Learning, Transfer and Global in the Upward Spiral Model proposed by the Springboard Multinational Enterprises theory.

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Abstract

Recent International Business (IB) literature has highlighted that Multinational Enterprises (MNE) from developing countries follow knowledge-seeking strategies. Therefore, MNE can learn abroad in contract to traditional internationalization postulates. More recently, it has been proposed the Springboard Multinational Enterprises (SMNEs) theory and the Upward Spiral Model (USM) that justifies the expansion of SMNEs abroad as a set of stages. In this paper, we analyses the above proposed model introducing three connections: *Learning, Transfer and Global.* We use a cross- section analysis from ORBIS dataset, in the last year available, 2017. We select MNE firms from 93 emerging economies (Low and Upper middle Income Economies) located in both: 71 developed countries and 93 developing countries. In addition, we differentiate between the levels of technological commitments of SMNEs. Results confirm that subsidiaries learn abroad -catching knowledge-, and moreover, there is a transfer of capabilities between parent firms to subsidiaries through external linkages-Inward Foreign Direct Investment-. In addition, subsidiaries firms transfer the acquired knowledge to parent firms and finally global connection increase home capabilities. Results differ when developing and developed countries are the host destination and when the technological sectors of the SMNEs are considered.

Keywords: Springboard MNE, Emerging Multinational Enterprises, learning abroad, productivity.

1. Introduction

1.1. Motivation

Since the decade of the 90 a new branch in the international business (IB) literature have tried to explain the key factors that could justify the existence of Multinational Enterprises (MNE) from emerging market, called Emerging Multinational Enterprises (EMNE). Some authors agree in the extension of traditional internationalization theories (Cuervo-Cazurra and Genc, 2008; Hennart, 2012, Luo and Wang, 2012; Rugman, 2010). However, new theories are gaining adepts in the last studies. This is the case of the theory of Springboard MNE theory developed by Luo and Tung in (2007; 2018). This theory proposed that MNE would use the international expansion for the acquisition of critical resources needed for the competition at home and abroad, avoiding institutional constraint at home and reinforcing home disadvantages globally. This theory proposed the Upward Spiral Model (USM) as a set of stages and linkages between home competences and competences catching globally that will improve home capabilities. This spiral will be elapsed in the following stages: *Inward Internationalization, OFDI, Capability transfer to home, Home centered capability upgrading and Global catapulting with strong capabilities* (Luo and Tung 2018).

The objective of this paper is adding a fresh empirical evidence to the Upward Spiral model (USM) included in the Springboard MNE theory (being Springboard MNE – SMNEs-Multinational Enterprises from developing countries located in developed or in developing countries). We test that SMNE can learn, -**Learning-**, and there are two processes of learning. The first one, as a transmission of knowledge between parent firm to subsidiary -inward foreign direct investment IFDI- called *Domestic Learning-* and the second one, in the subsidiary- *learning abroad-*. Secondly, the acquired knowledge can be transferred to the parent firm **-Transfer-**, increasing the home capabilities as the international networks increase **-Global-**. We try to answer the following research questions: Does the Upward Spiral model apply empirically? In other words, could we check the different stages in the USM as the connection between parents and subsidiaries productivities? Are there some differences between countries and technological sectors?

For doing that we use ORBIS dataset in order to add some descriptive and empirical evidence to the processes of learning manifested in the Upward Spiral Model. ORBIS offer information of the linkages between parent and subsidiaries, showing the location of both units. Focusing in the manufacturing sector, the sample contains 669 parent firms from emerging economies located in developed economies (1925 subsidiaries) and 6799 parent firms from emerging economies located in emerging economies (17062 subsidiaries). We apply a cross-section analysis in the last year available (2017).

1.2 Contribution

Our first contribution is the connection between Emerging Multinational Studies (Cuervo-Cazurra, 2012; Gammeloft et al., 2010a; Luo and Tung; 2018) and heterogeneity firm and knowledge transfer analysis (Contractor et al., 2016; Mudambi and Navarra, 2004). The movement of knowledge inside the Multinational firms allows us to find some connections between both branches in the literature.

Secondly, we add some empirical evidence of a new theory in IB, the Springboard MNE Theory and the Upward Spiral Model, considering the micro level and the productivities differences between parents and subsidiaries firms. In addition, we add some arguments to the Upward Spiral model, differentiating between: Learning, Transfer and Global and dealing with the technological content of the industry (High, Middle and Low technological sector).

This paper tries to answer one of the calls for paper proposed by Luo and Zhang (2016) and Luo and Tung (2018) about the need of papers adding some new empirical analysis of the Emerging Multinational Enterprises (EMNE) and specifically, papers testing the Upward Spiral Model that is proposed as an explanation of the internationalization process of springboard MNEs

Results show different path in the transference of knowledge in the SMNEs (MNE from developing countries), considering as host location developing or developed countries. Differences have also been found when we differ between technological sectors.

In the case of <u>SMNE to develop countries</u>, we found two new channels of learning: Learning by the transference of capabilities though Inward FDI (domestic learning) and learning abroad instead of the transmission of ownership advantages between Parents to subsidiaries. Moreover, we find evidence for the transmission of capabilities between subsidiaries to parent firms. Findings also show that as firms increase each global character, parent firms will show higher level of productivity. However, those results are not evident in the case of <u>SMNE to developing countries</u> where there is just evidence of transference of knowledge between subsidiaries and parent firms and the effect of Global.

Finally, considering firms divided by technological sectors the transfer of knowledge is relevant when <u>SMNE are located in developed countries</u> in the form of Inward FDI and in low technological sectors, while the transfer of knowledge between subsidiaries and parent firms is crucial in high technological firms. However, <u>SMNE located in developing countries</u> the transference of knowledge appear by Inward FDI in both high and low technological sectors while, the transfer of knowledge between subsidiaries and parent firms is crucial in low technological sectors.

In addition, several implications are obtained for managers and policy makers regarding the promotion of Outward Foreign Direct Investment –OFDI- considering the potential positive effects that can be derived from learning abroad and from the domestic learning in the home country in the form of Inward foreign direct investment.

Several limitations have this study: firstly, the specific consideration of the different stages in the process of internationalization proposed by the Upward Spiral Model. Secondly, we could find different results depending of each MNE and country. That is to say, each MNE could have its own Upward Spiral Model path. Thirdly, we could not capture the acquisition of capabilities abroad, and finally the Upward Spiral model should be analyzed at the long term.

The rest of the paper is organized as follow. After this introduction, we can find the literature background section. Then, the empirical analysis is showed in section 3 and

finally section 4 and 5 show the discussion of the results and conclusions of this analysis.

2. Literature Background

2.1. Emerging multinational enterprises Studies and heterogeneity firms

Why Multinational Enterprises (MNE) Exits? This question has tried to be solved by the literature from the 60s. Some main theories and models have added arguments trying to answer it: the internalization theory (Buckley and Casson, 1976; Dunning 1981; Buckley and Casson, 2009) supported that MNE have some firm specific capabilities and experience that will be exploited abroad through market methods; the knowledge base view (Nelson and Winter , 2002) added that firms have knowledge accumulated that will exploited abroad; the resource base view of the firm explained that firms develop intangibles at home that are transferable into the MNE networks, generating an internal transfer between parent firms and subsidiaries (Peronse 1959; Dunning and Lundan 2008); the internationalization process (Uppsala Model) considered the internationalization process as incremental steps, starting by exporting and finishing by foreign direct investment (Johansson and Widerhseim-Paul, 1975; Johanson and Vahlne, 1977); the OLI-Ownership, Location and internationalization advantages-paradigm emphasized the possession of a set of advantages that justify the internationalization process (Hymer, 1976; Caves, 1996; Dunning, 1981), answering the questions of when a firm decide to be global, where to be located and, why to use foreign direct investment (FDI).

Three main characteristics in the International Business (IB) scenario have staggered the pillars of some theories of IB -International Business-from the 80s (Ghymn and Khan, 1980; Kumar and Mcleod, 1981 and Lall, 1984) and more recently in the 20s (Cuervo-Cazurra and Genc, 2008; Dunning, 2009; Gammeltoft et al., 2010a); Gammeltoft et al., 2010b; Guillén and García-Canal, 2010; Hennart, 2012; Luo and Wang, 2012): 1) the role played by MNE from emerging countries such as China, Brazil or India, in the last decades in the international markets, 2) The use of a rapid mode of internationalization, translated in an increase of Merger and Acquisitions (M&A), 3) Changes in the motives pursuit by firms in the internationalization process: knowledge seeking and learning abroad vs market seeking or exploiting motives.

The current internationalization characteristics have produced the development of new arguments in the IB literature. Some authors have supported that traditional theories are still useful for the explanation of Emerging Multinational Enterprises, and that these theories and model just need a minimum extension. This is the case of the country specific advantages (Rugman, 2010; Hennart, 2012), the consideration of institution in the OLI paradigm (Narula and Dunning, 2010), the use of M&A as a results of the new IB scenario (Luo and Wang, 2012) and the consideration and transformation of new OA "Ownerships Advantages" that explain the internationalization of firms from emerging economies (Child and Rodrigues, 2005; Guillén and García Canal, 2010 and Cuervo and Cazurra and Genc, 2008).

However, the new approaches built for the explanation of this phenomenon are wining adepts in the recent internationalization studies. This is the case of the Linkage,

Leverage, Learning (LLL) approach (Mathews, 2002; 2006), that explained the firms will acquire resources abroad-asset seeking- follow a rapid mode of internationalization and compensating weaknesses found at the home country. The global factory theoretical framework, which considered the role of internal and external knowledge in the internationalization of firms (Buckley, 2009 and 2016). This model highlighted the horizontal and vertical coordination of learning and value chain activities. The comparative advantage framework composed by 1) national industrial factor endowments, 2) Dynamics learning, 3) value creation, 4) reconfiguration of value chain, and 5) institutional facilitation and constraints (Sun et al., 2012). This framework explained how to enhance the competitive advantage through strategic asset-seeking. The awareness-motivation capability framework which justified that firms can catch knowledge, strategic asset seeking (SAS) abroad when locally available assets become inadequate for future competition (Cui et al., 2014). And, finally, the well-known, springboard investment theory, that will be explained in detail in the next sections (Luo and Tung, 2007; 2018).

All these new IB approaches and theories agree that Multinational firms can learn abroad, following knowledge-seeking motives and that international knowledge acquired or possessed is a key element for the success of these firms abroad.

In addition to the *Emerging Multinational* arguments the literature of *Heterogeneity firms* collects several arguments about the transmission of knowledge between different units of Multinational Enterprises (MNE): parent firms to subsidiaries and subsidiaries to parent firms, calling this last flow of knowledge as Reverse Knowledge flows.

In detail, heterogeneity firm's literature connects the level of productivity of firms with exports and with the international climax of international commitment, in other words, FDI- Foreign Direct Investment-. Models about heterogeneity firms try to explain the equilibrium between Productivity and exports and, FDI in a bidirectional way, HMY-model and extension, (Helpman et al., 2004; Wagner, 2007). We will focus on this last relationship: FDI boost productivity, and specifically the consideration of transfer of knowledge between parent firms to subsidiaries and between subsidiaries to parent firms (Santos-Arteaga et al., 2019).

Knowledge and learning by the internationalization of firms has been considered as a source of competitive advantages in IB literature (Mudambi and Navarra, 2004 and Ambos et al., 2006). Traditional IB literature just recognized that firms could have experiential knowledge (Uppsala School) and could follow knowledge-seeking motives as extension of the OLI paradigm (Eriksson et al. 1997; Forsgren 2002). However, the extension of knowledge flows in the MNE literature have started to consider the transference of knowledge between parent firms and subsidiaries (Dunning 1988) and between subsidiaries to parents firm (Mudambi et al., 2013; Driffield et al., 2016; Contractor et al., 2016; Fariñas et al., 2018).

Moreover, a growing body in the literature suggests that Emerging multinational (EMNE) prefer to undertake FDI through acquisitions due to they can catch knowledge (Awate et al., 2012: Mathew 2002; 2006) and it helps to create competitive advantages (Luo and Tung, 2007; Buckley et al. 2016).

Therefore, the new landscape in the international business has changed the international business arguments. MNE can learn and there are some channels of knowledge transmission in the different units of the MNE: between parent firms to subsidiaries in the form of external linkages (Inward FDI). On the other hand, subsidiaries can learn abroad, catching knowledge and transferring this learning to parent firms. Those different channels of knowledge will add some new elements for the explanation of the emergence of Emerging Multinational Enterprise.

2.2. Theory of Springboard Multinational Enterprises (SMNEs) and Upward Spiral internationalization process

Springboard Multinational Enterprises (SMNEs) theory was introduced by Lung and Tung in (2007) as an alternative mode for the study of the Multinational Enterprises from developing countries. This theory emerged for the justification of the huge increase of outward foreign direct investment flows from countries such as China, Brazil or India, located in developed economies. This theory has been based in three main premises: Firstly, multinational enterprises (MNEs) can learn abroad acquiring strategic resources (knowledge-seeking motives) that overcome laggard disadvantages as institutional, market constraints and trade barriers into advanced markets. Secondly, MNEs exploit "others competitive advantages" and market opportunities in other countries being relevant the concept of networks or global in this internationalization process (Luo and Tung, 2007; 2018). Finally, SMNE follow different stages that will allow the firm growth and the establishment of a competitive position in the global marketplace (Gaffney et al, 2016).

Since the introduction of this new theory, several authors have been tested some aspects of the premises described above: the acquisition of knowledge, in other words, knowledge seeking motives and catching strategies have been defended among other by De Beule et al., (2014); Gubbi et al, (2010); Kotabe and Kothari; (2016), Li et al., (2012); the ability for overcome initial home disadvantages and transforming them (Kedia et al, 2012); the role of the home country and institutions in the process (Hennart, 2012); the differences between technological sectors and advanced and less advanced MNE (De Beule et al, 2014); how exactly the concept of ownership advantages differs in –emerging multinational enterprises- EMNEs and advanced multinational enterprises- AMNEs. In this sense, authors agree that there are different ownership advantages (Ramamurti 2012, Cuervo-Cazurra, 2012; Hennart 2012) and the concept of "other ownerships advantages" in the form of inward internationalization understood as international experiences, absorptive capacities and networks have been analyzed, among others by Satta et al., (2014).

Regarding the new set of ownership advantages that emerging multinational enterprise has, little is known about how ownership advantages are built, grown and be global (Luo and Tung, 2018). Amalgamation, Ambidexterity and Adaptability (AAA) have been proposed by Luo and Tung (2018) for the description of the SMNEs Springboard advantages. Where, amalgamation refers to the ability of combination and improvement of all the available resources (acquired or possessed) (Luo and Child, 2015). Ambidexterity means the co-height of acquiring global resources and augmenting competitiveness that they need (buying or acquiring and augmenting or making) (Choi

et al., 2019). Finally, Adaptability refers to the responses to a dynamic competitive environment.

Regarding the internationalization process Luo and Tung, (2018) have proposed the Upward Spiral Springboard model (USM), pointing out the necessary bidirectional transfer of competences between Home and Host economies and therefore, between parent firms and subsidiaries MNEs. More in detail, in the early stages, parent firms will transfer to new acquisitions some limited competitive strengths, and then in following stages, subsidiary units will transfer new acquired assets to parent firms (home markets). Therefore, this process integrates SMNEs and strategy assets globally.

The UPM describe 5 stages in the internationalization process of SMNE by which firms are integrating external and internal knowledge in the home country or parent firm as a base:

In the first stage, inward internationalization in the form of *experience with foreign companies, networks and absorbing capacities* is used to improve SMNEs capabilities. In other words, **inward internationalization (Inward FDI)**, can be considered an important "ownership advantage" for SMNEs, which is building by the parents firm in the home countries. In fact, Buckley et al, (2016) highlighted that the internationalization is based in home country specific advantages such as international networks built at home.

This solid base derived by the inward ownership will justify the rapid internationalization process to developed countries and the ***learning abroad***, acquiring new key knowledge. The phase by which firms catch knowledge abroad is the second stage of the process.

In the third stage, subsidiaries will ***transfer*** the acquired new set of knowledge to parents firms at the home countries, fortifying the home base and making the company a global player (fourth stage). Finally, in the fifth stage, home country has to learn how to deal with the new stronger global capabilities and with the operations via global value chain, reinforcing the role that home countries have in the upgrading of capabilities and improvements of competiveness.

Finally, there is a process of reinforcing between the different stages for the generation and consolidation of the capabilities' needs in the internationalization process and in this process each MNE will have their own evolutionary paths for building competitive advantages (Kotabe and Kathory, 2016).

3. Hypothesis development

The premises, stages and hypotheses described in the Upward Spiral model could be summarized in the following diagram (Figure 1).

Insert figure 1 and table 1 about here

The previous model describes five steps as a set of process for the acquisition of global capabilities: *Inward Internationalization, OFDI, Capability transfer to home, Home centered capability upgrading and Global catapulting with strong capabilities* (Luo and Tung 2018). We summarize these stages in the following figure (figure 1), where we

can observe two linkages: the first one, between home/parent firms and host economies/subsidiaries, and the second one, between host economies/subsidiaries and home/parent firms. On the one hand, in this process there is a transmission of capabilities between parent firms to subsidiaries in the form of inward internationalization and a new source of knowledge acquired abroad by the subsidiary. That is to say, there is an interactive process of learning: *Domestic learning* through Inward FDI and *learning abroad* in the initial stages of the internationalization process.

Regarding the learning process *-domestic learning and learning abroad-* several studies have found that inward FDI in the form of experience, networks, and absorptive capacities and activities (Satta et al., 2014; Luo and Tung, 2018; Luo and Bu, 2018) are especially relevant in MNE firms from emerging economies (Deng, 2009; Cantwell and Santangelo, 2006; Narula and Dunning, 2010; Stoian, 2012). The potential transfer of capabilities or technology and knowledge between foreign and domestic firms can facilitate the process of capabilities accumulation and outward FDI flows (Child and Rodrigues, 2005; Mathews, 2006; Luo and Tung, 2007; Narula, 2012; Kumaraswamy et al., 2012). These linkages may imply that firms can exploit a minimum set of ownership advantages obtained as a result of the internal MNE networks found in the home country (Deng, 2009; Narula, 2012; Stoian and Mohr, 2016). Therefore, with these previous arguments we propose the first hypothesis of our study (H1)

Hypothesis 1 (H1): Inward Internationalization in the parent firms will affect positively the productivity of subsidiaries. *-Domestic Learning-*

Regarding learning abroad, we refer to those studies that have justified that firms could follow knowledge seeking motives or asset seeking strategies as it has been recognized in Luo and Tung, (2018) and Luo and Bu (2018). Particularly, the internationalization of firms for learning abroad has been one of the key point in the new arguments explaining the internationalization process of firms in emerging economies (Mathews, 2006; Luo and Tung, 2007; Guillén and García-Canal, 2010; Luo and Tung, 2018). These new ideas are in contract to traditional postulate that define the transmission of traditional ownership advantages such as technology and market powers between parent firms and subsidiary units (Dunning, 2009). In fact, authors agree that Emerging Multinational Enterprises have different ownerships advantages that advanced multinationals enterprises ones (Ramamurti, 2012; Cuervo-Cazurra, 2012; Hennart, 2012). For instance, it has been introduced the cost and speed advantages (Guillen and Canal, 2010), the learning and linkages advantages (Mathews 2006) and the ability to transform initial disadvantages into advantages (Cuervo-Cazurra and Genc, 2008). In addition, MNE from emerging economies will have the intention of acquiring knowledge as it has been argued in Luo and Bu (2018) and Cui et al., (2014). Therefore, there are other advantages that justify the internationalization process of Emerging Multinational Enterprises and those advantages can be acquired abroad (Luo and Tung, 2018) increasing their profitability (Cui and Xu, 2019). With these arguments we propose the second hypothesis of our study:

Hypothesis 2 (H2): Traditional ownership advantages in the form of technology are not affecting the productivity of subsidiaries. In other words, there is no a relationship between the ownership advantages of parent firms and subsidiary productivity.

Therefore, there are "other types of Oa", confirming that firms can learn abroad in the internationalization process. *-Learning Abroad*

These hypotheses are coincident with the first stage proposed by the Upward Spiral model-USM: Inward internationalization and radical OFDI for learning.

On the other hand, the model proposed the transfer of capabilities between subsidiaries to home countries for the compensation of the weaknesses that home countries could have (Luo and Tung, 2018). In other words, the springboard theory introduces the importance of the transference of the foreign capabilities acquired to the home country as a part of the integration of the foreign knowledge in the Value Chain-System. Authors agree that the external and internal linkages and, the learning capabilities will produce an increase of the firm performance (Kumar et al., 2019) conferring to the home country the power of upgrading the foreign capabilities acquired (Luo and Tung, 2018). In other words, subsidiary learning (domestic and abroad) will go back to the home country as augmenting capabilities *-Transfer-*.

Hypothesis 3 (H3): There is a transmission of knowledge between the subsidiary and the parent firms. In other words, there is a positive relationship between subsidiary productivity and parent's productivity.

This hypothesis is coincident with the third and fourth stages proposed by the USM.

Finally, the reproduction of this process will be translated in the augmentation of home capabilities and competitiveness strengths based on the globalization of their firms, where the home country is the base platform for the integration of dispersed activities (Luo and Tung, 2018). Global interactions and caching knowledge will be the key factor for the internationalization process in the new internationalization era (Luo and Zhang, 2016). In fact, there is a positive relationship between the external linkages and the growth of emerging multinational enterprises. The arguments elaborated above allow us to propose our fourth hypothesis:

Hypothesis (H4): Global competitiveness generated by more internationalized firms will positively affects the productivity of the parents firms

This hypothesis is coincident with the last stage proposed by the USM model.

As a robustness test we reply **hypothesis 3** considering the technological sector of the SMNEs. We expect that in high technological sectors Inward FDI play a special role in the transference of knowledge between MNE units, being these results less evident in low technological sectors. In addition, we propose that there is a transmission of knowledge between parent and subsidiary firms especially relevant when the degree of technological knowledge increase (De Beule et al., 2014; Luo and Tung, 2007). Table 1. Summarizes our set or hypothesis and expected signs.

4.   Empirical analysis

We use ORBIS dataset of Bureau Van Dijck. ORBIS in this analysis. It contains information of firms' accounts on more than 165 million of companies around the world. This dataset is considered one of the best according the financial data and the

ownership structure of firms. In fact, this dataset collects information of the parent firms and the subsidiaries. All the information refers to the last year available, which corresponds with 2017. In addition, the information about the linkages of the parent and the subsidiary is only available in the last year in which the parents' firm appears in the dataset (Contractor et al., 2016 and Driffield et al., 2016).

On the one hand, we focus on the analysis of firms which number of employees is superior to 250, given the connection that literature have found about the big size of firms and the status of Multinational Enterprise (Barba Navaretti and Venables, 2006; Fariñas et al., 2018).

From ORBIS we build a sample of manufacturing multinational enterprises that are owned by developing countries. Firstly, we will focus only in manufacturing enterprises in order to organize the dataset and reduce the missing data (Fariñas et al., 2018; Gattai and Sali, 2018). We use a sample of emerging markets: less developed, developing, newly industrializing, transition and emerging countries following the classification of Hoskisson et al.(2000) and Luo and Zhang (2016) and according to the World Bank classification which divides the economies in High Low and Middle income economies. Therefore, we focus on emerging multinational enterprises from 93 developing economies. Moreover, to determine which of the firms can be considered emerging multinational enterprises we establish that the 50% of the capital should be owned by an investor located in a developing economy, following the notion of the "ultimate control" established by the OCDE (Ribeiro et al,. 2010; OCDE, 2005).

Finally, we select the host destination of the Emerging Multinational Enterprises. For doing that, we differentiate between MNE from emerging countries (SMNEs) located in developed ones (High income classification according to the World Bank) and SMNEs located in emerging economies (Low and Upper Middle economies). Table A1 in the appendix describe the countries include in each group.

The description of the sample of firms and countries used in the analysis is found in Table 2. We have identified 28.517 Emerging Multinational Enterprises. These EMNE could be divided according to the host destination. Therefore, 1777 firms have subsidiaries in developed economies (71 high income countries) while, 26740 have subsidiaries in emerging economies (93 Lower and Upper Middle economies).

Table 2 Insert about here

Finally, we only include firms, which database has completed or almost completed information, on productivity (parent and subsidiaries), patents and employment. This criterion leads to the exclusion of several firms in some countries (Contractor et al., 2016 and Driffield et al., 2016). Finally, we work with a sample of 669 parent firms located in developing countries with 6799 subsidiaries in developed countries and 1925 parent firms located in developing countries with 6799 subsidiaries in other developing countries

Regarding the description of the variables used in the empirical analysis we will refer to table 3.

Table 3 insert about here

Regarding the descriptive statistic of the sample we should highlight three issues: On the one hand, the differences between the samples considered in the analysis, in other words, differences between SMNEs located in developed and developing countries. (Table 4).

Table 4 insert about here

On the other hand, the graphical correspondence between the increase of parent's productivity and number of subsidiaries, considering both subsidiaries located in developed or in developing countries (graph 1 and 2).

Insert graph 1 and 2 about here

Finally, considering the technological sectors of the MNEs, firms will be more concentrated in the middle high and middle low sectors when the host country is developed and developing countries.

Insert graph 3 and 4 about here

For the test of our hypotheses, we use the following variables in our empirical analysis. Table 3 collects those variables.

Parent and subsidiaries productivity

Theoretical and empirical studies have analyzed the transference of knowledge between parent firms and subsidiaries in the heterogeneity firm literature. It should be highlighted the studies analyzing the importance of knowledge flows between hosts' countries to foreign affiliates and MNE headquarters. In other words, the reverse knowledge flows intra MNE (Mudambi and Navarra, 2004; Driffield, et al., 2016), by which MNEs can learn abroad. The traditional variables used for capturing the relationship between parent and subsidiaries have been the level of productivity (Driffield et al., 2016).We use parent's firm productivity and subsidiary productivity as dependent and independent variable measured by the gross output divided the number of employees.

Ownership advantages

Traditional MNEs theories consider technological assets as patents, brands or intangibles as the Ownership Advantages that justify the internationalization process of firms (Dunning, 1988). The variable used for capturing Traditional Ownership advantages (Oa) is *Patents,* which refers to the number of patents in the parent firms in the analyzed year. Some relationship has been found between the use of patents as technological indicator and each correspondence with the Oa in multinational firms. With this variable we try to capture the transfer of capabilities between parent firms and subsidiaries that would explain the internationalization process according to traditional postulates. It is expected a positive relationship between parent technological level and subsidiary performance (Contractor et al., 2016).

Inward internationalization

Springboard MNE theory recognizes the role that MNE installed in the country has in the transfer of capabilities that will explain the success of MNE abroad, in other words,

inward foreign direct investment (IFDI) affects positively the internationalization process (Li et al., 2012; Satta et al., 2014; Cui et al., 2014 and the experience in FDI will help firms to develop asset seeking strategies (Cui et al., 2014). We use a dummy variable for capturing the foreign composition of the shareholders of firms.

Global

EMNE literature, heterogeneity firm literature and specifically the Theory of springboard MNEs match the argument of that the effects of subsidiary productivity and parent performance will be higher as the degree of multinationalism increase (Drifiield, 2016). We use a dummy variable for capturing the degree of global/network as a composition of productivity subsidiary and the number of subsidiaries (*Subsidiary productivity*number of subsidiaries*).

Control variables

Labor cost and the available years reported by the firm in the dataset are used as control variables in the analysis. We expect that labor cost will not affect the productivity level of subsidiaries and parent firms, while years will have a positive relationship.

For testing our working hypothesis we include all the variables exposed above in the following three regression equations. These equations correspond with the stages of the Upward Spiral model proposed by Luo and Tung, (2018). The first equation describes the learning channels of the subsidiary firms, the second equation analyses the transfer of knowledge between subsidiary to parent firms, testing the effects of subsidiaries on the home capabilities and, the third equation describes the role of multinationalism on the home capabilities.

Stage 1 and 2. **Learning**

$$Sp_{ij} = \beta_0 + \beta_2\, Oa_{ij} + \beta_3\, Inward_{ij} + C_{ij} + u_{ij} \qquad\qquad (1)$$

Stage 3. **Transfer**

$$Pp_{ij} = \beta_0 + \beta_1\, Sp_{ij} + \beta_2\, Oa_{ij} + \beta_3\, Inward_{ij\,+} + C_{ij} + u_{ij} \qquad\qquad (2)$$

Stage 4 and 5.**Global**

$$Pp_{ij} = \beta_0 + \beta_1\, Networks_{ij} + \beta_2\, Oa_{ij} + \beta_3\, Inward_{ij} + C_{ij} + u_{ij} \qquad\qquad (3)$$

Where, Spij correspond to subsidiary's productivity and Ppij correspond to parent's productivity. "i "refers to developing countries as home of the MNE (Springboard Multinational Enterprises SMNE) and "j" refers to the host destination that could be developed or developing countries. Oa ij refers to patents measuring the traditional Ownership Advantages and Networks measure the number of subsidiaries*productivity subsidiaries. Cij refers to the control variables included in the analysis: wages and firm ages (number of years since the firm's establishment is questioned in the survey (Cui et al., 2014). and u_{ij} is the error terms in the regression equation.

Moreover, as robustness test we estimate the second equation differentiating between the technological sectors (High, Middle-High and Middle-Low and Low technological sectors).

Finally, regarding the methodology we use a cross-section analysis for the last year published and the numbers firms referred in table 1, given the lack of available data reported by ORBIS about the relationship between parent and subsidiaries. Models are analyzed with standards robust errors and we have cheeked about heteroscedasticity and autocorrelation.

5.   Discussion of results

Results of the estimations presented in table 5 illustrate the existence of different paths of learning in the Upward Spiral Model and therefore, different knowledge movement in the Springboard Multinational Enterprises (SMNEs).

Regarding the table 5.1. *Springboard MNE to developed countries*, column 1 and 2, and according the first equation -subsidiary productivity-, results show as subsidiary productivity would be explained by the transference of external knowledge between parent and subsidiary in the form of inward internationalization. (Inward is significative at 5% of significance level). This result allow us to affirm that external home linkages in the form of inward internationalization are a key factor for the success of MNE firms from developing countries, confirming H1- there is a positive relationship between external linkages developed at home and subsidiary productivity of SMNEs, according to our hypothesis of domestic learning.

On the other hand, "Oa" Ownership advantages transferred between parent and subsidiaries, capturing through patents are not significant. This result is against traditional MNE postulates and reaffirm that there are other "Oa" that can be learned instead of transferred justifying the internationalization of firms from emerging markets. Therefore, we accept H2-by which traditional "Oa" are not significant. Regarding, our control variables wages is not significant and years is negative and significant.

Focusing on our second equation- parent productivity-, Table 5.1, column 3 and 4, and considering developed countries as host destination of SMNEs, there is a transfer of capabilities between subsidiaries and parent firms. In other words, as the significance of the subsidiary productivity increase, the productivity of parent productivity will increase (it is significant at 5% of significance level). Inward internationalization continues being significant for the explanation of parents productivity. Ownership advantages and control variables are not significant. These results allow us to confirm our hypothesis three (H3). Transfer of knowledge between subsidiaries and parent firms.

Finally, the third equation-parent productivity-, Table 5.1, column 5 and 6, shows that parent productivity increase as the number of subsidiaries and the productivity of them is higher. That is to say, global networks affect positively the productivity of parent firms, confirming our hypothesis 4 (H4) Global.

Regarding to. *Springboard MNE to developing countries*- table5.2 column 1 and 2-, and our first equation-subsidiary productivity-, shows that inward internationalization affects negatively to the subsidiary productivity and it is not significant the possession

of traditional Oa. Therefore, H1- external linkages and H2-transfer of capabilities- are not confirming for the group of developing countries.

Considering our second equation- parent productivity-, results show that parent productivity increase by subsidiary productivity and the traditional Oa affects negatively. Inward FDI is not significant. We are able to confirm our third hypothesis-transfer- when the host destinations are developing countries.

Finally, our third equation, column 3 and 4 shows a positive relationship between the number of subsidiaries*productivity and parent's productivity, confirming our hypothesis number 4 (H4). I

All in all, these results allow us to affirm that the Upward Spiral Model does not apply at all when developing countries are taking into account. In other words, SMNE go to developing countries. There are other factors instead of inward internationalization or traditional Oa that explain the success of these new MNEs abroad. However, there is a transmission of capabilities between subsidiary and parent MNE, being in addition significant the global effects on parent productivity. These results allow us to propose the figure 2 by which the Upward Spiral model and the Springboard theory is questioned when the host destination are developing countries, showing a no learning from home, while that subsidiary learn and transfer that knowledge to parent firm. In addition, in this case is relevant the relationship of network and number of subsidiaries and home capabilities.

Figure 2 insert about here

As robustness check we consider different samples *according to the technological content* of the Multinational Enterprises (MNE). Table 5.3 summarizes these results dividing the sample in Low and Middle Low technological sectors and High and Middle High technological sectors.

Considering SMNE and the host destination of *developed countries* (Column 1 and 2), results show as in lower technological sectors, parent productivity will be affected by the transmission of knowledge through Inward internationalization, being not significant the productivity of subsidiaries (Sp) and the traditional Ownership advantages (Oa). However, as the technological content of the MNE increase, parent's productivity will be a function of subsidiary productivity (Table 5.3, column 3 and 4).

On the other hand, when the host destination are *developing countries* the transfer of knowledge between subsidiary and parent productivity and the external linkages though Inward FDI play a special role in low technological sectors, being inward FDI relevant for high and middle high technological sector. Those technological results can be described in figure 3.

The above conclusion could be showed in figure 3. SMNEs in developed countries increase the learning through subsidiary when there is an increase of the technological content. SMNE in developing countries increase the learning though Inward FDI when there is an increase in the technological content.

Figure 3 about here

This study has theoretical and empirical implications for research on MNE from emerging markets. Our study is among the first, in our knowledge, to investigate empirically the different learning process and transfer of knowledge in the Upward Spiral model.

Our study has important practical implications for firms' international strategies. First of all, while emerging market firms can invest overseas to enhance their technological capabilities, they should also evaluate the possibility of securing technological resources from their interactions with foreign firms operating in the domestic market.

As implication for practice we highlight a global vision of management at the parent level. Manager should consider that there is an international network in which the parent firm is the core and knowledge flows that go back to the home unit of the MNE could increase their competitiveness.

6. Conclusions

The theory of Springboard MNE developed by Luo and Tung in (2007; 2018) proposed that MNE will use international expansion for the acquisition of critical resources needed for the competition at home and abroad, avoiding institutional constraint at home and reinforcing home disadvantages globally. This theory proposed the Upward Spiral model as a set of stages and linkages between home competences and competences catching globally that will improve home capabilities. This spiral will be elapsed in the following stages: Inward Internationalization, OFDI, Capability transfer to home, Home centered capability upgrading and Global catapulting with strong capabilities (Luo and Tung, 2018). This paper have tried to add some new evidence to the Upward Spiral Model, showing the role of Inward FDI for the transmission of capabilities between parent and subsidiaries, the role of traditional ownership advantages and the transfer of knowledge between subsidiary to parent firms. It has been also analyzed as the global networks increase the parent's firm capabilities. This analysis shows different results considering host location as developed or developing economies, and in the latter a new path of transference of knowledge could be predicted instead of the Upward Spiral model. Results about the technological sector also show some new evidence to the importance of knowledge considering high middle and high, middle low and low technological sectors.

Our main contribution is the addition of s fresh empirical evidence of the Springboard MNE Theory and specifically the Upward Spiral Model, considering the micro level and the productivities differences between parent firms and subsidiaries. In addition, we add some arguments to the Upward Spiral model, differentiating between: Learning: domestic and learning abroad, Transfer and Global and dealing with the technological content of the industry (High, Middle and Low technological content). Moreover, we connect Emerging Multinational Studies with the studies of and heterogeneity firm and knowledge transfer analysis.

Several limitations have this study. Firstly, we were not able to consider the time in the internationalization process and the Upward Spiral Model has to be analyzed in the long term as model of competitiveness improvements. Therefore, we could not differentiate between the stages in the internationalization process and the managerial setting that

produce competitiveness improvements. Secondly, the process of internationalization will be unique for each MNE and each country will have different results. Finally, we have limitation in the measure of the acquisition of knowledge abroad and learning due to the restriction of the dataset. All in all, we have to say that no all the springboard MNE can succeed.

Future research will try to cover the limitation expressed above and specifically we will deal with the introduction of time in the analysis considering a period of time and the different stages in the internationalization process of firms.

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Tables Figures and graphs

Table 1. Expected sings

Dependent variable	Hypothesis	Independent Variables	Expected sign
Subsidiary productivity	H1 and 2 Learning	Inward internationalization	+
		Traditional Oa	n.s
Parent productivity	H3. Transfer	Subsidiary productivity	+
	H4. Global	Networks	+
Control: Wages		W	n.s
Control: Years		Years	+

**n.s= No signigicative

Table 2. Number of parent firms, subsidiaries and countries used in the analysis

Number of firms (parent and subsidiaries) and Countries used in the analysis	SMNE in developed countries	SMNE in developing countries
Number of parent firms	669	6799
Number of subsidiaries	1925	17062
Home country	93	93
Host countries	71	93

Table 3. Variables used in the analysis

Variables and acronynms	Meaning
Parent firms	
Gross Output	Operating revenue turnover
Employment	Total number of employees
Parent Labor productivity *(Pp)*	Gross output/ Employment
Patent *(Oa)*	Number of patents in the parent firm in the year considered
Years	Number of years contained in the dataset
Wages *(w)*	Employment costs
Dummy of IFDI *(Inward)*	Dummy that takes the value (1) if the parent firm has more than one shareholder and (0) otherwise.
Subsidiaries	
Gross Output	Operating revenue turnover
Employment	Total number of employees
Subsidiary Labor Productivity *(Sp)*	Gross output/ Employment
Dummy of Global Competitiveness *(Networks)*	Dummy that takes the value (1) if the parent firm has more than one subsidiary and (0) otherwise.

Table 4.Descriptive stadistics

SMNEs to developed					
Variable	Obs	Mean	Std. Dev.	Min	Max
Sp	592	533.277	1.362.691	-6	10
Oa	238	2.609.244	1.916.682	0	8
InwardFDI	679	0.6259205	.484241	0	1
W	459	1.037.908	1.281.408	4	15
year	679	7.153.166	3.487.878	1	10

SMNEs to developing					
Variable	Obs	Mean	Std. Dev.	Min	Max
Sp	6402	4.235.864	1.827.075	-18	11
Oa	1398	2.741.774	2.082.373	0	10
InwardFDI	6798	.5623713	.4961311	0	1
W	795	8.528.302	1.389.105	2	14
year	6798	6.140.041	3.210.268	1	10

Table 5. Estimation results

5.1. Springboard MNE to developed countries

Sprigboard MNE to developed countries	Subsidiary productivity (Equation1)		Parent productivity (Equation 2)		Parent productivity (Equation 3)	
	coef	se	coef	se	coef	se
Subsidiary Productivity			0.203**	0.092		
Inward FDI	1.558**	0.629	0.618*	0.335	0.073	0.126
Oa"Patents"	-0.124	0.136	-0.055	0.073	-0.051	0.047
Wages	-0.032	0.272	0.140	0.125	0.062	0.095
year	-0.234*	0.120	0.067	0.069	0.035	0.047
Global					0.354***	0.077
_cons	0.332	2.743	3.464**	1.395	2.188*	1.316
R-squared	0.321		0.393		0.397	
Observations	41		39		127	

note: .01 - ***; .05 - **; .1 - *;
Coef:Coeficiente
Se:Robust standar errors

5.2. Springboard MNE to developing countries

Springboard MNE to developing countries	Subsidiary productivity (Equation 1)		Parent productivity (Equation 2)		Parent productivity (Equation 3)	
	(1)		(2)		(3)	
	coef	se	coef	se	coef	se
Subsidiary productivity			0.242***	0.055		
Inward FDI	-2.489***	0.649	-0.021	0.183	0.471**	0.219
Oa "patent"	0.077	0.235	-0.024**	0.011	-0.000	0.000
Wages	-0.366	0.244	0.403***	0.092	0.041	0.062
years	0.269***	0.090	-0.010	0.040	-0.023	0.028
Global						
_cons	0.608	2.356	1.334	1.030	0.494***	0.044
R -squared	0.32		0.37		0.51	
Observations	24		144		35	

note: .01 - ***; .05 - **; .1 - *;
Coef:Coeficiente
Se:Robust standar errors

5.3. Springboard MNE by technological sectors (Parent productivity equation).

	SMNEs to developed countries (Low and Middle Low Technological sector)		SMNEs to developed countries (High and Middle High Technological sector)		SMNEs to developing countries (Low and Middle Low Technological sector)		SMNEs to developing countries (High and Middle High Technological sector)	
	(1)		**(2)**		**(3)**		**(4)**	
	coef	se	coef	se	coef	se	coef	se
Subsidiary productivity	0,216	0,219	0,181*	0,087	0,269**	0,096	0,001	0,101
Inward FDI	1,302*	0,675	0,277	0,360	1,615***	0,450	0,654**	0,288
Oa "patents"	-0,150	0,142	0,060	0,099				
year	0,079	0,107	0,014	0,104	-0,196*	0,100	0,083	0,067
Wages	0,094	0,233	0,128	0,170	-0,100	0,180	0,336**	0,160
_cons	3,724	2,652	3,784**	1,691	5,636**	1,875	-0,202	1,991

note: .01 - ***; .05 - **; .1 - *;

Table 6. Correlations

SMNEs to developed						
	Sp	Pt	Intangibles	W	Inward FDI	year
Sp	1					
Oa	0.0363	1				
W	0.6559	0.1631	0.5536	1		
Inward FDI	0.3916	-0.0969	0.2923	0.4779	1	
year	-0.3281	-0.3452	-0.1793	-0.2386	-0.0996	1

SMNEs to developing						
	Sp	Pt	Intangibles	W	Inward FDI	year
Sp	1					
Oa	0.0398	1				
W	0.5527	0.4373	0.6778	1		
Inward FDI	-0.0536	-0.1207	-0.1303	0.0819	1	
years	0.4785	-0.0576	0.3058	0.3346	-0.1025	1

Figure 1. Upward Spiral model and leaning in developed economies

Stage 1. Learning

Catching and learning abroad

Inward Internationalization.

H2. Learning abroad

H1. Domestic Learning

Subsidiary

Host country

Parent' firm

Home country

Subsidiary learning

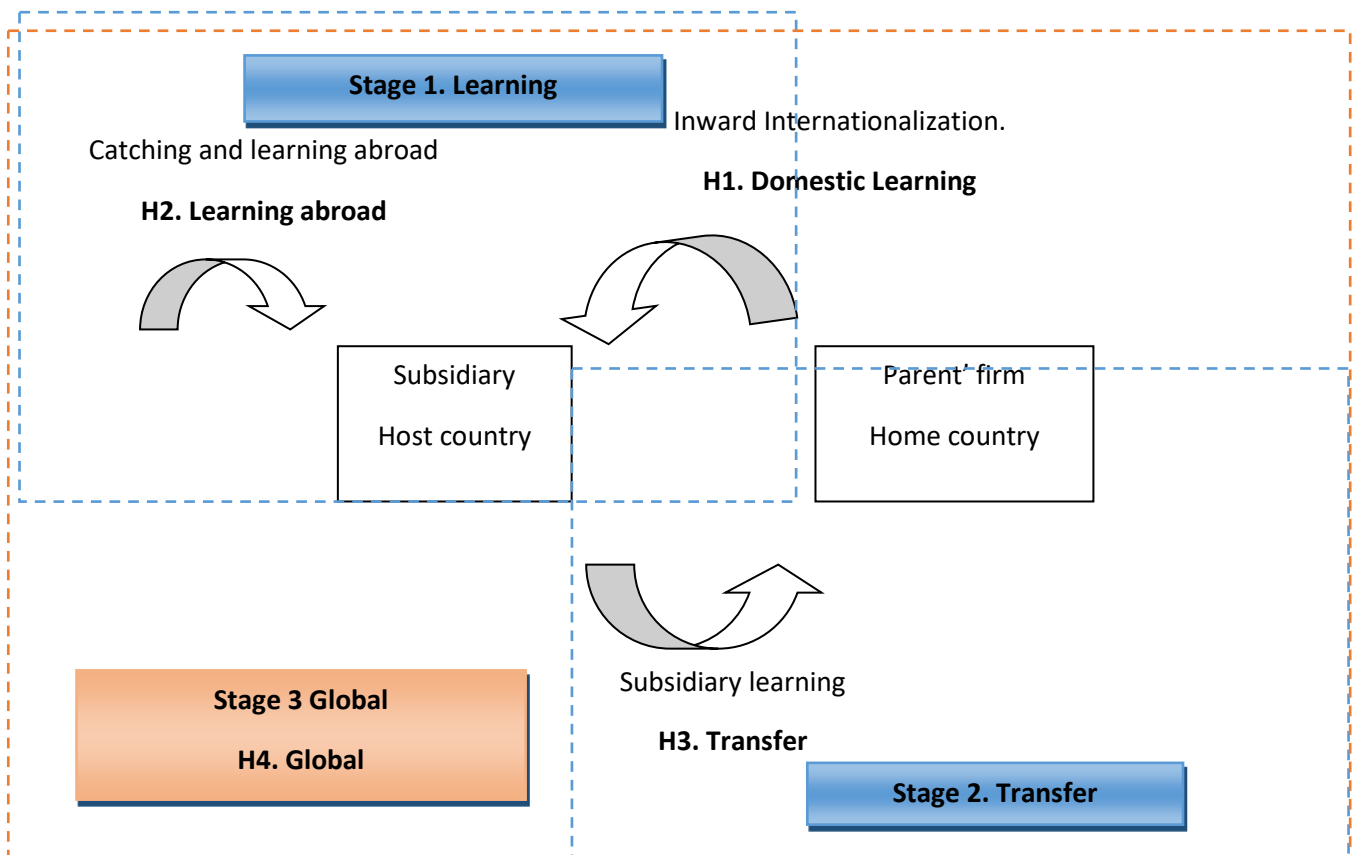**Stage 3 Global**

H4. Global

H3. Transfer

Stage 2. Transfer

Figure 2. Upward Spiral model and leaning in developing economies

Stage 1. No Learning

H1. Domestic Learning

H2.Learning abroad

Subsidiary
Host Country

Parent's firm
Host Country

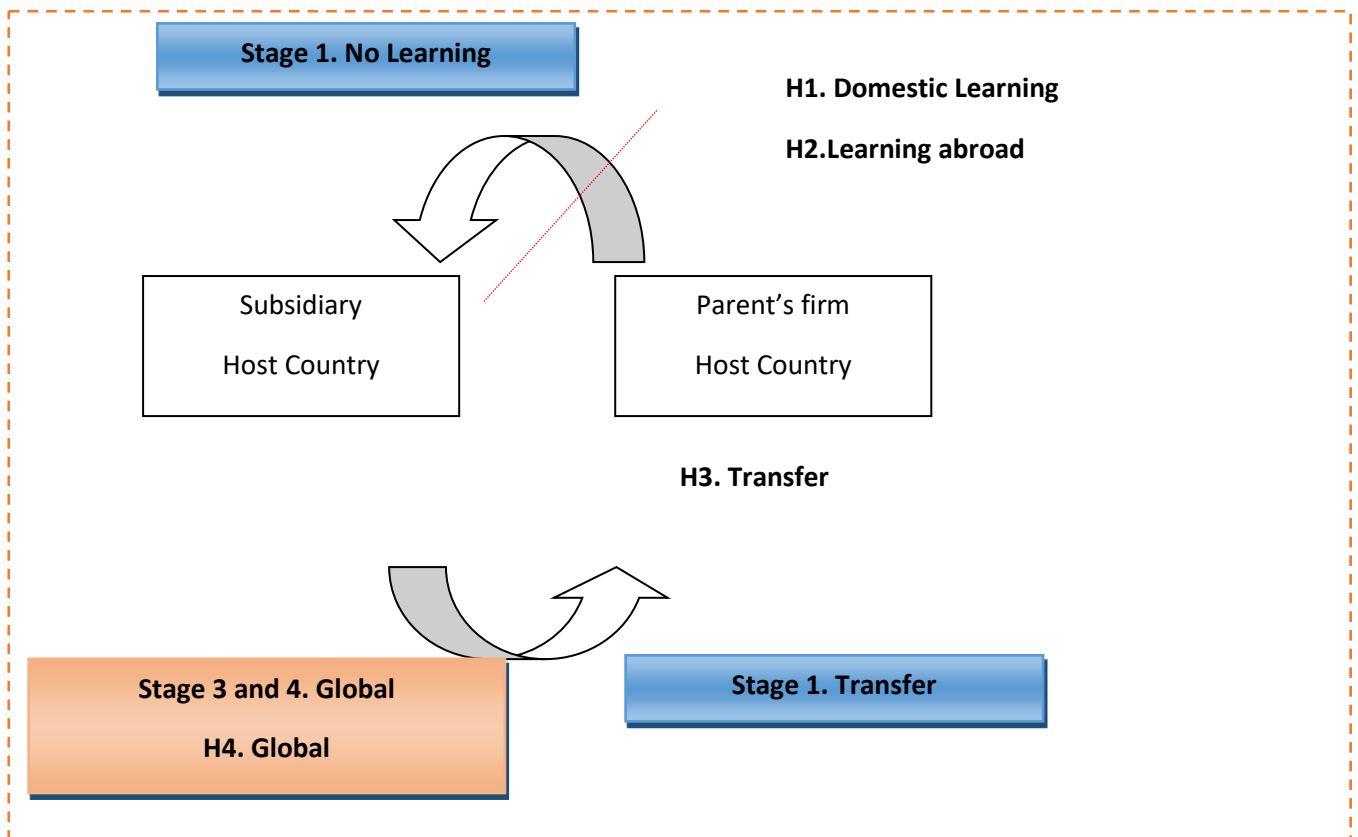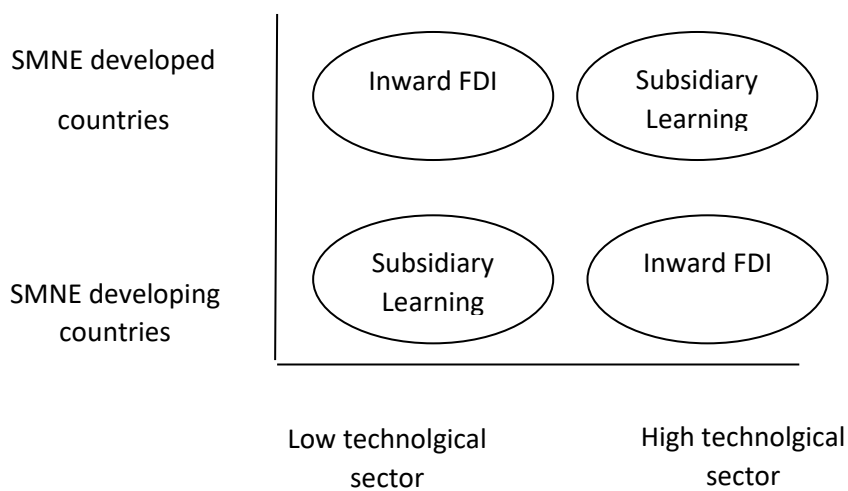H3. Transfer

Stage 3 and 4. Global
H4. Global

Stage 1. Transfer

Figure 3: Technological sector and Upward Spiral Model

SMNE developed
countries

Inward FDI

Subsidiary
Learning
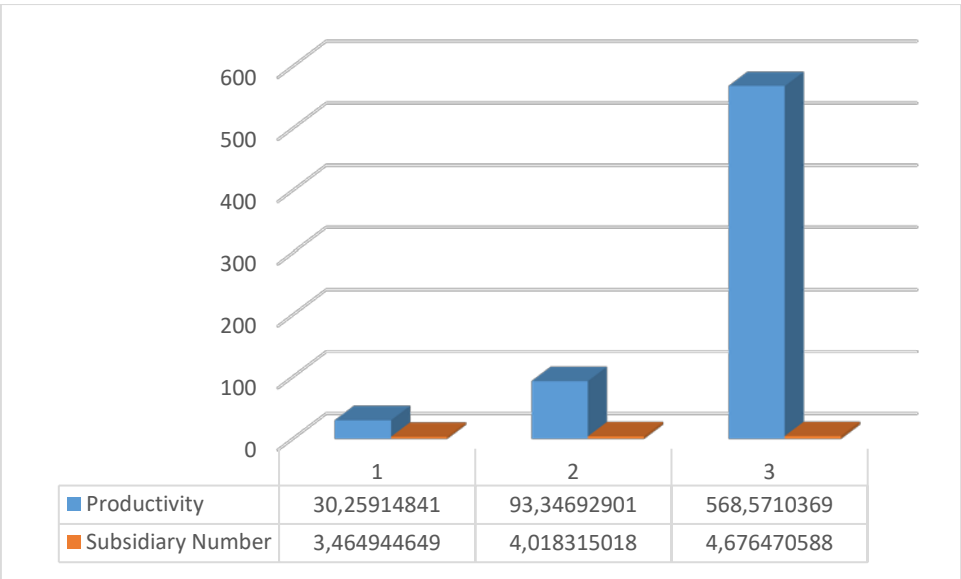
SMNE developing
countries

Subsidiary
Learning

Inward FDI

Low technolgical
sector

High technolgical
sector

Graph 1.Relationship between parents (SMNE from developing country) and subsidiary productivity in developed countries.

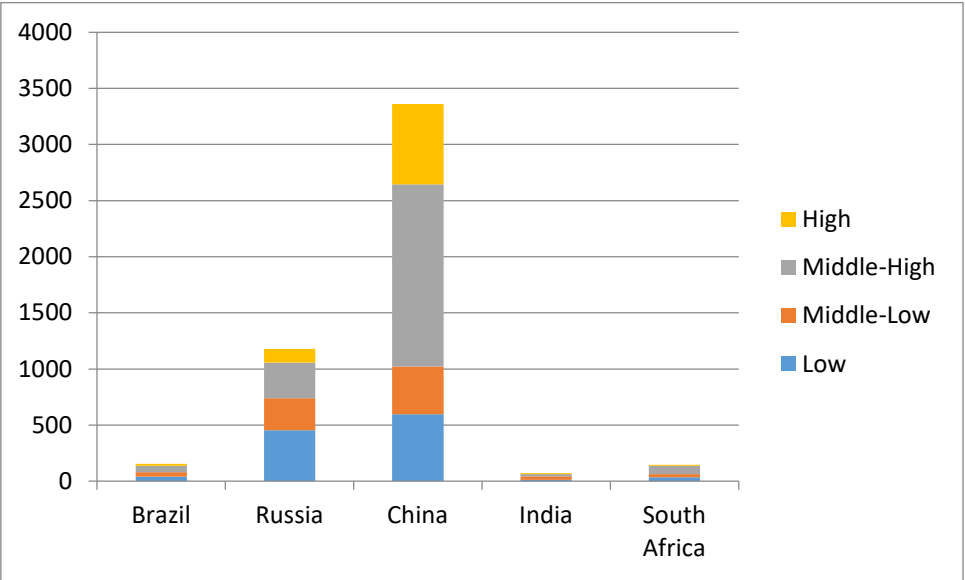|	1	2	3
■ Productivity	69,44949082	168,6789706	476,1544014
■ Subsidiary Number	7,166666667	7,391304348	8,362318841

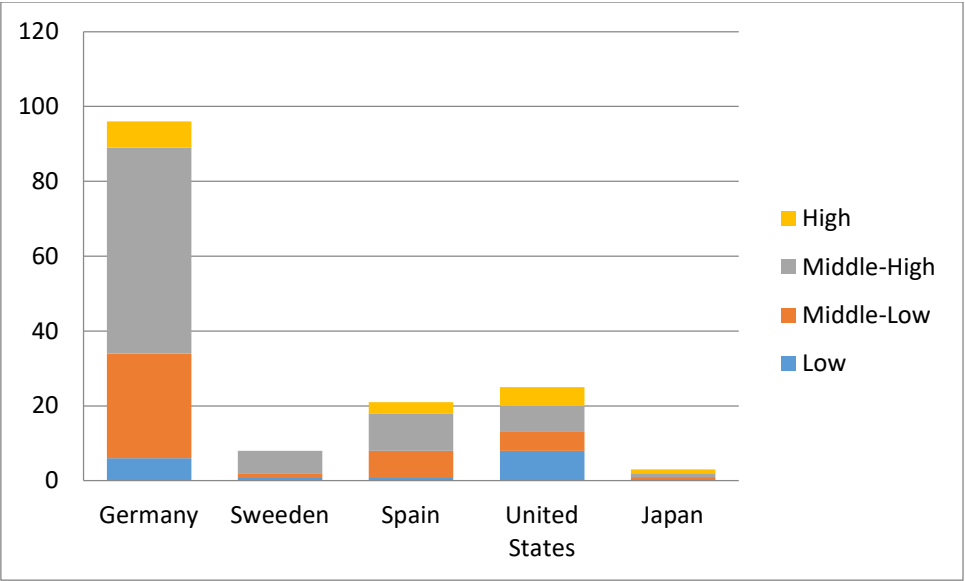**Graph 2. Relationship between parents (SMNE from developing country) and subsidiary productivity in developing countries**

	1	2	3
■ Productivity	30,25914841	93,34692901	568,5710369
■ Subsidiary Number	3,464944649	4,018315018	4,676470588

Graph 3 and 4.Technological distribution of the subsidiary firms

APPENDIX

Table 1A: Countries classification

Emerging Economies LOWER and Upper-MIDDLE-INCOME ECONOMIES			
Algeria	Fiji	Mauritius	Turkey
Angola	Gabon	Mexico	Turkmenistan
Armenia	Georgia	Micronesia, Fed. Sts.	Tuvalu
Azerbaijan	Ghana	Moldova	Ukraine
Bangladesh	Grenada	Mongolia	Uzbekistan
Belize	Guatemala	Montenegro	Vanuatu
Bhutan	Guyana	Morocco	Venezuela, RB
Bolivia	Honduras	Namibia	Vietnam
Bosnia and Herzegovina	India	Nauru	Zambia
Botswana	Indonesia	Nicaragua	
Brazil	Iran, Islamic Rep.	Nigeria	
Bulgaria	Iraq	Pakistan	
Cabo Verde	Jamaica	Papua New Guinea	
Cambodia	Jordan	Paraguay	
Cameroon	Kazakhstan	Peru	
China	Kiribati	Philippines	
Colombia	Kosovo	Romania	
Congo, Rep.	Kyrgyz Republic	Russian Federation	
Costa Rica	Lao PDR	Samoa	
Cuba	Lebanon	São Tomé and Principe	
Djibouti	Lesotho	Serbia	
Dominica	Libya	South Africa	
Dominican Republic	Macedonia, FYR	Sri Lanka	
Ecuador	Malaysia	Sudan	
Egypt, Arab Rep.	Maldives	Suriname	
El Salvador	Marshall Islands	Thailand	
Equatorial Guinea	Mauritania	Tonga	

*Number of "Emerging Economies"=93
** Côte d'Ivoire, Mayanmar, Solomon Islands, Swaziland, Timpor-Leste and West Bank and Gaza have been excluded due to the lack of data in ORBIS
**American Samoa, Belarus, Sta Lucía and St Vicent and the grenadines have been excluded due to the lack of data in ORBIS

Developed Economies. HIGH-INCOME ECONOMIES

Andorra	Hong Kong SAR, China	Seychelles
Antigua and Barbuda	Hungary	Singapore
Argentina	Iceland	Slovak Republic
Aruba	Ireland	Slovenia
Australia	Isle of Man	Spain
Austria	Israel	Sweden
Bahamas, The	Italy	Switzerland
Bahrain	Japan	Taiwan, China
Barbados	Korea, Rep.	Trinidad and Tobago
Belgium	Kuwait	Turks and Caicos Islands
Bermuda	Latvia	United Arab Emirates
British Virgin Islands	Liechtenstein	United Kingdom
Brunei Darussalam	Lithuania	United States
Canada	Luxembourg	Uruguay
Cayman Islands	Macao SAR, China	Virgin Islands (U.S.)
Chile	Malta	
Croatia	Monaco	
Curaçao	Netherlands	
Cyprus	New Zealand	
Czech Republic	Norway	
Denmark	Oman	
Estonia	Palau	
Faroe Islands	Panama	
Finland	Poland	
France	Portugal	
Germany	Qatar	
Gibraltar	San Marino	
Greece	Saudi Arabia	

*Number of countries=71
**Channel Islands, French Polynesia, Greenland, Guam, New Caledonia, Northem Puerto Rico, Sint Maarten (Duth part), St Kitts and Nevis, St Martin (French part) have been excluded due to the lack of data in ORBIS database

Table 2A. Technological clasification

High Tecnology		
	21	Manufacture of basic pharmaceutical product and pharmaceutical preparations
	26	Manufacture of computer, electronic and optical products
	30.3	Manufacture of air and spacecraf and related machinery
Medium high technology		
	20	Manufacture of chemicals and chemical products
	25.4	Manufacture of weapons and ammunition
	27	Manufacture of electrical equipment
	28	Manufacture of machineyand equipment n.e.c
	29	Manifacture of motor vehicles, trailers and semi-trailers
	30	Manufacture of other transport equipment
	32.5	Manufacture of medial and dental nstruments and supplies
Medium low technology		
	18.2	Reproduction of recorded media
	19	Manufacture of coke and refined petroleum products
	22	Manufacture of rubber and plastic products
	23	Manufacture of other non-metallic mineral products
	24	Manufacture of basic metals
	25	Manufacture of fabricated metal products, except machinery and equpment
	30.1	Building of ships and boats
	33	Repair and installation of machinery and equipment
Low technology		

10	Manufacture of products
11	Manufacture of bevarages
12	Manufacture of tocacco products
13	Manufacture of textiles
14	Manufacture of wearing apparel
15	Manufacture of leather and related products
16	Manufacture of wood and of products of wood and cork, except furniture;Manufacture of articles of straw and plaiting materials
17	Manufacture of paper and paper products
18	Printing and reproduction of recorded media
31	Manufacture of furniture
32	Other manufacturing

*Classification of manufactturing industries based onNACE rev 2.2 according to
Eurostat