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The Effect of Corrupt Market Experience on FDI: Evidence from Swedish Manufacturing Enterprises

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Abstract

In this paper, we analyze if the enterprise decision to invest in a corrupt market is affected by its experience of other corrupt markets. Our conjecture is that multinational enterprises (MNEs) can learn how to navigate corrupt environments and reduce their corruption-related market entry costs. We test this conjecture using a rich data set on manufacturing enterprises from an uncorrupt country, Sweden, over the 1997-2015 period. The market entry effect of corrupt country experience is examined using an extended gravity model (Morales et al., 2019) controlling for income group, regional and border country experience. We find strong support of our conjecture using mixed logit estimations, which are consistent with the multidimensional entry decision of the extended gravity model. To understand the effect of corruption on foreign direct investment, the outreach pattern of MNEs needs to be taken into account.

Keywords: Corruption, multinational enterprise, foreign direct investment.

JEL classification: F23.

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"IKEA works proactively to prevent corruption and illegal activities and disassociates itself from corruption in any form, whether direct or indirect. We have a corruption policy, Rules of Prevention of Corruption, and an investigation policy that clearly states what co-workers should do if they suspect corruption, fraud or other illegal behaviour. Our position is clarified in a vendor letter which must be signed by our suppliers and an IKEA representative". (IKEA code of conduct guidelines, 2000)

1 Introduction

In today's globalized world, where a predominant part of world trade takes place within multinational enterprises (MNEs), the global investment strategy is central for profit maximization. The literature on foreign direct investment (FDI) and corruption indicates that the enterprise's conduct constitutes an important dimension of this strategy: Evidence abound that multinationals' investment behavior is strongly affected by the prevalence of corruption though results are mixed as to whether corruption has a stimulating or deterrent effect. The extent to which home and host country business norms coincide has been shown to systematically affect the direction of the corruption effect (Cuervo-Cazurra, 2006; Wu, 2006; Ledyaeva et al., 2013).[1] In particular, multinationals from countries with well-functioning institutions are generally strongly deterred from entering corrupt markets, which is attributed to their stricter corporate standards. This result is consistent with the general investment behavior of MNEs in Sweden - a country that provides exemplary business conditions[2] – though a narrower perspective reveals that some MNEs are seemingly unconstrained by corrupt market environments (Hakkala et al, 2008; Thede and Gustafson, 2017).

Recent research on the investment behavior of multinationals from another country with high corporate standards, Germany, reveals that corruption only limits the foreign affiliate sales of market entrants (Couttenier and Toubal, 2017). In this paper, we build on the view that MNEs from uncorrupt home countries can learn how to make business in corrupt markets by reducing their susceptibility to corruption or becoming corrupt. Our investigation builds on the assumption that this experience is acquired at enterprise (headquarter) level and is transferable between markets. Our conjecture is that multinational enterprises learn how to navigate corrupt environments so that corruption experience reduces corruption-related market entry costs. We test this conjecture using a rich data set on Swedish manufacturing enterprises in the 1997-2015 period. Our contri-

[1] Habib and Zurawicki (2002) show that bilateral investment flows are negatively related to the absolute difference in national corruption levels.

[2] Sweden is consistently ranked among top performers in this regard. For example, it was ranked in fourth place on the least corrupt country list provided by Transparency International 2019.

bution relates to the recently developed literature on market entry patterns of exporters (Chaney, 2014; Defever et al., 2016; De Lucio et al., 2016; Morales et al., 2019). In particular, the market entry effect of corrupt country experience is identified using an extended gravity model (Morales et al., 2019) that controls for income group, regional and border country experience. We believe that the model is highly applicable to examine the foreign investment behavior of enterprises, which is subject to large market entry costs. This application has previously been adopted by Couttenier and Toubal (2017), who construct a market experience variable using an extended gravity model.[3]

Sweden is a small open economy with a highly competitive manufacturing sector. Enterprises regularly engage in trade, and a comparatively large share of Swedish enterprises are multinationals. Swedish manufacturing enterprises have a long tradition of investing in proximate and rich foreign markets to expand sales (engaging in horizontal FDI).[4] The country's strong ICT development in the 1990's and EU accession in 1995 reinforced this internationalization tendency (and triggered foreign mergers and acquisitions in Sweden). Over the investigated period, Swedish MNEs in the manufacturing sector spread their production networks to more distant and poor foreign markets to source inputs (engaging in vertical FDI). We can detect this gradual expansion in the data and investigate if more experienced enterprises were expanding more rapidly into these markets.

We use a broad empirical approach to place our contribution in relation to prior evidence and introduce the novelty of accounting for conditions capturing the multidimensional investment decision of the enterprise. Logit estimations of the enterprise's market entry decision are examined to enable a comparison to prior findings. Extended gravity models of the enterprise's market entry decision are examined using mixed logit estimations, which provide an allowing substitution structure well suited to analyze the behavior of global profit-maximizing MNEs. Our empirical analysis contributes in several ways informing the understanding of enterprise behavior in corrupt markets. Our findings show that corruption experience matters for the enterprise's market entry decision to corrupt countries with an effect that exceeds that of income group and regional experience. The learning effect of corruption gives a thrust to expand the production network into other corrupt markets giving the enterprise a competitive edge vis-à-vis international competitors. The exception to this investment behavior is displayed by high-tech MNEs that learn to avoid corrupt market entry.

The rest of the paper is structured as follows. The next section contains a comprised background description. In section 3, the enterprise and corruption data is presented in detail. The empirical investigation is presented in section 4. The last section concludes.

[3]The underlying estimation results are unreported so we are unable to make any comparisons.
[4]See, e.g., Andersson et al., 1996.

2 Background

In this section, we provide a brief description of plausible corruption effects on MNE investments drawing on prior literature in the field. Corruption can be modelled as a tax on investment and function as a regular transaction cost for multinational enterprises making business in corrupt markets (Wei, 2000). This view defines bribery as a necessary facilitation payment to conduct business in markets regulated by a corrupt administration, which is consistent with evidence that corrupt practices are commonly encountered (to clear red tape, acquire import and export licenses etc.) setting up new business in corrupt markets (Søreide, 2006; Cuervo-Cazurra, 2016).

Instead of taxing investors, corruption may benefit them when bribery is used to overcome more costly regulation. From this viewpoint, bribery is a means to reduce transaction costs by avoiding administrative costs (such as licence fees, tariff and tax payments). An example suggestive of this is provided by Dutt and Traca (2010), who show that corruption can have a trade-enhancing effect in high-tariff environments. While evidence on private sector gains from corruption in support of this view is weak (Aidt, 2009), it is clear that some enterprises use corruption to improve their market position by securing government contracts and influencing policy design and/or implementation at competitors' expense (Hellman et al., 2003). Such, so-called, grand corruption can severely obstruct the business opportunities of market entrants.

To view corruption as a regular transaction cost could give an oversimplified understanding of its private sector impact because its obscure nature introduces distortions and increases costs (Schleifer and Vishny, 1993). This may contribute to explain the strong deterrent effect of corruption for enterprises that are not used to navigate corrupt environments. Once the enterprise finds appropriate matches among business partners in a corrupt market, these are preserved to substantially reduce transaction costs (Lambsdorff, 2007). This implies that relationship-specific contracts with trusted business partners would be renewed and maintained to a larger extent in corrupt markets, which is in line with recent evidence on exporter/investor behavior (Araujo et al., 2016; Cottenier and Toubal, 2017). The importance of preserving a match with a trusted partner in a corrupt environment is consistent with the result that MNEs are more prone to engage in joint ventures with local firms in corrupt markets (Javorcik and Wei, 2009).

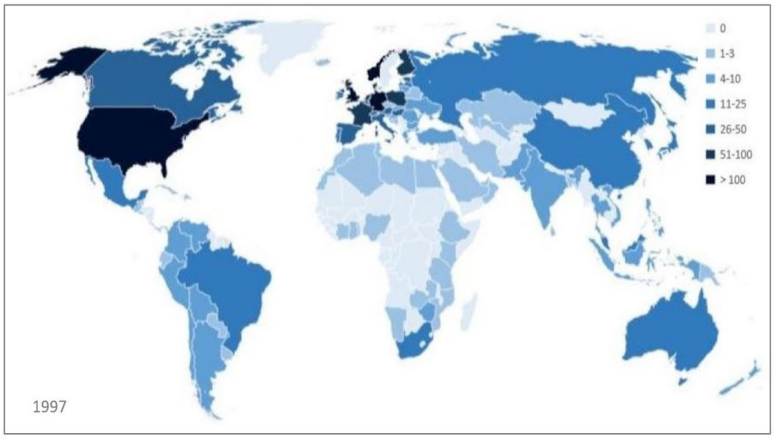
Since firms face different rent-seeking opportunities and administrative constraints in a market, and corrupt bureaucrats' price (bribe) discriminate (Svensson, 2003), their response to corruption depends on firm characteristics. Firm size matters as larger firms have stronger bargaining power to withstand corruption pressure (Svensson, 2003), which is consistent with evidence found for Swedish MNEs (Hakkala et al., 2008; Thede and

Gustafson, 2017). In addition, there is suggestive evidence that the largest multinationals use political influence (i.e. lobbying) as a shield against corruption (Thede and Gustafson, 2017). Corruption pressures can be stronger for enterprises that engage in horizontal FDI because they are susceptible to corrupt bureaucrats in setting up local sales channels (Hakkala et al., 2008). Enterprises with advanced technology are more prone to protect enterprise-specific assets by avoiding corrupt markets (Antràs and Helpman, 2004).

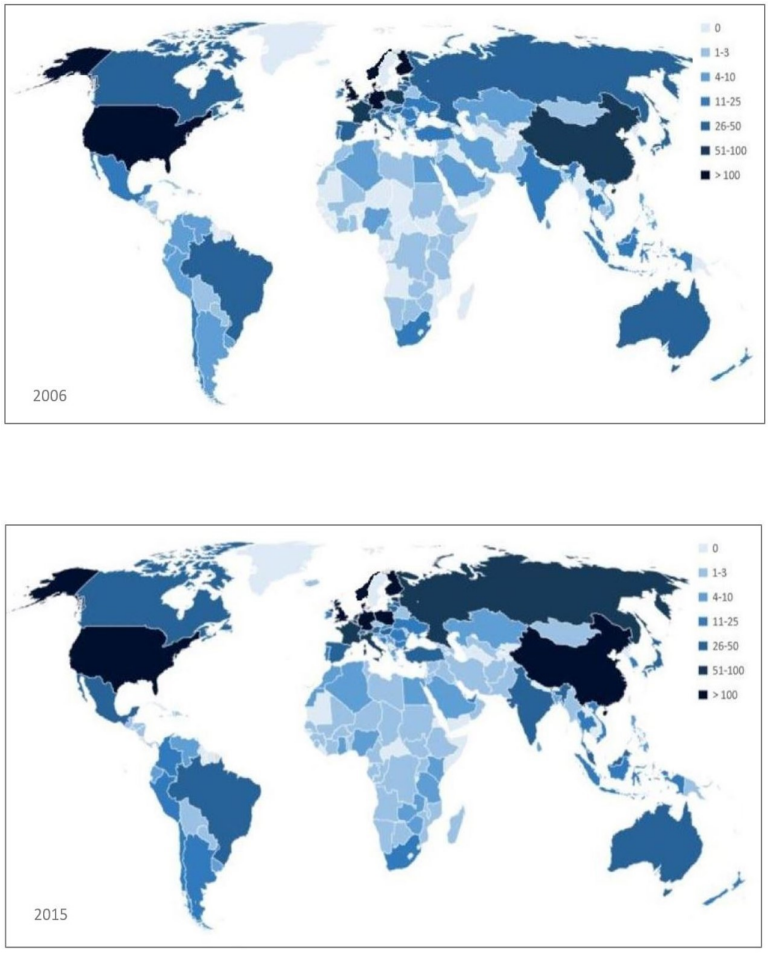
3 Enterprise and corruption data

We access enterprise data from the Swedish manufacturing sector over the 1997-2015 period, which includes information on enterprise characteristics and activity in foreign destinations.[5] Swedish ownership is defined by majority shareholder ownership in Sweden. Foreign activity information, which comes from the Swedish Agency for Growth Analysis, is based on foreign employment data. Every foreign employee is reported by location in this data, implying that it is not subject to sample selection bias regularly affecting MNE data. There are 1,378 Swedish manufacturing MNEs investing in a total of 164 countries in the investigated time period. In Figure 1 we present the FDI market selection pattern of these enterprises in 1997, 2006 and 2015. Swedish manufacturing enterprises predominantly invest in proximate and rich countries (engaging in horizontal FDI). There is a gradual expansion into more distant, emerging and poor countries (to engage in vertical FDI) over the time period.

Figure 1: FDI market selection pattern



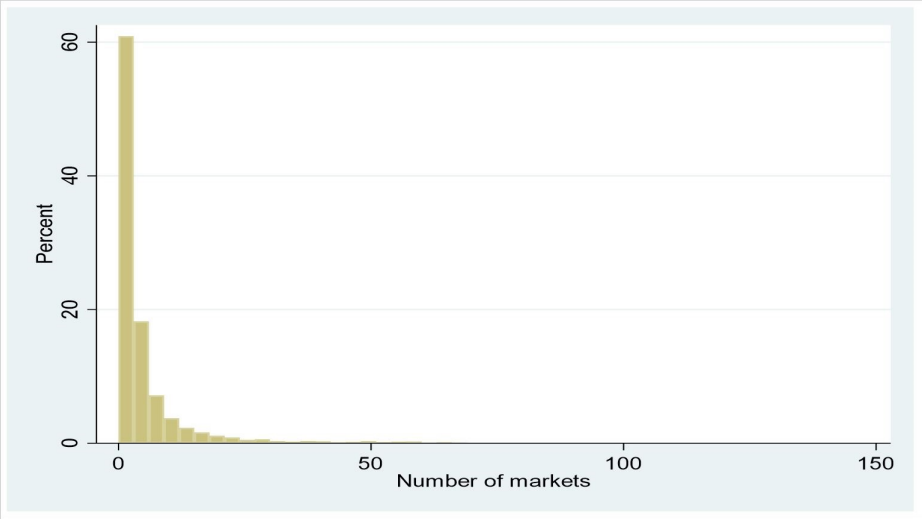
[5]The enterprise data is provided under a strict confidentiality agreement.



In Figure 2, we provide a histogram of the market outreach (i.e. annual number of investment markets) of MNEs in the investigated period. Swedish manufacturing MNEs display a standard manufacturing outreach pattern: A majority of enterprises invests in 1-3 markets, the enterprise distribution decreases steeply as outreach expands and few enterprises invest in a large number of markets. 41 percent of Swedish manufacturing MNEs invest in only one market, 11 percent invest in more than 10 markets and 1 percent invests in more than 50 markets (the maximum enterprise outreach is 138 markets).

We also access data from Statistics Sweden on firms' value added, revenues, capital stocks, investments, employment, and employee education, which is aggregated to enterprise level (i.e. the group of firms). Firms are categorized by the standard Swedish industry classification (SNI). Manufacturing enterprises are identified by the industry code of the largest firm (based on revenues) in the group of firms. In cases when enterprises alter production scope and enter the manufacturing sector, information about their prior market engagements is retained to construct market experience measures. Enterprises that alter production scope and leaves the manufacturing sector exits the data set

Figure 2: FDI market outreach



that year to ensure comparability (as corruption-related costs differ between sectors). It should be noted, however, that the common reason that enterprises no longer are tracked in the data is foreign mergers and acquisitions. High-tech enterprises are identified using the Eurostat tech classification, which categorizes these in the basic pharmaceutical products and pharmaceutical preparations or computer, electronic and optical products industries.[6]

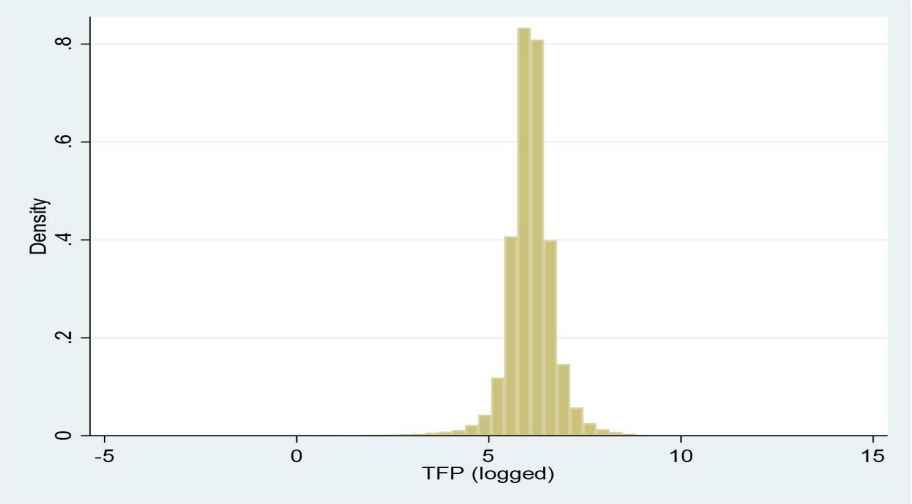
The enterprise's productivity level is a central factor behind its decision to invest abroad as the most productive enterprises engage in horizontal FDI (Helpman et al., 2004) and/or vertical FDI (Antràs and Helpman, 2004). We estimate total factor productivity (TFP) levels of Swedish manufacturing enterprises using the Ackerberg, Caves and Frazer (2015) method. Our TFP estimation includes data on value added, capital stocks and investment in thousand SEK and number of employees with up to secondary education and number of employees with tertiary education.[7] The comparatively high tertiary education skill threshold (by international standards) is suitable for the highly educated Swedish labor force. Figure 3 provides a histogram of estimated enterprise TFP levels, which displays a standard manufacturing productivity distribution.

As previously described, enterprise size can affect the susceptibility to corruption.

[6]The SNI classification corresponds to the European NACE classification at the 2-digit level of aggregation

[7]All variables are logged as per standard estimation procedure. To retain observations including zero values, unitary values are added in the data transformation.

Figure 3: Enterprise TFP levels



Enterprise size is measured by logged aggregate firm revenues in thousand SEK. Swedish manufacturing enterprises with more skill intensive production are likely more prone to invest in foreign low-wage markets to internalize gains from trade. The skill intensity is measured by the share of employees with tertiary education. In Table 1, we present enterprise summary statistics for non-multinational and multinational manufacturing producers in the investigated time period. In the manufacturing sector, multinationals are 25 percent larger, have 44 percent higher skill intensity and are more productive than other enterprises. That MNEs outperform other enterprises reflect their better opportunities to exploit Swedish locational advantages stemming from a combination of an innovation-based economy, a well-educated labor force, and strong ICT adaption in society. High-tech enterprises are more skill intensive and productive than other manufacturing enterprises, and high-tech MNEs are the most skill intensive and productive.

Table 1: Manufacturing enterprise characteristics

	All enterprises		High-tech enterprises	
	non-MNE	MNE	non-MNE	MNE
Size (logged)	9.47	11.89	9.46	11.89
Skill-intensity	0.09	0.13	0.14	0.21
TFP (logged)	6.08	6.11	6.19	6.38

Note: Enterprise-year means reported.

To capture corruption, we use the ICRG corruption index from the PRS group (an

enterprise specialized in country risk assessments), which allows us to analyze the whole 1997-2015 period for a relatively large country sample. An advantage of this corruption index is that it primarily captures grand corruption and therefore is well suited to capture large benefits and costs encountered by firms in corrupt environments. Specifically, it measures corruption in the form of close ties between business and politics, secret party funding and undue market distortive behavior as well as reimbursements for bureaucratic decisions. It is an inverse index in the 0-6 interval. We modify the index to increase in corruption and lie in the 0-1 interval.[8] A country with a corruption index above 0.5 is corrupt based on the underlying ICRG assessment that corruption is more of a problem than not in these countries. The corruption distribution is left-skewed with a majority of countries in the corrupt category (the mean and median corruption index is 0.52 and 0.59). Corruption index means are reported by country for the 1997-2015 period in Table A1 in the appendix.[9] In this period, Sweden has an average corruption index of 0.08 only exceeded by Denmark and Finland. The most corrupt countries are Sudan, Iraq and Somalia with average corruption indices of 0.81, 0.82 and 0.83. Corruption is quite persistent over the 18 year period we investigate: The average standard deviation of country corruption equals 0.10.

We measure income group, regional, border country and corrupt country experience by dummy variables taking the value one if the enterprise invested in at least one country in the category in the previous year. To capture foreign market experience, these measures exclude corresponding home country categories. To measure regional experience, we rely on a fine regional categorization to capture various institutional dimensions (such as cultural business conditioning) that otherwise may be captured by corruption in the empirical investigation. Specifically, the UN disaggregate regional classification is used to categorize countries into 16 groups (excluding Northern Europe) ranging from Western Europe to Sub-Saharan Africa. The income group experience dummy, which takes the value one if the enterprise invested in at least one country in the same income group in the previous year, is constructed using the annual income group classification (based on GNI per capita USD thresholds) from the World Bank. The experience measure includes low, medium-low or medium-high income groups (as Sweden is a high-income country). Common border data used to construct the border country experience dummy (excluding Norway and Finland) comes from the CEPII GeoDist data base. Corrupt country experience takes the value one if the country is corrupt and the enterprise invested in at least one corrupt country the previous year. A simple correlation matrix (provided in Table A2 in the appendix) shows that our market experience measures capture distinct

[8] $Corruption$ = (6-$Corruption_{ICRG}$/6).

[9] Countries that Swedish manufacturing MNEs never invest in are dropped in the estimations. These are Bahamas, Brunei Darussalam, Gambia, Guinea-Bissau, Guyana, New Caledonia, and North Korea.

market attributes.

In Table 2, we present overall and experience-based market entry probabilities. The overall market entry probability is calculated as the number of enterprises that enter a market a given year divided by the number of enterprises that were not investing there the previous year. Other market entry probabilities are calculated for a restricted sample of enterprises with the selected experience. Probabilities of market entry for enterprises with income group, regional or border country experience are all lower than those found for Chilean chemical exporters (Morales et al., 2019), which is consistent with larger market entry costs in FDI compared to exporting.

Table 2: Market entry probabilities

	Probability of entry(%)	Number of entries
Overall	0.357	3870
Regional experience	1.587	3377
Income group experience	0.676	2467
Border country experience	0.284	2601
Corrupt market experience	0.325	2781

4 Empirical investigation

We start out using a gravity model to examine the enterprise's investment decision. Our benchmark logit regression of the probability that enterprise i invests in country j in year t is:

$$\begin{aligned} Pr(FDI_{ijt} = 1) = \Lambda(\alpha + \alpha_t + \beta_1 SIZE_{it} + \beta_2 SKINT_{it} + \beta_3 TFP_{it} + \delta_4 GDP_{jt} + \\ \delta_5 GDPCAP_{jt} + \delta_6 DIST_{jt} + \delta_5 CBOR_j + \delta_6 CREG_j + \delta_7 CORR_{jt} + z'_{jt}\zeta) \ . \end{aligned} \tag{1}$$

where FDI_{ijt} is an investment indicator capturing if the enterprise currently invests in the country, α is a constant, α_t is a time (year) effect, $SIZE_{it}$ is the enterprise's current size, $SKINT_{it}$ is the enterprise's current skill intensity of production, TFP_{it} is the enterprise's current productivity level, GDP_{jt} is the country's current GDP level, $GDPCAP_{jt}$ is the country's current GDP per capita level, $DIST_{jt}$ is the current bilateral agglomeration-weighted distance to the country, $CBOR_j$ is a dummy capturing if the country has a common border with the home country,[10] $CREG_j$ is a dummy capturing if the country is located in a common region with the home country, $CORR_{jt}$ is the country's current corruption level and z_{jt} is a vector of bilateral composites for the

[10]A common language dummy is omitted as it is highly correlated with the common border dummy.

country included to control for its multilateral resistance (Head and Mayer, 2014).[11] The constant and time effect capture any (time invariant or variant) common factor affecting the enterprises' investment decision and control for the home country's multilateral resistance (in our unidimensional setting). We also extend the benchmark specification adding corruption interaction terms to investigate if larger enterprises and enterprises that invest in low-income countries (engaging in vertical FDI) are less deterred by corruption and if MNEs with advanced technology are more discouraged by corruption. GDP and GDP per capita in USD and agglomeration-weighted distances in kilometers have been obtained from the CEPII gravity data set.[12] Descriptive statistics of variables included in our estimations are provided in Table A3 in the appendix.

In Table 3, we present the logit estimation results for the benchmark and extended equations. Empirical model performances are fine and the results provide strong support of the determinants. Enterprises that are larger, more skill intensive, more productive and/or have less advanced technology are more prone to engage in FDI (in any market). Swedish MNEs are more attracted to larger, richer, and more proximate investment markets. The negative distance and positive border effects are inconsistent with the proximity-concentration hypothesis that enterprises are more prone to engage in (horizontal) FDI at larger distances (Helpman et al., 2004). This result, which is not uncommon in the empirical MNE literature, suggests that foreign direct investments of Swedish manufacturing enterprises are not primarily driven by trade-cost saving incentives. Corruption generally deters market entry. A narrower focus using corruption interaction terms requires a combined analysis of direct and indirect effects. Corruption deters market entry less for larger enterprises in line with the argument that they face less corruption pressure due to stronger bargaining power. High-tech MNEs are more discouraged by corruption in support of the Antràs and Helpman (2004) model. Enterprises that invest in low-income countries are less deterred by corruption, providing indirect support that corruption is less taxing on MNEs engaged in vertical FDI.

[11] The composites are the average (current) bilateral agglomeration-weighted market distance, the fraction of countries that share a common language and the fraction of countries that share a common border.

[12] GDP and GDP per capita levels are sourced from the World Bank WDI data base. The agglomeration-weighted distances are based on population shares of the biggest cities. See Head and Mayer (2002) for details.

Table 3: The investment decision: Logit regression results

SIZE	.774***	.657***	.776***	.773***	.660***
	(.004)	(.007)	(.004)	(.004)	(.007)
SKINT	.265***	.263***	.272***	.265***	.269***
	(.021)	(.022)	(.021)	(.021)	(.021)
TFP	.065***	.056***	.079***	.064***	.069***
	(.009)	(.009)	(.009)	(.009)	(.009)
GDP	.702***	.700***	.703***	.711***	.713***
	(.006)	(.006)	(.006)	(.005)	(.005)
GDPCAP	.065***	.087***	.064***		
	(.009)	(.009)	(.009)		
DIST	-.898***	-.882***	-.898***	-.891***	-.878***
	(.016)	(.016)	(.016)	(.016)	(.016)
CBOR	.249***	.178***	.248***	.265***	.196***
	(.029)	(.029)	(.029)	(.029)	(.029)
CREG	1.160***	1.171***	1.161***	1.169***	1.184***
	(.025)	(.025)	(.025)	(.025)	(.025)
CORR	-.610***	-4.500***	-.584***	-.745***	-4.633***
	(.049)	(.204)	(.049)	(.045)	(.205)
HTECH			-.102**		-.080*
			(.048)		(.047)
LINC				-1.472***	-1.267***
				(0.229)	(0.230)
CORR·SIZE		.282***			.281***
		(0.014)			(0.014)
CORR·HTECH			-.464***		-.506***
			(.111)		(0.110)
CORR·LINC				1.477***	1.066***
				(0.334)	(0.336)
Time effect	X	X	X	X	X
Mult. res.	X	X	X	X	X
Loglik.	-100,696	-100,505	-100,626	-100,635	-100,377
LR test	0.000	0.000	0.000	0.000	0.000
Nobs	1,115,531	1,115,531	1,115,531	1,115,531	1,115,531

Notes: Standard errors in parenthesis. $^{*}\, p < 0.10$, $^{**}\, p < 0.05$, $^{***}\, p < 0.01$.

We then turn to examine the enterprise's foreign market entry decision using an extended gravity model. The model is estimated using a mixed logit specification, which provides an allowing substitution structure suitable to examine the multi-dimensional market entry decisions of global profit-maximizing MNEs. In the extended gravity model, the probability that enterprise i enters market j in year t is:

$$Pr(Entry_{ijt} = 1|\eta_{ic_j}) = \Lambda(\alpha + \alpha_t + x'_{it}\beta + v'_{jt}\delta + w'_{it-1}\gamma + \eta_{ic_j}) \,, \tag{2}$$

where $Entry_{ijt}$ is a current market entry indicator capturing if the enterprise currently

enters the market, α is a constant, α_t is a time effect, x_{it} and v_{jt} are vectors of current enterprise and country characteristics (from equation 1) with fixed coefficients,[13] w_{it-1} is a vector of enterprise experience dummies with fixed coefficients and η_{ic_j} is a random effect capturing unobserved enterprise-specific variation common to all countries in cluster c to which country j belongs. Clusters are based on the same income group, regional and/or corrupt country category. η_{ic_j} is independently and normally distributed across enterprises and country clusters (with mean zero and variance σ_c^2). As η_{ic} is unknown, the conditional likelihood L_{ic} is evaluated over all possible η_{ic} values along its normal density function θ:

$$LogL = (IC)^{-1} \sum_{i=1} \sum_{c=1} Log \int_{\eta_{ic}} L_{ic}(\eta_{ic}) \theta(\eta_{ic}) d\eta_{ic} \ , \tag{3}$$

where L is the estimated (unconditional) likelihood and L_{ic} includes all countries in the cluster over all years.

The market entry decision may be stimulated by the agglomeration of other Swedish manufacturing MNEs in a location, which could give rise to positive external economies of production (Head et al., 1995) and/or signal that the market is suitable for investment (Barry et al., 2003). To control for this effect, we extend equation 2 adding an agglomeration variable measuring the number of Swedish manufacturing enterprises investing in the country the previous year.

In Table 4, we present the results of our mixed logit estimations. These results provide strong support of the extended gravity model showing that the enterprise's market entry decision depends on its foreign experiences, including of corrupt markets.[14] The gravity results (the estimated β vector) are largely consistent with previously reported results with the main difference that the GDP per capita level impacts the market entry decision negatively. To interpret this result, one needs to recall that Swedish manufacturing MNEs already had a strong market presence in richer, more developed, markets in the mid-1990s, and predominantly targeted other markets for the expansion of their production networks in the investigated time period. The extended gravity results (the estimated δ vector) support the view that market entry costs are reduced by experience of markets in the same income group, region and corrupt country category but indicate that another mechanism underlies the market entry decision for countries bordering prior investment markets. This mechanism could be the engagement in export-platform FDI to expand global sales. The impact of corrupt market experience is more important to explain market expansion than

[13] Multilateral resistance controls are inconsistent with the multidimensional market dimension of the extended gravity model.

[14] We have also included a common language experience dummy and the common language category into group clusters (based on official languages from CEPII) but omitted these results as the additions did not contribute to explain the market entry decision.

income group and regional experience, which indicates that learning to navigate corrupt business environments can provide an important competitive advantage.[15] Including the corrupt country category into group clusters does not alter the qualitative results.

The support of the extended gravity model is robust to the inclusion of the agglomeration variable, which confirms that our enterprise experience results do not capture the potential existence of an alternative learning channel via other enterprises' experience. The agglomeration of other Swedish manufacturing MNEs in a location stimulates market entry as expected. The addition of this variable alters the border result indicating that the attractiveness of Finnish and Norwegian markets is due to local agglomerations.

We continue to investigate how corruption and corrupt market experience effects are influenced by enterprise characteristics affecting the corruption impact on FDI.[16] This is done by use of interaction terms similar to those used for enterprise size and high-tech production in the gravity estimation. In Table 5, we present results of the base equation (2) and the extended equations.[17] The results (of non-interacted variables) are robust to these extensions. The deterrent effect of corruption is reduced for larger enterprises in line with the view that they are less susceptible to corruption pressure. Larger enterprises are also less stimulated by corruption experience, which could reflect their lower benefit of learning to navigate corrupt market environments. Interestingly, high-tech MNEs are less deterred by corruption in the extended gravity estimations where the market-entry decision is multidimensional and influenced by corruption experience. Combined with the result that high-tech enterprises are deterred by corruption experience and learn to avoid corrupt markets, this suggests that high-tech enterprises engage in FDI to protect their technology but that this strategy is undermined in markets with deficient intellectual property rights.

[15]To see this, note that the relative impact of any pair of experience measures is given by the ratio of their coefficient point estimates (that is unaffected by logit estimation scaling effects).

[16]Tracking low-income country investments to capture vertical FDI is complex in the extended gravity model as the characteristic is incorporated into the enterprise's income group experience.

[17]These results are based on enterprise-income-region-corruption group clusters. Using enterprise-income-region group clusters give similar results (see Table A4 in the appendix).

Table 4: The market entry decision: Mixed logit results

SIZE	.483***	.466***	.504***	.491***
	(.015)	(.015)	(.015)	(.015)
SKINT	.243***	.239***	.259***	.255***
	(.074)	(.074)	(.075)	(.075)
TFP	.128***	.128***	.134***	.134***
	(.030)	(.029)	(.030)	(.030)
GDP	.907***	.903***	.551***	.546***
	(.015)	(.015)	(.019)	(.018)
GDPCAP	-.175***	-.176***	-.075***	-.062**
	(.026)	(.026)	(.027)	(.027)
DIST	-.573***	-.586***	-.376***	-.384***
	(.024)	(.024)	(.027)	(.027)
CBOR	.229***	.251***	-.298***	-.289***
	(.072)	(.072)	(.074)	(.074)
CREG	2.270***	2.233***	1.603***	1.578***
	(0.72)	(.071)	(0.78)	(.077)
CORR	-1.341***	-1.348***	-.710***	-.679***
	(.138)	(.138)	(.146)	(.146)
INGEXP	.317***	.388***	.363***	.415***
	(.075)	(.072)	(.075)	(.073)
REGEXP	.563***	.668***	.538***	.632***
	(.056)	(.054)	(.056)	(.055)
BOREXP	-1.506***	-1.518***	-1.642***	-1.650***
	(.041)	(.041)	(.042)	(.042)
CORREXP	.798***	.895***	.857***	.974***
	(.061)	(.064)	(.062)	(.065)
AGGL			.019***	.019***
			(.001)	(.001)
RE incl. CORR		X		X
Time effect	X	X	X	X
Loglik.	-20,534	-20,645	-20,106	-20,199
VAR RE (σ^2)	2.276***	2.199***	2.382***	2.362***
Nobs	1,041,983	1,041,983	1,041,983	1,041,983
No. groups	61,879	92,886	61,879	92,886

Notes: Enterprise-income-region or enterprise-income-region-corruption specific random effects. Standard errors in parenthesis. *** $p < 0.01$.

Table 5: The market entry decision: Mixed logit results

SIZE	.466***	.421***	.465***	.421***
	(.015)	(.026)	(.015)	(.026)
SKINT	.239***	.241***	.235***	.238***
	(.074)	(.073)	(.075)	(.074)
TFP	.128***	.130***	.126***	.127***
	(.029)	(.029)	(.029)	(.029)
GDP	.903***	.902***	.903***	.902***
	(.015)	(.015)	(.015)	(.015)
GDPCAP	-.176***	-.176***	-.176***	-.176**
	(.026)	(.026)	(.026)	(.026)
DIST	-.586***	-.582***	-.585***	-.582***
	(.024)	(.024)	(.024)	(.024)
CBOR	.251***	.246***	.250***	.245***
	(.072)	(.072)	(.072)	(.072)
CREG	2.233***	2.225***	2.233***	2.225***
	(0.71)	(.071)	(0.71)	(.071)
CORR	-1.348***	-3.766***	-1.400***	-3.774***
	(.138)	(.787)	(.141)	(.786)
INGEXP	.388***	.405***	.385***	.401***
	(.072)	(.073)	(.072)	(.073)
REGEXP	.668***	.677***	.666***	.675***
	(.054)	(.054)	(.054)	(.054)
BOREXP	-1.518***	-1.523***	-1.517***	-1.523***
	(.041)	(.041)	(.041)	(.041)
CORREXP	.895***	2.581***	.936***	2.583***
	(.064)	(.417)	(.066)	(.416)
HTECH			-.092	-.082
			(.153)	(.153)
CORR·SIZE		.191***		.188***
		(.061)		(.061)
CORREXP·SIZE		-.130***		-.127***
		(.032)		(.032)
CORR·HTECH			.694*	.657*
			(.378)	(.380)
CORREXP·HTECH			-.517**	-.488**
			(.204)	(.205)
Time effect	X	X	X	X
Loglik.	-20,645	-20,636	-20,641	-20,633
VAR RE (σ^2)	2.199***	2.167***	2.201***	2.169***
Nobs	1,041,983	1,041,983	1,041,983	1,041,983
No. groups	92,886	92,886	92,886	92,886

Notes: Enterprise-income-region-corruption specific random effects. Standard errors in parenthesis. $^{***}\, p < 0.01,^{**}\, p < 0.05,^{*}\, p < 0.10$.

5 Conclusions

We examine the conjecture that enterprises from an uncorrupt home country that invest in a corrupt market can learn from this experience and reduce their entry costs to other corrupt markets. The empirical investigation is performed using an extended gravity model including income group, regional, border country and corrupt market experience, which is estimated using the mixed logit method consistent with the multidimensional market entry decision of global profit-maximizing MNEs. The results provide strong support of our conjecture showing that the effect of corrupt market experience dominates that of income group and regional experience. Corruption regularly deters market entry but this effect is reduced for enterprises with experience of corrupt market environments. High-tech enterprises behave differently, however, and learn to avoid corrupt markets.

We have no reason to believe that the findings, which are obtained using a data set on Swedish MNEs, would differ for enterprises originating in other uncorrupt countries. Corruption is regularly costly for these MNEs, which indicates that it is in their headquarters' interest to improve subsidiaries' ability to navigate corrupt market environments. Indeed, the learning effect of corruption can give the enterprise a competitive edge vis-à-vis international competitors. Importantly, we have controlled that this learning effect is internal to the MNE and not channelled via the agglomeration of other Swedish manufacturing MNEs.

It should be noted that despite using a corruption measure that tracks grand (high-level) corruption, we do not detect any systematic behavioral patterns indicating that Swedish MNEs' become corrupt in corrupt market environments. The deterrent effect of corruption suggests that these enterprises do not regularly make corrupt deals to benefit themselves at the cost of their competitors. Even if it could be argued that corruption has less of a deterring impact on larger MNEs because they are favored by corrupt deals, this is inconsistent with their lower benefit of corruption experience. If anything, enterprises that have previously made successful corrupt deals should be more prone to enter corrupt markets.

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A Appendix

Table A1: Corruption index means, 1997-2015

Finland	0.013	Malaysia	0.511	Guatemala	0.611
Denmark	0.055	Namibia	0.517	Bolivia	0.613
Sweden	0.082	Zambia	0.526	Latvia	0.616
Iceland	0.084	Morocco	0.527	Belarus	0.622
New Zealand	0.090	El Salvador	0.528	Yemen	0.623
Netherlands	0.103	Ecuador	0.530	Burk. Faso	0.630
Canada	0.116	Italy	0.534	Mali	0.631
Norway	0.128	Brazil	0.542	China	0.634
Luxembourg	0.136	Bulgaria	0.543	Jamaica	0.636
Germany	0.176	Romania	0.544	Egypt	0.640
Switzerland	0.180	Bahrain	0.549	Saudi Arabia	0.642
Australia	0.205	Oman	0.549	Bangladesh	0.643
Austria	0.211	Kuwait	0.551	Thailand	0.652
UK	0.239	Croatia	0.556	Angola	0.652
Singapore	0.282	Mongolia	0.557	Uganda	0.655
Cyprus	0.291	Peru	0.563	Honduras	0.663
USA	0.293	Guinea	0.565	Algeria	0.664
Portugal	0.298	Iran	0.567	Sierra Leone	0.666
Belgium	0.298	Senegal	0.569	Panama	0.667
France	0.321	Colombia	0.571	Pakistan	0.668
Hong Kong	0.323	Cuba	0.572	Ethiopia	0.670
Spain	0.325	Tanzania	0.572	Pap. N. Guin.	0.670
Chile	0.337	Turkey	0.573	Liberia	0.672
Japan	0.362	Dom. Rep.	0.573	Kenya	0.683
Hungary	0.383	Tunisia	0.576	Venezuela	0.685
Ireland	0.389	India	0.576	Russia	0.687
Malta	0.399	Syria	0.576	Ukraine	0.694
Madagascar	0.404	Congo	0.578	Togo	0.703
Israel	0.408	Mozambique	0.583	Moldova	0.708
Estonia	0.424	Cameroon	0.586	Azerbaijan	0.719
Costa Rica	0.446	Lithuania	0.588	Kazakhstan	0.720
South Korea	0.450	Argentina	0.588	Armenia	0.730
Slovenia	0.454	UAE	0.594	Lebanon	0.741
Greece	0.454	Vietnam	0.596	Paraguay	0.743
Poland	0.457	Libya	0.597	Nigeria	0.755
Botswana	0.459	Trin.&Tob.	0.597	Haiti	0.763
Uruguay	0.462	Philippines	0.598	Niger	0.769
Jordan	0.465	Ivory Coast	0.602	Gabon	0.771
South Africa	0.475	Suriname	0.603	Myanmar	0.774
Czech Rep.	0.475	Ghana	0.603	Zimbabwe	0.799
Nicaragua	0.485	Indonesia	0.605	Iraq	0.807
Taiwan	0.490	Qatar	0.606	Sudan	0.819
Slovakia	0.495	Malawi	0.608	Somalia	0.833
Sri Lanka	0.501	Mexico	0.611		

Table A2: Market experience correlation matrix

	Regional	Income group	Border country	Corrupt country
Regional	1			
Income group	0.177	1		
Border country	0.079	0.110	1	
Corrupt country	0.139	0.386	0.084	1

Table A3: Descriptive statistics

	Investment		Market entry	
	Mean	STD	Mean	STD
FDI	.035	.184		
Market entry			.004	.065
SIZE(logged)	12.1	1.77	12.1	1.75
SKINT	.121	.203	.122	.205
TFP(logged)	6.10	.700	6.11	.692
GDP(logged)	24.7	2.03	24.7	2.00
GDPCAP(logged)	8.45	1.62	8.44	1.61
DIST(logged)	8.38	.878	8.39	.866
CBOR	.015	.122	.013	.114
CREG	.059	.235	.056	.229
CORR	.546	.200	.554	.196
HTECH	.068	.251	.068	.253
LINC	.211	.408		
$z_1(DIST)$	8.97	.173		
$z_2(CBOR)$	.016	.012		
$z_3(CLAN)$	.148	.136		
INCGEXP			.103	.304
REGEXP			.081	.272
BOREXP			.702	.457
CORREXP			.247	.431
AGGL			14.0	26.4

Table A4: The market entry decision: Mixed logit results

SIZE	.483***	.435***	.483***	.436***
	(.015)	(.026)	(.015)	(.026)
SKINT	.243***	.246***	.239***	.243***
	(.074)	(.073)	(.075)	(.074)
TFP	.128***	.131***	.126***	.128***
	(.030)	(.030)	(.030)	(.030)
GDP	.907***	.906***	.907***	.906***
	(.015)	(.015)	(.015)	(.015)
GDPCAP	-.175***	-.172***	-.175***	-.172**
	(.026)	(.026)	(.026)	(.026)
DIST	-.573***	-.570***	-.573***	-.570***
	(.024)	(.024)	(.024)	(.024)
CBOR	.229***	.226***	.228***	.225***
	(.072)	(.072)	(.072)	(.072)
CREG	2.270***	2.262***	2.269***	2.262***
	(0.72)	(.072)	(0.72)	(.072)
CORR	-1.341***	-4.007***	-1.396***	-4.010***
	(.138)	(.784)	(.141)	(.784)
INGEXP	.317***	.334***	.314***	.330***
	(.075)	(.075)	(.075)	(.075)
REGEXP	.563***	.573***	.561***	.571***
	(.056)	(.056)	(.056)	(.056)
BOREXP	-1.506***	-1.512***	-1.505***	-1.512***
	(.041)	(.041)	(.041)	(.041)
CORREXP	.798***	2.763***	.837***	2.764***
	(.061)	(.395)	(.063)	(.394)
HTECH			-.111	-.100
			(.152)	(.152)
CORR·SIZE		.211***		.207***
		(.061)		(.061)
CORREXP·SIZE		-.149***		-.146***
		(.029)		(.029)
CORR·HTECH			.727*	681*
			(.374)	(.377)
CORREXP·HTECH			-.500**	-.464**
			(.199)	(.199)
Time effect	X	X	X	X
Loglik.	-20,534	-20,521	-20,531	-20,518
VAR RE (σ^2)	2.276***	2.253***	2.278***	2.255***
Nobs	1,041,983	1,041,983	1,041,983	1,041,983
No. groups	61,879	61,879	61,879	61,879

Notes: Enterprise-income-region specific random effects. Standard errors in parenthesis. $^{***}\, p < 0.01,^{**}\, p < 0.05,^{*}\, p < 0.10$.