

The Worldwide Shift of FDI to Services- How does it Impact Asia? New Evidence from Seventeen Asian Economies.

Nadia Doytch

CUNY Brooklyn College

and

Asian Institute of Management (Non-Resident Research Fellow)

Preliminary draft, please do not quote.

Abstract

We productivity spillovers of industry-level FDI on both, the sector of manufacturing and the sector of services, in seventeen South and East Asian economies Using a dynamic panel GMM methodology, we find significant productivity spillovers by several industry-level FDI: mining FDI and some specific services FDI flows, such as financial services, trade, as well as transport and communications FDI. Services FDI has a two-fold effect on the economy. Whiling having a positive impact of services growth, some services FDI inflows have a negative effect on manufacturing growth. At the same time manufacturing FDI has an impact only on its own sector.

Key Words: Capital flows, sectoral FDI, manufacturing and service growth, GMM.
JEL Classification: F2, F21, F43

1. Introduction

Emerging market and developing economies have been competing in attracting foreign direct investment (FDI) because of its perceived positive productivity spillovers on receiving countries. For many developing countries FDI stands as the most important foreign source of financing as well. However, the traditional kind of FDI primarily absorbed by the manufacturing sector has been gradually supplanted by services FDI with financial services FDI emerging as one of the most substantial international capital flows worldwide.

This process "deindustrialization" of FDI began in the 1970s, when services FDI represented about a quarter of total capital stock and rose to more than 60% in 2007 preceding the Global Financial Crisis. The East Asia and the Pacific Region has been on a path of steady recovery of FDI since the crisis with countries such as Vietnam, Thailand, Indonesia and Malaysia completely rebound (Doytch, 2015).

This paper seeks to present new evidence about the growth implications of the shift of FDI to services in the context of South and East Asia and the Pacific. Do the sectors of manufacturing and services experience different productivity spillovers from FDI? Does the effect of the shift of FDI to services depend on the type of absorbing services industry- financial or non-financial? Different industry FDI transfers different technology they transfer to the host countries. This technology varies in capital intensity and "hard/soft" technology mixes. For example manufacturing FDI transfers equipment and industrial processes, whereas service FDI tends to transfer technical, management and marketing know-how, organizational skills and information in general.

This study employs a Generalized Method of Moments (GMM) dynamic panel estimator (Blundell and Bond, 1998) to analyze sector level data on FDI for seventeen South and East Asian Economies. The study is conducted by examining the growth implications of the above described industry-level FDI inflows in separately in the sectors of manufacturing and services, and also on aggregate economic growth. The GMM estimator employed helps us correcting for endogeneity and omitted variable biases, while exploring the time-variation of the data. The examined economies are: Australia, Bangladesh, Brunei, Cambodia, China, Hong Kong, India, Indonesia, Japan, Rep. of Korea, Lao, Malaysia, Pakistan, Philippines, Singapore, Thailand, Vietnam. Data of FDI

these economies is provided by ASEAN Secretariat, UNCTAD, OECD, as well individual countries central banks. The data for most countries spans 1999-2011.

Although this topic has been explored before (Doytch and Uctum, 2011), this is the first time a consistent balanced panel data set on Asian Economies is compiled and analyzed. The data set covers FDI absorbed by the sectors of extractive industries, manufacturing, construction, finance, trade, business services, tourism and transportation and communications services, in addition to aggregate services, and the aggregate economy. The growth implications of some of this sectoral FDI have never been studied before. The current study contributes by re-examining the evidence on FDI productivity spillovers in Asia with current and significantly more detailed data than existing research.

In summary, we find an overall positive impact of FDI on growth. This positive impact can be attributed to mining FDI and some specific services FDI flows, such as financial services, trade, as well as transport and communications FDI. Services FDI has a two-fold effect on the economy. While having a positive impact of services growth, some services FDI inflows have a negative effect on manufacturing growth. At the same time manufacturing FDI has an impact only on its own sector.

The organization of the paper is as follows: section 1 gives a brief literature review; section 2 some stylized facts about FDI in South and East Asia and the Pacific region; section 3 describes the model, the data, and the empirical methodology; section 4- the empirical results and then we conclude.

1. Brief Literature Review

A current systematic in-depth analysis of the theories underlining occurrence of FDI can be found in Nayak and Chaudury (2014). The treatment of FDI in international finance has been transformed from regarding FDI as a subset of portfolio investment that allocates fund to an use with highest rate of return (Kindleberger, 1969) to entirely re-considering FDI in the light of the globalization that accelerated after the 1970s. The new microeconomic view on FDI, which is not inconsistent the capital market theory, emphasizes the role of competitive advantage of foreign firms. For a foreign firm to successfully compete on domestic markets, where it has a number of disadvantages to local firms, it should possess one of several competitive advantages to survive:

technological advantage supported by patents, brands etc., organizational expertise, marketing channels, economies of scale or an unique source of cheap financing (Hymer, 1976; Caves, 1971; Dunning, 2014; and Nayak and Chaudury, 2014). The institutional and other risk factors, on the other hand, determine the choice between FDI and outsourcing. The possession of technological advantage may also be the reason for internalizing the production and incorporation foreign subsidiaries rather than contracting with foreign firms (Buckley and Casson, 1976; Nayak and Chaudury, 2014). Dunning (1980) has added to the above two reasons for occurrence of FDI one more- the existence of location advantages.

A systematic analysis of productivity spillovers from FDI is available in Suyanto and Bloch (2009). Productivity spillovers may occur, if as a result of the greater competition domestic firms learn to utilize better their resources (Wang and Blomstrom, 1992); if knowledge spills over to domestic firms via labor turnover (Fosfuri, Motta, & Ronde, 2001); or if there are demonstration effects, or new R&D innovation (Cheung & Lin, 2004). Imperfect competition on domestic markets, however, can lead to negative spillovers from FDI. If a transfer of superior technology lowers cost of production and represents a positive spillover, in another situation foreign firms may take over a large share of the product market or the resource markets and lead to productivity decline for domestic firms declines (Aitken and Harrison, 1999). This is how FDI may bring negative spillovers.

There are numerous studies exploring empirically the existence of spillovers. At the firm level, studies have been largely inconclusive. Some case studies indicate limited positive spillovers of FDI (Haskel, Pereira and Slaughter, 2007, Blalock and Gertler, 2003), and others find no or negative spillovers (Aitken and Harrison, 1999, Gorg and Strobl, 2001, Lipsey and Sjöholm, 2003, Lipsey, 2004). At the macroeconomic level, generally studies have found positive productivity spillovers (Bende-Nabende and Ford, 1998). FDI is viewed as an important source of financing (De Mello 1999; Eller et al. 2006) and the positive spillovers are conditioned on factors of absorptive capacity (Borensztein, De Gregorio, Lee, 1998, Balasubramanyam, et al. 1999; Blonigen and Wang, 2005; Blomstrom, Lipsey and Zejan, 1994, Alfaro, Kalemli-Ozcan and Volosovych, 2008).

The trade literature also provides an opinion on the existence of productivity spillovers. They are being viewed as horizontal and vertical transfer of knowledge via buyer–supplier relationships of MNCs (Egan and Mody, 1992; Hobday, 1995; Radosevic, 1999). With increasing international fragmentation of production (Feenstra, 1998 and Hummels et al., 2001) the FDI induced spillovers grow in importance.

Specifically in South and East Asia, Hsio and Hsio (2006) have tested the relationship between GDP, exports, and FDI among China, Korea, Taiwan, Hong Kong, Singapore, Malaysia, Philippines, and Thailand with a VAR methodology. They have found that there is no universal rule of Granger causality in the region and instead, the Granger causality relationships are individual. Petri (2012) shows that the intra-Asian FDI flows, in contrast to other FDI flows, tend to go to economies with low technological achievements and strong property rights, which facilitates technology flows among these nations.

2. Stylized Facts and literature review

Please, see Appendix 1 Fig 1-12.

3. Model, Methodology and Data

The conceptual model for this study is based on classical growth theory and tests the hypothesis of conditional convergence¹:

$$\log y_{it} = (1 + \beta) \log(y_{i,t-1}) + \Gamma W_{it} \quad (1)$$

Subscripts i and t describe the cross-sectional and time dimensions of the panel data, respectively; y_{it} - output the per capita of country i ; W_i is a vector containing the log of the traditional growth determinants (technological progress, human capital, physical capital and natural resources) and more recently developed determinants, such as FDI and institutional factors. $(1 + \beta)$ is that the parameter estimate that captures convergence. Literature suggests that it should be negative, reflecting that fact that countries that are further away from their steady-state level of output should grow faster than those closer to their steady-state levels.

¹ See Islam (1995), Caselli, Esquivel and Lefort (1996), Durlauf and Quah (1998), Durlauf, Johnson and Temple (2004).

The conceptual growth model translates into the following empirical model:

$$\log y_{it}^k = \beta_0 + (1 + \beta_1) \log(y_{i,t-1}^k) + \beta_2 x_{it} + \beta_3 f_{it}^j + \beta_4 \eta^t + \mu_i + \varepsilon_{it} , \quad (2)$$

$$\mu_i \sim i.i.d.(0, \sigma_{\mu_i}) \quad \varepsilon_{it} \sim i.i.d.(0, \sigma_{\varepsilon}), \quad E[\mu_i \varepsilon_{it}] = 0.$$

where $i = 1, \dots, 17$ and $t = 1, \dots, 12$, the superscript k stands for a *GDP index* ($k = \text{GDP, manufacturing value added, and services value added}$), the superscript j is an *FDI index* ($j = \text{manufacturing FDI, service FDI, financial FDI, and nonfinancial service FDI}$).

Accordingly, y_{it}^k is real per capita output in sector k , in constant year 2005 prices, $y_{i,t-1}^k$ is the lagged level of per capita output, f_{it}^j is the GDP share of FDI net inflows into the j^{th} industry. The industries are as follows: (1)- the aggregate economy; (2)- extractive industry (mining); (3)- manufacturing; (4)- aggregate services; (5)- financial services; (6)- construction; (7)- wholesale and retail trade (trade); (8)- hotels and restaurants (tourism); (9)- business services; (10) transport, storage and communications (transport).

The row vector x_{it} consists of the most commonly used control variables in the growth literature, such as domestic investment share of GDP, schooling (gross secondary school enrolment ratio) as a proxy for human capital, natural resources rents share of GDP (as a proxy for natural resource endowments); the Government Stability ICRG Index and the Anti-Corruption ICRG Index, used interchangeably as proxies for institutional quality. The variables μ_i and η_t are, respectively, a country-specific and a time-specific effect. The combinations between output k indexes and the FDI j indexes with a change of the institutional control variable translate into 60 different regression models.

The method of the dynamic panel GMM estimator, known as *Blundell-Bond system GMM* (Blundell and Bond, 1998; Arrelano and Bover, 1995) is designed to capture the joint endogeneity of some of the explanatory variables through the creation of a matrix of instruments based on lagged level observations and lagged differenced observations. The estimator also has a matrix of instruments to deal with endogeneity of lagged dependent variable and the induced MA(1) error term. This methodology has been successfully applied in economic growth context in a number of studies (Caselli et al., 1996; Easterly et al., 1997; Levine et al., 2000; Doytch and Uctum, 2011).

The necessary conditions for the system GMM are: a) that the error term does not have second order serial correlation and b) even if the unobserved country-specific effect is correlated with the regressors' levels, it is not correlated with their differences:

a. *The standard GMM conditions* of no second order autocorrelation in the error term

$$\begin{aligned} E[y_{i,t-s}^k (\varepsilon_{it} - \varepsilon_{i,t-1})] &= 0 \text{ for } s \geq 2 \text{ and } t=3, \dots, T \\ E[x_{i,t-s} (\varepsilon_{it} - \varepsilon_{i,t-1})] &= 0 \text{ for } s \geq 2 \text{ and } t=3, \dots, T \\ E[f_{i,t-s}^j (\varepsilon_{it} - \varepsilon_{i,t-1})] &= 0 \text{ for } s \geq 2 \text{ and } t=3, \dots, T; \end{aligned} \quad (3)$$

b. *Additional conditions* of no correlation of the unobserved country-specific effect with their differences:

$$\begin{aligned} E[(y_{i,t-1}^k - y_{i,t-2}^k)(\mu_i + \varepsilon_{it})] &= 0 \\ E[(x_{i,t-1} - x_{i,t-2})(\mu_i + \varepsilon_{it})] &= 0 \\ E[(f_{i,t-1}^j - f_{i,t-2}^j)(\mu_i + \varepsilon_{it})] &= 0 \end{aligned} \quad (4)$$

The regressions in this study are run with a minimum number of lags in the instrumental matrix to preserve degrees of freedom.

The dependent variables - *real per capita GDP*, *manufacturing value added*, and *services value added* are compiled from *World Development Indicators* (WDI).

Manufacturing refers to industries belonging to International Standard Industrial Classification (ISIC), revision 3, divisions 15-37. Services correspond to ISIC divisions 50-99. Services include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services².

Gross domestic investment share of GDP is *gross fixed capital formation* share of GDP, compiled from *World Development Indicators* (WDI) that consists of plant, machinery, and equipment purchases, construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings, land improvements (e.g., fences, ditches).

² Services also include the imputed bank service charges, import duties, as well as any statistical discrepancies.

Gross secondary school enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

Natural resources Rents share of GDP are also compiled from WDI. The indicator includes rents generated by coal, forest, mineral, natural gas, and oil resources. Estimates based on sources and methods described in "The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium" (World Bank, 2011). We hypothesize natural resources endowments are factor of economic growth that can have both a positive and a negative impact on the economy. Potential negative impact may be realized in the case of a "natural resource curse" situation.

Government stability and *Anti-corruption* that are used interchangeably in the models are compiled by the *International Country Risk Guide*. *Government stability* is defined to have three components consisting of government unity, legislative strength and popular support. The index, which ranges 0-12 assesses how well the government can carry out its declared programs and can stay in the office. *Anti-corruption*, on the other hand, refers to actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors', secret party funding, and suspiciously close ties between politics and business. These sorts of corruption are potentially of great risk to foreign business in that they can lead to popular discontent, unrealistic and inefficient controls on the state economy, and encourage the development of the black market.

All *FDI* series are net inflows, accounting for the purchases and sales of domestic assets by foreigners in the corresponding year. They are taken in proportion to GDP. The sources for this variable are individual central banks web sites, United Nations

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_5091

