Does Multinationals Entry Mode Affect Local Firms' Export Behaviours? Evidence from Cameroon

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Abstract: **This study verifies whether foreign presence namely Greenfield and Joint venture reduce or push up local firms' exports behaviours using the Heckman sample selection model pooled over a survey firm-level panel data in Cameroon during 2006-2016 provided by the World Bank. we found that (i) Joint venture activities have more significant positive impact on Cameroonian export behaviours than greenfield affiliate; and (ii) such externalities are heterogeneous and depend on Cameroonian firm-level characteristics. Firm size, and firm age are found to have significantly positive impacts on the joint venture export externalities magnitude, while access land and financing and transport-related obstacles exert significant negative impacts on their side. Only the transport obstacle has a statistically significant negative effect on the greenfield export spillovers magnitude. Our findings present significant implications for policy makers seeking to help domestic firms benefit more from foreign-linked export spillovers such as promoting export-oriented joint venture and reducing obstacles related to accessing land and financing formalities and less complex appropriate customs measures.**

Keywords: **Multinationals, Greenfield, Joint-venture, Export spillovers, Cameroon.**

JEL Classification : F23, F14, O19

I. INTRODUCTION

What are the factors that limit investment and exports from African countries? Over last decades, most of studies focus on industrial policies, skill, infrastructure quality, natural resources, high transaction costs or deficiencies in financial markets, and so on to address firm's investment and export performance in Africa. But we observe that African countries always export little than they import. For example, in particular, Cameroon's trade balance is structurally negative. According to the WTO, in 2018, Cameroon recorded a trade deficit of $533 million. The same source said the country imported $ 6.12 billion worth of goods compared to $3.80 billion for exports. A year earlier, service exports generated $1.84 billion while service imports amounted to $2.38 billion. Imports of goods and services accounted for 23.7% of the country's GDP, while exports amounted to 19.3%.

However, the advent of financial globalization is very important as regards its possible influence on the export performance of the host country. Over the past two decades, the increase in foreign direct investment (FDI) has been one of the main features of globalization. At least since the mid-1990s, FDI has become the main source of external finance for least developed countries (LDCs). Moreover, inward FDI is more than twice as large as official development aid (UNCTAD, 2011).

Since Cameroon's independence in 1960, the government has launched a vast openness campaign of its economy structured in three strategies corresponding to three well-defined periods. The period 1960-1970 concern the industrialization by import substitution, the period 1970-1990 for the strategy of export promotion while the beginning of 1990 marks the development strategy based on trade liberalization. Since 1990s, the Cameroonian economy has become more integrated through its trade liberalization, so it provides an experimental environment for our study.

The export promotion policy aims to conquer foreign markets by encouraging the production of export crops. To this end, the General Trade Program (GTP) was adopted in 1972 and sets out a number of tariff and non-tariff measures aimed at encouraging industrialization through the processing of local products but also to promote exports. This is the case with export subsidies and the abolition of export taxes and import licenses for intermediate products. In addition, exports of finished and semi-finished products are not subject to any customs duties or taxes. However, for health and environmental reasons, export prohibitions are applied on hazardous products such as toxic waste and protected animals. This export promotion policy is supported by revenues from oil exports. During the same period, the Lomé I (1970) and Lomé II (1975) conventions allow Cameroon to benefit from the preferential market access of the European Economic Community (EEC).

The Cameroonian government has implemented a number of explicit policy programs to attract FDI. The situation changed radically in the early 1990s when major privatization efforts and changes in the legislative framework created new opportunities for foreign investors. For example, in the early 1990s, many of the barriers to FDI in Cameroon were removed. The investment rules of 1990, which prohibited foreign ownership, were abolished and replaced by an Investment Charter (law of April 19, 2002) systematically focused on the attractiveness of FDI. For example, a zero tax on the profits of manufacturing companies, a tax system

favouring multinationals through tax holidays, exemptions, etc., attractive investment aid and an authorization of wholly owned foreign subsidiaries (Greenfield).

The law of April 19, 2002 on the investment charter in Cameroon provides in its article 25, three bodies for the promotion and facilitation of investments and exports: The Regulatory and Competitiveness Council, the Investment Promotion Agency and the Export promotion agency. The first two structures have officially existed since 2004 and 2013, respectively. The big forgotten remains the third, which appears to be a big aberration, especially in the current context of Cameroon marked by a continuous fall in its exports since 2014[1]. The establishment of the Export Promotion Agency remains an undeniable necessity and our study is of crucial importance in view of the possible roles that multinationals can play in export promotion. It is also the same point of view of the Ministry of Commerce on the situation of Cameroon's exports during the annual official conference of the Ministry of the Economy and Planning in April 2018. "There is a need, even urgently, to set up the Export Promotion Agency which had been provided for since 2002 as part of the investment charter. This agency should steer and coordinate the national foreign trade policy with a deployment that would be truly sprawling. She would deal with questions of financing and revitalization of our export".

Still in the interest of promoting the national production system, law number 2013/004 of April 18, 2013 sets the incentives for private investment in the Republic of Cameroon, applicable to Cameroonian or foreign natural or legal persons, resident or non-resident, in their activities or their participation in the capital of Cameroonian firms in order to encourage private investment and increase national production (Article 1). It applies to investment operations relating to the creation, extension, renewal, redevelopment of assets and / or transformation of activities. We learn that this law provides specific incentives for companies making investments for the development of agriculture, fishing, breeding, packaging and storage of products of plant, animal or fishery origin; the promotion of agro-industry, manufacturing industries, heavy industry, steel construction materials, metal construction, maritime and navigation activities; developing the supply of energy and water; encouraging regional development and decentralization; pollution control and environmental protection; the promotion and transfer of innovative technologies and research and development; promotion of exports; and the promotion of employment and vocational training (Article 14). In addition, companies carrying out export operations benefit from the

inward processing regime provided for by the General Customs Code (Article 16).

As an impact of these incentives, according to National Institute of Statistics (NIS) analyses, the evolution of the structure of Cameroon's economic between 2009 and 2016 in terms of the number of enterprises is constantly increasing. The NIS explains that the number of firms was 93,969 at the First General Business Census (RGE-1) in 2009. It passes to a total of 209,482 during the Second General Business Census (RGE-2) in 2016. According to the latest data available from UNCTAD (2020), the stock of FDI entering Cameroon has changed considerably and almost quadrupled between 2005 and 2019. In 2005 the stock of FDI was USD 2.234 billion (or 15% of FDI stocks in Central Africa in 2005) to reach USD 8.434 billion in 2019 (or 8% of FDI stocks in Central Africa in 2019). Regarding the multinational's entry mode in Cameroon between 2005 and 2007, the average investment in Greenfield was USD 1.322 billion (or 31% of average FDI stocks in Greenfield in Central Africa over the same period). This FDI stock is USD 1.188 billion in 2019 (or 25.25% of FDI stocks in Greenfield in Central Africa in 2019). We think that on average, Cameroon constitutes an interesting case study of our investigation compared to other countries of Central Africa for example.

In many LDCs like Cameroon, the decision-makers orient policies to more attract multinationals taking into account the potential advantages that they can bring to the host economy like improvement of working conditions, transfer of knowledge and innovations. Over time, the "business climate" has improved in Cameroon, which favours the attractiveness of FDI on the local market. The cumulative flow of FDI reached $5.2 billion from 1993 to 2013 against $1.2 billion during the period before the reforms started in the early 1990s (1977-1990). The stock of inward FDI is $3.099 billion at current prices in 2010, or 11.85% of GDP. It passes to $5.043 billion at current price in 2014, or 14.43% of GDP to reach $8.434 billion at current price in 2019, or 21.64% of GDP (UNCTAD, 2020).

Most LDCs receive FDI through two entry modes or two levels of control over the multinational's local engagement e.g., greenfield (full foreign ownership) and joint venture (foreign affiliates with shared ownership or firms with joint domestic and foreign ownership). We suspect these entry modes to lead to differentiated impact on the Cameroonian firms' export and should not be treated as a homogenous group under entity "multinational". This allows us to investigate whether these types of foreign entry adjust local firms' export differently. To our knowledge, no empirical analysis has asked whether heterogeneity namely entry mode in inward FDI matters for local firms' export performance.

Most studies on the spillover effects of foreign affiliates focus on its impact on productivity, namely technological spillovers. Comparatively, much less research has explored the impact of FDI exports, let alone differentiating multinationals between greenfield and joint venture. The

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[1] The 2017 report of the National Institute of Statistics (NIS) on international trade outside Cameroon notes that trade during the year under review was marked by declines of 8.2% in volume and 3.8% in value. And that, despite a continuous reduction in the trade deficit, the balance remained in deficit of 1,089.5 billion CFA francs. More seriously, it recorded a reduction of 38.2 billion CFA francs compared to 2016.

majority of existing export spillover studies find positive spillovers from FDI as we see below. But for African countries, particular in Cameroon, relatively less (or none) empirical studies in this field are an alarming gap in the literature.

Examining the export spillovers from multinational on the Cameroonian firms' export is political significant because this will justify the strategies of the government in terms of FDI, as indicated by Greenaway *et al.* (2004). Evidence of any foreign export spillovers to Cameroonian firms can have important implications for both Cameroon's trade and FDI policies since Cameroon's trade balance is structurally negative. Our study could further help policy decision-makers to better orient the strategies of attracting FDI. In fact, as indicated above, foreign subsidiaries are differentiated greenfield and joint venture. So, in particular, our analysis is likely to provide some insight into where the focus should be on attracting multinationals to ensure the desired effects.

In fine, research has generally used a country's potential resources to address the firms' export performance in African. Despite the abundance of these resources available, African countries still invest and export little. According to the firm-level characteristic and assuming that the ability of a local firms to export depends on its relationship with foreign subsidiaries in the host country, our main contribution of this study is to check whether foreign presence reduce Cameroonian firms' export. Concretely, unlike previous studies, we distinguish foreign subsidiaries between Greenfield and Joint Venture to investigate the issues. To do, we use a Heckman selection model on the survey firm-level panel data in Cameroon from the World Bank during 2006-2016 period.

II. OBJECTIVES

Our main objective is to find whether foreign presence reduce or push up Cameroonian firms' exports by discriminant foreign subsidiaries between Greenfield and Joint Venture. Our investigation has five specific objectives as follow:

1. Verifier whether foreign firms export more than Cameroonian firms;
2. Examine whether foreign presence namely joint venture and greenfield affect Cameroonian firms' export differently;
3. Examine whether joint venture and greenfield export spillovers depend on Cameroonian firm-level characteristics;
4. Examine whether joint ventures affect Cameroonian firms' export more than greenfield according to Cameroonian firm-level characteristics.

We suppose that: foreign firms export more than Cameroonian firms (hypothesis 1), joint venture and greenfield affect Cameroonian firms' export differently (hypothesis 2), such spillovers depend on Cameroonian firm-level characteristics (hypothesis 3) and joint ventures affect

Cameroonian firms' export behaviours more than greenfield according to Cameroonian firm-level characteristics (hypothesis 4).

III. BACKGROUND: HOW CAN MULTINATIONALS ENTRY MODE AFFECT LOCAL FIRMS' EXPORT?

As pointed by (Greenaway *et al.*, 2004), local firms exporting involves several fixed costs such as the establishment of distribution networks, creation of transport infrastructures, investment in advertising to gain public exposure, research about the foreign market to gain intelligence on consumers' tastes, market structure, competitors, regulations and so on. (Greenway *et al.*, 2004) suggests that there are several ways in which the presence of multinationals aid local firms' export by reducing the latter's cost of exporting to other countries. A transfer of the foreign knowledge to domestic firms would constitute an information spillover. Foreign firms can also be a source of another sort of information not directly related to exporting, namely, new technologies and management techniques, from which domestic firms could benefit through demonstration and imitation (Greenaway *et al.*, 2004). Foreign firms' export spillovers arise because they may have superior knowledge and advanced technology, better information about export markets than do local firms. It is suggested that export-oriented foreign affiliates have more valuable knowledge and experience in selling goods in overseas market, and thus, they are more likely to be sources of positive export spillovers (Kneller & Pisu, 2007; Dao & Sun, 2012 and Demena & Syed, 2018). The extent of these spillovers may depend (at least in some industries) on the initial technological and human capital level of the domestic producers (Girma *et al.*, 2007) and on the intensity of competition in domestic markets, as well as on the government policies promoting linkages between domestic and foreign firms.

However, the presence of multinationals is not always beneficial for local firms. For example, a several competitions from multinationals can reduce the market share of local firms and force them to exit the market or to product and export little. Also, local firms can hire workers who, having previously worked for a foreign firm, know some foreign technology and are able to implement it in the domestic firm but a large technology gap between foreign and local firms can also prove to be an obstacle to export spillovers. Given these different possibilities, the net relationship between multinational presence and the local firms' export performance becomes an empirical issue, more again when we discriminate foreign subsidiaries between joint venture and greenfield.

One factor believed to influence the technology of foreign affiliates is the sharing of ownership with domestic investors. It is generally believed that local participation with multinationals reveals their proprietary technology and knowledge and thus facilitates positive externality to the host economy. Joint Venture is often highly appreciated by local governments because it is likely to promote the transfer of

managerial and technological know-how to local partners. It is in this vein that some governments are introducing restrictions on foreign ownership and forcing multinationals into joint venture agreements. Forcing multinationals to share their ownership is not without its problems, however. For example, if foreign companies risk losing their intangible assets to a local partner, they may either refuse to invest or bring less advanced (older) technologies to the local market. In addition, majority ownership translates into greater control over subsidiaries, which further encourages the transfer of technological and management skills from subsidiaries. But there are also other factors which have repercussions and which work in the opposite direction. If the local minority partners in the social capital of the subsidiary get closer to the foreign technology, it could improve the technology transfer in the host country and thus promote local exporting.

IV. LITERATURE REVIEW

The existing export spillover studies find positive spillovers from FDI. On the one hand, these studies are more oriented towards developed countries. For example, Greenaway et al. (2004) tested the export spillovers from FDI in the UK. Using a five-year pooled firm-level dataset, they found that the intensity of foreign R&D expenditure and relative importance of multinational enterprises' production have a positive impact on domestic firms' probability and propensity to export. Kneller & Pisu (2007) further examined the export spillovers of FDI in the UK, by distinguishing horizontal export spillovers and vertical export spillovers, and confirmed the existence of significant export spillovers from FDI in the UK. Using a macroeconomic data, Kutan & Vuksic (2007) estimate the effects of FDI inflows on exports in 12 Central and Eastern European (CEE) economies for the period between 1996 and 2004. They found the multinational export spillovers on the new member states of CEE. Similarly, Prasanna (2010) finds that the impact of FDI inflows on export performance is significantly positive in India. Estimating a Heckman sample selection model, pooled over four-year firm-level data in China from 2000 to 2003, Sun (2009) find export spillovers from FDI in the cultural, educational and sporting product manufacturing industry in China. However, the export impact from FDI on domestic firms depend on Chinese firm-level characteristics. Dao & Sun (2012) have the same remarks in Vietnam. On the other hand, very few of these studies concern African countries. We have, to our knowledge, only Faruq (2012) who examine whether multinationals presence affects local firms' export participation in Ghana. Using data on Ghanaian firms in six manufacturing industries between 1991 and 2004, he found the multinationals' export spillovers to Ghanaian exporters in the same industry.

However, first, Faruq (2012) tests the multinationals effects on local firms' decision (participation) to export without taking into account its effects on the export proportion which are the conditioned cases of our investigation. Second, none of these papers, neither for developed countries nor for African ones, examine the foreign export spillovers, differentiated by their foreign entry mode on local export. This project presents a first attempt which will close this gap in the literature.

V. ECONOMETRIC APPROACH

In this section, we present our econometric approach which allows us to present, first, the model specification, second, the estimation procedure, third, the econometric problems and fourth, the data.

V.1. Model Specification

In this investigation, accounting for the impacts of local firm-level characteristics and potential foreign export spillovers, we are interested in modelling the joint ventures and greenfield export spillovers on Cameroonian firm's export. To do, following previous studies, such as Greenaway et al. (2004), Kneller & Pisu (2007), Sun (2009), Dao & Sun (2012), Chen et al. (2013) and Ha et al. (2020), we employ a Heckman sample selection model (Heckman, 1979) to examine the issues. For local firm i in industry j at time t, the following equations present our model specification:

$$
\begin{aligned}
Xdec_{ijt} = {} & \beta_0 + \beta_1 size_{ijt} + \beta_2 age_{ijt} + \beta_3 sgap_{ijt} + \beta_4 ulc_{ijt} + \beta_5 umc_{ijt} \\
& + \beta_6 uec_{ijt} + \beta_7 lan_{ijt} + \beta_8 fin_{ijt} + \beta_9 tra_{ijt} + \beta_{10} spill_{jt}^{JV} \\
& + \beta_{11} spill_{jt}^{G} + \beta_{12} spill_{jt}^{JV} \times size_{ijt} + \beta_{13} spill_{jt}^{JV} \times age_{ijt} \\
& + \beta_{14} spill_{jt}^{JV} \times sgap_{ijt} + \beta_{15} spill_{jt}^{JV} \times ulc_{ijt} + \beta_{16} spill_{jt}^{JV} \times umc_{ijt} \\
& + \beta_{17} spill_{jt}^{JV} \times uec_{ijt} + \beta_{18} spill_{jt}^{JV} \times lan_{ijt} + \beta_{19} spill_{jt}^{JV} \times fin_{ijt} \\
& + \beta_{20} spill_{jt}^{JV} \times tra_{ijt} + \beta_{21} spill_{jt}^{G} \times size_{ijt} + \beta_{22} spill_{jt}^{G} \times age_{ijt} \\
& + \beta_{23} spill_{jt}^{G} \times sgap_{ijt} + \beta_{24} spill_{jt}^{G} \times ulc_{ijt} + \beta_{25} spill_{jt}^{G} \times umc_{ijt} \\
& + \beta_{26} spill_{jt}^{G} \times uec_{ijt} + \beta_{27} spill_{jt}^{G} \times lan_{ijt} + \beta_{28} spill_{jt}^{G} \times fin_{ijt} \\
& + \beta_{29} spill_{jt}^{G} \times tra_{ijt} + \beta_{30} dregion + \beta_{31} dindustry \\
& + \beta_{32} dyear + \mu_{ijt} \qquad (1)
\end{aligned}
$$

$$
\begin{aligned}
Xint_{ijt} = {} & \beta_0 + \beta_1 size_{ijt} + \beta_2 age_{ijt} + \beta_3 sgap_{ijt} + \beta_4 ulc_{ijt} + \beta_5 umc_{ijt} \\
& + \beta_6 uec_{ijt} + \beta_7 lan_{ijt} + \beta_8 fin_{ijt} + \beta_9 tra_{ijt} + \beta_{10} spill_{jt}^{JV} \\
& + \beta_{11} spill_{jt}^{G} + \beta_{12} spill_{jt}^{JV} \times size_{ijt} + \beta_{13} spill_{jt}^{JV} \times age_{ijt} \\
& + \beta_{14} spill_{jt}^{JV} \times sgap_{ijt} + \beta_{15} spill_{jt}^{JV} \times ulc_{ijt} + \beta_{16} spill_{jt}^{JV} \times umc_{ijt} \\
& + \beta_{17} spill_{jt}^{JV} \times uec_{ijt} + \beta_{18} spill_{jt}^{JV} \times lan_{ijt} + \beta_{19} spill_{jt}^{JV} \times fin_{ijt} \\
& + \beta_{20} spill_{jt}^{JV} \times tra_{ijt} + \beta_{21} spill_{jt}^{G} \times size_{ijt} + \beta_{22} spill_{jt}^{G} \times age_{ijt} \\
& + \beta_{23} spill_{jt}^{G} \times sgap_{ijt} + \beta_{24} spill_{jt}^{G} \times ulc_{ijt} + \beta_{25} spill_{jt}^{G} \times umc_{ijt} \\
& + \beta_{26} spill_{jt}^{G} \times uec_{ijt} + \beta_{27} spill_{jt}^{JV} \times lan_{ijt} + \beta_{28} spill_{jt}^{JV} \times fin_{ijt} \\
& + \beta_{29} spill_{jt}^{JV} \times tra_{ijt} + \beta_{30} fownership + \beta_{31} dregion \\
& + \beta_{32} dindustry + \beta_{33} dyear + \nu_{ijt} \qquad (2)
\end{aligned}
$$

The export decision is modelized in equation (1) and the export intensity in equation (2) where $Xdec$ denotes firms' decision to participate in the export, which takes a value of one if a firm participates in exporting and zero otherwise; $Xint$ denotes firms' export intensity, which is equal to the proportion of firms' exports in their total sales.

μ and ν, two error terms, are i.i.d, i.e., $\mu_{ijt} \square N(0;1)$ and $\nu_{ijt} \square N(0;\delta)$. If there are correlated, i.e., $Corr(\mu_{ijt};\nu_{ijt}) = \rho \neq 0$, the ordinary least square technique applied to equation 2 yields biased estimation. The explanatory variables in both equations can be divided into three categories as seen below.

V.1.1. Firm-specific Variables: Following the existing literature above, a range of firm-level variables is included to capture local firm characteristic as determinants of export behaviour. For that, *size* denotes firms' size, which is equal to firms' permanent full-time employees at the end of last fiscal year; *age* denotes firms' age which is the year of firm establishment; *sgap* is three-year sales gap which is a difference between current total annual sales and the firms' sales three years ago; *ulc* is unit labour cost, which is equal to firms' total labour cost divided by total annual sales; *umc* is unit raw materials and intermediate goods cost which is equal to total raw materials and intermediate goods cost divided by total annual sales; *uec* is unit electricity cost which is equal to total annual electricity cost divided by total annual sales; *lan, fin* and *tra* capture the firms' obstacle to access to land, to access to finance and firms' transport obstacle respectively, these three variables appear in the both equations. The weight given to *lan, fin* and *tra* is decisive of firm's behaviours in exporting and incorporated in the annual export cost given the irregular fluctuations of the Cameroonian economy. In fixe situation, this weight can be incorporated as the fixed export cost, has been paid and become sunk. In this case, it should not affect how much the firm is willing to export (export intensity).

V.1.2. Industry-Region-Year Variables: Foreign affiliates may tend to choose to invest in industries with higher export ratios, which if not controlled will lead to the endogeneity problem of FDI. To capture the export structure of the host country and controls for factors that affect a sector's overall export profile, we use industry-region-year dummies variables. So, *dindustry*, a set of industry dummies, are included in the two export equations to account for the heterogeneous impacts of industry variation on firms' export behaviour. In addition, *dregion* is a set of three-region dummies namely central, coastal and western region and *dyear* is a set of year dummies.

V.1.3. Foreign Presence Measurement: fownership denotes foreign firms' ownership, which takes a value of one if a firm is a foreign subsidiarise and zero otherwise, it allows to test the superiority of foreign export, for this, it is excluded from the export decision equation; $Spill^{JV}$ and $Spill^G$ capture the spillovers of joint venture and greenfield in term of annual sale. These foreign proxies are interacted with firm-level characteristics to allow for the impact of this subsidiaries to vary across local firms respectively. we follow Kun *et al.* (2018) and construct these variables as follows:

$$Spill_{jt}^{JV} = \sum_{i=1}^{N_{jt}} JV_{it} \times Sales_{it} \Big/ \sum_{i=1}^{N_{jt}} Sales \qquad \text{and}$$

$$Spill_{jt}^{G} = \sum_{i=1}^{N_{jt}} G_{it} \times Sales_{it} \Big/ \sum_{i=1}^{N_{jt}} Sales ,$$

where N_{jt} is the number of firms in industry j at year t; JV_{it} (G_{it}, respectively) is an indicator variable which are equal to one if foreign subsidiarise i is a joint venture (greenfield, respectively) at year t and zero otherwise, $Sales_{it}$ denotes firms i total annual sale in year t. These measures capture the sales-weighted importance of joint ventures and greenfield firms in an industry, respectively. The transmission channel spillovers by these foreign proxies is important as well as pointed by Kinuthia (2020): (i) the more innovation activities carried out by foreign firms, the larger the potential for imitation from which domestic firms can benefit, (ii) the greater their relative importance, the stronger the competitive pressure on domestic firms and (iii) the greater their importance in the exports of a given sector, the higher the scope for domestic firms to benefit from information externalities. Analogous to the well-known (within-industry) FDI spillover measures, these measures capture the idea that the potential for externalities may be higher in industries where joint ventures are relatively common.

V.2. Estimation Procedure

To test the export spillovers from joint ventures and greenfield interacted with local firm-level characteristics respectively, we adopt a three-step procedure. First, we test their joint significance and their interaction terms. If they are jointly insignificant then no export spillovers exist from the foreign presence. Second, we test the joint significance of the interaction terms. If the interaction terms are jointly insignificant then export spillovers do not depend on Cameroonian firm-level characteristics. Third, we compute the marginal effect (margins of derivatives of responses) of joint venture and greenfield by differentiating equation (2) with respect to the $Spill^{JV}$ and $Spill^G$ respectively as follows:

$$\begin{cases} \dfrac{\partial Xint_{ijt}}{spill_{jt}^{JV}} = \beta_{10} + \beta_{12}size_{ijt} + \beta_{13}age_{ijt} + \beta_{14}sgap_{ijt} + \beta_{15}ulc_{ijt} \\ \qquad\qquad + \beta_{16}umc_{ijt} + \beta_{17}uec_{ijt} + \beta_{18}lan_{ijt} + \beta_{19}fin_{ijt} + \beta_{20}tra_{ijt} \\ \dfrac{\partial Xint_{ijt}}{spill_{jt}^{G}} = \beta_{11} + \beta_{21}size_{ijt} + \beta_{22}age_{ijt} + \beta_{23}sgap_{ijt} + \beta_{24}ulc_{ijt} \\ \qquad\qquad + \beta_{25}umc_{ijt} + \beta_{26}uec_{ijt} + \beta_{27}lan_{ijt} + \beta_{28}fin_{ijt} + \beta_{29}tra_{ijt} \end{cases} \quad (3)$$

We evaluate the marginal impact at the value of firm-level characteristics. A positive and significantly coefficient implies that the firm-level characteristics impact positively the magnitude of joint venture and greenfield export spillovers respectively.

V.3. Econometric Problems

There are three main econometric problems solved using a Heckman sample selection model (Heckman, 1979) in our estimation.The first problem results from the truncated

dependent variable. One characteristic of firms' exports is that many of local firms do not export, which makes their export behaviour unobservable. According to the authors above, the impact of this unobserved export behaviour can be accounted for by the Heckman sample selection model. Firms' export behaviour involves a two-step decision: first they decide whether to export and then determine how much to export, conditioned on the export participation decision. Thus, the Heckman sample selection model can capture such a two-step decision process (Greenaway et al., 2004). The second problem to solve is the selection bias which is the corollary of the first problem above and the domestic firms' entry and exit. If we use a sample of only those domestic firms that are continuing the estimated coefficients of FDI would be explained as only the impact of FDI on the surviving domestic firms' export performance. We choose instead to use an unbalanced panel data set, which allows for firms to exit and enter. In addition, it is not uncommon that only a small fraction of domestic firms are exporters and the export behaviour of non-exporting firms is thus unobserved. Estimations without accounting for these issues may suffer from the sample selection bias. The impact of such unobserved export behaviour can be accounted for by the two-step Heckman sample selection model as well (see Nguyen & Sun, 2012 and Chen et *al.,* 2013). The third econometric problem is that of endogeneity. Unobserved time-invariant and time-variant macro and also firm-specific factors, such as the macroeconomic situation, openness to trade, development of local infrastructure, and so on, affect not only domestic firms' export performance but also FDI inflows. The main consequence for this in our study is that multinational firms tend to invest in sectors where domestic firms also tend to export more. The presence of endogeneity could bias the estimated impact of FDI on domestic firms' export performance. Using the two-step Heckman sample selection model, more literature addresses that problem. Sun (2009)

argues that by including only domestic firms, this type of endogeneity is avoided. While Chen et *al.* (2013) use first-differencing (FD) to eliminate the impact of time-invariant factors and an instrumental variable (IV) to eliminate the impact of time-variant factors. We follow Greenaway et *al.* (2004), Kneller & Pisu (2007) and Nguyen & Sun (2012) and include in both equation (1 and 2) a sector export ratio (ser) which is the relative importance of a sector in domestic exports. This captures the export structure of the host country and controls for factors that affect a sector's overall export profile.

V.4. Data

The empirical analysis will be conducted using survey firm-level panel data of all sectors in Cameroon during 2006-2016 provided by the World Bank. More information about the structure of this panel datasets is as follow in table 1.

Table 1: Panel Structure of the datasets

Panel: Firm interviewed in these years	Year of survey			
	2006	**2009**	**2016**	**Total**
2006 only	112	0	0	112
2009 only	0	154	0	154
2016 only	0	0	201	201
2006 and 2009 only	49	49	0	98
2009 and 2016 only	0	114	114	228
2006, 2009 and 2016	46	46	46	138
Total	207	363	361	931

Source: authors' calculation

The manufacturing sector holds 38.35 percent of the sample against 61.65 percent for the service sector. Therefore, we consider both sectors in our investigation. However, in order to clean the data, sectors with zero exporters all-over time are not been considered in our study. The remain sectors with exporters over time are reported in table 2 below:

Table 2: Proportion of exporters (%) across sector and time: local versus foreign firms

Sectors	No. of firms		2006		2009		2016	
	Local	**Foreign**	**Local**	**Foreign**	**Local**	**Foreign**	**Local**	**Foreign**
1. Manufacturing sectors								
Food (15)	48	34	15.00	91.25	06.25	78.57	36.36	37.50
Wood (20)	20	13	60.00	100	50.00	75.00	45.00	66.67
Paper (21)	10	8	50.00	66.67	100	100	100	0
Publishing, printing, and Record media (22)	31	11	30.00	100	31.65	66.67	35.00	33.33
Chemicals (24)	19	10	62.50	100	20.00	100	75.00	50.00
Plastics & rubber (25)	17	8	66.67	100	53.27	66.67	50.00	33.33
Non-metallic mineral products (26)	11	4	100	100	16.67	50.00	0	0
Basic metals (27)	15	9	66.67	100	0	0	37.11	100
Fabricated metal products (28)	27	10	23.08	100	37.50	50.00	33.33	0
Electronics (31-32)	12	9	06.87	100	13.56	69.23	20.00	33.33
2. Service sectors								
Construction (45)	39	15	0	0	11.76	12.50	25.00	50.00
Wholesale (51)	54	19	0	0	15.63	12.50	13.64	27.27
Retail (52)	206	31	05.62	100	09.00	18.18	12.25	15.79
Transports (60-64)	39	15	07.00	13.31	26.86	21.67	15.00	06.67

Source: authors' calculation

The dataset provided information (table 3 below) about export decision, export proportion of annual sales, number of permanent full-time employees, year the firm began operations, total current annual sales, firms' sales three years ago, total labour cost , total raw materials and intermediate goods cost, total electricity cost,firms' region location and firms' ownership structure during 2006-2016. Information about the firms' obstacle to access to land, to access to finance and firms' transport obstacle is also provided. Access to land is an index calibrated between 0 and 4 where 4 indicates a higher degree of obstacle for Cameroonian local firm in their processing to obtain land. Similarly, Access to finance is an index calibrated between 0 and 4 where 4 indicates a higher degree of obstacle for Cameroonian local firm in their accessing financing. Cameroonian firms' transport obstacle is also an index measured between 0 and 4 which include customs measures and road infrastructure.

Table 3: Descriptive statistics of variables, 2006-2016

Variables	#Obs	Mean	Std. Dev.	Min.	Max.
Year firm began operations	931	1992.82	13.70	1930	2016
Export decision	931	.21	.41	0	1
Export proportion	931	7.31	19.39	0	100
Permanent Full-time employees	931	67.27	256.43	1	5000
Total annual sales (x10^6 FCFA)	930	2770	15100	0	213000
Sales three years ago (x10^6 FCFA)	930	2060	11200	0	190000
Total labour cost (x10^6 FCFA)	928	279	1990	0	48000
Total materials cost (x10^6 FCFA)	323	1140	5060	0	66200
Total electricity cost (x10^6 FCFA)	778	31.9	194	0	3390
Access to land	879	1.45	1.23	0	4
Access to finance	916	2.42	1.26	0	4
Transport obstacles	925	1.77	1.27	0	4
Local ownership	931	.77	.42	0	1
Foreign ownership	931	.23	.41	0	1
Greenfield	931	.11	.30	0	1
Joint venture	931	.12	.32	0	1

Source: authors' calculation

VI. EMPIRICAL RESULTS AND COMMENTS

Table 4 reports our estimations results. Following Sun (2009) and Dao & Sun (2012), equations (1) and (2) are estimated jointly by the Heckman estimation (maximum likelihood estimator) with robust standard error. Model (1) in Table 4 is the estimation with the full set of explanatory variables, which suffer from the multicollinearity problem, as for example the variable unit labor cost and its interaction with joint venture and greenfield proxies are individually insignificant (with p-value egal to 0.486, 0.840 and 0.381 respectively) while they are jointly significant (F-test statistic = 6.17 and p-value = 0.000). Therefore, the insignificant interaction terms of joint venture and greenfield proxies with firm level characteristics terms other than region, year and industry dummies were removed and re-estimated as shown in model (2) in Table 4. For both estimates, sampling makes sense for that λ in Table 4 is significant. Furthermore, the test of independence conclude that the export intensity equation is significantly correlated with the export decision equation (χ^2-test statistic = 15.96 with p-value = 0.000 in model (1) and 16.94 with p-value = 0.000 in model (2)). Thus, the application of the Heckman sampling model justified. The result of models (1) and (2) agree with each other, and model (2) is free to multicollinearity problems. the estimations of model (3), as a robustness check, are constrained by the explanatory variables for the same effect on both export participation and export intensity decisions (Tobit specification). Compare model (3) with model (2), the magnitudes of the estimated parameters vary to some extent, but the signs are the same. Therefore, we interpret the results according to model (2).

VI.1. Testing For Foreign Export Externalities On Local Export Intensity

As described above, we adopt a three-step procedure to test the export spillovers from joint ventures and greenfield interacted with local firm-level characteristics respectively on Cameroonian firm exporting behaviours. In the export intensity equation from model (2) in table 4, first, we test the joint significance of joint venture and its interaction terms (respectively of greenfield and its interaction terms) which accept the alternatives hypothesis of joint significance at the 5% level due to F-test statistic of 6.58 with p-value = 0.000 (respectively F-test statistic of 6.42 with p-value = 0.000 for greenfield and its interaction terms). Second, we test the joint significance of the interaction terms which also accept the alternatives hypothesis of joint significance at 5% level according to F-test statistic which equal to 6.54 with p-value = 0.000 (respectively F-test statistic of 6.60 with p-value = 0.000 for interaction terms with greenfield).

Table 4: Estimations results

| Variables | Model (1) | | | | Model (2) | | | | Model (3) | |
| | Export Decision | | Export Intensity | | Export Decision | | Export Intensity | | Tobit specification | |
	Coef.	RSE.	Coef.	RSE	Coef.	RSE	Coef.	RSE	Coef.	RSE
Size	0.006**	2.03	0.030*	0.39	0.026**	2.04	0.020**	0.31	0.209***	3.62
Age	0.002*	0.14	0.338 **	2.28	0.031*	0.15	0.309**	2.43	0.356*	1.29
Salesgap	0.000	0.24	-0.000	1.26	0.000	0.23	-0.000	1.46	-0.000	0.61
Ulc	-1.865	1.42	-4.679	0.13	-1.575*	1.43	-2.880	0.08	-51.382	1.17
Umc	-1.671**	2.02	-17.141	0.73	-1.127***	2.02	-15.719	0.78	-20.825	0.95
Uec	-5.510	1.13	3.755	0.64	-5.427**	1.14	2.319	0.44	3.614	1.27
Land	-0.400**	2.14	-2.532	0.40	-0.397**	2.21				
Finance	-0.343*	1.82	-1.811	0.30	-0.345*	1.90				
Transport	-0.815**	4.41	1.318	0.18	-0.819**	4.13				
Fowneship			0.046***	0.01			0.267**	0.04	0.979*	1.90
Spill_JV	6.348	1.46	8.824*	1.93	7.485*	1.52	9.739**	1.99	9.835*	1.15
Spill_G	2.927	0.17	8.125	0.54	7.291	0.15	5.875	0.46	4.317	1.34
Spill_JV x Size	-0.000	0.06	0.026*	0.33	-0.000	0.06	0.015***	0.22	0.207***	1.41
Spill_JV x Age	-0.038	1.46	0.697**	1.92	-0.039	1.52	0.674**	2.00	0.764***	1.15
Spill_JV x Salesgap	0.000	1.07	0.000	0.97						
Spill_JV x Ulc	1.743	0.48	-6.072	1.08						
Spill_JV x Umc	1.466	0.60	-15.896	0.35						
Spill_JV x Uec	-5.550	1.71	8.019	0.50						
Spill_JV x land	-0.559	1.37	-6.752	0.80	-0.551*	1.39	-9.695*	1.90	-10.888**	2.01
Spill_JV x Finance	-0.121	0.30	8.847	1.05	-0.126*	0.31	-11.854**	2.04	-12.210**	0.19
Spill_JV x Transport	-0.750*	1.87	2.483	0.27	-0.755*	1.87	-3.550***	0.74	-5.310*	1.39
Spill_G x Size	-0.001	0.09	-0.017	0.13	-0.001	0.09	0.032	0.28	0.407	3.72
Spill_G x Age	-0.010	0.15	-0.695	0.53	-0.008	0.13	0.575	0.46	1.997	1.32
Spill_G x Salesgap	-0.000	0.50	-0.000	0.13	-0.000	0.54				
Spill_G x Ulc	-2.748	0.52	-3.022	0.07	-2.939	0.55				
Spill_G x Umc	-4.734*	1.93	7.101	0.43	-4.841**	2.10				
Spill_G x Uec	-9.680*	1.92	-12.127	1.27	-10.228**	2.01				
Spill_G x Land	-0.373	0.56	-7.591	0.61	-0.355	0.55	-9.101	1.19	-9.996	0.95
Spill_G x Finance	-0.151	0.16	-3.302	0.24	-0.106	0.12	-12.584	0.12	-18.023	1.36
Spill_G x Transport	0.355	0.38	0.471	0.03	0.324	0.36	-4.013**	0.20	-3.916*	1.68
Region dummies	Yes		Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes		Yes	
_cons	-1.684	0.26	-3.235**	2.25	-0.702	0.26	-2.945**	2.38	-1.512**	1.33
No. of obs.			299				299		299	
Log pseudo-likeli.			-614.038				-614.247		-639.463	
Wald-test χ 2			323.672	[0.00]			347.381	[0.00]	147.082	[0.00]
ρ			0.028	0.57			-0.033	0.42		
σ			20.011	1.59			20.048	1.62		
λ			0.552	11.42			-0.670	8.42		
Test indep. (ρ = 0) χ2(1)			15.961	[0.00]			16.937	[0.00]		

Sources: authors' calculation.

Notes: Model (1) is the estimation with the full set of explanatory variables; Model (2) is the estimation dropping jointly insignificant variables except region, year and industry dummies; Model (3) is the Tobit specification for robustness check; Spill_JV and Spill_G are Joint venture and Greenfield export spillovers respectively; p-values of Wald test and test of independence between equations appear in brackets; RSE= Robust Standard Error; * p<0.1; ** p<0.05; *** p<0.01.

Thus, export externalities exist form the joint venture and greenfield presence. And these spillovers depend on Cameroonian firm-level characteristics. Now we obtain the result of marginal effects (margins of derivatives of responses) of joint venture and greenfield presence as follow according to model (2) in table 4, the estimate with circumflex accent indicates that it is statistically significant:

$$\begin{cases} \dfrac{\partial Xint}{spill^{JV}} = 9.739 + 0.015\,Size + 0.674\,Age - 9.695\,lan - 11.854\,fin - 3.350\,trans \\ \dfrac{\partial Xint}{spill^{G}} = 5.875 + 0.032\,Size + 0.575\,Age - 10.101\,lan - 12.584\,fin - 4.013\,trans \end{cases}$$

First of all, in table 4, the estimate of variable *fownership* in model (2) is positive statistically significant at 5% which imply that homogeneous foreign affiliate export more that Cameroonian firm (hypothesis 1). By disaggregating foreign presence between joint venture and greenfield, there have positive coefficients but only joint venture has a statistically significant one at 5%. We find that joint venture affect Cameroonian firms export more than greenfield (hypothesis 2). Concretely, we find that joint venture and greenfield export spillovers depend on Cameroonian firm-level characteristics (hypothesis 3) and joint ventures affect Cameroonian firms' export intensity more than greenfield (hypothesis 4).

On the one side, according to the joint venture presence, the marginal impacts formula above show that firm size (the firms' permanent full-time employees) and firm age have a statistically positive significant impact on the export spillovers at 1 and 5% respectively while access to land, access to finance and transport obstacle have a statistically negative significant impact on the export spillovers at 10, 5 and 1% respectively. The variables access to land, access to finance and transport obstacle are the index graduated from 1 to 5. The higher index implies more corresponding difficulty. For the firms' permanent full-time employees (resp. firm age), a 1 percent increase will result in a 0.015 percent increase (resp. a 0.674 percent increase) in the Cameroonian export intensity. In other word, the larger and older the Cameroonian firm, the better it captures the export externalities from joint venture. The positive impact of firm size and firm age is concordant that larger and older firms are usually more able to overcome the export entry cost especially in Cameroon where larger firms tend to be less capital-intensive and tend to have a comparative advantage in labour-intensive goods which actually places them in an advantageous position in the world market. As local firms get bigger and older, their dependence on exports is increased. Their experience increases with joint venture presence as the latter easily disseminate their technique on the local market. Older Cameroonian firms are more experienced, and thus have more absorption capability of positive externalities from joint venture activities. For the access to land, access to finance and transport obstacle, a 1 percent increase will result in a 9.695, 11.854 and 3.350 percent decrease in Cameroonian export intensity respectively. In the other words, the more difficult it is to access to land and financing, the lesser the export spillovers of joint venture on Cameroonian exporting firm. The more the obstacles related to transport the lesser the joint ventures export spillovers on local firms.

On the other side, according to the greenfield presence, the margins of derivatives of responses formula above show that firm size and firm age have a positive insignificant impact on the export spillovers respectively while access to land, and access to finance have a negative insignificant impact on the export spillovers respectively. This almost general insignificant of parameters can be justified by the fact that foreign firm often find it very difficult, if not impossible, to earn the same rent on their intangible assets in foreign market. In general, their more extensive experience in international trade operations, they prefer to internalize their assets in Greenfields. Only the transport obstacle has a statistically significant negative effect on the export spillovers. We find that a 1 percent increase in transport obstacle will cause a 4.013 percent decrease in Cameroonian export intensity. In the other words, The more the obstacles on transport infrastructure, the lesser the greenfield export externalities on Cameroonian exporting firms.

VI.2. Determinants of Local Firms Export Decision

In model (2) on table 4, for the export decision equation, we obtain joint significance of joint venture and greenfield presence and its interaction terms at the 5% level (F-test statistic = 6.18, p-value = 0.002), we also obtain the joint significance of interaction terms at the 5% level (F-test statistic = 6.05, p-value = 0.000). Regarding the impact of the factors that determine the Cameroonian firms' export decision, the corresponding equation shows that firm-level characteristics variables as well as the proxy variable of foreign presence and their interactions terms contribute greatly in the Cameroonian firm's decision to export. For the firm-level characteristics variables, the coefficients of firm size and firm age are significantly positive while the coefficients of unit labor cost, unit materials cost, unit electricity cost, access to land, access to finance and transport obstacle are significantly negative. The larger and older the Cameroonian firm, the better it is favourable for export. The higher the costs of labor, materials and electricity, the more reluctant Cameroonian firms are to export. Similarly, the more difficult it is to access to land and financing and the more the obstacles related to transport, the lesser the Cameroonian firms tend to export. For the joint venture and greenfield presence and their interactions terms, we find that a 1 percent increase in joint venture inflows will cause 7.485 percent chance that Cameroonian firms decide to export whereas, the single presence of greenfield does not significantly impact the export decision of local firms. But the interaction of greenfield with materials and electricity costs are significantly negative. The more difficult it is to access to land and financing and the more the obstacles related to transport, the lesser the joint venture inflows inspire local firms to export. In concordance, Neil et *al* (2015) also show that firm size is a robust determinant of the decision to export and foreign ownership is also a significant determinant of exporting from firms in sub-Saharan Africa.

VII. ROBUSTNESS CHECK OF RESULTS

Are our results sensitive to the way that we measure the joint venture and greenfield activities? To check this, according to the specification in model (2) in table 4, we re-estimate the model using the joint venture and greenfield main output share (estimations 1) and employment share (estimation 2) in the industry respectively. Table 5 reports the estimation results for this robustness analysis.

Overall, Table 5 shows only a slight difference of the coefficients of estimations comparing from that of model (2) in Table 4. Indeed, only a small increase or decrease in the magnitude of the coefficients is observed, the signs of all impacts remaining the same as in table 4. A little remark and not the least is that greenfield presence does not in any way impact the Cameroonian firms export behaviours opposing here the results in table 4 while we obtain overall very similar results. Hence, we conclude that our findings in testing export spillovers are robust to different measurements of joint venture and greenfield activities.

Table 5: Estimations results for robustness check

Variables	Foreign output share (1)				Foreign employment share (2)			
	Export Decision		Export Intensity		Export Decision		Export Intensity	
	Coef.	RSE	Coef.	RSE	Coef.	RSE.	Coef.	RSE
Size	0.11*	1.03	0.05***	0.27	0.04**	1.04	0.03***	0.31
Age	0.03**	1.14	0.31 **	1.28	0.041*	0.11	0.28***	1.73
Sales gap	0.00	0.34	-0.00	0.26	0.000	0.53	-0.00	1.05
Ulc	-1.15	1.22	-4.19	1.13	-0.75	2.43	-3.09	0.16
Umc	-1.38*	3.02	-15.19	1.73	-1.23	2.02	-15.39	1.78
Uec	-5.03	1.20	-3.71	0.28	-4.427*	1.04	1.33	1.44
Land	-1.41**	1.04			-0.57**	2.21		
Finance	-1.06**	1.82			-0.75**	0.93		
Transport	-1.21*	1.34			-0.91**	3.13		
Spill_JV	5.27	1.06	9.12**	1.93	5.73***	1.52	10.35*	1.99
Spill_G	1.45	0.22	7.53	0.44	4.28	0.11	5.77	0.66
Spill_JV x Size	-0.00	0.16	0.37***	0.33	-0.01	0.06	0.09***	0.22
Spill_JV x Age	-0.48	1.36	0.85***	2.02	-0.59	1.33	0.44***	2.11
Spill_JV x Land	-0.68	1.12	-6.76	0.85	-0.48**	1.39	-9.70**	2.07
Spill_JV x Finance	-0.09	0.81	8.57	1.15	-0.37**	1.01	-10.27**	2.13
Spill_JV x Transport	-0.95	1.87	2.45	0.27	-0.65**	1.87	-3.13***	1.74
Spill_G x Size	-0.00	0.07	-0.02	0.11	-0.01	0.09	0.08	0.38
Spill_G x Age	-0.05	0.20	-0.75	0.43	-0.02	0.23	0.57	0.36
Spill_G x Land	-0.52	0.46	-7.63	0.70	-0.29	0.33	-9.08	1.09
Spill_G x Finance	-0.31	0.19	-2.37	0.14	-0.86	0.19	-11.04	0.92
Spill_G x Transport	-0.59	0.41	0.56	0.13	-0.36	0.36	-3.09	0.22
Region dummies	Yes		Yes		Yes		Yes	
Year dummies	Yes		Yes		Yes		Yes	
Industry dummies	Yes		Yes		Yes		Yes	
_cons	-1.79	0.26	-3.75*	1.25	-0.59	0.26	-1.93***	2.38
No. of obs.			299				299	
Log pseudo-Likelih			-589.58				-574.29	
Wald-test χ 2			341.89	[0.00]			365.27	[0.00]
ρ			0.09	0.57			0.13	0.35
σ			21.31	1.41			22.03	1.12
λ			0.50	10.31			0.59	5.32
(ρ = 0) χ2(1)			15.71	[0.00]			16.78	[0.00]

Sources: authors' calculation.

Notes**:** Spill_JV and Spill_G are Joint venture and Greenfield export spillovers respectively measured each one in term of main output share (1) and employment (2) ; p-values of Wald test and test of independence between equations appear in brackets; RSE= Robust Standard Error ; * p<0.1; ** p<0.05; *** p<0.01.

VIII. CONCLUSIONS

Our main objective was to verify whether foreign presence reduce or push up Cameroonian firms' exports by discriminant foreign subsidiaries between Greenfield and Joint Venture. Using the Heckman sample selection model pooled over a survey firm-level panel data of all sectors in Cameroon during 2006-2016 provided by the World Bank, we found that (i) there are significant positive export spillovers from Greenfield and Joint Venture presence to local firms; (ii) joint venture activities have more significant positive impact on Cameroonian export behaviours than greenfield foreign affiliate; and (iii) such externalities are heterogeneous and

depend on Cameroonian firm-level characteristics. Firm size, and firm age are found to have significantly positive impacts on the joint venture export externalities magnitude, while access land and financing and transport-related obstacles exert negative and significant impacts on their side. Only the transport obstacle has a statistically significant negative effect on the greenfield export spillovers magnitude. Our findings present significant implications for policy makers seeking to help domestic firms benefit more from foreign-linked export spillovers.

First, as the dominance of domestic market-oriented joint venture tends to push up positive export spillovers more than greenfield affiliate, promoting export-oriented joint venture with local investors might result in greater benefits to local firms' exporting by leaning by doing, worker mobility and imitation.

Second, given the significant positive effects of size (an indicator of human capital) and age (indicator of experience) on the magnitude foreign export spillovers, encouraging human capital accumulation allows local firms to benefit more from joint venture export activities. Government investment in the national education system and on-the-job training programmes by local employers can improve the ability of local firms to absorb positive export impacts. It is recommended that the government organize more export forums or exhibitions to share relevant experience and information on the export market, and at the same time promoting local firms' entry and survival.

Third, as difficulties in accessing land and financing and transport-related obstacles appear to hinder the absorption of export spillovers, it is recommended that governments do more to reduce obstacles related to accessing land and financing formalities and less complex appropriate customs measures, At the same time, support infrastructure development through the development of industrial improvement zones and export processing zones.

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