

## **Extended Abstract**

The meeting industry grows rapidly. Between 2000 and 2014 the number of meetings more than doubled (from 5125 to 11505 meetings, source ICCA statistics). This means that the yearly growth of meetings of 6 per cent per year is much higher than for tourism in general and also for city tourism in particular. Paris, Vienna, Barcelona, Madrid and Berlin are the leading conference cities of the world. In 2014, the top 20 locations in the world account for more than 40 percent of all meetings implying an unequal distribution.

The contribution of conventions and congresses to the regional economy and destination development is well documented in the literature (Rubalcaba-Bermejo and Cuadrado-Roura, 1995; Dwyer, Weber and Chon, 2002; Chon and Weber, 2014). Meetings (or often referred as MICE industry) are particularly beneficial to the local economy because business tourists generally spend more and there are strong linkages between business tourism and related supplier industries. In addition, business tourism is less seasonally affected because conventions and congresses are relatively equally distributed over the calendar year (Hanly, 2012). Thus it is not surprising that there is a strong competition among cities for hosting conferences (Crouch and Ritchie, 1997). City planners often provide subsidies to conference organisers. Therefore, knowledge on the crucial factors explaining the attractiveness of cities as convention or congress locations is important for policymakers.

The aim of this study is to provide new empirical insights into what attracts congress and conventions meetings to European cities. In order to determine the factors explaining the probability that a city is a convention location and if so the number of meetings we use zero inflated count data models. The main research question is which types of destination attributes are most influential for the number of meetings. The sample covers 920 cities in Europe with 100,000 and more inhabitants of which 196 hosts 5 or more meetings (data refers to the year 2015). Unlike previous studies that investigate the role of location factors using survey data on potential conference delegates, we use quantitative measures of location factors.

In particular, focus is put on the role of destination characteristics such as cultural offerings (local world heritage site, past European capital of culture, opera performances), scientific strength (quality of universities), economic factors (price level, FDI inflows in accommodation or R&D activities), size (population), location factors (sea border), climate zone and accessibility (presence of an international airport). A count data model is used to

study the determinants. In this case, we use a zero-inflated negative binomial regression model. This estimation procedure allows us to characterize the two distinct parts of the conference location selection process: a group of cities that hosts fewer than 5 conventions and related meetings per year and another group that has more where the latter part of the model consists of the number of meetings.

The literature has identified a number of possible factors influencing the selection of a conference sites and locations. Oppermann and Chon (1997) identifies four main factors of the convention participation decision making process: (i) personal factors, (ii) location factors, (iii) conference and association related factors and (iv) other intervening factors. Crouch and Ritchie (1997) develop a taxonomy of destination attributes consisting of eight primary factors and 36 attributes. The eight factors encompass the following (i) accessibility (i.e. cost, time, frequency, convenience, and barrier attributes), (ii) local support, (iii) extra conference opportunity (i.e. entertainment, shopping, sightseeing, recreation, and professional opportunities attributes), (iv) accommodation facilities (i.e. capacity, cost, service, security, and availability attributes), (v) meeting facilities (i.e. layout, cost, ambiance, security, availability, and experience attributes), (vi) information (including reputation and marketing attributes), (vii) site environment (including climate, setting, and infrastructure attributes), and (viii) other criteria (such as risks, profitability, association promotion, and novelty attributes). Rubalcaba-Bermejo and Cuadrado-Roura (1995) suggest that cities that are more attractive as fair and exhibition hosts show a number of characteristics including tradition and history; local income and population; infrastructure and communications availability; location; tourism, environmental and weather conditions; public investment and support policies; the city's international standing; exhibition centre size; and the composition of regional industry.

Methodologically there are two strands of the literature. One strand uses qualitative methods to analyse destination specific factors that explains the propensity of meetings and the number there of. Qualitative studies are based on in-depth interviews of convention executives or delegates. The second strand of the literature uses quantitative methods relating number of meetings or number of delegates to destination specific factors. So far there is no consensus about the importance of factors influencing the number of meetings based on qualitative methods. Studies based on survey data include (Var, Cesario and Mauser, 1985; Crouch and Louviere, 2004; Chen, 2006; Mair and Thompson, 2009, Jin, Weber and Bauer, 2013; Yoo and Chon, 2010). The literature agrees that a bundle of factors is relevant including individual

factors and networking of the delegates as well as destination specific factors. Accessibility and location (incorporating climate, leisure amenities and cultural activities), on-site/off-site accommodation, city image, friendliness, safety, transport facilities, number of international firms belong to the most important factors. Using survey data of delegates to an economics conference, Borghans, Romans and Sauermann (2010) find that conference location is the second most important factor after personal factors such as networking. In contrast, the role of the price level is not clear-cut.

Overall, studies based on surveys of delegates or executives using qualitative methods are difficult to compare because the sample differs widely in terms of coverage, geographical location, sample period, sample size and target population. Often results are based on relatively small samples limited to few congress and convention locations and therefore difficult to generalise. In addition, studies based on surveys conducted in the US (Var et al 1985, Severt et al. 2007) or Greater China (Chen 2006; Jin et al. 2013) are overrepresented. Few studies uses quantitative methods to analyse the number of meetings as function of destination specific attributes. Examples include Rubalcaba-Bermejo and Cuadrado-Roura (1995).

The conceptual background builds on the destination attractiveness models introduced by Crouch and Ritchie (1999) and Echtner and Ritchie (1993). In particular, endowment resources such as infrastructure and cultural resources are the driving factor for the attractiveness of a city for meeting.

The empirical model is estimated using a count data model. Note that 80 per cent of the cities in Europe host four or less meetings for a given year. This is a clear indication of overdispersion which violates the assumption of the standard count data model such as the poisson regression model. A natural choice is the zero-inflated poisson model (ZIP) or the zero-inflated negative binomial model (ZINB) (Cameron and Trivedi 1998). These models allow zeros (here category 0-4 meetings) to be generated by two distinct processes, one for the conference location selection decision (logit or probit) and one for the mean number of meetings (count model). In other words, the fact that some cities host few or no conferences can be generated by two different processes. Firstly, cities are not attractive or too small and secondly, cities do not apply or actively do not make an effort to host a meeting although they are candidates for hosting a meeting. The decision of whether or not to host a meeting can be modeled with a logistic distribution and the number of meetings given that a city is hosting a

conference modeled with a negative binomial or a poisson distribution. If the number of meetings follows a zero inflated negative binomial distribution, the probability distribution can be written as:

$$Pr(Meetings_i = 0) = \pi_i + (1 - \pi_i) \left( \frac{\phi}{\mu_i + \phi} \right)^\phi \text{ for } y_i < 5,$$

$$Pr(Meetings_i = y_i) = (1 - \pi_i) \frac{\tau(y_i + \phi)}{\tau(\phi) y_i} \left( \frac{\phi}{\mu_i + \phi} \right)^\phi \left( \frac{\mu_i}{\mu_i + \phi} \right)^{y_i} \text{ for } y_i \geq 5,$$

where  $Meetings_i$  are the number of meetings for the  $i$ th city  $\mu_i$  is the expected value of the model,  $1/\phi$  is the overdispersion parameter and  $\pi$  denotes the probability of excess zeros (here cities with 4 or less meetings in a given year). The ZINB model reduces to the ZIP model if  $1/\phi$  is going to zero. The probability of no meetings is modeled with a logistic regression with  $logit(\pi) = Z_i\beta$ .

The set of explanatory variables in the count part and logisitic part may be similar or different. Among the destination specific factors we include a wide range of variables:

- Presence of a local Unesco world heritage site
- City population
- Number of opera performances
- Number of FDI projects in R&D activities
- Number of FDI projects in accommodation
- Presence of an airport
- University listed in the Top THE ranking
- ECOC status in the past
- Mediterranean climate zone
- Location at the sea
- Capital city
- Relative price level

The main hypothesis is that a bundle of factors might affect the location of a congress/convention and if so the number of meetings. In particular, we expect that cities with cultural attractions and historical heritage are more attractive as a conference location (Yang, Lin and Han, 2010; Cellini, 2011; Su and Lin 2014; Cuccia, Guccio and Rizzo, 2016;

Ribaudo and Figini, 2016). Similarly, accessibility and economic centres are preferred convention locations. The estimates can be used to compare the predicted numbers of meetings with the predicted number where the latter gives an indication of the potential for hosting congresses and conventions.

The data are drawn from several sources. ICCA defines meeting as conventions and congresses which fulfil the following criteria: (i) 50 and more delegates, (ii) organised on a regular basis and (iii) move between three countries or more. The total population of cities consists of 4030 cities with 100,000 or more inhabitants of which 420 cities host five or more conferences. The sample is restricted to European cities because of data availability. Descriptive statistics show that Paris is the leading location for conventions and congresses followed by Vienna, Madrid, Berlin and Barcelona. The remaining data are drawn from publicly available sources (UN, UNESCO, OECD, World Bank).

We estimate the location attributed of meetings by two different models. The first model is the zero-inflated Poisson (ZIP) and the second is the zero-inflated negative binomial (ZINB) model. The estimates show that the dispersion parameter  $\alpha$  is significantly different from zero in all cases. In addition, the likelihood ratio (LR) test of  $\alpha = 0$  is rejected indicating the significance of over-dispersion and that the zero-inflated negative binomial model is more appropriate than the zero inflated Poisson model. Therefore, we only display the results of the ZINB model. In addition, the Vuong statistics show that the ZINB model is favoured against the negative binomial model.

The ZINB model comprises two parts, the participation equation explaining less than five meetings per year and the count data component. Estimations reveal that presence of UNESCO world heritage sites, past European Capital of culture assignment, other cultural offerings (operas), presence of highly ranked university, population and being the capital city are factors of importance for the probability and number of conventions. Presence of an airport, climate zone, having a sea border, past foreign direct investment in accommodation and R&D activities are also significant but considerably less pertinent in terms of magnitude. In addition, the general price level seems to lack relevance.

A comparison of the potential of meetings (measured as the predicted number) with actual ones shows that Vienna, London, Barcelona, Lisbon, Istanbul and Amsterdam receive much more meetings given their destination attributes. This indicates that these cities are very successful in attracting conventions and congresses given their size and other characteristics.