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A photograph of three business professionals in a meeting. A man in a suit is pointing at a tablet displaying a bar chart. A woman in a grey blazer is looking at the tablet. Another person is partially visible on the left. The background is a bright office window.

01 | THE IMPACT OF SOUTH-SOUTH FDI: KNOWLEDGE SPILLOVERS FROM CHINESE FDI TO LOCAL FIRMS

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INTRODUCTION

When MNCs engage in investment in a country, they bring knowledge spillovers into the local market to a greater or lesser extent. Such spillovers refer to knowledge invented by a unit (multinational) which is used by another unit (a local firm) for which the latter is not required to fully pay (Javorcik, 2004). Many developing countries have tried to attract and promote foreign investment in the economy, since they believe that FDI, and the ‘spillover effect’ it creates, is the source for their industrial development and economic growth (Anwar & Nguyen, 2011; Kneller & Pisu, 2007).

There are many factors to be taken into consideration when examining whether knowledge spillovers occur and to what extent the local economy can benefit from such spillovers: the breadth and depth of FDI linkages, local industry’s awareness of possible knowledge, motivation to learn, absorptive capacity, embeddedness in a business relationship, et cetera. Due to their associated benefits, FDI spillovers have been widely studied, however most previous

work has been restricted to north-north (Girma, Greenaway, & Wakelin, 2013; Harris & Robinson, 2004), and north-south interactions (Aitken & Harrison, 1999; Javorcik, 2004; Lin, Liu, & Zhang, 2009). Few studies of south-south FDI exist (Anwar & Nguyen, 2011, 2014; Kubny & Voss, 2014; Le & Pomfret, 2011) and very few have examined the impact of inward investment from mainland China – now the largest source of south-south FDI.

This paper develops a generic model of south-south FDI spillover effects, and then prepares the groundwork for the testing of such a model in a more specific context of Chinese investment in other emerging markets. The model is intended to uncover when, where and under what conditions do knowledge spillovers from a developing country to another less-developed economy occur. Also, the model allows for consideration of whether South-South spillovers lead to improvement in domestic firms’ technological capabilities and export performance.

THEORETICAL FRAMEWORK

The model that has been developed is based upon the existing ‘awareness-motivation-capability’ (AMC) framework of competitive dynamics (Chen et al., 1992). We extend the AMC model from its original use on rivalry behaviour into the study of FDI knowledge spillovers by examining the specific interacted roles between the three components and firms’ technological capabilities. In this study of knowledge spillovers, awareness refers to the extent to which domestic firms can recognise the valuable information from knowledge made visible from foreign investors, motivation means their incentive to learn the new knowledge, and capability is their absorptive capacity to employ knowledge gained from FDI, then exploit it for

their own purposes. The theoretical framework begins with an investigation of the effects of different measures of FDI linkages (horizontal and vertical) on possible knowledge spillovers accruing to indigenous firms. Then it identifies how domestic businesses gain the spillovers based on their awareness of FDI’s presence and learning opportunities, motivation to learn, and absorptive capacity. Finally, the framework examines whether the knowledge spillovers play a significant role in increasing local units’ technological capability and if this assists in accelerating export performance. Figure 1 below represents the research’s conceptual framework and illustrates the hypothesized relationships.

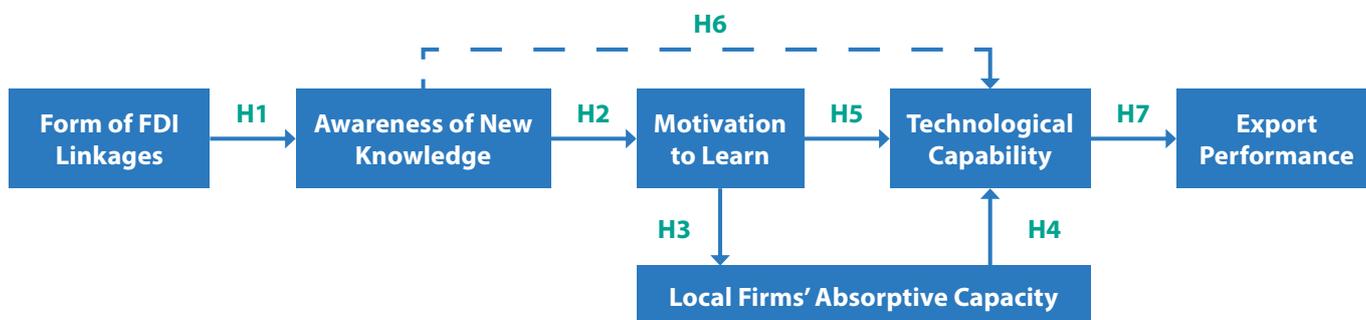


Figure 1 Knowledge Spillovers from FDI to Local Firms

DEVELOPMENT OF HYPOTHESES

The framework is based on extensive literature review that has been built into the model through the development of a number of hypotheses, explained below. In addition to the general model, additional hypotheses have been posited that

address the impact of south-south as opposed to north-south FDI. How these hypotheses and model can be empirically tested, using the specific case of Chinese outward investment is addressed in the discussion concluding the paper.

FDI Linkages and Awareness

FDI linkages can lead to either ‘horizontal’ or ‘vertical’ spillovers. Horizontal spillovers refer to when local firms can improve their productivity from the presence of foreign investment in the same industry (Lin, Liu, & Zhang, 2009). There are three channels for this occurrence; firstly, demonstration effect: local

units can absorb new knowledge by observing and imitating the foreign partners or competitors; secondly, worker mobility: the knowledge that is passed to the workforce can be diffused from MNEs to domestic firms when the employees move to work at a local company, or they start their own firms; thirdly,

competition effect: the domestic firms try to restructure and boost their productivity to compete with the foreign entrants (Girma & Gong, 2008).

Vertical spillovers can be classified either as 'backward' or 'forward'. Liang (2017) points out that domestic firms receive backward spillovers when foreign buyers transfer technology through training or technical assistance to increase the local plants' productivities, and forward spillover when indigenous firms get higher-quality inputs or machinery from their foreign suppliers. Foreign customers may help domestic suppliers to enhance their technological capabilities through sharing production design and techniques. Du, Harrison, and Jefferson (2012), and Thang, Pham, and Barnes (2016) claim that FDI generates positive spillovers to domestic firms when local firms are linked with their foreign customers. The spillovers are likely to diffuse through employee training, advance payment, provision of inputs, organisations of product lines, as well as assistance with quality assurance and machinery (Crespo & Fontoura, 2007).

Lin et al. (2009) postulate that overseas firms' activities are exposed to domestic parties, who can inspect the new technologies and management know-how then copy them to use in their own operations. Foreign firms commonly wish to avoid knowledge leakage; however, in order to improve the quality of their own inputs and outputs, foreign-invested firms are driven to transfer their production techniques to domestic suppliers and customers (Javorcik, 2004).

Direct exposure to foreign investments in both inter and intra-industries allow local firms to recognise the differences between their own methods and the business approaches

and technologies being used by foreign firms.

These differences provoke local companies' awareness of the importance of the new knowledge they need to learn to compete effectively in the global market (Cui, Meyer, & Hu, 2014). The more they face with foreign-invested firms, the more they are aware of how the foreign-invested businesses are being run and the more aware they become of alternative methods and technologies. This leads to:

Hypothesis 1a. The greater the extent that domestic firms are exposed to FDI through horizontal linkages, the more aware they will be of new methods and technologies.

Hypothesis 1b. The greater the extent that domestic firms are exposed to FDI through backward linkages, the more aware they will be of new methods and technologies.

Hypothesis 1c. The greater the extent that domestic firms are exposed to FDI through forward linkages, the more aware they will be of new methods and technologies.

Cuervo-Cazurra and Genc (2008) proposed that when a developing-country firm invests in another less-developed economy, its previous experience of working in similar conditions may create an easy-adapted environment for other developing countries. Moreover, the similarities in culture, product facilities, and level of technology development between home and host countries may allow them to work in the same market segment. Therefore:

Hypothesis 1d. Emerging market firms gain more awareness of new knowledge from developing country FDI than developed country FDI.

Awareness and Motivation

The domestic firms' motivation to act will be dependent upon the incentives they are facing. For a unit to participate in knowledge or technology catch-up, the motivation must emerge from perspectives of survival, growth, as well as competitiveness (Cui, Fan, Liu, & Li, 2017). Frequent interactions with foreign firms can evoke the competitive

benchmarking of global rivals; domestic plants subsequently are motivated to learn foreign knowledge assets that help narrow the competency gap. According to expectancy-valence theory (Vroom, 1964), two basic factors that provoke the tendency to act are the subjective reward value (valence) of acting effectively, and the perceived probability or

expectation of earning the reward (expectancy). Therefore:

Hypothesis 2a: The more that domestic firms are aware of new methods and technologies through horizontal linkages, the more they are motivated to learn that knowledge.

Hypothesis 2b: The more that domestic firms are aware of new methods and technologies through backward linkages, the more they are motivated to learn that knowledge.

Hypothesis 2c: The more that domestic firms are aware of new methods and technologies through forward linkages, the more they are motivated to learn that knowledge.

MNCs from developing economies share similar domestic needs, production structures, market sizes, and adaptive

capabilities to those of local firms (in developing countries), while MNCs from developed countries tend not to do so (Agyei-Holmes, 2016; Xu, Li, Qi, Tang, & Mukwereza, 2016). As a result, the FDI that comes from other developing countries tends to have more appropriate technologies and methods to those of local firms. Dahi and Demir (2017) claim that "South-South exchanges can still offer a developmental promise that might be missing in North-South exchanges" (2017:32), this is supported by Kokko, Tansini, & Zejan (1996) who find cases where foreign and local firms having a moderated knowledge gap yielded the greatest spillovers. Therefore:

Hypothesis 2d: emerging market firms are more motivated to learn knowledge from FDI from developing rather than developed countries.

Motivation and Absorptive Capacity

Firms that have been motivated to learn new methods and knowledge from FDI have already established prior knowledge that facilitates their ability to acquire, assimilate, transform, and exploit (absorptive capacity) new related knowledge (Cohen & Levinthal, 1990; Schilling, 2002). Schilling (2002) stated that "the potential for developing absorptive capacity indicates the learning accrued in any development effort may positively impact a firm; the

subject of the learning may not need to be closely related to a particular project to yield benefits" (2002:390). It may be in the firms' interest to learn to obtain broader capacities so that they can fulfil future market requirements.

Hypothesis 3: Domestic firms' motivation to learn knowledge is positively related to their absorptive capacity.

Technological Capabilities and Absorptive Capacity of Local Firms

Technological capability (TCAP) refers to skills, namely technical, managerial, organisational, and marketing that a unit absorbs from interaction with the environment then utilise it efficiently, improve and expand it over time, and develop new products and processes (Lall, 1992; Najmabadi & Lall, 1995). A firm's technological capability is largely dependent upon its existing levels of absorptive capacity (Liu, Ke, Wei, & Hua, 2013). Increasing firms' technological capability requires knowledge to be accumulated and stored (Afuah, 2002) which only firms with enough absorptive capacity can achieve. Rothaermel and Alexandre

(2009) state that when a unit obtains a high enough level of absorptive capacity, it is likely to not only be more receptive to opportunities that demonstrate themselves in their technological environments but also more aggressive in exploiting those opportunities by linking internal and external sources of knowledge. In consequence, the combined knowledge may result in stronger technological capabilities.

Hypothesis 4: Domestic firms' absorptive capacity is positively related to their technological capabilities.

Motivation and Technological Capabilities of Local Firms

A firm with a high level of motivation to learn new knowledge is not only a knowledge storehouse, but also a processor of it (Calantone, Cavusgil, & Zhao, 2002). These firms do not tend to miss the chances created by market demands since they have the knowledge and ability to comprehend and anticipate customer needs (Damanpour, 1991). Feedback from clients, channels, and competitors will be considered to enhance their capabilities. Hence, they foresee market

changes and make adjustments. Highly motivated firms are likely to guide to a new technological generation by themselves, as well as to be able to react quickly when others propose new technologies. This leads to:

Hypothesis 5a: Domestic firms' motivation to learn new knowledge is positively related to their technological capability.

Absorptive Capacity and Motivation as Mediators

When a firm has strong absorptive capacity, they can acquire the FDI knowledge spillovers, assimilate them, explore the new practices, and exploit them to use for their own purposes. These practices would yield positive impacts on their technological capabilities such as technology, management, organisational, and marketing capabilities. It is expected that firms that have been motivated to learn from FDI acquire greater absorptive capacity. If indigenous firms intend to learn the new knowledge, they need to have sufficient capacity to absorb the knowledge so that they can assimilate the new information and then utilize it for upgrading their technological capabilities. Therefore:

Hypothesis 5b: Domestic firms' absorptive capacity has a mediating effect on the relationship between their motivation to learn new knowledge and their technological capability.

Similarly, awareness conditions are necessary for domestic firms to recognise new knowledge assets that have potential to help them improve their technological capabilities to close the competency gap with global market leaders (Cui et al., 2017). However, awareness alone is not sufficient to provoke knowledge catch-up activities if the local plants do not possess adequate motivation to learn (Luo & Tung, 2007). Motivation may be a discretionary element that encourages learning, as companies decide to engage in knowledge catch-up enthusiastically after being aware of the value of new knowledge from FDI (Rui & Yip, 2008). Therefore:

Hypothesis 6: Domestic firms' motivation to learn new knowledge has a mediating effect on the relationship between their awareness of new knowledge and their technological capability.

Technological Capabilities and Export Performance

In our model, one result of developing technological capability is the impact that it can have on a firm's export performance, the outcome of a unit's activities in export market (Shoham, 1996). Ernst et al. (1998) and Flor and Oltra (2005) find that a higher level of technological capability is vital for increasing firms' export performance. Guan and Ma (2003) study export performances of Chinese firms and find

that the improvement of innovation capabilities (learning, R&D, marketing, organisational, resource allocating and strategy planning capabilities) has great effects on the firms' export growth.

Hypothesis 7: Domestic firms' export performance is positively related to technological capability.

DISCUSSION AND FUTURE DEVELOPMENT

The above model of the impact of knowledge spillovers on recipient firms of FDI is generic in the sense that it could be used to study FDI from any location to any other. However, the model is robust enough to be used for the specific purpose of examining south-south investment and to conduct comparative studies that will look at the impact on developing country recipient firms of FDI linkages with firms from developed countries as compared to that from other developing economies. Making use of the model in this way will allow for a degree of clarity to be brought to the question of whether developing country recipients of FDI garner as much, or more of, a spillover benefit from other emerging market investments as they do from developed country investments.

The hypotheses presented above have been supplemented (hypotheses 1d and 2d) with a means for testing the impact of south-south as opposed to north-south FDI. The debate on this issue is ongoing with some suggesting that the superior technological standards of developed country firms are inclined to lead to more opportunities for spillovers and development; or whether the common characteristics of emerging market firms, and perhaps a lower 'technology gap' may be more conducive to technological progress (Lall 1980, Luo et al. 2011). Use of this proposed model

and testing of this full set of hypotheses will allow for some clarity on these relationships to be established.

The growth of south-south FDI has of course been led by the international investments of mainland Chinese firms in recent years. Such Chinese investment has brought significant levels of controversy with it, and the impact of Chinese investment has often been portrayed as limited as it is often restricted to lower technology industries and brings little in the way of training or financial support for local firms (Kubny and Voss 2014). Empirical testing of the model will be utilized to determine exactly what forms of FDI linkages and spillovers are being achieved in the case of Chinese investment and how this impacts the development of local firms. Our intent going forward is to utilize the developed theoretical framework to empirically evaluate the spillover benefits, in terms of technological development and export performance, achieved by foreign invested firms in the country of Cambodia, a country where China is the largest foreign investor and where government plans are to achieve significant technological improvement. Comparison of the impact of investment by Chinese firms as opposed to investments from developed country firms will lead to results that have an impact on emerging market firm strategy and government policy in these regions.

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