Ex-ante vs. *ex-post*: Comparison of the effects of the European Capital of Culture Maribor 2012 on tourism and employment

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Abstract

The estimation of the economic effects of cultural events is a topic that has stirred numerous debates in cultural economics. Although economic impact studies and contingent valuation have been the most frequently used methods, both suffer from numerous problems. In this article we use ex-post econometric verification as a new and promising method in cultural economics in the estimation of the economic effects of cultural events and apply it to the estimation of the effects of the 2012 European Capital of Culture Maribor on tourism and employment. This enables us to compare results from economic impact and ex-post econometric verification studies to find significant differences in particular in terms of new employment. We determine the net effects on new tourism and find that they were mainly present in Maribor, the holder of the project, and not in the other five partner cities. We conclude by reflecting on the state of the art of the studies of economic effects of cultural events in cultural economics and their relevance for the study of cultural tourism.

JEL classification: Z11, C33, D57, Z30, Z31, Z32

Keywords: economic effects; cultural tourism; economic impact studies; ex-post econometric verification; European Capital of Culture Maribor 2012; employment

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1. Introduction and short literature review

In cultural economics and the economics of cultural tourism, so-called economic impact studies have been (and still are) the most common method for assessing the economic impact and value of cultural events over the past three and a half decades since the pioneering study of Cwi and Lyall (1977). They have raised numerous debates, in both a positive and negative sense and arose and flourished especially in the nineteen-seventies when the U.S. was struggling with how to tackle the effects of stagflation by using a so-called "monetary experiment" (see Friedman 2005; Barsky and Kilian 2000; Goodfriend and King 1997) to apply a highly restrictive macroeconomic policies. To ensure that funds for culture would not be drastically reduced, people in the cultural field resorted to economic arguments and business jargon that evaluated culture mostly through a return on investment criterion (see e.g. Radich 1993). Economic impact studies were a convenient tool to serve that purpose.

In a positive sense, such studies have primarily been applied to estimate "tangible" economic indicators (GDP, employment and tax revenue), bringing greater awareness of the economic importance of culture. Conversely, in a negative sense, some authors (in particular, Seaman 1987; 2003; 2006; 2012) pointed out a number of problems that these studies almost inevitably bear: exaggerations in attributing all spending only to the impact of a cultural event, inappropriate use of multiplier analysis, ignorance of other values which are embedded with the cultural events (in particular non-use values and cultural values), and last but not least, non-consideration of the opportunity costs. In recent years, it has almost become a cultural economist hobby to "make an own critique" of the impact studies, which as stated by Frey (Frey 2005) are performed by the "arts people", unlike the willingness-to-pay-studies (mostly of contingent valuation provenience) which are mostly made by the "arts economists".

However, in cultural economics no consensus has emerged on the suitability of the impact studies method. Many authors are willing to completely give up the measurement of "tangible" economic categories (e.g. Frey 2005; 2012), while others still believe that economic impact studies can yield meaningful numbers (Seaman 2003; 2012; Devesa et al. 2011; Saayman and Saayman 2006). Above all, the last two decades have been characterized by increasing attention being paid to the contingent valuation method as an appropriate alternative to impact studies (see e.g. Noonan 2003). However, as stated by Seaman (2006), it is not clear which part of the "value" of culture is estimated by any of the two studies (for example, both estimate the use value component of the value of culture). Nevertheless, so far it has been accepted that the most credible estimation would be a combination of the two methods as a step towards assessing the value of a cultural event (see e.g. Seaman 2006).

We have to bear in mind that contingent valuation itself suffers from diverse criticism (the best known is probably the study by Diamond and Hausman 1994), which is particularly directed at its hypothetical nature. There are also a number of other biases (as summarized by e.g. Venkatachalam 2004) that can – if ignored – undermine the results obtained with this methodology. But what is perhaps of even greater importance is that these studies only estimate the microeconomic aspects of an event, i.e. preferences of individuals, and are therefore not able to provide answers to the very simple questions that economists (in the classical sense) are usually most interested in:

1. What are the economic effects of a cultural event on its site/location in terms of new employment, firm revenues, value added, and taxes raised?
2. To what extent are these effects greater than the input into the project?

3. What are the factors having the greatest impact on the economic success of a cultural event?

In order to respond to such questions properly, in this analysis we use a third method, which potentially eliminates all the shortcomings of the two previously discussed methods. The method is commonly named *ex-post* econometric verification in sports economics, where it has been frequently used since the pioneering article by Baade and Dye (1988), but for some reason has not found its way into usage in cultural economics (as has been emphasized by some authors, see e.g. Seaman 2012). In this method, the verification of economic effects (generated by economic impact studies) is made *after* the event takes place. However, economic impact methods are often not "purely *ex-ante*" since they can and do sometimes incorporate data generated by surveys of participants at such events (e.g., originating location of attendees, number of days and nights attended, estimates of per capita daily spending, and even the degree to which the event was the primary motivation for visiting the region), with such *ex-post* data then incorporated into economic impact models (see e.g. Seaman and Price Elton, 2016). Indeed, our discussion below of the economic impact approach to ECoC incorporates survey data, although from a relatively limited survey. But by contrast, we then apply primarily econometric methods (similar to those used in sports literature) to estimate the economic effects of cultural events and apply it to the estimation of the effects of being a European Capital of Culture (ECoC) Maribor 2012 on tourism and employment. That particular case study was chosen due to the availability of data, large scale of the project and its importance for cultural tourism (the ECoC is presented in more detail in the next section). The method builds on general statistical data – in our example, we use data from the Statistical Office of the Republic of Slovenia (SORS) for Slovenian municipalities – both those who were "treated", i.e. involved in the project (the six partner cities: Maribor, Murska Sobota, Novo Mesto, Ptuj, Slovenj Gradec and Velenje), as well as those who did not

participate in it. Based on the data we can use a simple "treatment and response" analysis, where the six municipalities belong to the treatment group and all the others to the control group that received no treatment. With relatively simple panel data analysis methods (difference-in-differences, linear and dynamic panel models) we can thus assess the measurable effects of the treatment on different economic factors (e.g. incomes of the firms, new employment, average monthly wages, new tourist arrivals and overnight stays and visits to cultural events) in all six cities and in each individual partner city.

The article is structured as follows. In the next section, we present some existing tourism indicators on the project ECoC Maribor 2012, and briefly refer to the methods used. In the third section, we present the results of an economic impact study and its verification by means of an *ex-post* econometric verification, including some basic robustness tests. In the final part, we propose a reflection on the limitations and relevance of the results for the estimation of economic effects of cultural events in future research in cultural tourism.

2. Data and Method

The European Capital of Culture project is pan-European Union, which designates two or three cities each year to host a whole year festival of cultural events. The project has taken place since 1985 and was initiated by Melina Mercouri and Jacques Lang. In 2012 the title was given to the Portuguese city of Guimaraes and for the first time to a Slovenian city, Maribor. As Maribor is a small city compared to other cities in Europe, the city created a partnership with city municipalities in the whole Eastern Slovenian region. This resulted in the project taking place in six Slovenian cities: Maribor, Murska Sobota, Novo Mesto, Ptuj, Slovenj Gradec and Velenje.

The ECoC Maribor 2012 involved 319 producers from all sectors, and over 5,900 events that took place throughout the year in all six cities (see Public Institute Maribor 2012 2013). The sum of visitors to the events, visitors to an internet application called LifeTouch, spectators and visitors to a variety of programs in the spatial interventions was estimated to be more than 4.45 million. The managing institution of the project, called Public Institute Maribor 2012, also carried out extensive activities in the field of marketing and communication, and promoted the development of cultural tourism and connections with all tourist organizations in the region. A great increase in tourist visits in Maribor and its partner cities has been reported by local tourist organizations, yet their results differ and are much larger than the official SORS statistics.

In 2012, according to the Maribor Tourist Board, the city of Maribor recorded 355,000 overnight stays, which is 20% more than in the same period in 2011 (the largest increase in room nights was recorded in November, amounting to 92% more than in the same month of 2011). Importantly, the data differ significantly as compiled by the Statistical Office of the Republic of Slovenia, also registering a significant increase, but with the number of overnight stays in 2012 as measured by the SORS methodology being only 266,329 in contrast to the 355,000 recorded by the Maribor Tourist Board, a 25 per cent disparity.

According to the data from the Maribor Tourist Board (2013), during the ECoC project, 81% of the tourism visitors were foreign overnight visitors and 19% were domestic. The upward trend in the last few months of 2012 was well above the Slovenian average. Moreover, in Maribor there was a significant increase in the number of daily visitors. In 2012, compared to 2011 that number increased by 61% and in June 2012 alone by 92%. The foreign visitors were mostly Austrians, amounting to 55% of all visitors (home and foreign) in October, followed

by 5% Germans, 5% Croats, 2.5% Russians, and the remaining being mostly Italians, French and Americans. Encouraging results were also recorded in the partner cities.

In our analysis we make an *ex-post* verification of the descriptive and *ex-ante* estimates of new tourism and employment due to the event. As stated by Seaman in his paper for the conference in Maribor 2012 (Seaman 2012): "There is almost an explosion of attempts to identify "traces" of events on local employment and tax revenues after the event itself. A similar attempt could be made in Maribor at the end of the year to determine whether the econometric equations, which are designed to show any idiosyncratic effect of the ECoC 2012 project, disclose any economically and statistically significant effects of the project. Econometric studies in the economics of sports almost never find more than minimal, and at times even negative such effects!"

In the following analysis, we therefore estimate the economic impact on tourism and employment after the end of the event itself on the basis of available statistical data and econometric methodology. We estimate the effects on the number of tourist visits and overnight stays, and the number of new jobs. We use the methods of panel data analysis, namely difference-in-differences (see e.g. Angrist and Pischke 2008) and linear and dynamic panel models, in particular the Arellano-Bover GMM "in levels" approach (system GMM, SGMM; see e.g. Arellano and Bover 1995; Blundell and Bond 1998). Such analysis is most commonly used to determine the effect of some "treatment", i.e. a change in one observation unit or group of units, which was not present for all the others. In our analysis, we therefore assume that there is an "ECoC effect", that is, the effect that was present only in the six partner cities in 2012, and nowhere else "in space and time".

For the purpose of such analysis we use the most common econometric model specification:

$$y_{it} = \beta_0 + \beta_1 X_i T_t + \beta_2 Z + \beta_3 t + \varepsilon_{it} \quad (1)$$

Wherein:

y_{it} is the dependent variable, in this case, the number of tourism arrivals or overnight stays, and the size of the working population in a municipality;

X_i is a dummy variable that takes the value 1 in the six cities that hosted the project and 0 for those who were not directly included in the project;

T_t is a time dummy variable that takes the value 1 in 2012 (the year of "treatment") and the value 0 in all other years;

Z is a matrix of control variables, in which we include regional dummies following the Nomenclature of Territorial Units for Statistics (NUTS) 3 classification; employment per capita; education (number of tertiary educated people in the municipality per 1000 inhabitants); infrastructure (length of roads in the municipality per 1000 inhabitants); rate of premature mortality (as a measure of the development of the municipality); and the level of crime in the municipality[2];

t is the (linear) time trend;

ε_{it} is a stochastic error term.

As stated by the theory and some applications (see e.g. Steiner, Frey and Hotz 2015), our "treatment" effect equals the value of the coefficient β_1 where the basic model (1)[3] is estimated by different methods of panel data analysis (fixed and random effects; difference-in-differences; and dynamic panel / Arellano-Bover System GMM method).

[2] The choice of the variables was driven by the available data at the municipal level. The source of all data was Statistical Office of the Republic of Slovenia (SORS), database SI-STAT.

[3] With extensions when using different estimators: lags for the System GMM, non interacted time and treatment variables for the difference-in-differences method.

We use several different aggregates for tourism and employment:

ArrTot – total number of tourism arrivals in the municipality;

ArrHome – number of tourism arrivals from home (i.e. Slovenian residents) visitors in the municipality;

ArrFor – number of tourism arrivals from foreign visitors in the municipality;

OverTot – total number of tourism overnight stays in the municipality;

OverHome – number of tourism overnight stays from home (i.e. Slovenian residents) visitors in the municipality;

OverFor – number of tourism overnight stays from foreign visitors in the municipality;

WorkPop – size of the working population in the municipality;

Employ – number of employees in the municipality;

SelfEmp – number of self-employed workers in the municipality.

Table 1 displays some basic descriptive statistics for the main tourism variables. We observe that on average, 37,905 tourist visitors arrive in each municipality, but with expected and significant standard deviations. The average number of foreign visitors almost doubled the size of the home visitors. There are on average 112,073 tourism overnight stays in each municipality on a yearly basis, with again significantly more foreign than home overnight stays (although the relationship is reduced in size as compared to the tourism arrivals).

Table 1: Descriptive statistics of the main used tourism variables

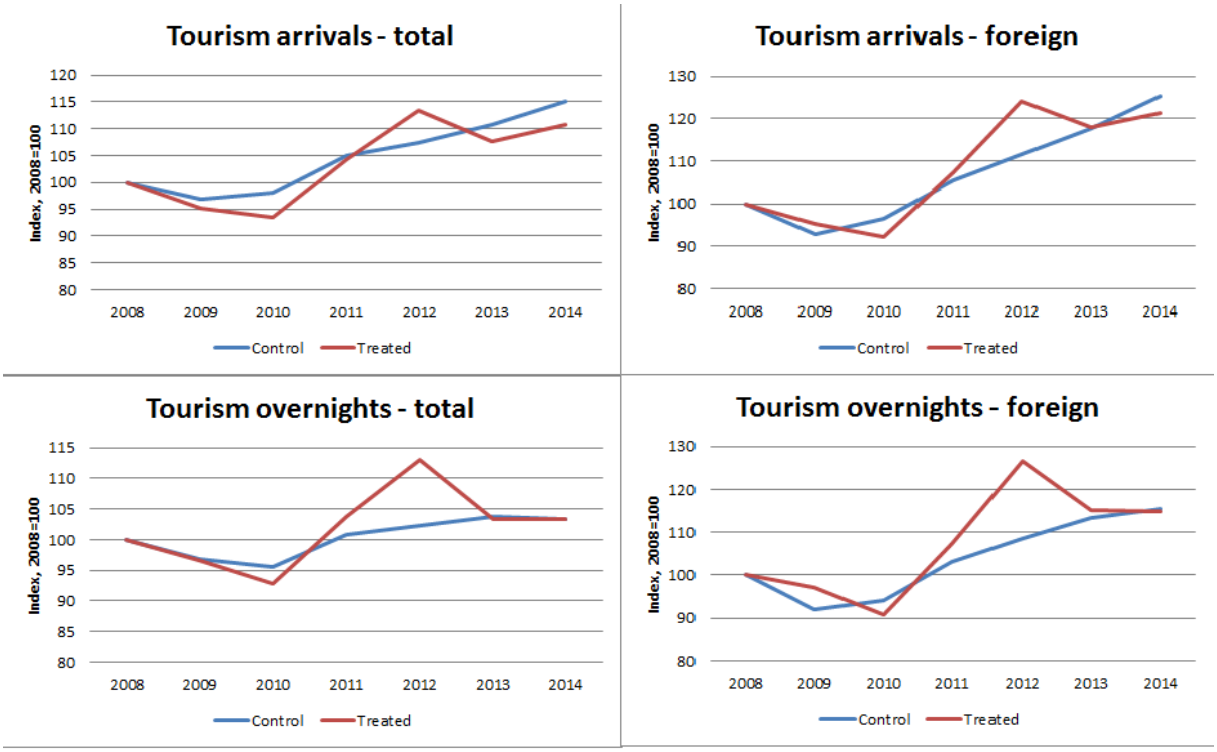
Variable		Mean	Std. Dev.	Min	Max	Observations
ArrTot	Overall	37905.29	76564.13	87	562213	N = 560
	Between		76461.62	329	443001	n = 80
	Within		8856.58	-37728	157117	T = 7
ArrHome	Overall	13580.01	24716.93	6	173429	N = 560
	Between		24732.22	89	155221	n = 80
	Within		2410.22	1294	31788	T = 7
ArrFor	Overall	24320.26	60853.24	26	534278	N = 560

	Between		60565.74	97	419697	n = 80
	Within		8618.61	-51154	138902	T = 7
OverTot	Overall	112072.90	214960.80	229	1400000	N = 560
	Between		215523.70	747	1385714	n = 80
	Within		16007.61	-29525	282870	T = 7
OverHome	Overall	46003.81	87998.34	15	604805	N = 560
	Between		88002.62	217	520569	n = 80
	Within		9075.91	5616	130239	T = 7
OverFor	Overall	65992.38	148490.10	37	977090	N = 560
	Between		148407.80	116	855537	n = 80
	Within		16150.87	-77506	249631	T = 7

Source: Own calculations.

Figure 1 clearly presents the effect we want to estimate. In the figure we show the values of several main tourism variables for the treated (the 6 partner cities) and control (all the rest Slovenian municipalities) group. In the analysis we want to estimate the spike in 2012, which is definitively visible for all four variables: total number of tourism arrivals, foreign tourism arrivals, total number of tourism overnight stays and foreign overnight stays.

Figure 1: Visual representation of the difference between the treated and control group in tourism



Source: Own elaboration.

3. Results

In the following we present the results of the analysis in several subsections. Firstly, we introduce the results of *ex-ante*[4] economic impact analysis, following the already performed estimates in a study of Kovač and Srakar (2013) for the Public Institute Maribor 2012. Secondly, we present the results of the *ex-post* econometric verification for both tourism and employment, for the pooled sample and for individual cities. Finally, we also exhibit the results of some robustness checks, using several different estimators to assess the effects of the cultural event.

3.1. Economic impact study

[4] As a rule, ex-ante studies contain or should contain less information than ex-post studies (Gergaud and Ginsburgh, 2013). The difference between ex-ante and ex-post does therefore not lie only in the timing of the analysis.

At the end of 2012, a short online survey was conducted about the structure of spending of the visitors to the events during the ECoC Maribor 2012 at the ECoC 2012 venues. Furthermore, a telephone survey was conducted among a larger (n= 616) final sample of respondents across Slovenia using stratified sampling. These two surveys were intended to contribute to three separate studies: (1) a thorough economic impact study, including a direct impacts and multiplier based indirect and induced impacts analysis; (2) an *ex-post* econometric verification analysis, using SORS statistical data and conducted in order to compare with and verify the results of the economic impact study; and (3) a contingent valuation analysis (see Kovač and Srakar 2013). The first survey identified three major groups distinguished by their home location. Of the 143 final responses to the economic impact visitor' survey, 103 were from Maribor inhabitants, 24 from non-Maribor Slovenian residents and 16 from foreigners. The limited sample size obviously poses strong statistical challenges for the analysis performed in the economic impact study, but it will nevertheless be used for comparison purposes. Some descriptive statistics of the sample are presented in Appendix, Table A. The respondents were of average age ca. 40 years, visited ca. 15.5 events of the project, spent on average 0.64 nights in the partner cities because of the project, and spent on average 277.60 EUR because of the project.

Summarizing the economic impact approach, Kovač and Srakar (2013) estimated the total direct spending (spending on the purchase of tickets for the events themselves) and indirect spending (spending on restaurants, accommodation, shopping, entertainment, etc.). In order to estimate the total consumption these authors also calculated the induced effects, i.e. "external" effects that the additional spending has on other sectors of the economy, using a "classical" Keynesian multiplier approach.

The total direct and indirect impact of the ECoC 2012 project on the national economy was estimated using mean- and median-based estimates. The first (mean-based) estimated value was 35,281,507.34 EUR, while the second (median-based) was 29,873,625.00 EUR. The authors therefore estimated the total direct and indirect impact of the project between 29.8 to 35.3 million EUR.

Using sectorial multipliers[5] for the Slovenian economy for years 2005 and 2009 (the last available estimates at the time of their study) the authors calculated output, value added and employment aggregated effects of visitor spending of the project ECoC 2012. The total output effect was estimated at between 45 and 59 million EUR. The aggregated effect on added value was estimated between 21 and 28 million EUR, while the estimate of the total impact on employment (only as a result of visitor spending) was estimated in the range of between 521 and 615 (using the multiplier for 2005) or between 531 and 627 (using the multiplier for 2009).

When also including the second source of spending: directly spent funds due to the budget of the project (assumed to be a net injection into the regional economy), the final estimates of the authors were as follows[6]:

- Impact on production – between 87,990,866.47 EUR and 105,708,765.70 EUR;

[5] In input-output analysis and economic impact analysis, sometimes the concept of "capture rate" is discussed (Stynes, 1996; 1999; Crompton et al, 2015; Brewer and Freeman, 2015), denoting "the portion of spending that accrues to the region as final demand. Only the spending that is "captured" by the local economy should be multiplied by a sales multiplier (Stynes, 1996) In our analysis we do not address this issue specifically, although the tables entering the calculation of multipliers are only the domestic production symmetric input-output tables. Previous analyses done for Slovenia (e.g. Zakotnik, 2009), do not address this issue, but it would be useful in future to address it properly. It is logical to say that the capture rates will to a certain extent lower the predicted amounts from the multiplier analysis.

[6] The results of the final estimates were derived from the numbers on average spending, aggregated to the full population of the visitors and divided by the number of events, and, finally, multiplied by the production (and, respectively, value-added and employment) multiplier for culture, calculated from two different sets of input-output multiplier estimates for years 2005 (the first, lower estimate for each category) and 2010 (the second, higher estimate for each category). To this number, the similarly calculated effects of the spending of the project were added: the value of the budget of the project was multiplied by respective multiplier for this area (source: Kovač and Srakar, 2013).

- Impact on added value – between 42,305,542.42 EUR and 51,471,253.70 EUR;
- Impact on employment – between 1,007 and 1,132 new jobs.

Finally, the results of the contingent valuation study, where the sample was evenly split among the respondents of the partner cities and from other places in Slovenia, showed a large willingness-to-pay for continuing the project after its finish in a reduced, 25%, yearly size. The survey used double-bounded dichotomous choice questions with an open-ended follow-up response, following the methodology, previously used by Hadker et al. (1997), Verbič and Slabe-Erker (2005) and Srakar (2010). The calculated mean individual "true" willingness-to-pay using bivariate probit modelling was 13.80 EUR, which in aggregated terms amounted to 68,376,160.74 EUR on a three-year basis.

3.2. The effects on tourism – ex-post econometric verification

In Table 2 we present the results of the *ex-post* econometric verification for all six included tourism variables, when we include all 212 municipalities in the analysis and separately for each partner city (where we exclude the remaining five partner cities in the analysis and compare the results in the chosen city to the control group). We use fixed effects linear panel models (instead of random effects) as suggested by the results of commonly applied Hausman testing for linear panel data models (see e.g. Baltagi 2008).

Results do not confirm the strong effect for the tourism arrivals and overnight stays in general – although the coefficients for total and foreign arrivals are positive, they are clearly statistically insignificant. There are also no effects whatsoever for the five partner cities, apart from Maribor: Murska Sobota, Novo Mesto, Ptuj, Slovenj Gradec and Velenje. Interestingly, the only effect is found for Maribor, and that effect is significant and large in size. There were

19,461 new visitor arrivals in Maribor in 2012 because of the project, of which 18,248 were foreign visitors. Furthermore, the econometric modeling identifies 48,362 additional overnight stays for Maribor in 2012 due to the project, of which 46,559 were by the foreign tourists.

Table 2: Effects on different tourism variables – an ex-post econometric verification, fixed effects models

	Additional tourism arrivals			Additional tourism overnight stays		
	Total	Home	Foreign	Total	Home	Foreign
Total	2618.25	-60.33	2683.95	9412.39	699.73	8948.35
Maribor	19460.65*	1220.39	18247.65*	48362.18**	2191.53	46558.91**
Murska Sobota	-1185.05	-625.69	-555.58	-1190.45	80.29	-1281.10
Novo Mesto	-2479.61	-342.86	-2133.22	-1720.49	1843.85	-3227.39
Ptuj	-1776.32	-1196.39	-571.91	3495.15	-1818.06	5657.03
Slovenj Gradec	-2074.87	586.20	-2653.39	-3363.02	2049.67	-4993.55
Velenje	-1885.56	-214.40	-1669.69	-1798.62	607.85	-2387.67

Note: Statistical significance - *** - 1%; ** - 5%; * - 10%. Controlled for employment, education, infrastructure, development level of the municipality (premature mortality) and level of crime. Linear time trend is included in the model.
Source: Own calculations.

3.3. The effects on employment – ex-post econometric verification

The results on employment are notably different. According to the economic impact model results of Kovač and Srakar (2013) one would expect an increase of as many as 1,100 new jobs. However, our econometric results are significantly different, and somewhat surprisingly even show strong trends in the opposite, negative direction. Although negative impacts have not been unknown in the ex post econometric sports literature, there was no reason to expect that result here. In the analysis, we build on the SORS data where data are available for 193 municipalities for the years between 2008 and 2014. We used data on the size of the labour force in the municipality, the number of employees in the municipality and the number of self-employed persons in the municipality.

As shown by the results of the analysis, the general effects on employment were negative, which is contradicted by the results of economic impact model of Kovač and Srakar (2013). In particular, significant and large negative effects were present in Maribor and Velenje, and were shown mainly in the drop of employees. Because we control for the time trend, such results are not the consequence of common trends, but could be due to additional problems in 2012 when the financial crisis in Slovenia gained its largest momentum and the government started with austerity-based significant cuts in public sector spending (see e.g. Verbič et al. 2016). We, therefore provide three possible explanations for this observation: a) the effects of the financial crisis, which gathered momentum in 2012, apparently outweighed the effects of the European Capital of Culture and additional net incremental spending by tourists (this is additionally discussed in the section on robustness checks); b) crowding out of other employment opportunities by the larger number of short term jobs, mainly related to the short term employment needs of the ECoC project; c) problems in the model – some additional interactions or causal relationships may have had an influence on the model, although the findings are verified and corroborated by means of three additional estimators in the next section and several other model specifications. Of course, only the second of these explanations would actually provide any plausible causal connection between ECoC and adverse effects on employment, since even if the negative effects of the financial crisis outweighed the positive effects of the ECoC, the adverse effects on employment would have obviously been much worse had it not been for the ECoC. Furthermore, econometric modeling inadequacies have been suggested by others evaluating the sometimes-puzzling results of those *ex-post* studies (e.g. see Seaman and Price Elton 2016, and Baumann and Matheson, 2011).

Table 3: Effects on different employment variables – an *ex-post* econometric verification, fixed effects models

	Additional workspaces		
	Total	Employed	Self-employed
Total	-980.21***	-925.65***	-54.54**
Maribor	-3117.42***	-2922.61***	-194.76**
Murska Sobota	-126.84	-109.28	-17.57
Novo Mesto	-465.79	-417.50	-48.21
Ptuj	-613.39	-557.51	-55.90
Slovenj Gradec	-459.33	-472.10	12.77
Velenje	-1316.70***	-1289.93***	-26.77

Note: Statistical significance - *** - 1%; ** - 5%; * - 10%. Controlled for education, number of tourists, infrastructure, development level of the municipality (premature mortality) and level of crime. Linear time trend is included in the model.
Source: Own calculations.

3.4. Robustness checks

In Table 4 results of robustness checks are presented, including three different types of estimators to assess the effects of the project ECoC Maribor 2012 on the level of tourism and employment.

Firstly, the results from the random effects model, including the dummies for regions[7], are mainly in line with tables 2 and 3. They show approximately 20,000 tourism arrivals (mainly by the foreign tourists) and 50,000 tourism overnight stays (again to be attributed almost exclusively to foreign tourists) took place due to the project. Again, the general effects for the full group of six partner cities are not observed, which shows and confirms that the main part of the effects on tourism were related to Maribor. It is a good research to explore to what extent the smaller cities, being part of any large scale (cultural, sport, educational, etc.) event within a larger city really benefit from the project. It was shown by Srakar and Slabe-Erker (2016) that in the project EuroBasket 2013 in Slovenia (which took place in four Slovenian cities: Ljubljana, Koper, Celje and Jesenice), the Slovenian capital Ljubljana was by far the

[7] Including dummies for municipalities instead of regions does not change the results in any sense.

greatest beneficiary of the effects of the event. That experience provides a further comparison and confirmation of the results we calculated here regarding the distribution of any positive economic effects within the targeted regions.

While the "classical" difference-in-differences estimator does not provide many significant results, the results of the modelling using Arellano-Bover System GMM estimator[8] mainly confirm the robustness of the findings. Approximately 15,000 new visitors (by large foreign) and 50,000 new overnight stays (by large foreign) took place in Maribor because of the event.

Finally, the random effects estimator and, to a lesser extent, the System GMM estimator also corroborate the observations on the negative and significant effects on new employment, in particular for Maribor but also for the six cities in general.

Table 4: Effects on different tourism and employment variables – an ex-post econometric verification, different estimators

		Additional tourism arrivals			Additional tourism overnight stays		
Estimator		Total	Home	Foreign	Total	Home	Foreign
Random effects	Total	3285.72	-61.66	3665.29	9916.87	607.09	9999.04
	Maribor	20649.79*	1248.88	19967.85*	49297.13**	2166.77	48394.18**
»Classical« diff-in-diff	Total	8689.76	397.61	8287.93	21000.00	1936.11	19000.00
	Maribor	29000.00	1999.46	27000.00	67000.00	4149.82	63000.00
System GMM	Total	397.14	-388.80	2463.24	10637.07	-797.66	9743.12*
	Maribor	13292.73**	1210.43	14990.07***	51029.30***	1124.07	45228.94***

		Additional workspaces		
		Total	Employed	Self-employed
Random effects	Total	-1032.1***	-983.59***	-50.31*
	Maribor	-3416.1***	-3248.2***	-185.40***
»Classical«	Total	-1700.00	-1700.00	-76.47

[8] We mainly used models with 1 or 2 period lags. The best models were chosen on the basis of information criteria (AIC and BIC) and other relevant statistics of the models.

diff-in-diff	Maribor	-8100.00	-7700.00	-313.72
System GMM	Total	-173.38	-10.71	-34.73
	Maribor	-1089.3***	-777.29**	11.25

Note: Statistical significance - *** - 1%; ** - 5%; * - 10%. Controlled for employment, education, infrastructure, development level of the municipality (premature mortality) and level of crime. Linear time trend is included in the model.
Source: Own calculations.

Finally, one of our explanations for the negative effects on employment were the effects of the economic crisis, which were not included in the original model. Therefore, we also control the effects of the crisis including the variable of GDP growth and other variables controlling the macroeconomic policy effects (level of gross debt, country level employment levels for different groups of populations, level of borrowing, spending, etc.). We expect that, in particular, the results for the employment effects will significantly change when controlling all those effects which would confirm our explanation. The results are presented in Table 5.

Firstly, we see that there is not much change in tourism effects. Again, Maribor appears as the clear beneficiary with much stronger results than for the six cities in general, and the main part of the effects can once again be attributed to the foreign tourist visitors and their overnight stays. As for the employment, the effect for the six cities almost vanishes, as would be expected. On the other hand, for Maribor the effects persist although much smaller in size. This shows that part of the explanation of the negative effects can indeed be attributed to the effects of the financial crisis, yet there remains a part that was idiosyncratic to Maribor and cannot be eliminated. Indeed, the year 2012 was turbulent for Maribor in economic and political terms, which led to the outbreak of violent protests against the ruling mayor during the end of the year and soon spurred a series of protests at the start of 2013 across Slovenia which finally led to the fall of the government (Vitez, 2014; Kovač and Srakar, 2013). It is, therefore, reasonable to say that part of the negative effects on the economy could be attributed to turmoil during the year 2012 in Maribor and the results can be interpreted as

showing that the effects of the ECoC were insufficient to change the negative economic trajectory of that year. Although we are not able to provide a conclusive interpretation, we are, therefore, inclined to say that the project did not provide the effects on employment as it was predicted to generate– whether for the reason of being "dominated" by other happenings in the region in the year of the ECoC or the predicted effects were significantly overestimated compared to the present ones.

Table 5: Effects on different tourism and employment variables – an ex-post econometric verification, effects of the macroeconomic policy variables

		Additional tourism arrivals			Additional tourism overnight stays		
		Total	Home	Foreign	Total	Home	Foreign
GDP included	Total	2178.62	-56.38	3358.28**	10468.55*	-98.82	10115.43**
	Maribor	16774.05***	1504.85	17380.91***	54479.58***	2053.24	50041.84***
All macro included	Total	2085.44	-163.24	3019.23*	6607.62	-620.04	7699.86
	Maribor	16576.56***	1385.87	17015.19***	50274.47***	1483.57	47578.33***

		Additional workspaces		
		Total	Employed	Self-employed
GDP included	Total	-52.85	109.60	-38.16
	Maribor	-854.10**	-501.26	-9.68
All macro included	Total	-120.22	43.50	-55.51*
	Maribor	-975.09***	-639.06**	-26.88

Note: Statistical significance - *** - 1%; ** - 5%; * - 10%. Controlled for employment, education, infrastructure, development level of the municipality (premature mortality) and level of crime. Linear time trend is included in the model.
Source: Own calculations.

4. Discussion and conclusion

We presented an analysis of the economic and tourism effects of the project ECoC Maribor 2012. The results shows that differences exist in *ex-ante* multiplier analysis and *ex-post* econometric verification results, although not on such a level as sometimes observed in sport

economic studies (see e.g. Matheson, 2006). Those differences cannot be observed so much for the tourism figures where we found significant and positive effects, although with large heterogeneity among the cities (being present only in Maribor), but can certainly be observed for the effects on employment. In fact, whereas the economic impact study predicted large positive effects, the *ex-post* analysis pointed to an even negative and significant effect for the city of Maribor. We attributed this mainly to the problems of the financial crisis but also noted other possible explanations for the observation. Of course, to the extent that these other negative factors outweigh the positive effects of the 2012 ECoC, the apparent contradiction between the *ex-post* and the *ex-ante* results is muted, providing ground for relativization of the findings. Nevertheless, the disparity between the two sets of figures is obvious and large and it seems apparent that the event did not generate the positive amount of jobs it was supposed to, according to *ex-ante* predictions, although the interpretation of this finding can be discussed. Furthermore, as noted the estimates of new tourism due to the project showed that the effects were mainly present in the city of Maribor, the project holder. This is in line with some previous literature suggesting that the main urban area is the far greater beneficiary of economic impacts compared to smaller "satellite" communities. Finally, we were able to corroborate the results of the analysis using several robustness checks.

A significant contribution is the application of a new, promising method (as related to its usage in cultural economics) to solve the past problems and disputes regarding the proper methodology for measuring the economic effects of cultural events. We believe that the present debate on the estimation of economic effects of cultural events is misplaced and does not identify a constructive path for answering the relevant questions. We still do not know whether cultural events really have the economic effects widely proclaimed in some "arts people" studies (e.g. KEA 2006; Americans for the Arts 2012). Perhaps the reason for the

continued flourishing of such studies is the unresolved methodological debates in cultural economics and the limitations in answering some of the most basic questions. We strongly believe that the *ex-post* econometric verification methodology is an important, if not key step forward in addressing such problems. It would surely need significantly more applications in the future to determine its possibilities and limitations and some have suggested applying the synthetic control method that has been used in other applications (Seaman and Price Elton 2016). In particular, it is important for determining the net effects on cultural tourism in the cases of cultural events, such as the one analysed in this article. The method could also be applied for smaller scale events, as demonstrated by Skinner (2006). Nevertheless, at present some sort of "triangulation" of methods (using economic impact *ex-ante* methodology, *ex-post* verification studies and contingent valuation) would perhaps still be best capable of providing broader answers to these important regional impact questions.

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Appendix – Table A: Descriptive statistics for the economic impact study, final sample

	pooled sample		only Maribor inhabitants		only Non-Maribor inhabitants		only foreigners	
Nr. of respondents	*143*		*103*		*24*		*16*	
Variable	Mean (in EUR)	Median (in EUR)	Mean (in EUR)	Median (in EUR)	Mean (in EUR)	Median (in EUR)	Mean (in EUR)	Median (in EUR)
Age	40.15	38.00	38.11	34.00	42.46	41.50	49.81	48.00
Nr. of visit. events	15.67	10.00	18.79	12.00	9.67	3.00	4.63	3.50
Nr. of overnights	0.64	0.00	0.38	0.00	1.04	0.00	1.69	1.00
Spending: overnights	23.81	0.00	8.88	0.00	32.92	0.00	106.25	70.00
Spending: restaurants	54.13	15.00	51.07	0.00	52.08	10.00	76.88	50.00
Spending: entertain't	67.30	20.00	85.78	50.00	23.50	0.00	14.06	0.00
Spending: culture	56.14	20.00	66.83	30.00	32.29	0.00	23.13	20.00
Spending: shopping	41.75	0.00	49.95	0.00	20.00	0.00	21.56	0.00
Spending: transport	33.36	0.00	33.69	0.00	43.33	0.00	16.25	7.50
Spending: other	1.12	0.00	0.00	0.00	6.67	0.00	0.00	0.00
Spending: total	277.60	150.00	296.19	175.00	210.79	110.00	258.13	162.50

Source: Kovač and Srakar, 2013