A. (2002). "The impact of foreign direct investment on Indonesia's manufacturing sector." *Journal of the Asia Pacific Economy*, 7 (1): 61-94.
- Damijan, Joze P., Boris Majcen, Mark Knell, and Matija Rojec. 2001. "The role of FDI, R&D accumulation and trade in transferring technology to transition countries: evidence from firm panel data for eight transition countries." UN Economic Commission for Europe, Geneva. Retrieved from http://www.eadi.org/fileadmin/WG_Documents/Reg_WG/damijan.pdf.
- Feinberg, S.E. and Keane M. P. (2005). "Intrafirm trade of US MNCs: findings and implications for models and policies towards trade and investment." In *Does Foreign Direct Investment Promote Development?* ed. Theodore H. Moran, Edward M. Graham and Magnus Blomstrom, 245-280. Washington, DC: Institute for International Economics and Center for Global Development.
- Fillat, C. and Woerz, J. (2010). "Good or bad? The influence of FDI on productivity growth. an industry-level analysis." *The Journal of International Trade and Economic Development*, 1(36): 1-33.
- Gorg, H. and Greenaway, D. (2004). "Much ado about nothing? Do domestic firms really benefit from Foreign Direct Investment?" *The World Bank Research Observer*, 19 (2): 171-197.

- Harrison, A. and Hanson, G. (1999). Who gains from trade reforms? some remaining puzzles. NBER, Working Paper, 6915.
- Hill, H. (2000). *The Indonesian Economy*. 2nd ed. Cambridge: Cambridge University Press.
- Ilmar, A. (2010). *Hukum Penanaman Modal di Indonesia*. In Indonesian language, Jakarta: Kencana.
- Jacob, J. and Meister, C. (2005). "Productivity gains, technology spillovers and trade: Indonesian manufacturing, 1980-96." *Bulletin of Indonesian Economic Studies*, 41(1): 37-56.
- Javorcik, B. S. (2004). "Does foreign direct investment increase the productivity of domestic firms? in search of spillovers through backward linkages." *American Economic Review*, 94(3): 605-627.
- Khaliq, A. and Noy, I. (2007). "Foreign direct investment and economic growth: empirical evidence from sectoral data in Indonesia." University of Hawaii, Working Paper, 07(26). Retrieved from: http://www.economics.hawaii.edu/research/workingpapers/WP_07-26.pdf.
- Lall, S. and Narula, R. (2006). "Foreign direct investment and its role in economic development: do we need a new agenda?" In *Understanding FDI-Assisted Economic Development*, ed. Rajneesh Narula and Sanjaya Lall, 1-18. New York: Routledge.
- Levinsohn, J. and Petrin, A. (2003). "Estimating production functions using inputs to control for unobservable." *Review of Economics Studies*, 70(2): 317-341.
- Li, X. and Liu, X. (2005). "Foreign direct investment and economic growth: an increasingly endogenous growth relationship." *World Development*, 33(3): 393-407.

- Lipsev, R. E. and Sjolholm, F. (2002). "Foreign firms and Indonesian manufacturing wages: an analysis with panel data." NBER, Working Paper, 9417.
- Lipsev, R. E. and Sjolholm, F. (2005). "The impact of inward fdi on host countries: why such different answers?" In *Does Foreign Direct Investment Promote Development?* ed. Theodore H. Moran, Edward M. Graham and Magnus Blomstrom, 23-44. Washington, DC: Institute for International Economics and Center for Global Development.
- Moran, T. H. (1998). *Foreign Direct Investment and Development: The New Policy Agenda for Developing Countries and Economies in Transition*. Washington, DC: Institute for International Economics.
- Moran, T. H. (2005). "How does fdi affect host country development? using industry case studies to make reliable generalizations." In *Does Foreign Direct Investment Promote Development?* ed. Theodore H. Moran, Edward M. Graham and Magnus Blomstrom, 281-314. Washington, DC: Institute for International Economics and Center for Global Development.
- Narula, R. (2001). *Multinational Firms, Regional Integration and Globalising Markets: Implications for Developing Countries*. MERIT, Infonomics Research Memorandum Series, 036.
- Negara, S. D. and Firdausy, C. M. (2011). "The development of foreign direct investment and its impact on firm's productivity, employment and exports in Indonesia." In *Foreign Direct Investments in Asia*, ed. Chalongsob Sussangkarn et al., 18-50. New York: Routledge.
- Nunnenkamp, P. and Spatz, J. (2003). "FDI and Economic Growth in Developing Countries: How Relevant are Host-Economy and Industry Characteristics." Kiel Institute for the World Economy, Working Paper, 1176.

- Olley, G. S. and Pakes, A. (1996). "The dynamics of productivity in the telecommunication equipment industry." *Econometrica*, 64(6): 1263-1297.
- Pangestu, M. and Anas, T. (2006). "Foreign investment and development: indonesia's experience." In *Multinationals and Economic Growth in East Asia: Foreign Direct Investment, Corporate Strategies and National Economic Development*, ed. Shujiro Urata, Chia SiowYue and Fukunari Kimura, 253-286. New York: Routledge.
- Rachbini, D. J. (2008). *Arsitektur Hukum Investasi di Indonesia*. In Indonesian language, Jakarta: Penerbit Index.
- Rodriguez, F. and Rodrik, D. (2000). "Trade policy and economic growth: a skeptic's guide to the cross-national evidence." In *NBER Macroeconomics Annual*, 15, ed. Ben S. Bernanke and Kenneth Rogoff, 261-338. Cambridge: MIT Press.
- Rugraf, E., Sanchez-Ancochea, D., and Sumner, A. (2009). "What do we know about the developmental impacts of TNCs?" In *Transnational Corporations and Development Policy*, ed. EricRugraf, Diego Sanchez-Ancochea and Andi Sumner, 29-58. New York: Palgrave Macmillan.
- Sachs, J. D. and Warner, A. M. (1995). "Economic reform and the process of global integration." *Brooking Papers on Economic Activity*, 1.
- Takii, S. and Ramstetter, E. (2000). "Foreign multinationals in Indonesian manufacturing, 1985-1998: shares, relative size and relative labor productivity." ICSEAD, Working Paper, 18. http://file.icsead.or.jp/user03/926_170.pdf.
- Temenggung, D. (2006). "Productivity Spillovers from foreign direct investment: Indonesian manufacturing industry's experience, 1975-2000." Research School of Pacific and Asian Studies, ANU, Working Paper. http://www.degit.ifw-kiel.de/papers/degit_12/C012_048.pdf.

- Thee, K. W. (2005a). "Policies affecting indonesia's industrial technology development." Institute of Economic Research, Hitotsubashi University, Discussion Paper Series, 121. <http://hi-stat.ier.hit-u.ac.jp/english/research/discussion/2005/121.html>.
- Thee, K. W. (2005b). "The major channels of international technology transfer to indonesia: an assessment." *Journal of the Asia Pacific Economy*, 10 (2):214-36.
- Triatmodjo, M., et al. (2011). *A Study on the Investment Law of Indonesia from the Perspective of the Strategy for Economic Development*. Korea Legislation Research Institute. Seoul: KLRI.