

# **A Gravity Model of Foreign Direct Investment in the Hospitality Industry**

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## **Abstract**

This paper investigates the determinants of FDI activity in the hospitality industry using a gravity model. It draws on a new and unique database of 2,420 FDI projects carried out by 50 parent countries in 104 host countries from 2005 to 2011. Results show that the number of hotel FDI projects is significantly and positively related to the market size and the existence of a common language while increases in the level of business regulations, tax rates or minimum wages have the opposite effect. Geographical distance and socioeconomic factors are not relevant. Comparing the number of predicted FDI projects with those actually carried out, we find that the United Kingdom, India, and Mexico are particularly successful in attracting hotel FDI projects, whereas Russia, Germany, and the United States host much fewer.

**Keywords:** Foreign direct investment; hotel sector; international hotel chains; business regulations; factor costs; gravity model; count data model.

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## **1. Introduction**

The hotel industry is the most internationalised tourism industry, as is evidenced by its high FDI inflows and outflows and the dominance of international hotel chains (UNCTAD, 2007). According to the fDi Markets database, the largest investors include Accor, Marriott International, IHG, Starwood, Hilton, Dubai Holding, Rezidor Hotel Group, Carlson, and Shangri-La (see table 3 in the appendix). Traditionally, Europe has exhibited relatively strong FDI inflows in the hotel industry. In recent years, however, the attractiveness of EU countries as destinations for hotel-related FDI has decreased significantly. At the same time, international hotel chains are increasingly investing in China, UAE (United Arab Emirates), India, Russia and Mexico which are the top five up-and-coming emerging markets in terms of number of FDI projects in the accommodation industry between 2003 and 2011. Note that in this context, FDI is defined as the establishment of new foreign hotels or expansions of existing foreign investments in hotels; it does not include cross-border mergers or acquisitions.

The simultaneous occurrence of increases in FDI in emerging economies and decreases in FDI inflows to mature markets raises the question about the determinants of FDI inflows in the hotel industry. Given that FDI is an important factor in attracting foreign tourists to the destination country (Dwyer & Forsyth, 1994), it is important to investigate the main factors influencing the investment decision

The aim of this study is to provide new insights into the determinants of FDI flows in the hotel industry using a unique database. The empirical model is based on a FDI gravity model, which is estimated by panel count data estimators. The basic FDI gravity model is augmented by a large number of policy and non-policy factors (e.g. market size, distance, cultural factors, international tourist arrivals relative to population, corporate taxes and minimum

hourly wages and business regulation indicators), factor endowments (e.g. skills and broadband penetration), and other socioeconomic factors (land surface area, prevalence of HIV/AIDS, etc.).

Despite growing interest in the determinants of FDI activity in the hotel industry, few studies have investigated the country-specific location factors in play (see, for example, Dunning & Kundu, 1995; Johnson & Vanetti, 2005; Assaf, Josiassen & Agbola, 2015). There are two strands of the literature. One asks hotel managers/owners or hotel investors about their opinion on the main location factors (Dunning & Kundu, 1995; Johnson & Vanetti, 2005; Newell and Seabrook 2006), and the other investigates the importance of locational factors for hotel FDI using regression analysis (Assaf et al., 2015). Another strand of the literature on hotel location analysis has investigated the factors within regions or metropolitan areas and/or across regions (Yang, Luo, & Law, 2014).

Few large cross-country studies are available that use internationally comparable data on FDI in the hotel sector. Accordingly, Song et al. (2012) claim that there is a lack of comprehensive data and research in the area of foreign direct investment in the hospitality industry. An exception is the study by Assaf, Josiassen & Agbola (2015) who find that a host country's transport infrastructure, growth of local tourism industry, and size and growth of the host country all have a positive impact on international rooms per capita, whereas corruption and crime rate have negative effects. The data is based on 123 destinations for the period 2007 to 2011.

This study contributes to the literature in two ways: First we use a gravity model to investigate the determinants of FDI flows in the hospitality industry. The advantage of gravity models is that geographical distance and source country characteristics can be explicitly taken into account (Morley, Rosselló, & Santana-Gallego, 2014). Another

advantage of using source host country pairs is the much larger sample size. Second, we focus on new hotel construction and the expansion of existing hotels rather than mergers and acquisitions of existing hotels. This study goes beyond Assaf et al. (2015) by using a gravity approach to study the determinants of bilateral FDI flows in the hotel sector. The gravity model is useful in investigating bilateral FDI flows between countries.

The structure of this paper is as follows: Section 2 presents the theoretical background and section the empirical model. Summary statistics are presented in section 4, and section 5 offers a range of empirical results. Section 6 contains concluding remarks.

## **2. Theoretical background**

### **2.1. Entry modes into foreign markets**

In the hospitality business there are several modes of entry into international markets. The literature distinguishes between non-equity contractual modes (franchising, management contracts, licensing) and equity modes such as FDI (Altinay, 2005; Endo, 2006). FDI can take many forms including construction of new hotels, expansion of existing ones, mergers and acquisition (M&As) or joint ventures. In the hotel industry the major kind of foreign entry is non-equity participation – franchising, management contracts, and leasing, for example (Dunning & McQueen, 1982; Contractor & Kundu, 1998; Altinay, 2005; Endo, 2006; Quer, Claver & Andreu, 2007). Contractor and Kundu (1998) find that 66 percent of hotel chain expansions abroad take the route of franchising and management contracts. Many studies investigate the firm and country specific determinants of entry modes (e.g. Martorell, Mulet & Otero 2013). Typically, non-equity contractual ways of entry are commonly regarded as less risky modes of entry. Because of this franchising and management contracts are often the preferred way of entry in risky markets or countries (Chen & Dimou, 2005). Previous

literature shows that way of foreign market entry varies across host country characteristics. Dunning and McQueen (1981) find franchising to be more common in high-income countries. Contractor and Kundu (1998) show that non-equity modes such as franchising and management contracts are preferred in high-income countries, whereas equity investment is more common in developing countries. This stands in contrast to earlier studies where FDI is the normal entry model in developed countries, whereas management contracts are employed in developing countries (UNCTC, 1982).

In this study we focus specifically on FDI through construction of new and expansion of existing hotels. Thus, FDI through mergers and acquisitions is not considered. While cross-border M&As involve a transfer of ownership of equity with ambiguous effects on the local hotel sector, FDI in hotel construction or expansion generates new jobs. Wang and Wong (2009) show that the impact of cross-border mergers and acquisitions on growth of the host economy is not clear-cut.

## **2.2. Determinants of FDI in general**

The theoretical background of the empirical model is the ownership, location, and internalization (OLI) advantages framework developed by Dunning (1988). The OLI framework states that FDI activity can be explained by ownership, location, and internalization (OLI) advantages. Ownership advantages are those particular to the investing company. They may include superior productivity, size, innovation activities, firm specific human capital and past international experience. Location advantages consist of host country-specific factors such as market size and growth, factor costs, FDI regulation and other business regulation. Internalization advantages refer to the modes of internationalization they opt for and their possible effects, with FDI being only one possible alternative. This also explains the way in which entry into foreign markets can be achieved. Ownership and

internalization advantages provide a framework for analyzing outward FDI. Location advantage is about the locational choice of foreign investors and as such also frames the determinants of inward FDI when seen from the perspective of host countries. This study mainly focuses on country-specific location factors. According to UNCTAD's World Investment Prospect Survey (2009), among foreign investors in service industries – besides size and growth of the host market – presence of suppliers and business partners, access to international/regional markets, stable and business friendly environment are also important location factors. The World Bank (2010) especially points to inefficient administration and inadequate institutional settings as major deterrents for foreign capital inflows.

### **2.3. Determinants of hotel FDI**

Dunning applied his theory to the international lodging industry (Dunning & McQueen, 1981; Dunning & Kundu, 1995). Dunning and Kundu (1995) find that hotel FDI depends on a bundle of host-country location characteristics including market size, growth rate, tourism opportunities, availability of infrastructure, and political and economic stability. Using data on FDI flows in the hotel sector for 67 host countries, Kundu and Contractor (1999) find that market size – measured as GDP and tourism revenues – has the most influence on choice of location. Johnson and Vanetti (2005) suggest that home-country proximity, infrastructure and tourist attractions, market size and growth, government incentives to attract FDI, and a reputation as an attractive business destination are the main location factors for FDI in emerging markets (in this case, in Eastern Europe). Based on a survey of international hotel groups, UNCTAD (2007) has identified a number of host-country determinants of FDI in the hotel industry. According to the survey, the most important determinants are tourism demand from developed countries, market size, and economic growth, while FDI-related regulation, FDI incentives, and geographical and cultural proximity are rated as least important. Endo

(2006) suggests that the determinants of FDI in tourism are no different from those in other industries. These determinants include cultural, historical, and geographical distance; political and/or economic risks; level of economic development; socioeconomic environment; industry privatisation and regulation of FDI regimes; cost-based factors (taxation, labour costs); investment incentives; and availability and quality of hard and soft infrastructures (e.g. electricity and water supply, transport facilities).

Snyman and Saayman (2009), meanwhile, list 42 host-country characteristics that may affect FDI in the tourism industry. These include political stability, infrastructure (airports, roads), health and safety (crime, malaria, HIV/AIDS), cost factors and skills, and market size (international tourism demand, GDP). The same authors find that decisions of where to invest depend on the number of international tourists in the destination country. Other factors consist of tourism-specific assets and amenities (e.g. beaches, natural environment and cultural sites).

More recently, Assaf et al. (2015) consider a wide range of locational factors including business regulations, market size and growth characteristics and socioeconomic factors (crime rate and corruption). Internationalisation is measured as international hotel rooms per capita and international hotel rooms as a percentage of total supply based on the Smith Travel research database. The author distinguishes between seven locational factors: (i) quality of tourism and related infrastructure, (ii) opportunities for tourism, (iii) quality of human resources, (iv) restrictions and regulations, (v) political stability, (vi) price advantage and (vii) cultural and development proximity. This study is probably the most comprehensive and detailed analysis in this area using information on more than 20 locational factors and on more than 120 host countries for the period 2007 to 2011. Employing a random effects panel data model, the authors find that a host country's transport infrastructure, growth of local

tourism industry, and size and growth of the host country all have a positive impact on international rooms per capita, whereas corruption and crime rate have negative effects. Interestingly, corporate taxes do not play a role. Furthermore, Kristjánsdóttir (2016) investigates the determinants of FDI inflows in the hotel sector into the OECD countries with a special emphasize on Nordic countries. Boyen and Ogasavara (2013) investigate the internationalisation pattern for the host country Brazil.

Crime and HIV/AIDS can also have a negative effect on international investment in the tourism sector. For instance, a high prevalence of AIDS and/or crime makes a country less attractive to foreign visitors (Asiedu et al. 2011; Cossens & Gin, 1995).

Other studies use regional or time series data for a single destination country. Zhang et al. (2012) examine data on choice of hotel location in Chinese provinces and find that total inbound tourists, average inbound tourist spending, GDP per capita, and “mega-events” (the Olympic Games, for example) are significant factors. Using time-series data on Egypt, Steiner (2011) suggests that tourism FDI is more influenced by business regulations and host-market growth than by violent political unrest.

To summarize, the literature has identified a number of locational factors for FDI in the hotel industry. However, none of the studies have used bilateral FDI flow data to investigate the determinants of FDI flows in the hotel sector.

### **3. Empirical model**

The origins of our empirical model – the FDI gravity model (Zwinkels & Beugelsdijk, 2010; Fratianni, Marchionne, & Oh, 2011; Morley, Rosselló & Santana-Gallego, 2014) – lie in the physical theory of gravity. Newton’s law of universal gravitation states that the gravitational attraction between two objects is proportional to the product of their masses and inversely



proportional to the square of the distance between them. In the present context, this translates into the expectation that larger economies (measured as GDP for instance) should be home to greater FDI activity, while greater geographical distance should be associated with less FDI activity. The related literature finds that traditional gravity factors are among the most robust determinants of FDI flows and stocks in general (Blonigen & Piger, 2011). Specifically, FDI activity decreases with geographical distance between host and source country, and increases with host and source country GDP. However, advances in ICT can moderate the role of geographical distance (Tang & Trevino, 2010). Ghemawat (2001) meanwhile suggests that distance exists not only in geographical, but also in administrative, cultural, and economic dimensions. In particular, cultural proximity leads to lower communication and transaction costs of doing business thereby increasing FDI flows. Ivanov and Ivanov (2015) suggest that cultural proximity between a hotel chain's home country and the host country is an important factor for the choice of destination market. For instance Spanish hotel chains are particularly active in Latin America. Likewise, international hotel chains from Hong Kong and Singapore have a large number of FDI projects in China (see Figure 4 in the appendix).

Besides gravity-related factors, the GDP per capita of host and source countries is also considered a determinant of FDI activity. FDI activity is expected to increase with both variables, reflecting the fact that FDI in the hotel industry mainly occurs between countries with a similar level of wealth and factor endowment (UNCTAD, 2007; Dunning & McQueen, 1982).

Low labour costs and corporate taxes in the host country have traditionally been a key factor in hotel groups' cross-border investments. Previous empirical studies widely agree that FDI flows are highly sensitive to changes in corporate tax rates of the host and also the parent country and ultimately matters for the location choice of multinational firms (Feld &

Heckemeyer, 2011). In general, higher parent country tax rates lead to higher FDI outflows, whereas a higher host country tax rate leads to lower FDI inflows. Labour cost differentials between the parent and host country also play an important role for FDI, particularly for cost-saving vertical FDI.

FDI barriers are likely to discourage inward FDI since they lead to higher investment costs. Restrictions to international investment inflows have many dimensions such as legal, legislative and regulatory frameworks, foreign ownership restrictions, and bureaucracy. Similarly, product-market regulations in the host country lead to additional businesses costs and create barriers to FDI entry. For the OECD countries, Nicoletti et al. (2003) find that both FDI restrictions and product market regulations are significantly negatively related to FDI activity.

Since the costs of setting up a completely new business often exceed the costs of acquiring an existing company, new cross border investments may be more sensitive to cost-saving motivations than cross-border M&As (Hennart & Park, 1993). Besides cost based factors, FDI barriers in the host country are likely to discourage inward FDI because they lead to higher investment costs. FDI restrictions have many dimensions such as legal, legislative, and regulatory frameworks; strength of investor protection; foreign ownership restrictions; and bureaucracy (Kalinova, Palerm & Thomsen, 2010). Azémar and Desbordes (2010) suggest that product market regulations in the host country may also lead to additional costs for businesses and barriers to FDI entry. Another potential FDI determinant involves protection of property rights. Lee and Mansfield (1996) find that weak intellectual property protection in a given target country has a negative impact on FDI flows from the United States to that country. Likewise, Globerman and Shapiro (2003) find that countries with more transparent

legal systems and better protection of property rights tend to attract more FDI from multinational US firms.

The dependent variable is the number of FDI projects in construction of new hotels or expansion of existing ones. Other studies have used the share of foreign hotels to total hotels as the measure of degree of internationalisation (Brida et al., 2015). Assaf et al. (2015) employ the number of international hotel rooms per capita of host country. Our measure is a flow measure rather than a stock measure. The empirical specification of the FDI gravity equation takes into consideration a wide range of potentially relevant host-country determinants of FDI. As outlined above, these variables include market size, GDP per capita, business regulation, cost-based factors (such as labour costs and corporate taxes), and FDI restrictions. The FDI gravity equation with fixed effects is specified as follows:

$$E[FDI_{ijt} | \mathbf{X}_{ijt}] = \exp(\delta_{ij} + \mathbf{X}_{ijt} \cdot \beta + \varepsilon_{ijt})_t,$$

where  $\beta$  represents the parameters and  $\mathbf{X}_{ijt}$  contains the vector of independent variables:

$$X_{ijt} = \left( \ln GDPHOME_{it-1}, \ln GDPHOST_{jt-1}, \ln DIST_{ij}, \ln GDPCAPHOME_{it-1}, \ln GDPCAPHOST_{jt-1}, \mathbf{Z}_{1jt-1}, \mathbf{Z}_{2ij}, \lambda_t, \alpha_{ij} \right)$$

Here,  $i$  is the home country,  $j$  is the host country,  $t$  refers to the year, and  $\ln$  is the natural logarithm. The fixed parent host country effects are denoted by  $\alpha_{ij}$  and  $\lambda_t$  are the time dummy variables. The variables are defined as follows:

$FDI_{ijt}$  is the number of bilateral FDI projects in the hotel sector;

$GDPHOME_{it-1}$  and  $GDPHOST_{jt-1}$  represent home- and host-country GDP in constant USD;

$DIST_{ij}$  is the geographical distance between the capital cities of the investing and host countries;

$GDPCAPHOME_{it-1}$  and  $GDPCAPHOST_{jt-1}$  represent home- and host-country GDP per capita in constant USD;

$Z_{1jt-1}$  represents a set of time-varying variables for the respective host countries, including:

- Statutory tax rates (alternatively, the total tax rate on businesses as a percentage of profits)
- Minimum hourly wages
- Business regulation indicators such as time and cost to import, time and cost to start a business as a percentage of income per capita, and time and cost to enforce contracts in percent of the claim (“The cost in court fees and attorney fees, where the use of attorneys is mandatory or common, expressed as a percentage of the debt value”) (World Bank Doing a Business Report).
- FDI regulatory restrictiveness index
- Strength of legal rights index and strength of investor protection index
- Fixed broadband internet subscribers per population
- Other safety-, risk-, and health-related factors (life expectancy, AIDS/HIV prevalence, etc.).

$Z_{2ij}$  represents the time-invariant control variables:

- Contiguity
- Sharing a common language
- Sharing a historical colonial link.

The dependent variable – the number of FDI projects in the hotel industry – is a count variable. The distribution of the number of FDI projects is strongly skewed to the right, with an accumulation of observations at zero but very few observations with a high number of

hotel FDI projects (see Figure 5 in the Appendix).. Therefore there is a significant degree of overdispersion (i.e. the variance considerably exceeds the mean). The most common estimators used for count variables are the Poisson regression and negative binomial models, the latter being an extension of the former (Cameron & Trivedi, 1998). The negative binomial model is commonly suggested as the preferred estimator because it is less restrictive than the Poisson model. This holds particularly true when the data exhibits a high degree of zero values. In our case, more than 95 per cent of the observations are at zero or 80 percent when cumulated over time (see figure 5 in appendix). We use the conditional fixed-effects negative binomial estimator for panel data, which is used in most of the patent literature on over dispersed count data (Hausman, Hall & Griliches, 1984). Note that this estimator makes it possible to include time-invariant variables such as distance and sharing a common language. Allison and Waterman (2002) show, however, that the fixed-effects negative binomial estimator is not a true fixed-effects estimator because it does not necessarily control for all unit-specific effects (unlike the standard linear fixed-effects model). Alternatively, the Poisson pseudo-maximum-likelihood (PPML) estimator is often suggested for count data. However, the estimator is not feasible and often fails to converge when a large number of dummy variables (fixed effects) are included.

#### **4. Dataset and descriptive statistics**

The investment data is derived from the fDi Markets database, which contains a register of cross-border investment projects from around the world from 2003 onwards. In particular, the fDi Markets database defines FDI activity as the establishment of a new foreign enterprise or the expansion of an existing foreign investment. In case of hotels, FDI projects include new hotel development and expansion of existing hotels by an international investor. Cross-border

mergers and acquisitions are not covered. The FDI project information is derived from media sources and can be interpreted as investment commitments or investment plans. The database contains information on the types of FDI projects, categorised by function, cluster, parent company name and national origin, destination country, number of jobs generated, and amount of capital flow. Since the amounts of FDI flows and the corresponding number of jobs they generate are based on crude estimates, we use the number of FDI projects as our dependent variable. The fDi Markets database is used by UNCTAD in its World Investment Report and also widely used in the international business literature (Hahn, Bunyaratavej & Doh, 2011; Di Minin & Zhang, 2010) and in economic geography (Burger, van der Knaap & Wall, 2013).

Data on distance, neighbouring countries, sharing the same language and having a (former) colonial link are drawn from Mayer and Zignago (2006). Distance is measured in kilometers between the principal cities of countries weighted by population size, which thus takes into account the uneven spread of population across a country.

The remaining variables are drawn from various sources. Data for corporate taxes are provided by the European Commission in its series “Taxation trends” and by KPMG. Minimum wage is drawn from the ILO Global Wage Database and national sources. GDP and GDP per capita are drawn from World Bank development indicators. Business regulation indicators are drawn from the World Bank Doing a Business Database.

In our analysis, we include data on 2,417 FDI projects in the hotel industry. Following aggregation across source-destination pairs, we end up with bilateral FDI data for 104 host countries and 50 parent countries. The time span of the empirical analysis is dictated by the availability of data. Financial times start to collect FDI data from 2003 onwards. Therefore data refers to the period 2003 to 2011 for the descriptive statistics and 2005 to 2011 for the

regression model. Figures 1 to 4 in the appendix document the patterns of international investment in the hospitality industry across host and home countries. Figure 1 shows the number of foreign direct investment projects in the accommodation industry by country for the top 20 destination countries based on the aforementioned 2,147 projects. China, the United Kingdom, the United Arab Emirates, India, and Russia are the top five locations for international investment in the hospitality industry, accounting for almost one-third of investment projects worldwide and China alone accounts for 225 hotel FDI projects during the period 2003 to 2011. However, this is still small when compared to the total number of hotels built in China (Gu, Ryan & Yu, 2012).

It is interesting to note that emerging countries receive a large portion of international investment in the hotel industry. For the 1990s, UNCTAD (2007) suggests that FDI in accommodation was concentrated in developed countries. Turning to the source countries, data reveals that the United States is the largest investor, with about 25 per cent of all FDI projects in the hotel industry (figure 2 in the appendix). After the US, France, Spain, the UK and the United Arab Emirates are important hotel investors. China is not included in the Top 20 list of foreign investors in the hotel industry. However, overseas investment activity of Chinese investors is expected to increase in the next years. When looking at source and home country pairs, results show that US investment in the Chinese hotel sector is the most frequent case with about 85 hotel FDI projects for the period 2003 to 2011, followed by the United Arab Emirates investment in the United Kingdom with 84 projects, US investment in India with 49 projects and Hong Kong investment in China with 43 projects (figure 3 in the appendix). At the city level, Dubai receives the largest number of FDI projects in the hotel industry, followed by Shanghai, London, Beijing, Berlin, Hong Kong, and Singapore (figure 3 in the appendix).

Table 3 in the appendix lists the hotel groups with the largest number of FDI projects. Of the top 20 investing hotel chains, 16 are located in Western high-income countries. Exceptions include Dubai Holding, Rotana Hotels (both the United Arab Emirates), Shangri-La (Hong Kong) and Banyan Tree (Singapore). Table 4 in the appendix provides descriptive statistics for the explanatory variables. Finally, Figure 5 shows the distribution of FDI projects across source home country pairs.

## **5. Empirical results**

Table 1 shows the results of the fixed-effects negative binomial estimator, where the fixed effects are source-host country pairs.<sup>1</sup> The results are based on between 2,500 and 4,000 observations for around 520 such pairs for the period 2005 to 2011. The table also includes the marginal effects. Four specifications are provided: (i) includes host and source country GDP per capita, along with gravity factors, total tax rate, and the cost of enforcing contracts as an indicator of business regulation; (ii) excludes GDP per capita; (iii) includes minimum hourly wages; and (iv) uses the time required to enforce contracts as an alternative indicator of business regulation. The latter one is the main specification because it is based on the largest number of observations.

A number of host-country factors are excluded from the final specification because they are not significant at conventional levels (see table 4 in the appendix). In particular, AIDS/HIV prevalence, life expectancy, corporate taxes, and strength of legal rights in obtaining credit are each not significantly different from zero.

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<sup>1</sup> We use the `xtnbreg` command in STATA with the `fe` option to fit our data to the conditional fixed-effects negative binomial model.



The results show that a common language, business regulation (measured either as the time required to start a business or the cost of enforcing contracts), hourly wage costs (measured as the minimum wage) and the total tax rate play a significant role in determining the number of cross-border investment projects in the hospitality industry.

Minimum hourly wages in the host country also have a considerable impact. This is not surprising since hotels employ a larger number of low and medium skilled workers. Surprisingly, the corporate tax rate in the host country does not have an impact and is therefore not included in the final specification. This stands in contrast to the literature (see the recent meta-analysis by Feld & Heckemeyer, 2011). When taxes are measured as total taxes (relative to profits) there is a significant and negative impact. Note that total taxes include labour taxes which are particularly relevant for investors in labour intensive industries such as the hotel sector. This is the first main result that cost based considerations such as wages and taxes are important for FDI activity in the hotel sector. An increase in the minimum hourly wage by 10 per cent, meanwhile, will reduce the expected number of FDI projects by 1.3. Finally, a rise in tax rates by one percentage point will lead to a decline of the number of FDI projects by 1.8 percentage points.

Another key finding, meanwhile, is the significance of business regulation indicators: The time associated with enforcing contracts and their costs have a strong influence on FDI inflows into the hospitality industry. The more time needed to enforce a contract in a given host country, the lower the level of FDI activity in that country's hospitality industry. Note that the time and cost of enforcing contracts differ widely across countries, ranging from very low levels in Anglo-American, Scandinavian, and Asian countries (Hong Kong and Singapore) to relatively high levels in some South American and African countries. The cost of enforcing contracts includes court fees and attorney fees expressed as a percentage of debt

value. The marginal effects show that a 10-percentage-point increase in the cost of enforcing contracts will lead to three fewer FDI projects. Assaf et al. (2015) find that business regulations measured as the cost and time to start a business are not significantly related to international hotel rooms per capita. A possible explanation for such different findings is that in this study we look at FDI in new hotel constructions rather than the stock of international hotel rooms.

While business regulation, the total tax rate, and minimum wage are all significantly different from zero, it is difficult to compare their marginal effects directly because the variables are scaled differently (logs or shares). To get a better sense of the magnitudes at hand, we also calculate the marginal effects of a one-standard-deviation increase in independent variables. Unreported results show that business regulations have the greatest impact, followed by total tax rate.

Looking at the gravity factors, we find that host country GDP exhibits the expected positive sign (based on specifications [iii] and [iv] with a larger amount of observations). This indicates that market seeking considerations are relevant for hotel FDI. However, the magnitude of the market size is rather small, as indicated by the marginal effect. The coefficient of the logarithm of source-country GDP is also positive and significant. This indicates that the source country's involvement in hotel FDI projects in one of the 104 destination countries is increase with the size of source country. In contrast, the coefficient of the log GDP per capita of host and home countries is not significantly different from zero at conventional levels. This means that FDI activity in the hospitality industry is not concentrated in richer countries. The coefficient of geographical distance is not significantly different from zero implying that this does not affect hotel FDI projects. While bilateral investments are higher when two countries share the same language, related cultural factors

such as sharing a border or having a historical colonial link do not have an impact (results are available upon request).

Furthermore, the time dummies are significant for the years 2008 and 2011. The number of FDI projects in the accommodation industry peaked in 2008 at a level between 40 and 50 per cent higher than the reference year (2005). In 2011, however, the number of hospitality-related FDI projects declined significantly, turning out to be 15 to 20 per cent lower than the reference year.

*Table 1: Fixed-effects negative binomial regression model of the determinants of the FDI projects in the hotel sector*

	(i)				(ii)			
	coeff.	z	m.e.	z	coeff.	z	m.e.	z
ln geographical distance	-0.08	-0.46	-0.07	-0.47	-0.04	-0.27	-0.04	-0.28
common language	0.97 **	2.27	1.18	1.55	1.01 **	2.42	1.30	1.64
host ln GDP (const. 2000 US\$)	0.15	1.32	0.14	1.42	0.17	1.61	0.16 *	1.74
source ln GDP (co. 2000 US\$)	0.32 ***	2.63	0.30 **	2.39	0.33 ***	2.76	0.32 **	2.51
host ln GDP per cap. (const. int. US\$)	-0.08	-0.37	-0.07	-0.38				
source ln GDP per cap. (const int. US\$)	0.39	1.00	0.36	0.99				
host cost of enforcing contracts in % of the claim	-3.24 **	-2.17	-2.97 **	-1.96	-2.97 **	-2.08	-2.84 *	-1.87
host taxes in % of profits	-1.97 **	-2.17	-1.80 **	-2.00	-1.88 **	-2.37	-1.80 **	-2.07
year dummy 2008 (ref 2007)	0.49 ***	5.08	0.52 ***	3.18	0.50 ***	5.16	0.56 ***	3.24
year dummy 2009	0.07	0.63	0.06	0.61	0.07	0.63	0.06	0.61
year dummy 2010	-0.10	-0.93	-0.09	-0.95	-0.12	-1.06	-0.11	-1.08
year dummy 2011	-0.59 ***	-4.62	-0.46 ***	-3.86	-0.60 ***	-4.79	-0.49 ***	-3.96
constant	-14.03 ***	-2.91			-11.69 ***	-3.05		
# of observations	2547				2552			
# of parent-host country groups	515				516			
Log likelihood	-1320				-1324			
	(iii)				(iv)			
	coeff	z	m e.	z	coeff	z	m e.	z
ln geographical distance	-0.28 **	-2.16	-0.14 **	-2.21	-0.05	-0.41	-0.03	-0.41
common language	0.69 ***	2.62	0.42 **	2.10	0.48 *	1.85	0.36	1.59
host ln GDP (const. 2000 US\$)	0.22 ***	3.22	0.11 ***	3.41	0.16 ***	2.63	0.11 ***	2.79
source ln host GDP (const. 2000 US\$)	0.31 ***	3.94	0.15 ***	4.01	0.24 ***	3.10	0.16 ***	3.11
host cost of enforcing contracts in %	-3.98 ***	-3.39	-1.95 ***	-3.18				
host ln time of enforcement of contracts					-0.50 **	-2.08	-0.33 *	-1.95
hourly minimum wages	-0.26 **	-2.32	-0.13 **	-2.33				
year dummy 2006 (ref 2005)	0.00	-0.02	0.00	-0.02	0.02	0.20	0.02	0.20
year dummy 2007	0.19	1.57	0.10	1.44	0.19 *	1.66	0.13	1.52
year dummy 2008	0.66 ***	5.92	0.42 ***	3.88	0.66 ***	6.20	0.56 ***	4.08
year dummy 2009	0.25 ***	2.07	0.13 *	1.82	0.24 **	2.16	0.18 *	1.91
year dummy 2010	0.03	0.23	0.01	0.22	0.08	0.68	0.05	0.66
year dummy 2011	-0.34 **	-2.47	-0.15 ***	-2.67	-0.37 ***	-2.84	-0.21 ***	-3.05
constant	-11.75 ***	-4.68			-7.65 ***	-2.87		
# of observations	3736				4218			
# of parent-host country groups	547				617			
Log likelihood	-1835				-2097			

Notes: \*\*\*, \*\* and \* denote significance at the 1, 5 and 10 per cent significance levels. The underlying dependent variable is the number of FDI projects in accommodation units from parent  $i$  to host country  $j$  in the hospitality industry for the period 2005 to 2011. For the calculations of the marginal effects fixed effects are set to zero.

The estimates can be used to compare the potential and actual numbers of FDI projects in the hotel industry. This potential or predicted number can be interpreted as the number of FDI projects the country would reach given the model estimates and the characteristics (size, factor costs and business regulations etc.). If the number of predicted hotel FDI projects is substantially higher than the actual ones, this may indicate that there is scope for more FDI, but if the model predicts less hotel FDI projects than observed, this can be interpreted that multinational hotel chains have over-invested in the destination.

*Table 2: Comparison of predicted and actual hotel FDI projects, 2005-2011*

	predicted	actual		predicted	actual		predicted	actual
CHN	223	161	AUS	28	9	URY	8	2
RUS	163	86	SAU	25	34	LUX	7	2
DEU	150	60	NGA	24	7	PAN	6	15
USA	128	45	JPN	24	7	MDA	5	1
GBR	116	184	CRI	22	11	LCA	5	2
MAR	74	49	CZE	21	17	DNK	5	3
FRA	73	28	PAK	21	5	AZE	5	2
IND	71	102	GRC	20	10	LTU	5	4
BEL	63	7	NLD	19	8	CHL	5	2
CHE	51	15	UKR	17	24	WSM	4	1
ESP	51	38	SYR	15	11	ATG	4	1
HUN	50	26	SVK	14	5	MKD	4	3
THA	49	29	GEO	13	7	SEN	4	4
POL	49	21	LBN	13	12	LAO	4	2
VNM	47	42	JOR	12	13	TJK	3	1
HRV	47	15	LKA	12	6	HND	3	2
ITA	47	36	LVA	12	12	SVN	3	1
CAN	45	21	KOR	11	2	AGO	3	3
BRA	44	18	KAZ	11	4	ARM	3	1
PHL	40	7	NZL	11	4	ZMB	3	2
NOR	39	9	EST	11	6	SDN	3	1
MEX	39	60	DOM	11	13	BHS	2	2
OMN	39	27	COL	10	12	ALB	2	2
HKG	37	10	BLR	10	4	VEN	2	1
ROM	35	20	ARG	10	6	BIH	2	1
TUR	34	32	IRQ	10	3	MLI	2	1
TUN	34	12	SWE	9	5	TCD	1	1
DZA	33	11	QAT	9	12	MRT	1	1
IRL	32	27	MUS	9	2	PRY	1	1
TZA	31	5	BHR	9	6	CYP	1	1
PRT	30	18	GTM	9	2	UGA	1	2
MYS	30	14	ISR	9	1	MNG	1	1
BGR	30	30	PER	9	8	IDN	0	12
ZAF	29	14	NIC	8	2	KHM	0	1
KWT	28	7	KEN	8	2	MOZ	0	2

Notes: The predicted number of FDI projects in the hotel industry is based on the fixed effects negative binomial estimates of specification.

The number of hotel FDI projects in India, Mexico and South Africa is considerably higher than predicted by the gravity model. Conversely, the number of projects in some highly developed countries is much lower than predicted by the count data model. In particular, Russia and Germany hosted much fewer than expected by the model. Among developing countries, Thailand, the Philippines and Brazil received a much lower inflow of hotels indicating significant FDI potential for these investments. Interestingly, we find that the United Kingdom received a larger number of FDI projects than predicted by the model. This may be related to the effect of the 2012 Olympics which resulted in the building of several new hotels.

The significance of mega events for hotel FDI is consistent with a previous study on China. Accordingly, hotel managers confirm the positive influence of the Olympic Games in Beijing and the 2010 World Expo in Shanghai (Guillet, Zhang & Gao, 2011).

Several robustness checks have been conducted. Since the mode of entry differs between developed and developing countries, we provide separate estimation results for the sample of OECD host countries and OECD parent countries. Results show that business regulations remain highly significant (see table 5 lower panel in the appendix). However, the remaining factors are no longer significant. This is not surprising since the cross-country variation in factor costs is quite low in high developed countries. This also indicates that a large number of destination countries is needed to obtain reliable estimates of the host country determinants of hotel FDI.

## **6. Conclusions and implications**

In this paper we investigate the determinants of FDI activity in the hospitality industry using a new and unique database of 2,420 hotel FDI projects around the world. The empirical

model is based on the FDI gravity model and estimated by the fixed-effects negative binomial regression model. The results show that bilateral FDI activity in the accommodation industry is significantly and positively related to the size of the host and source countries, and also significantly higher between countries that share a common language. A key finding of the study is that business regulations and the total tax to profits ratio have a strong negative impact on bilateral FDI activity in the hotel industry. Furthermore, hourly wages play a significant role in influencing international investment projects in new hotels. The geographical distance between host and parent countries, however, does not affect FDI activity in the hotel sector. Other factors such as international tourism revenue (relative to GDP) and socioeconomic factors such as life expectancy are also not relevant for hotel FDI. Overall, the results on the hospitality industry do not differ much from those obtained for total FDI flows. However, a new empirical finding is that geographical distance is not important for hospitality industry unlike total FDI flows.

An interesting finding is that the United Kingdom, India and Mexico are particularly successful in attracting hotel FDI in the period 2005 to 2011 given their market size, taxes, wages and degree of business regulations. In contrast, there is still potential for new hotel FDI projects in China and Russia.

The results of this study have important implications for tourism policy makers. Given that the degree of business regulation and total tax rates play a significant role in attracting FDI in the accommodation industry, reducing the regulatory burden on new businesses and avoiding tax increases should be a key goal. This holds particularly true for some African and South American countries that are characterised by a high degree of business regulations and tax rates.

This paper is subject to several limitations. First, it focuses solely on equity investment, while the major way of entry is non-equity participation i.e. franchising and management contracts. Given that equity participation is the predominant entry mode in developed countries, the true level of activity of international hotel chains in developing and emerging countries is underestimated. Second, FDI projects are defined as new investments and expansions of existing ones, which does not include cross-border mergers and acquisitions.

With regard to possible future work, it is possible to estimate location choice models at the firm level. In particular, logit or nested logit models of hotel location choices can be used. In doing so it is possible to account for characteristics of the multinational hotel chains. For instance, Brida et al. (2015) shows that size and past internationalisation experience are the main drivers for the degree of internationalisation for Spanish hotel chains. However, this would require additional data on parent companies (read: hotel chains) such as size, age, and previous performance. In principle, fDi Markets data can be matched with commercial databases such as Orbis. Another research avenue to investigate is the impact of the presence of multinational hotel chains on performance of domestic hotels (Mao & Yang, 2016).

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## Appendix

The set of host countries includes: AGO, ALB, ARG, ARM, ATG, AUS, AUT, AZE, BEL, BGR, BIH, BLR, BRA, CAN, CHE, CHL, CHN, COL, CPV, CRI, CZE, DEU, DNK, DOM, DZA, EGY, ESP, EST, FIN, FJI, FRA, GBR, GEO, GRC, GTM, HKG, HND, HRV, HUN, IDN, IND, IRL, IRQ, ISR, ITA, JOR, JPN, KAZ, KEN, KHM, KOR, KWT, LAO, LBN, LKA, LTU, LVA, MAR, MDA, MDV, MEX, MKD, MLI, MOZ, MUS, MYS, NGA, NIC, NLD, NOR, NZL, OMN, PAK, PAN, PER, PHL, POL, PRT, ROM, RUS, RWA, SAU, SDN, SEN, SGP, SVK, SVN, SWE, SYC, SYR, THA, TUN, TUR, TZA, UGA, UKR, URY, USA, VEN, VNM, WSM, YEM, ZAF and ZMB.

The set of parent countries includes: ARE, AUS, AUT, BEL, BRA, CAN, CHE, CHN, COL, CZE, DEU, EGY, ESP, EST, FIN, FRA, GBR, GRC, HKG, HUN, IDN, IND, IRL, ISR, ITA, JOR, JPN, KOR, KWT, LTU, LUX, MEX, MLT, MYS, NLD, NOR, NZL, PRT, QAT, RUS, SAU, SGP, SWE, THA, TUR, UKR, USA, VEN, VNM and ZAF.

*Table 3: Number of FDI projects in the hospitality industry by parent company 2003-2011 (Top 20 hotel chains)*

Hotel chain	source country	# of FDI projects	Hotel chain	source country	# of FDI projects
Accor	FRA	217	Four Seasons Hotels & Resorts	CAN	38
Marriott International	USA	133	Hyatt International	USA	35
InterContinental Hotels Group (IHG)	USA	130	Melia Hotels International	ESP	32
Starwood Hotels & Resorts	USA	123	Fairmont Raffles Hotels International	CAN	31
Hilton Hotels (Hilton Worldwide)	USA	105	Grupo Iberostar	ESP	31
Dubai Holding	ARE	99	Hotusa	ESP	28
Rezidor Hotel Group	BEL	99	Banyan Tree	SGP	25
Carlson Companies	USA	88	Kempinski Hotels & Resorts	CHR	24
Shangri-La Hotels and Resorts	HKG	47	Movenpick Group (Moevenpick)	CHR	23
NH Hotels (NH Hoteles)	ESP	45	Rotana Hotels	ARE	22

Source: FDImarkets data.

*Table 4: Descriptive statistics (2005-2011)*

	mean	st. Dev	min	max
geographical distance in kilometres	5083	4141	60	19264
common language (percentage)	0.23			
host GDP (const 2000 US\$)	610000	1620000	314	11700000
GDP per capita in international \$	18465	15256	670	77987
international tourism receipts % GDP	5.4	9.8	0.1	94.8
ratio of international arrivals to population in %	0.8	2.4	0.1	17.3
fixed broadband Internet subscribers per 100 people	10.2	10.4	0.0	40.0
life expectancy in years	73.7	6.8	44.4	85.2
hourly minimum wages in US-\$	3.1	4.0	0.0	19.0
corporate tax rate in %	24.4	9.5	0.0	55.0
prevalence of HIV % of population 15-49	0.8	2.4	0.1	17.3
time of enforcement of contracts in days	555.3	263.6	120.0	1459.0
cost of enforcing contracts in %	25.7	17.7	8.8	142.5
time to register property in days	56.7	83.5	1.0	956.0
getting credit strength of legal rights index (0-10)	5.8	2.5	0.0	10.0
time to import in days	20.3	14.0	4.0	102.0
costs of importing in \$	1151.5	609.7	317.0	6345.0
time to start a business in days	28.2	25.4	1.0	153.0
costs of starting a business in % of income	21.3	46.1	0.0	910.0

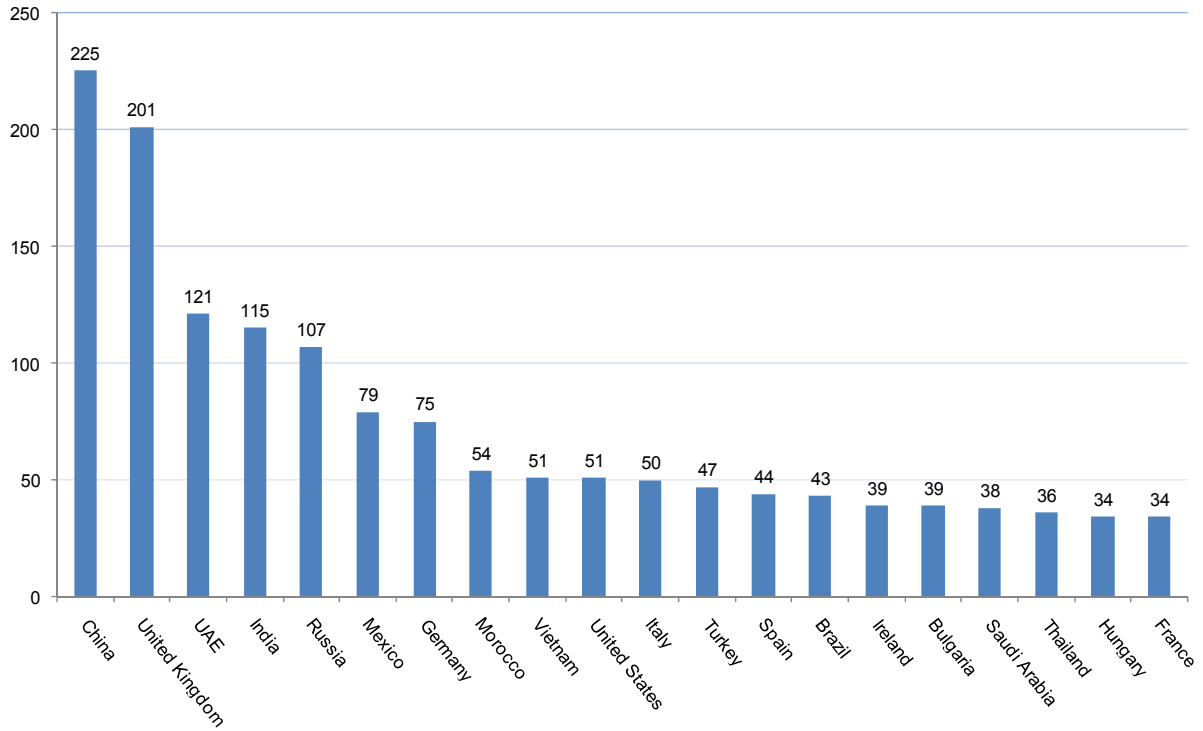
Source: World Bank development indicators, World Bank Doing Business indicators, Mayer and Zignago (2006), ILO, KPMG.

Table 5: Fixed-effects negative binomial regression model of the determinants of the FDI projects in the hotel sector

		total sample							# of	# of
		comm	ln host	ln source	enforcing	International tourism	constant	obs	groups	
(i)	coeff.	ln dist. language	GDP	GDP	contracts	receipts % GDP	-8.89	4055	604	
	z	-0.10	0.65	0.11	0.26	-3.67	-0.25			
		-0.83	2.51	1.63	3.37	-3.44	-1.47			
(ii)	coeff.	ln dist. language	GDP	GDP	contracts	broadband per	constant	4146	612	
	z	0.12	0.50	0.14	0.24	-4.03	-5.45			
		0.80	1.92	2.19	3.06	-3.63	-0.84			
(iii)	coeff.	ln dist. language	GDP	GDP	contracts	corporate taxes	constant	3887	586	
	z	-0.03	0.55	0.17	0.23	-3.44	-0.89			
		-0.22	2.02	2.31	2.95	-3.23	-0.89			
(iv)	coeff.	ln dist. language	GDP	GDP	contracts	ln cost to import	constant	2554	517	
	z	-0.06	0.87	0.06	0.32	-3.67	0.04			
		-0.37	2.23	0.62	2.65	-2.27	0.15			
(v)	coeff.	ln dist. language	GDP	GDP	contracts	prevalence of	constant	3227	470	
	z	-0.12	0.67	0.15	0.18	-2.77	HIV % of population			
		-0.91	2.10	2.08	1.99	-2.54	-6.88			
(vi)	coeff.	ln dist. language	GDP	GDP	contracts	ln life expectancy	constant	4213	616	
	z	-0.03	0.52	0.14	0.24	-4.03	-1.25			
		-0.27	2.00	2.12	3.14	-3.60	-0.74			
		sample of OECD host and OECD parent countries							# of	# of
		comm	ln host	ln source	enforcing	host ratio of	constant	obs	groups	
(i)	coeff.	ln dist. language	GDP	GDP	contracts	international tourism	constant	1158	167	
	z	-0.18	0.54	0.42	0.30	arrivals to pop.	-15.89			
		-0.79	1.15	2.44	1.73	-1.07	-2.57			
(ii)	coeff.	ln dist. language	GDP	GDP	contracts	host broadband per	constant	1165	168	
	z	-0.11	0.12	0.61	0.22	100 people	-20.35			
		-0.51	0.28	3.79	1.34	-0.96	-3.49			
(iii)	coeff.	ln dist. language	GDP	GDP	contracts	host corporate taxes	constant	1170	168	
	z	-0.11	0.18	0.53	0.21	2.14	-18.60			
		-0.51	0.40	2.84	1.29	0.88	-3.01			
(iv)	coeff.	ln dist. language	GDP	GDP	contracts	ln cost to import	constant	668	134	
	z	-0.04	0.42	0.43	0.17	0.40	-18.12			
		-0.12	0.60	1.58	0.68	0.46	-1.96			
(v)	coeff.	ln dist. language	GDP	GDP	contracts	ln host taxes in % of	constant	668	134	
	z	-0.12	0.67	0.15	0.18	profits	-7.69			
		-0.91	2.10	2.08	1.99	-6.88	-2.87			
(vi)	coeff.	ln dist. language	GDP	GDP	contracts	ln life expectancy	constant	1170	168	
	z	-0.16	0.28	0.71	0.25	-6.94	6.90			
		-0.77	0.61	3.82	1.50	-1.05	0.26			

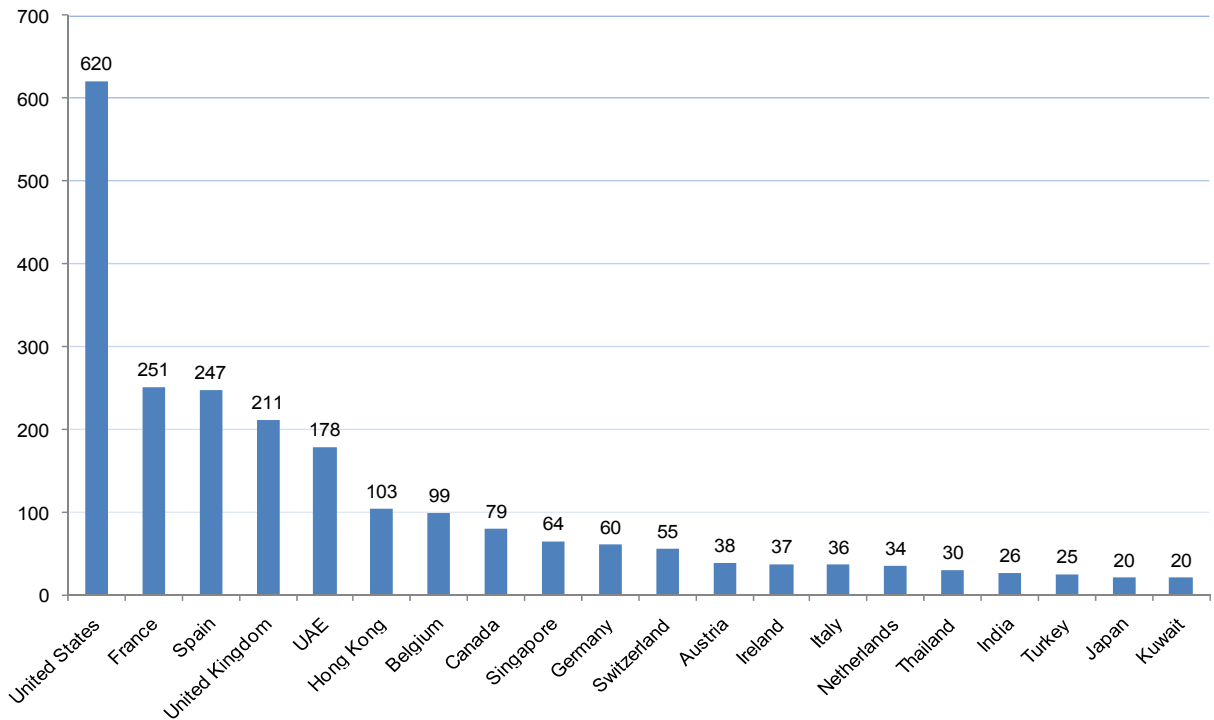
Notes: \*\*\*, \*\* and \* denote significance at the 1, 5 and 10 per cent significance levels

Figure 1: Number of FDI projects in the hotel industry by host country 2003-2011 (Top 20)



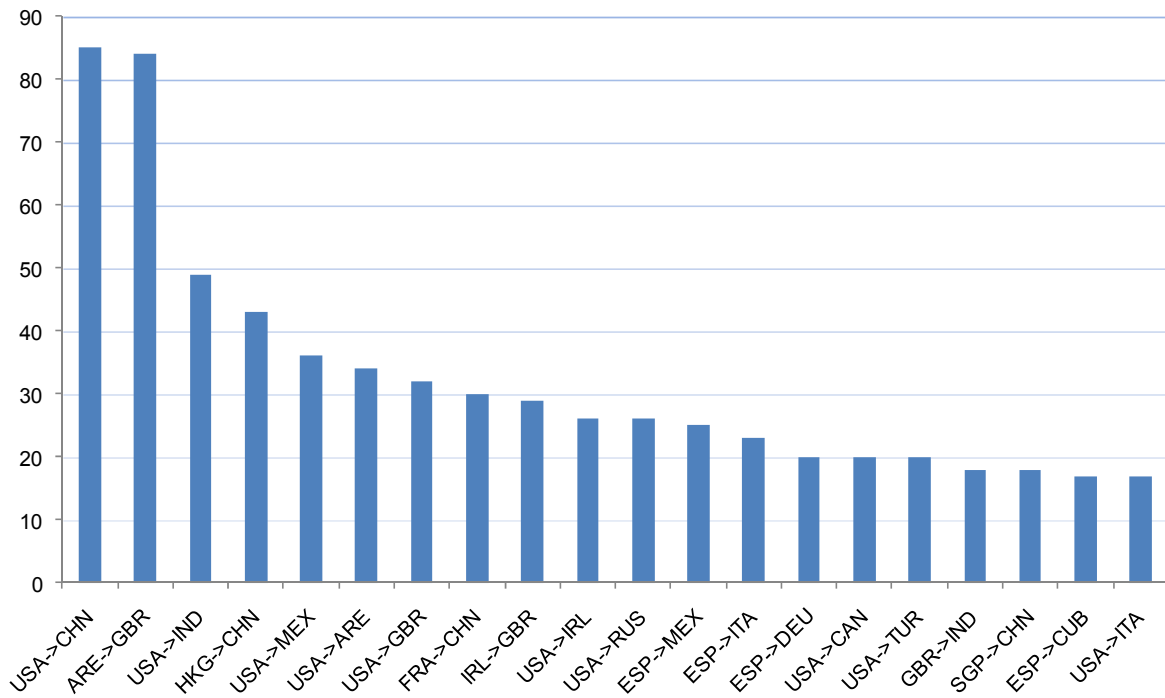
Source: fDi markets database.

Figure 2: Number of FDI projects in hotel sector by source country 2003-2011 (Top 20)



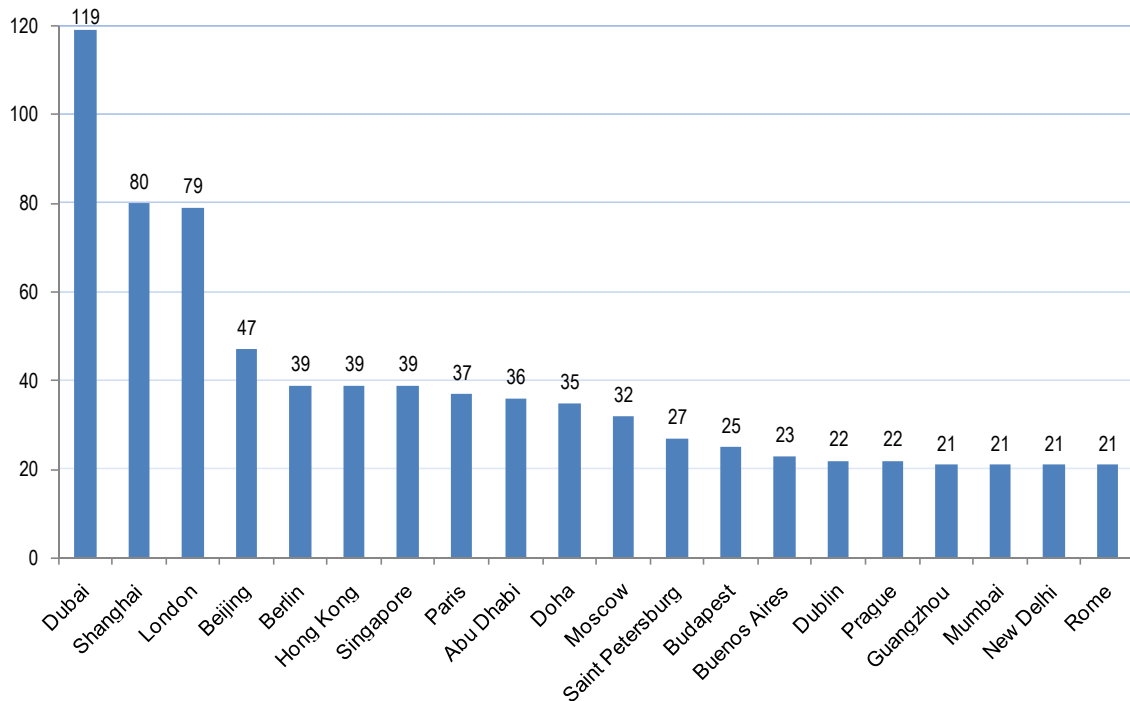
Source: fDi markets database.

Figure 3: Number of FDI projects for selected source-home country pairs 2003-2011 (Top 20)



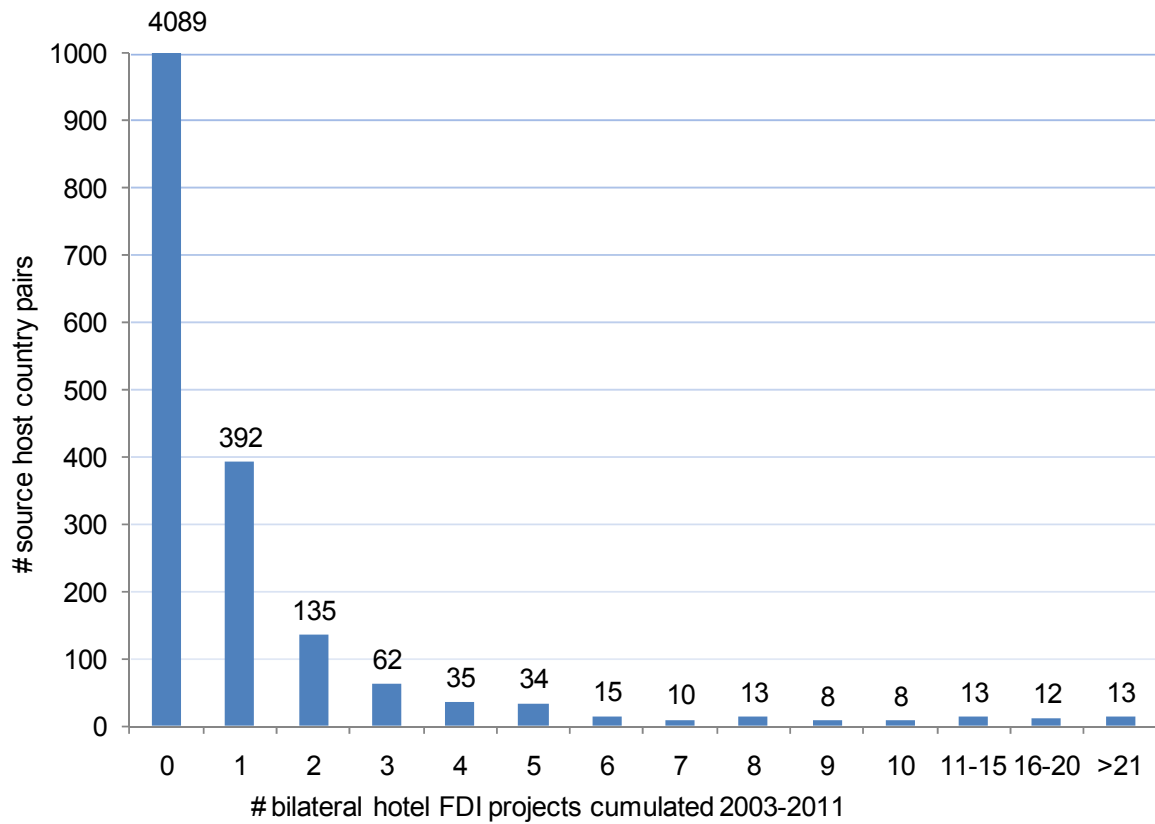
Source: fDi markets database.

Figure 4: Number of FDI projects in the hotel industry by host city 2003-2011 (Top 20)



Source: fDi markets database.

Figure 5: Distribution of the number of hotel FDI projects 2003-2011



Notes: FDI projects are aggregated over time. The number of source host country pairs is 5,020.

Source: fDi markets database.