

Extended Abstract

The European Capital of Culture (ECoC) programme introduced in 1985 is regarded as one of the most successful cultural projects ever launched by the European Union (Palmer and Richards, 2007). So far more than 50 European cities have been hosting the ECoC. This mega cultural event attracts several thousands of domestic and international visitors, leads to an image enhancement and urban revitalization (García & Cox, 2013; Palmer & Richards, 2007).

The aim of this study is to investigate the impact of the ECoC designation on local tourism demand. Tourism demand is measured as overnight stays and the analyses takes into account the effect on the year of the event as well as the two subsequent years. The difference-in-differences estimator (DID) is used for the exercise. This estimator filters out the pure effect of hosting the event (city treated) by controlling for the average time trend and other factors that affect overnight stays by use of a control group (cities non-treated). Combined with the propensity score matching estimator the DID also makes it possible to model the probability of being selected as an ECoC. This probability is modelled as a function of city characteristics (e.g. population, presence of an airport, sea border, presence of an UNESCO world heritage site, Mediterranean climate zone, presence of a university listed in the Times higher education ranking and capital city). Since the budget of the event varies widely across cities estimates are also provided on a case to case base using the standard DID estimator.

Several studies have investigated the impact of hosting the ECoC on overnight stays. However, with the exception of Gomes and Librero-Cano (2017) and Srakar and Vecco (2017) these studies mainly rely on separate case, face-to-face interviews or are based on descriptive statistics where tourist numbers before and after the event are compared (Herrero et al., 2006; Hughes et al., 2003; García and Cox 2013; Vareiro et al., 2016; see Liu, 2014 of an overview). Nevertheless, the studies confirm a positive impact of the ECoC designation on tourism flows in

the year of event in the majority of cases, although the long term tourism effects of hosting the ECoC are less clear cut. Descriptive evidence shows that there is a large heterogeneity in the effects, where overnight stays increase in some cities while there is no change or even a decline in others (García & Cox, 2013). Gomes and Librero-Cano (2017) investigate the ECoC effect on regional GDP per capita (using NUTS data), on output and on employment for several tourism related industries (accommodation, food services, arts, entertainment, recreation and construction). Using the difference-in-differences approach the authors find significant long term effects on GDP per capita of hosting the ECoC but insignificant effects on output and employment of accommodation and food services and their related industries. Srakar and Vecco (2017) provide an ex-post evaluation of the 2012 Maribor event and find no impact on local employment. Tourism effects are positive in the year of event but are limited to the main ECoC city whereas the other participating cities have not benefited.

This study contributes to the literature in several ways: It builds on Gomes and Librero-Cano (2017) but explores effects on local tourism demand rather than on GDP per capita. In the field of tourism, it is the first quantitative investigation of the impact of the ECoC on local tourism demand (measured as the number of overnight stays) covering almost all ECoC events in the last 20 years. Just like in the cases of Gomes and Librero-Cano (2017) and Srakar and Vecco (2017) the difference-in-differences model is used to investigate the effects. The absence of quantitative studies covering all previous ECoC events is mainly related to scarce data on overnight stays at the city level. . In recent years the data situation have improved considerably.

Event planners often argue that hosting the ECoC leads to a long term increase in tourism demand, stimulate urban regeneration, city branding and economic development (Boland, 2010). Thus destination marketing organisations and local stakeholders increasingly use major cultural events as an important opportunity to market cities (Law, 1993; Boland, 2010). Ex-post

evaluation of the ECoC is important because the event is largely financed by the national or local government, by EU structural funds or by a mix of these sources. On average the ECoC budget is about EUR 40 million on average for each city in the last 20 years (García & Cox, 2013).

The crucial question in estimating the effects on the number of overnight stays of hosting the ECoC is what would have happened had there not been an event. In the real world this cannot be observed. A simple comparison of the pre-event level of overnight stays with those during or is misleading because urban tourism is generally growing independent of this event. Several quantitative methods have been proposed to evaluate the ex-post performance of cultural events. Scholars use input-output models (Bracalente et al., 2011) or CGE models (Dwyer, Forsyth, & Spurr, 2005) and recently also difference-in-differences estimators (Srakar & Vecco, 2017). In this study, a combination of the non-parametric propensity score matching (PSM) estimator and the difference-in-difference specification is used. The PSM constructs a statistical comparison between cities affected by the ECoC and those not affected, but which otherwise have similar propensity scores. This is done by modelling the probability of a treatment (hosting the ECoC event) and then calculating the propensity score. After this, each city is matched with the one which is closest in the propensity score ranking. The first step is to estimate the probability of a treatment in a function modelled by location factors, climate zone and city characteristics (sea border, airport, Mediterranean climate zone, population, capital city, UNESCO world heritage site, airport, university listed in the Times Higher Education (THE) ranking). When the propensity score is estimated, a matching algorithm is required to estimate the missing counterfactual for each treated observation. Following Heckman, Ichimura & Todd (1997), kernel matching (KM) is used, which matches all treated cities with an average of the control cities, weighted at an inverse proportion to the distance between the propensity scores of the treated and control firms (Caliendo & Kopeinig, 2008). A sample appropriate for the exercise

needs to satisfy a number of conditions to allow for the use of the propensity score matching estimator (Caliendo & Kopeinig, 2008). These conditions include a rich set of individual characteristics to estimate the probability of being treated and that this information is available for both the treatment and control group. Additional requirements are that the treated and non-treated observations should belong to the same type of heterogeneous individuals. This analysis focuses on cities with a population of 100,000 or more. Thus, the conclusion is that the database satisfies the aforementioned conditions.

Evidence for 34 ECoC cities for the period 1998-2014 shows that tourism effects are sizable and significant in the year of the event and insignificant in the subsequent years. On average the ECoC events leads to an increase in the number of overnight stays by 8 per cent in the year of event, which is equal to increase in overnight stays of 40,000 for a representative city with about 500,000 overnight stays. Standard DID estimates show that long term effects can only be observed in a few cases (Essen, Guimarães, Salamanca, and Tallinn).

Probit estimations reveal that the likelihood of hosting the ECoC depends significantly on a world heritage site and presence of an international airport. Capital city, seashore, Mediterranean climate zone, population and a local university ranked in the prestigious Times Higher Education (THE) university ranking list are not significant at conventional significance levels. This confirms that the selection of a city as an ECoC is highly related to the cultural offerings, heritages and accessibility.

A drawback of the difference-in-differences (PSM) matching estimator is that it is only appropriate when both the number of treated cases and the control group is sufficiently large. Therefore, in the following results from the standard difference-in-differences estimator are presented as well, for each of the 34 ECoC host cases (including the year 2000 when nine cities were appointed ECoC). The control variables (population, capital city, world heritage site, sea

shore, Mediterranean climate zone, university listed in the Times higher education (THE) ranking and presence of an airport) are all significant at the one percent level. Overnight stays are significantly higher in capital cities, cities located at the sea, cities with a UNESCO world heritage sites, airport, city with a university listed in the THE ranking list and cities located in a warm climate zone. The standard DID estimations show that total overnight stays in the year of the event are 12 per cent higher on average than they should have been without the treatment (hosting the event). The overnight stays then decline in the following year and in $t+2$ with increases of 3 and 2 per cent respectively, on average.

Furthermore, results show that there is a large heterogeneity across the ECoC host cities even in the year of event. Significant increases in overnight stays in the year of the event are found for 13 ECoC hosts. In particular, we find strong increases in overnight stays in the year of event for Weimar (>30 per cent) as well as for Salamanca, Graz, Patras, Sibiu, Essen, Guimarães, Tallinn, and Maribor with increases between 20 and 30 per cent. Higher than average effects can be observed for Riga, Umeå and Linz (between 10 and 20 per cent). The significant tourism effects for the 2012 ECoC in Maribor is consistent with Srakar and Vecco (2017). In the remaining cities hosting the ECoC does not lead to an increase in the number of overnight stays during the year of event (for instance the nine Millennium hosts, Genoa, Istanbul, Košice, Liverpool, Luxembourg, Marseille-Aix, Pécs, Porto, Rotterdam, Stavanger, Stockholm, Turku and Vilnius). Interestingly, the gains are larger for the second tier cultural cities (Weimar, Tallinn, Guimarães, Salamanca and Graz) than for typical industrial cities.

Overall, the cultural capital event does not lead to a long term increase in the number of overnight stays in the majority of cases. The insignificance of the long run effects of hosting the ECoC confirms previous studies for two ECoC hosts in Austria (Firgo & Fritz, 2017). The

results are also in line with Gomes and Librero-Cano (2017) who provide insignificant effects for output and employment of the accommodation and restaurant sector.

Several policy implications can be drawn from these empirical results. In general, knowledge about the causal effects of hosting the ECoC is relevant for policy makers, city planners and banks for a number of reasons. Cultural events are a major pillar of city tourism boards. Not surprisingly, there is a huge competition to host the ECoC and similar cultural events. Many local government officials and event planners have great expectations of the potential of the ECoC to stimulate local tourism. The ECoC events are often supported by public funds provided by the government and by the European Commission. These mega cultural events are often viewed critically because of this substantial amount of public funding. The findings reveal that long term effects can only be observed for a subset of cities that are characterised by a wealth of historical and cultural attractions. Since the ex-post evaluation shows that positive long term effects on local tourism demand tend to be absent in the majority of cases, overall optimistic ex-ante evaluations should be treated with care.

As for future work it would be interesting to investigate the impact of the ECoC event on overnight stays of the neighbouring cities. For instance, it might be case that ECoC leads not only to an increase in overnight stays of hosting city (say for instance Tallinn) but also to those of the neighbouring city with large number of cultural offerings (e.g. Tartu or the other large Ruhr cities in West Germany).