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ABSTRACT

In analyzing firm entry and exit across Belgian manufacturing industries, this paper presents evidence that import competition and foreign direct investment discourage entry and stimulate exit of domestic entrepreneurs. These results are in line with theoretical occupational choice models, where it is shown that crowding out of domestic entrepreneurs through foreign direct investment works through selection in product and labor markets. However, the empirical results also suggest important long term structural positive effects of FDI on domestic entrpreneurship as a result of learning, demonstration, networking and linkage effects between foreign and domestic firms which tend to moderate or even reverse crowding out effects on domestic entrepreneurship.

INTRODUCTION

Reflecting the lack of convergence in the literature toward a single definition of entrepreneurship, previous research has produced a diversity of operational approaches among which the creation of new firms as one dimension of entrepreneurial activity occupies a central position in theoretical as well as empirical work. Theoretical models of firm formation have typically endogenized the supply of entrepreneurs in a closed economy setting, thereby concentrating on the personal and social characteristics of entrepreneurs (Lucas (1978), Oi (1983)) and risk attitude (Kanbur (1979), Kihlstrom and Laffont (1979)). In contrast, focusing on open economies Grossman (1984) theoretically showed that import competition and foreign direct investment (FDI) hinders the formation of the 'entrepreneurial class'. International competition causes the number of domestic entrepreneurs to fall since it leads to lower international prices on product markets and a crowding out effect of local ventures by foreign firms on the local labor market.

In line with the theoretical models, empirical work has often operationalized entrepreneurship as the creation or establishment of new firms. Unfortunately, the work so far largely neglected the impact of foreign entry by means of foreign direct investment (FDI) on domestic entrepreneurship. Recent research has increasingly distinguished between domestic and foreign entry/exit; it has however not yet analyzed the direct interdependence between domestic and foreign entry. Instead previous work has extensively studied the differential impact of entry/exit barriers and differential incentives for domestic versus foreign entry/exit (Gorecki (1976), Shapiro (1983), Baldwin and Gorecki (1987), Khemani and Shapiro (1988), Geroski (1991), Mata and Portugal (1997)).

By not taking FDI into account, previous empirical studies on entry in (small) open economies may have produced biased results. Belgium for example, traditionally characterized by high import shares and a large presence of foreign based multinational firms (MNEs) in manufacturing industries, has consistently reported lower (domestic) entry rates than other European countries (Eurostat (1998)). In a more recent period 1990-1995 the opposite observation has emerged with Belgium showing a net outflow of FDI together with a simultaneous increase in the number of domestic firms.

The aim of this paper is to empirically assess the impact of international competition on domestic entrepreneurship, and to analyze if foreign firms have crowded out domestic entrepreneurs in Belgium. In doing this, the empirical analysis also considers explicitly structural positive effects of FDI on entry, as put forward by recent theoretical models demonstrating possible complementary effects between foreign and domestic firms (Rodriguez-Clare (1996), Markusen and Venables (1999)). Because of demonstration, networking and spillover effects, foreign firms may actually stimulate local entrepreneurship if the necessary stimulating conditions are created, as recently discussed in the World Investment Report 'Promoting linkages' (UNO (2001)) documenting several (developing) country studies.

While the crowding out effect of FDI on local entrepreneurship has mainly been discussed in developing countries (Caves (1996)), this paper analyzes this effect in the context of Belgium, an open industrialized country. Given the similarity between Belgium and other EC countries like Ireland and Spain in attracting FDI (Sleuwaegen

and De Backer (2000)), the results of this analysis are not necessarily limited to Belgium but may carry over to other open economies. The data for the empirical analysis come from a unique database that was obtained by merging two datasets: at the one side the files of the Central Balance Sheet Office (National Bank of Belgium) collecting the annual reports of all firms active in Belgian manufacturing, and at the other side the foreign firms database of the Federal Planning Bureau identifying firms active in Belgium that were at least 50% foreign owned.

OCCUPATIONAL CHOICE, DOMESTIC ENTREPRENEURSHIP AND FOREIGN DIRECT INVESTMENT

Firm formation has traditionally been studied within occupational choice models, in which individuals compare the wage they can earn as a worker with the entrepreneurial income they can obtain if they start their own business. The first theoretical contributions essentially predict that the likelihood of individuals starting a new firm is a positive function of persons' managerial ability (Lucas (1978), Oi (1983)) and a negative function of a persons' risk attitude (Kanbur (1979), Kihlstrom and Laffont (1979)). Models which do not only allow for differences in managerial/entrepreneurial ability between individuals but also for differences in worker ability (which are reflected in wage differentials), show however that the best potential entrepreneurs may end up as wage workers (Jovanovic (1994)).

The above studies have typically modeled the decision to become entrepreneur in a closed economy setting. An exception is Grossman (1984) who modeled firm

formation in an open economy and analyzed the impact of foreign trade and investment on the formation of domestic entrepreneurs. Grossman showed that import competition and foreign direct investment causes the number of local entrepreneurs to fall as the result of lower prices on the product market which reduce the entrepreneurial income more than the wage income. As only differences in entrepreneurial skills are taken into account in this model, the most capable individuals become entrepreneurs. While foreign direct investment is similar to import competition with respect to product market competition, the entry of foreign firms generates however an additional effect on domestic entrepreneurship since these firms also crowd out domestic firms on the labor market. This crowding out effect does not only result in a lower number of domestic entrepreneurs but also gives rise to a situation where the best entrepreneurs may become workers in the affiliates of foreign based MNE once differences in worker ability are taking into account and technological superiority of MNEs is recognized.

This additional effect of FDI on the labor market can best be illustrated by extending Jovanovic's (1994) model of firm formation for the entry of foreign firms. In an economy with one consumption good and two homogeneous factors of production (supply of capital K and labor L), individuals decide to start their own business instead of working for an established firm according to the following rule:

$$px_i\, F(k,\Sigma_j^l\, y_j) - rk - \Sigma_j^l\, wy_j \geq wy_i \qquad (1)$$

where F(k,l) is the firm's output, p the price of the consumption good, r the rental rate and w the wage per efficiency unit. Reflecting differences in entrepreneurial and

worker ability between individuals, x_i and y_i represent respectively the entrepreneurial and worker ability of individual i, while $\Sigma_j^l y_j$ represents the sum of worker abilities of the l workers employed in the hypothetical firm. The left side of expression (1) is the entrepreneurial income the individual gets if he starts up his own business, while the right side is the wage income the individual earns if he chooses to become a wage worker. Profit maximization by firm owners leads to the optimal choices of capital (k) and labor (l) per firm, which together with the occupational choice expression in (1) and the factor market clearing conditions determine the optimal level of domestic entrepreneurs (m).

An inflow of foreign direct investment, which essentially entails new competition and the transfer of capital and technology exogenous to the conditions prevailing in the domestic market, changes the number of domestic firms in this economy. Since firm specific advantages transferable across borders enable MNEs to compete successfully in foreign countries with a 'better' production technology compared to local firms (OLI-paradigm (Dunning (1993)), the corresponding higher wages paid by foreign firms[2] skim the domestic labor market and decrease the labor supply for domestic companies at least in the short term (i.e. $dL/dFDI < 0$). Similar to Jovanovic's result with respect to an increase in the capital stock, comparative statics results show that the derivative of m with respect to the labor supply L is positive[3] [4], meaning that an

[2] The 'better' technology and capital intensive production process make employees more productive in foreign companies than in domestic companies (see De Backer and Sleuwaegen (2001)). We assume a dual labor market where wage differences between foreign firms and domestic firms may persist. Given the first order conditions, this higher productivity results ceteris paribus in higher wages. Like in other countries (see for an overview Dunning (1993)), foreign firms in Belgium are found to pay significantly higher (average) wages than domestic firms even after taking into account differences in the skill mix of the employment (De Backer (2001)).

[3] Provided that the elasticity of substitution between k and l is less than 1 (see also Lucas (1978) and Jovanovic (1994)).

[4] $dm/dL = m(LF_{ll} + KF_{kl})/(K^2F_{kk} + 2KLF_{kl} + L^2F_{ll})$ where F_{kk}, F_{ll} and F_{kl} are the second order derivatives of the production function F with respect to respectively k, l, and k and l

inflow of FDI causes the number of domestic entrepreneurs to fall ($dm/dFDI < 0$). The crowding out of local ventures by foreign firms on the labor market leads to a stronger rise in wages than in entrepreneurial income[5], stimulating people to become worker instead of entrepreneur. At the same time this causes an increase in the average (domestic) firm size.

The inflow of FDI not only results in a lower number of domestic entrepreneurs but may also alter the distribution of individuals becoming entrepreneur. Foreign direct investment causes the best potential entrepreneurs to choose for worker, as MNEs want to hire the best individuals for managing their subsidiary and therefore implement a wage structure very favorable for people endowed with higher levels of entrepreneurial and worker ability. Assuming like Jovanovic that in a closed economy the best potential entrepreneurs happen to be also the best workers[6], the most capable persons are effectively drawn into entrepreneurship, i.e. the persons to the right of x_1 in figure 1[7]. The entry of foreign firms changes the earnings structure of entrepreneurs and workers as competition between foreign and domestic firms causes profits to fall, and as a consequence entrepreneurial income and wages to decrease ($\Pi_{DOM}2 < \Pi_{DOM}1$ and $W_{DOM}2 < W_{DOM}1$[8]). As foreign firms pay on average higher wages than domestic firms ($W_{MNE} > W_{DOM}2$) and offer additional benefits for

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The positive sign can easily be derived by combining Jovanovic's result ($dm/dk < 0$ or $m(LF_{ll} + KF_{kl})/(K^2F_{kk} + 2KLF_{kl} + L^2F_{ll}) < 0$) and the fact that the denominator in (2) is equal to the sum of $(KF_{kk} + LF_{kl})$ and $(LF_{ll} + KF_{kl})$.

[5] In Grossman's model (1984) there is no effect on wages because of the infinitely elastic labor supply in developing countries.

[6] With managerial ability denoted as x and worker ability y, $y = f(x)$ for some strictly increasing function f.

[7] x_1 is the level of entrepreneurial capability for individuals are indifferent between becoming entrepreneur and wage worker.

[8] Wage incomes $W_{DOM} = w_{DOM} .y$ and $W_{MNE} = w_{MNE} .y$.

very talented managers/workers[9], these persons are worse off if they decide to stay entrepreneur. The result is that foreign direct investment causes not only the number of domestic entrepreneurs to fall ($x_3 - x_1 < x - x_1$) but also the best (domestic) entrepreneurs to become workers. The effect of product market selection of efficient (foreign) firms combined with the self-selection results of potential entrepreneurs are central in the specification of possible crowding out effects in the empirical model of the next section.

Insert Figure 1 about here

AN EMPIRICAL MODEL OF DOMESTIC ENTREPRENEURSHIP FOR BELGIUM

Since Orr's (1971) influential work on entry in Canadian manufacturing, an extensive literature has emerged studying incentives and impediments to firm entry and exit (see for an overview Siegfried and Evans (1994), Geroski (1995)). Reflecting the typical closed economy setting of theoretical work on firm formation, most empirical applications in the entry/exit literature were developed in national industry contexts that focused almost exclusively on domestic supply factors inducing or impeding entry/exit. An exception is Sleuwaegen and Dehandschutter (1991) who analyzed the importance of international demand and supply factors for entry and exit in Belgium. Recent work increasingly distinguished between different types of entry and exit, including domestic entry/exit (i.e. by domestic entrepreneurs) and foreign entry/exit

[9] Examples are bonuses, stock options, promotion overseas…which essentially means giving the best

(i.e. by MNEs). Unfortunately this research has continued to disregard the effect of international competition on entry and exit of domestic entrepreneurs. The analyses concentrated merely on the differential impact of incentives and barriers for respectively domestic and foreign entry/exit (Gorecki (1976), Shapiro (1983), Baldwin and Gorecki (1987), Khemani and Shapiro (1988), Geroski (1991), Mata and Portugal (1997)). The interdependence between domestic and foreign entry/exit however has not yet been analyzed.

By not taking into account the negative effect of international competition on domestic entrepreneurship, previous studies on entry/exit in (small) open economies may have produced biased results[10]. Aggregate data of entry in Belgium for example suggest a real effect of openness on domestic entrepreneurship as Belgium reported lower entry rates while import competition and the presence of multinational firms were consistently higher than in other EC countries (table 1). And in the more recent period 1990-1995 Belgium showed a net outflow of FDI and a simultaneous rise in the number of domestic firms (table 2). Both observations point at a potential crowding out effect of foreign direct investment on domestic entrepreneurship.

Insert Tables 1 and 2 about here

This paper empirically assesses the role of international competition in the formation of domestic entrepreneurs by linking domestic entry/exit in Belgium during the years 1990-1995 to import competition and foreign direct investment on the industry level.

individual a kind of entrepreneurial income.

Based on the occupational choice models of section 2 it is hypothesized that domestic entry (i.e. number of domestic entrepreneurs starting their own business) is negatively affected by increasing import competition and the inflow of FDI. Likewise, in explaining domestic exit, it is expected that import competition and foreign direct investment stimulate the exit of domestic firms.

In line with previous research, we model net entry as the response to departures of profits from long run sustainable profits[11] where the latter are a function of entry/exit barriers. As it is assumed that net entry at time t is the result of decisions taken at time t-1 based on observations of industry structure in t-1, the expected net entry in industry i in period t equals:

$$\text{NET ENTRY}^{*}_{i,t} = \gamma(\text{PROFIT}_{i\,t-1} - \text{PROFIT}^{*}_{i\,t-1}) \qquad (2)$$

with $0 < \gamma \leq 1$ measuring the response rate of net entry to profitable opportunities.

Further on, since actually entering an industry may take some time because of the scarcity of resources and institutional rigidities, net entry itself is modeled as an adjustment process in which the actual adjustment is some fixed proportion of the expected adjustment (Geroski and Masson (1987)):

$$(\text{NET ENTRY}_{i,t} - \text{NET ENTRY}_{i,t-1}) = \delta(\text{NET ENTRY}^{*}_{i,t} - \text{NET ENTRY}_{i,t-1}) \qquad (3)$$

with δ = adjustment coefficient and $0 < \delta \leq 1$.

[10] Although Sleuwaegen and Dehandschutter (1991) acknowledge the strong discipline of international competition as being important, import competition and foreign direct investment were not included in their analysis.

[11] Also called limit profits, i.e. profits that do not induce net entry (Bain (1956)).

By combining expressions (2) and (3) and distinguishing between domestic and foreign entry/exit additionally, entry and exit by domestic firms in industry i at time t are modeled according to the following response functions[12]:

$$\begin{aligned} DOMENTRY_{i,t} = {} & b_0 + \gamma\delta PCM_{i,t-1} + b_1\gamma\delta DOMGROWTH_{i,t-1} + b_2\gamma\delta IMPGROWTH_{i,t-1} + \\ & b_3\gamma\delta PHYSCAP_{i,t-1} + b_4\gamma\delta SCALE_{i,t-1} + \\ & (1-\delta)DOMENTRY_{i,t-1} + b_5(1-\delta)DOMEXIT_{i,t-1} + \\ & b_6(1-\delta)FORENTRY_{i,t-1} + b_7(1-\delta)FOREXIT_{i,t-1} + b_8FORPRES_{i,t-1} \end{aligned} \quad (4)$$

$$\begin{aligned} DOMEXIT_{i,t} = {} & b_0 + \gamma\delta PCM_{i,t-1} + b_1\gamma\delta DOMGROWTH_{i,t-1} + b_2\gamma\delta IMPGROWTH_{i,t-1} + \\ & b_3\gamma\delta PHYSCAP_{i,t-1} + b_4\gamma\delta SCALE_{i,t-1} + \\ & (1-\delta)DOMENTRY_{i,t-1} + b_5(1-\delta)DOMEXIT_{i,t-1} + \\ & b_6(1-\delta)FORENTRY_{i,t-1} + b_7(1-\delta)FOREXIT_{i,t-1} + b_8FORPRES_{i,t-1} \end{aligned} \quad (5)$$

The dependent variables in this model $DOMENTRY_{i,t}$ and $DOMEXIT_{i,t}$ are expressed as entry and exit rates defined as the number of domestic entrants (exiters) in year t divided by the total number of firms in year t-1 in the industry.

Because of the adjustment behavior assumed in expression (3), lagged entry (exit) is predicted to have a positive sign[13] in the DOMENTRY (DOMEXIT) equation; the larger the coefficient of this variable the slower the adjustment in entry.

The sign of the lagged exit variable ($DOMEXIT_{i,t-1}$) in the entry equation is hypothesized to be positive as entry consists to some extent of the replacement of

[12] Modeling (domestic and foreign) entry and exit separately as gross variables instead of modeling net entry, prevents that symmetry is imposed on the entry and exit processes.

[13] Likewise Gort and Konakayama (1982) argue that entry may stimulate (potential) entrepreneurs to consider entry as well, although autoregressive models of entry suggest that previous entry may deter current entry.

exiting firms, with exit providing room for potential entrepreneurs in the industry (Sleuwaegen and Dehandschutter (1991), Rosenbaum and Lamort (1992) Johnson and Parker (1994)). Displacement on the other hand concerns the positive effect of entry on exit, from new entry that results in stronger competitive pressure leading to the exit of incumbent firms. Consequently, the coefficient of the lagged entry variable ($DOMENTRY_{i,t-1}$) in the exit equation should be positive. The inclusion of lagged exit and entry variables controls for the fact that less efficient incumbents are replaced/displaced by more efficient entrants

Relevant profits in the net entry equation are assumed to be composed of industry wide price-cost margins ($PCM_{i,t-1}$), measured as industry profitability to sales in the previous year adjusted for industry growth $DOMGROWTH_{i,t-1}$ (i.e. the past growth rate of domestic industry sales[14]). Previous research showed that entry is higher in more profitable and rapidly growing industries, while exit is stronger in industries where profits and market growth are lower (Siegfried and Evans (1994), Geroski (1995)). The coefficients of these variables are hypothesized to be positive in the entry-equation while negative in the exit-equation. In line with the theoretical displacement arguments (Grossman 1994) the strength of import competition is included in the empirical model as an additional factor impacting profits and thus net entry. The variable $IMPGROWTH_{i,t-1}$ (measured as the growth rate of imports in year t-1) is assumed to negatively affect domestic entry and positively domestic exit .

Distinguishing between domestic and foreign entry/exit, enables to analyze the impact of foreign direct investment on domestic entrepreneurship. In line with the theoretical

[14] The domestic market measures the total sales volume and is calculated as the sum of domestic sales and imports minus exports

model discussed supra, lagged foreign entry ($FORENTRY_{i,t-1}$) is predicted to influence negatively (positively) domestic entry (exit) from stronger competition on the product as well as labor market. Likewise, the coefficient of lagged foreign exit ($FOREXIT_{i,t-1}$) is hypothesized to be positive (negative) in the entry (exit) -equation. The variables foreign entry and exit ($FORENTRY_{i,t-1}$ and $FOREXIT_{i,t-1}$) are analogously defined as the dependent variables, i.e. the number of foreign firms entering (exiting) in year t-1 divided by the total number of firms in year t-2.

Since a complete analysis of the effect of FDI on domestic entrepreneurship requires also structural long term effects to be taken into account, the empirical model in expressions (4) and (5) incorporates also possible positive spill-over effects of FDI that may lessen the crowding out effects of FDI on domestic entrepreneurship. The literature on linkages between foreign multinationals and domestic firms in host countries has discussed different channels through which FDI may foster domestic entrepreneurship (see for an overview UNO (2001)). Managerial skills may spill over to domestic firms because of domestic managers leaving foreign firms and starting up their own business, and/or by domestic entrepreneurs watching successes and mistakes of foreign firms (Caves (1996)). Further on, networking activities of foreign firms may induce domestic entry through buyer-supplier relations and/or knowledge spillovers. Recent theoretical work has increasingly modeled the positive effects of FDI on domestic entrepreneurship through backward and forward linkages, showing that MNEs may foster the development of domestic firms in the host country (Rodriguez-Clare (1996), Markusen and Venables (1999)).

The inclusion of the variable $FORPRES_{i,t-1}$ controls for the existence of these positive networking, learning and linkage effects within but also between industries[15]. The variable (defined as the relative number of foreign firms) measures the foreign presence in terms of number of firms in related industries[16] in Belgium. Linkage effects are expected to be more important in industries where foreign presence is higher, but the results should however be interpreted carefully. As largely discussed within the literature on productivity spillovers (see for an overview Gorg and Strobl (2001)), foreign presence is only a broad indirect and thus imperfect measure to what extent positive linkages between foreign and domestic firms may develop.

A number of observable proxies for barriers to entry is hypothesized to affect the level of (unobservable) long run profits (i.e. $PROFIT^{*}_{i\ t-1}$ in expression (2)) since they impose additional costs to new entrants. Physical capital intensity ($PHYSCAP_{i,t-1}$ defined as the logarithm of the value of industry's fixed assets over total employment in the industry) and the scale intensity of industries ($SCALE_{i,t-1}$ defined as the logarithm of the median size in terms of employment) have been included as factors hindering entry. Since entry barriers also act as exit barriers, the effects of the variables $PHYSCAP_{i,t-1}$ $SCALE_{i,t-1}$ are predicted to be negative both in the entry equation and the exit equation. In industries that require large physical investments and/or a large scale of operation in order for firms to break even, excess profits persist longer without inducing entry. At the same time large investments discourage exit if they have a sunk cost character. Moreover with falling profits, firms typically postpone the decision to exit given the limited alternative use of industry specific

[15] In order to incorporate positive effects between for example foreign MNEs and domestic suppliers.
[16] Related industries are defined as industries belonging to the same NACE-2 digit level, given the unavailability of more precise information (e.g. input-output tables).

assets and the value of waiting if profits are uncertain and have shown important variation in the past (Dixit and Pindyck (1994)).

RESULTS

The empirical model is tested against data on 129 manufacturing industries in Belgium defined on the NACE 3-digit level[17]. As observations for the period 1990-1995 are pooled, year dummies allow for time specific effects (Kmenta (1997)). The use of a censored estimation procedure was necessary to account for zero cells in the data set (Tobin (1958)).

Since the variance of entry/exit rates differed substantially across industries, we estimated industry-specific variances (σ^2_i) following Dunne and Roberts (1991):

$$(\sigma^2_i) = (1/5)\Sigma e^2_{it}$$

where the e_{it} are the residuals of estimating (4) and (5). These industry-specific variances were used to obtain weighted Tobit estimates in the entry and exit equations. As Tobit-coefficients cannot be interpreted as ordinary regression coefficients, multiplying the coefficients with the fraction reported in the last row of table 3 ensures a proper discussion of the estimated results[18].

[17] NACE : General industrial classification of economic activities within the European Communities.
[18] McDonald and Mofitt (1980) showed that the change in the dependent variable is composed of (1) the change in the dependent variable of those observations where entry (exit) > 0, weighted by the probability of entry (exit) being above zero and (2) the change in the probability of entry (exit) being zero weighted by the expected value of the dependent variable if above zero. The fractions, showing the fraction of the Tobit-coefficient due to observations where entry (exit) > 0, are 0.921 and 0.934

Insert Table 3 about here

Given that the dependent variables and independent variables are expressed as entry/exit rates, growth rates, shares or logarithms, the reported coefficients can be interpreted as quasi-elasticities. The coefficients of lagged DOMENTRY and DOMEXIT in respectively the entry and exit equations indicate that 70 to 75% of the expected adjustment in net entry happens within the same year, as the adjustment rate δ is respectively 0.695 (= 1-0.331*.0.921) for domestic entry and 0.756 (= 1-0.261*0.934) for domestic exit.

Consistent with previous studies on gross entry, the results show that domestic entry is higher in more profitable and/or growing industries. Past profitability (PCM) signals profitable opportunities to domestic entrepreneurs, while a strong growth of the domestic market (DOMGROWTH) accommodates a larger number of firms.

The results in table 3 support the hypothesis that international competition hinders the formation of domestic entrepreneurs. The negative and significant coefficients of IMPGROWTH and FORENTRY clearly suggest that import competition and the inflow of FDI have a negative effect on the entry of domestic entrepreneurs. Strong import competition causes prices to fall on product markets and discourages domestic entrepreneurs to enter the shrinking the domestic market. The immediate negative effect of import competition on domestic entry is -0.091 (-0.099*0.921) while the total effect through the partial adjustment process is -0.131 (-0.099*0.921/0.695).

respectively, implying that more than 90% of the total change in the domestic entry/exit rate (resulting from changes in the independent variables) is generated by marginal changes in the number of entering domestic firms, whereas less than 10% is generated by changes in the probability of domestic firms entering at all.

The negative effect of foreign entry is significantly larger, suggesting that the inflow of FDI impedes the entry of domestic entrepreneurs because of stronger competition on the product market as well as skimming off the (best) workers on the labor market. The immediate effect of foreign entry is -0.214 (= -0,237*0,921), while the total response of domestic entry on foreign entry is -0.702 (= -0,237*0,921/0,305). As the coefficients can be interpreted as elasticities, an extra FDI inflow of 10% would cause then ceteris paribus the number of domestic firms to fall with 7% in the long run. The insignificant coefficient of FOREXIT suggests that new domestic firms do not easily replace foreign firms leaving Belgium.

Also the results for the domestic exit-equation support the crowding out effect of domestic firms by foreign firms and to a lesser extent by import competition. The positive coefficient of FORENTRY demonstrates that the inflow of FDI forces domestic entrepreneurs to exit, because of lower prices on product markets and/or higher wages on the labor market (encouraging domestic entrepreneurs to become wage workers). The positive albeit insignificant coefficient of FOREXIT in this equation may be explained by the fact that the exit of foreign firms directly results in the exit of domestic supplying/buying firms, however further evidence is necessary in order to validate this explanation.

At the same time, the results also show evidence of structural effects of foreign direct investment fostering domestic entrepreneurship. The positive coefficient of the FORPRES-variable in the entry-equation indicates that more new domestic firms are formed in industries characterized by a high foreign (incumbent) presence, suggesting the importance of demonstration, networking and spillover effects. The estimated

coefficient suggests that in the limiting case of complete foreign presence in industries, domestic entry rates could increase with a maximum of 4.8 per cent (= 0.051*0.923), relative to industries without foreign presence. Likewise, the negative coefficient of FORPRES in the exit-equation indicates that the exit of local firms is substantially smaller in industries where foreign firms are relatively more present. The structural effect is especially important for industries where the potential supply of domestic entrepreneurship is limited as is the case for some new high tech industries in Belgium. In such cases crowding out effects may be dominated by the longer term positive structural effects.

These positive effects of foreign presence on local entrepreneurship are in also line with Gorg and Strobl (2000) who find positive linkage effects of FDI for Ireland without significant crowding out effects. Indeed, for the time period they consider in their analysis (1970-1995), competitive selection effects of FDI are low for Ireland since foreign based MNEs have typically invested in Irish industries which were relatively small before the entry of MNEs.

The results in table 3 further demonstrate the existence of important impediments to entry and exit because of capital investments and scale effects. The negative and significant coefficients of PHYSCAP and SCALE demonstrate that barriers to entry are higher in capital intensive and scale intensive industries resulting in less entry of domestic entrepreneurs in these industries. The observed symmetry between entry and exit barriers can be attributed to sunk costs, as the sunkness of investments directly discourages exit as no (or limited) valuable alternative use for the investments exists. At the same time sunk costs provide incumbent with a credible threat to

remain in the industry thereby deterring entry of new firms. Industries characterized by lower barriers to entry and exit show a persistent higher turnover of firms than industries in which barriers to entry and exit are substantial[19].

The positive signs of respectively DOMEXIT in the domestic entry-equation and DOMENTRY in the domestic exit-equation, confirm the importance of turbulence variations across industries. New domestic entrants induce the exit of incumbent local firms, while domestic firms exiting the industry are replaced by new local firms however at a much lower pace.

CONCLUSION

In analyzing firm entry and exit in the small and open economy of Belgium, this paper presents evidence suggesting that import competition and foreign direct investment crowd out domestic entrepreneurs on product and/or labor markets. In line with theoretical predictions, import competition is found to discourage domestic entry, while the inflow of foreign direct investment decreases domestic entry and at the same time increases domestic exit. However, the empirical results suggest at the same time the importance of positive long term structural effects -through learning,

[19] In order to check the robustness of the results, research & development- and advertising-intensity proxying strategic entry barriers next to the (traditional) structural barriers to entry like capital intensity and scale intensity were included as additional explanatory variables in the model. However, as also noted in some empirical studies (Siegfried and Evans (1994)), their (insignificant) positive coefficients suggested that these variables especially signaled profitable opportunities across industries more than they discouraged domestic entry. The same result emerged for industry concentration, which is (theoretically) assumed to increase incumbents' effective deterrence of potential entrants. However at the same time the relative higher profits in these industries may encourage entry; traditionally empirical research has experienced difficulties in determining the causal interference between concentration and entry.

demonstration, networking and linkage effects- between foreign and domestic firms moderating or even reversing crowding out effects.

The policy implications to the reported findings in this paper are manifold but need to be properly qualified. In the short run a policy of (aggressively) attracting foreign direct investment in industries heavily populated by domestic firms, may have a significant negative effect on domestic entrepreneurship at least in the short run. Within a longer term structural perspective FDI and domestic entrepreneurship may become complements because of the many possible positive linkages. Past experiences in some countries show however that this is not a natural process but that it requires the implementation of specific programs in order to maximize the linkages between foreign and domestic firms. Especially for the development of new industries such a policy may prove to be very fruitful.

Moreover, in a dynamic context the host country may enjoy important welfare gains following the inflow of foreign firms, since the crowding out effect of FDI typically results in the elimination of the least efficient domestic firms. Foreign firms are also better equipped to overcome some of the structural barriers to entry, including high sunk costs and scale economies, which typically hinder the entry and development of new domestic firms.

It is also important to bear in mind that this paper has operationalized entrepreneurship in terms of the creation of new firms, thereby abstracting from the potential positive effects of FDI on the behavior of established domestic firms.

It follows that the impact on domestic entrepreneurship is only one of the many effects FDI has on the macro-economic performance of host countries. In order to formulate appropriate policy recommendations, all direct and indirect effects of FDI on host countries' economies need to be assessed within a broader macro-economic framework. Such an analysis however is clearly beyond the scope of this paper.

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TABLE 1

Entry rate[20], import competition and FDI, 1990

%	*entry rate*[21]	*import share*[22]	*inward FDI stock*
Belgium	10.9	71.2	18.1
Denmark	14.3	30.1	7.1
France	13.3	22.6	7.2
Germany	20.1	26.1	7.4
Ireland	n/a	53.8	22.5
Italy	6.5	20.7	5.3
Netherlands	14.5	49.6	25.9
Portugal	10.7	45.4	7.6
Spain	n/a	20.5	13.3
United Kingdom	5.9	27.1	22.3

[20] Due to major differences in legislation between countries, exit rates are not comparable across countries.
[21] Data for France and Portugal are 1989 figures. Source: Eurostat (1993), SME Observatory
[22] in % of GDP; Source: Eurostat

TABLE 2

Number of domestic firms and foreign firms in Belgium, 1990-1995

	Domestic firms	*Foreign firms*
1990	15582	966
1991	16687	1000
1992	17402	983
1993	17756	968
1994	17461	957
1995	16743	923

TABLE 3

OLS regression results for domestic entry and exit

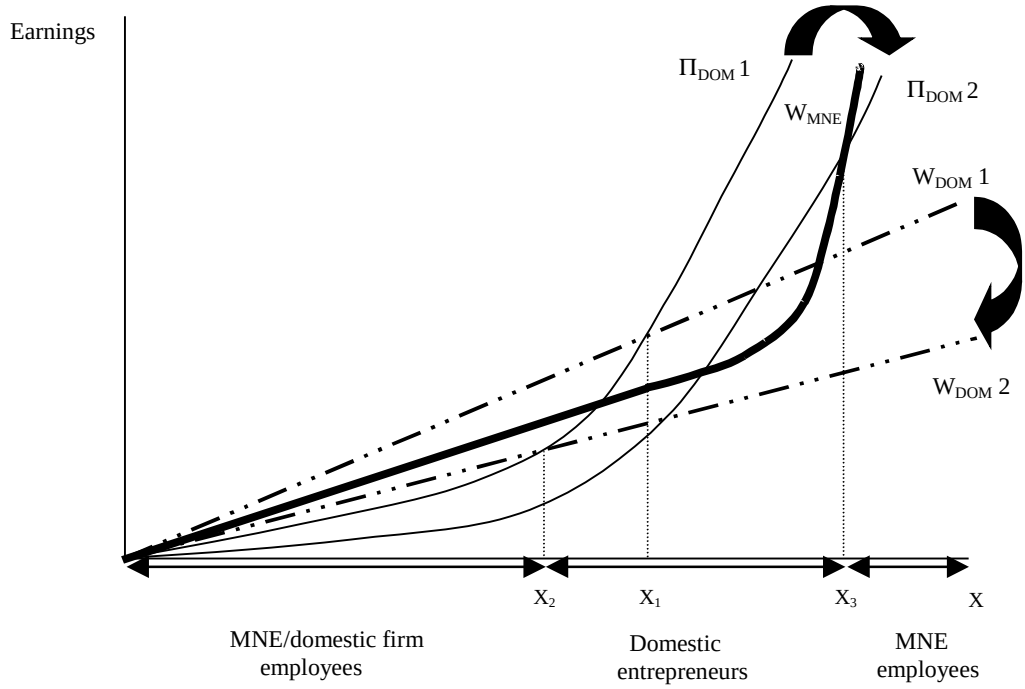
Tobit-coefficient (standard error) N = 645	***DOMENTRY$_{i,t}$***	***DOMEXIT$_{i,t}$***
CONSTANT	0.145****	0.066****
	(0.017)	(0.015)
$PCM_{I, t-1}$	0.166****	0.047
	(0.030)	(0.031)
$DOMGROWTH_{i, t-1}$	0.120****	-0.022***
	(0.027)	(0.007)
$IMPGROWTH_{i, t-1}$	-0.099****	0.016*
	(0.019)	(0.010)
$PHYSCAP_{i, t-1}$	-0.013****	-0.008***
	(0.002)	(0.002)
$SCALE_{i, t-1}$	-0.014****	-0.001
	(0.002)	(0.002)
$DOMENTRY_{i, t-1}$	0.331****	0.121****
	(0.026)	(0.023)
$DOMEXIT_{i, t-1}$	0.071**	0.261****
	(0.036)	(0.033)
$FORENTRY_{i, t-1}$	-0.232**	0.186**
	(0.099)	(0.095)
$FOREXIT_{i, t-1}$	0.254	0.244
	(0.184)	(0.173)
$FORPRES_{i, t-1}$	0.051***	-0.071****
	(0.017)	(0.015)
YEARDUMMIES	YES	YES
σ	0.033	0.028
fraction	0.921	0.934
LogLikelihood (L_1)	1529.5	1502.6
LogLikelihood (L_0)[23]	239.9	456.5

* $p < 0.10$;
** $p < 0.05$;
*** $p < 0.01$;
**** $p < 0.001$;

[23] L_0 is the loglikelihood of the model with all coefficients, except the intercept term, equal to zero; L_1 is the loglikelihood of the proposed model.

FIGURE 1

Entrepreneurial choice and FDI inflows



$\Pi_{DOM}1$: entrepreneurial profit of domestic firms before foreign entry
$\Pi_{DOM}2$: entrepreneurial profit of domestic firms after foreign entry
$W_{DOM}1$: wages in domestic firms before foreign entry
$W_{DOM}2$: wages in domestic firms after foreign entry
W_{MNE} : wages in foreign firms
x: individuals' capability

ANNEX 1

Descriptive statistics of the independent variables

	Mean	*Standard deviation*
$PROFIT_{i, t-1}$	0.093	0.044
$DOMGROWTH_{i, t-1}$	0.047	0.094
$PHYSCAP_{i, t-1}$	6.981	0.710
$SCALE_{i, t-1}$	2.417	0.943
$DOMENTRY_{i, t-1}$	0.109	0.123
$DOMEXIT_{i, t-1}$	0.064	0.067
$IMPGROWTH_{i, t-1}$	0.025	0.267
$FORENTRY_{i, t-1}$	0.009	0.063
$FOREXIT_{i, t-1}$	0.006	0.052
$LINK_{i, t-1}$	0.054	0.298

ANNEX 2

Correlation matrix of the independent - lagged variables

	PROFIT	DOM GROWTH	PHYS CAP	SCALE	DOM-ENTRY	DOM-EXIT	IMP-GROWTH	FOR-ENTRY	FOR-EXIT	LINK
PROFIT	1.000	0.018	0.270*	0.017	0.105*	0.027	- 0.011	0.130*	0.013	- 0.047
DOMGROWTH		1.000	- 0.034	- 0.037	0.212*	- 0.034	0.415*	0.107*	- 0.009	0.051
PHYSCAP			1.000	0.471*	- 0.078	- 0.123*	- 0.013	0.116*	0.287*	0.010
SCALE				1.000	- 0.020	- 0.056	0.033	0.099*	0.008	0.083
DOMENTRY					1.000	0.018	0.024	- 0.024	- 0.070	0.022
DOMEXIT						1.000	0.019	- 0.044	0.051	- 0.083
IMPGROWTH							1.000	0.015	- 0.017	0.062
FORENTRY								1.000	- 0.013	0.234*
FOREXIT									1.000	0.115*
LINK										1.000

* $p < 0.05$