Cohesion Policy, tourism and culture in Italy: a regional policy evaluation

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Abstract

EU Cohesion Policy aims to reduce regional disparities between countries. The tourism sector played a strategic role in this policy in the last years. The 2007-2013 period developed a new vision focused on the link between tourism and enhancing cultural and natural resources. This paper evaluates this policy by analysing whether EU funds have positively impacted tourism and culture. The synthetic control method is used for 20 NUTS-2 Italian regions in 1998-2018. We identify regions exposed to the "Convergence" objective as treated units and regions not exposed as counterfactual. Results show positive effects on culture.

Keywords: European Cohesion Policy, Tourism, Culture, Synthetic Control Method.

JEL Codes: R10, R58, Z10, Z32.

1. INTRODUCTION

For over fifteen years, tourism has played a particularly significant role in Cohesion Policies (CP), which is well known to aim to reduce countries' territorial disparities (Basile *et al*., 2016). Data from the Tourism Satellite Accounts (TSA) in Europe show how tourism generated 16.5 million jobs in the 15 countries for which data was available (Eurostat, 2019). Indeed, the tourism sector contributes to developing countries and regions as a significant economic driver due to the positive impacts on the labour market and international trade in services[1].

Even in the tourism sector, the EU-wide challenge to compensate less developed regions is setting up a re-distributive mechanism via CP, including flows of funds for investments in infrastructures, incentives for firms, and labour market programs. According to Biagi *et al.* (2021), almost half of EU regions have chosen tourism-related strategies to prioritise smart specialisation (S3) policies. In general, tourism policy aims to raise the attractiveness of territories by enhancing public resources relating to territorial capital, first and foremost, cultural, and natural resources.

The aim of increasing the sustainable long-term growth in lagging regions fuelled programs with a level of complexity that has grown exponentially during the last two programming periods. As a direct consequence, the institutional and managerial capacity needed to implement the related projects has become a crucial factor for the effectiveness of CP objectives.

Under the international objectives of the EU Regional Policy, the Italian policy aims are targeted to boost tourism as a driver for helping to change the external (and internal) perception of the region to enhance its more comprehensive attractiveness for investment and mobile people. In the Italian context, institutional and administrative capacity was also recognised as an essential precondition

[1] In 2016, the Tourism Satellite Accounts in Europe showed that Spain recorded the highest tourism gross value added (EUR 236 131 million). This represents 27% of the tourism gross value added of the EU. Follow Germany (EUR 105 252 million, 12% of the EU total), Denmark (EUR 89 041 million), Italy (EUR 87 823) and the United Kingdom (EUR 83 492 million) (European Union, 2019). In terms of international tourism flows, during the pre-covid period, Italy was the third destination in Europe after France and Spain (UNWTO, 2020). In 2020 it recorded a decrease of 61%, with -90% in April 2020. However, competitor countries like Turkey and Spain showed a higher decline in the same period: -69% and -77%, respectively (https://www.unwto.org/unwto-tourism-recovery-tracker).

for efficient management of the Funds before and during implementation (Crescenzi and Giua, 2017).

More specifically, the 2007-2013 Italian Strategic Framework has benefited from the lesson learned from the previous programming cycle and confirmed the functional connection between tourism and cultural and natural resources enhancement. Such territorial resources are not sufficient to support the development of the tourism sector. Consequently, a condition for success was identified as the realisation of integrated projects, horizontally and vertically, capable of activating the cultural and environmental tourism supply chain. In this way, the integration of projects benefits both major attractions that increase international tourism flows and smaller attractions that increase their low visibility in domestic and international markets.

According to Basile *et al.* (2016), members of the Italian unit of evaluation and programming analysis (NUVAP), the projects sustained by Italian policy show three main domains:

- interventions for the protection and enhancement of natural resources: projects for the promotion of biodiversity and the conservation of natural heritage, mainly in natural parks;
- interventions for the protection and enhancement of cultural resources: projects for the protection and conservation of cultural heritage, development of cultural infrastructure or aid for the improvement of cultural services;
- interventions relating to the improvement of tourism services: projects for accommodation infrastructure and tourism services.

Within this national scenario, CP implementation asks for more strategic coherence in the planning through targeting resources in a performance framework, emphasising results in the formulation of objectives in programmes sought to reinforce the effectiveness of planned spending. Hence, funding allocation requires more transparent and measurable outcomes associated with performance frameworks. In that light, different methodologies concerning different spatial and temporal scenarios have fuelled literature to assess the relation between EU CP and regional performance. Even if the literature on the impact of CP is currently growing, there is no agreement on the overall

capacity of CP to deliver the expected results. Moreover, the existing empirical studies on tourism are relatively not developed as they should be due to the sector's relevance in promoting regional growth, sustainable development, and social cohesion. The novel contribution of this paper is threefold. First, to the best of our knowledge, it is the first work to analyse the impact of CP's effect on tourism (nights of stay in low season) and cultural outcomes (cultural expenditure and tickets for theatrical and musical entertainment) at the regional level. Second, we employ a policy evaluation method – the synthetic control – that is not usually used in this kind of analysis[2]. Our analysis provides an empirical evaluation of a single case study and proposes the use of a new methodology in a field where up to now, other methods have prevailed. Finally, we analyse the effectiveness of EU CP in an extended timespan (beyond the programming cycle period) to capture the lagging effect in the project's implementation. Indeed, by using data from 1998 to 2018, we can evaluate the impact of the policy in the long run and not only just after its implementation.

In more detail, employing Synthetic Control Method (SCM), we look at the effect of various features of EU Cohesion spending on the tourism and cultural sector. In particular, the 2007-2013 period developed a strategic vision focused on the link between tourism and cultural and natural resources enhancement. Hence, we focus on the net impact of the policies by analysing whether and to what extent projects funded by the EU have positively affected tourism and cultural outcomes. Data used include observations from 1998 to 2018 and are all – outcomes and predictors – from Istat source. Results indicate that tourism policies have been ineffective in many regions, while some positive effects are found in the cultural sector.

The rest of the paper is organised as follows: Section 2 reviews the literature background on CP and the evaluation of its impact on regional growth, with a specific focus on tourism policies and their impact. Section 3 presents the methodology and the rationale behind the SCM to compare the policy outcome with a counterfactual scenario. Section 4 shows data and an econometric

[2] An exception is only represented by a few papers recently published by Di Cataldo (2017), Barone *et al.* (2016) and Albanese *et al.* (2021).

investigation of the impact of CP on tourism and culture. Section 5 discusses the results. Section 6 concludes, presents recommendations for CP investments, and highlights limitations and further developments.

2. COHESION POLICY EVALUATION: AN OPEN DEBATE

The European Union (EU) CP represents the most significant regulatory mechanism for smart, sustainable, and inclusive growth. This set concerns simultaneously economic, social, and political issues in a complex and multifaceted system. One of the significant challenges for CP is to provide evidence for its success at the EU, national and sub-national levels. A range of methodological approaches has been used to analyse the effectiveness, impact, and added value of CP funding. Both qualitative and quantitative methods, with their strengths and weaknesses, show conflicting results. This could be due to the highly multidimensional nature of both CP and regional characteristics and the possible interaction mechanisms between these two dimensions (Fratesi and Perucca, 2019).

As for the quantitative approaches, research on the impact of European CP on regional development has experienced growth over the past years (see Fratesi, 2016; Crescenzi and Giua, 2017 for a review), but it still represents an open debate because it is somewhat inconclusive. Most authors provide findings on the effectiveness of CP in stimulating economic growth, especially in the recent programming periods (Rodríguez‐Pose and Novak, 2013). However, up to date, mixed results are still prevalent, and we are far from a shared consensus.

According to Crescenzi and Giua (2017), Scholar contribution can be grouped into two key streams of research: (i) the contextualisation approaches, which focus on the factors at the basis of policies' impacts, and (ii) the identification approaches, focused on counterfactual methods to capture the net policies' impact. As for the former approach, the assessment emphasises specific factors such as the quality of government (Rodríguez-Pose and Garcilazo, 2015), the absorptive capacity of regions (Becker *et al.,* 2013) and the presence of regional territorial capital (Fratesi and Perucca, 2014). As for the latter approach, the counterfactual analysis represents a valuable alternative to classical

regression tools. These quasi-experimental methods aim to overcome the methodological problem of the effect of observable confounding or spurious variables (Blundell and Costa Dias, 2009) or facing the accounting for omitted time-varying factors (Ciani and De Blasio, 2015). Due to the multidimensional scale of CP's intervention and the complex mix of financial instruments for many beneficiaries, the counterfactual approach seems to be a suitable tool to face the challenge of this complex set of policy evaluations. The main contribution of such an approach is to net out from the confounding influence of all factors that characterise the territorial ecosystem in which the policy effect of interest is embedded (Crescenzi and Giua, 2020).

Both approaches fuelled a rich stream of empirical literature that is still open and far from unanimous consensus on the effectiveness of CP on regional growth and convergence. Several methods have been used, with different samples, spatial scale, methodological approaches (cross-section and panel data), and time frames (see Fratesi and Perucca, 2019, for a recent contribution). Yet the multidimensional nature of CP and the complex interrelation between CP and regional features is the major drawback of this literature. Empirical results are strongly dependent on the specific assumptions and underlying models.

2.1 Cohesion policies and tourism

As stated in the Introduction, existing studies on the impact of EU CP on the tourism sector (both empirical and theoretical) are relatively developed as they should be due to the relevance of the sector. This could be caused by the multisectoral character of tourism activities and the difficulty of gathering homogeneous information and data on various industries that constitute the tourism product (i.e., food and beverage, restaurants, travel, accommodation, shopping, museums, etc.). Indeed, it is crucial to notice that the tourism product is defined as *a bundle of goods and services grouped according to the purpose of the purchase, the holiday* (Candela and Figini, 2012, p.9).

Although tourism was not the focus of the paper, by analysing the economic impact of the EU Regional Policy in Italy, Giua (2017) added to her study the estimation of the sectoral impact. This extension permitted us to discover which sectors, more than others, generate positive spillovers, fostering sustainable local economic development processes (p. 118). Employment in tourism – as well as in manufacturing, construction, and retail sectors – shows a positive association with European funds in regions Objective 1[3] observed during 1991-2001. This first hint only represents the tip of the iceberg. Indeed, the author used the national classification of economic activity (ATECO), where *Tourism* only includes transportation and does not, for instance, food and beverage, accommodation, restaurants, museums etc.

Starting from the observed gap in the literature (Benner, 2017, Bellini *et al*., 2017, Weidenfeld, 2018), some authors recently contributed to the topic by analysing S3 policies and their relationship with tourism. These studies use various methodological approaches, consider different research questions, and focus on multiple geographical units[4]. For example, Benner (2017) analyses three Mediterranean destinations: Limassol in Cyprus, Haifa in Israel, and Sousse/Monastir in Tunisia. The paper aims to provide an overview of agglomeration policies related to the tourism sector. The author concludes by indicating tourism as a driver that promotes the diffusion of inclusive growth and employment in peripheral regions. Still, at the same time, he highlights the necessity to implement different policies in different regions/destinations. Conclusions are fascinating because the institutional context is seen as one of the most critical determinants of the policy intervention's success. S3 plays a relevant role in such a context since regions can prioritise their most relevant sectors. Whit a focus on European regions, Bellini *et al.* (2017) emphasise the relevance of tourism for regional economic resilience. In this perspective, the new programming phase of the European structural funds (2014–2020), namely the S3 policy, is considered. Using data available on the

[3] Regions with a GDP per capita below 75 per cent of the EU average. Successively these regions have been renamed as "Convergence" objective.

[4] For a complete overview of these studies, see Biagi *et al.* (2021).

Smart Specialization Platform[5], three types of regional economic resilience are analysed (i.e., engineering resilience, ecological resilience, and evolutionary resilience) to provide a theoretical framework to connect tourism innovation policies with regional resilience. This contribution is particularly relevant in terms of further developments in that topic. Indeed, the authors are conscious that the paper misses case studies and policy evaluation. The most interesting analysis in the future will focus on the relationship between strategic intentions and policy implementation. The article by Romão and Neuts (2017) is also based on European NUTS-2 regions. That research focuses on territorial capital, innovation, performance, and specialisation in tourism to understand whether these elements affect sustainable regional development. Results of the SEM analysis show high heterogeneity among European regions regarding tourism development and its impact on the economy. This is the first empirical analysis on that topic that confirms some critical aspects of the sector already known in the economic literature. For instance, regions more specialised in tourism and construction tend to register slower recovery processes after the international financial crisis started in 2007 (p. 69). Besides that, the relatively low value-added by tourism activities must also be considered, as well as the positive relationship between a high level of natural resources and the levels of specialization in tourism, and the correlation between natural resources and high levels of unemployment.

A more recent contribution to this topic is represented by the analysis managed by Romão (2020). In the contest of S3, the author studies for the first time the interrelations between tourism dynamics, sectoral specialisation, and regional economic performance for 55 NUTS-2 European regions that chose tourism as a priority in the Eye@RIS3. Interestingly, findings demonstrate that the impact is not homogeneous. On the one hand, the higher are tourism demand and specialisation levels, the positive the effect on regional economic performance is. On the other hand, when the specialisation is measured as the share of the workforce employed in the sector, the higher is

[5] Eye@RIS3 visualizes public investment priorities for innovation across Europe. More information is available at the website: https://s3platform.jrc.ec.europa.eu/map

specialisation, the negative the impact on economic growth is. Hence, the effect of tourism on regional growth depends on the characteristic of the tourism sector in every region. Using the exact source of data Biagi *et al.* (2021) go a step further. Indeed, they gathered more recent information from Eye@RIS3 and found 89 regions that chose tourism as a priority in the S3. These regions are analysed and clustered according to their main geographical, economic, institutional, and tourism characteristics to understand if: i) prioritising tourism is a rational choice given the characteristics of the regions and ii) regions well interpreted the aim of the policy that is using this specific program as an economic diversification strategy. Results are in line with those found by Romão (2020). Indeed, tourism can be defined as a "strategic choice" not only for regions with a high level of tourism development but also for regions with no tourism specialisation. The main result of this paper is that tourism concentration at the regional level is not related to the choice of tourism as an S3 priority.

This review of the literature, focused on the impact of European policies on the tourism sector, does not pretend to exhaustively analyse the growing literature on the impact of tourism on regional development. It shows that, to the best of our knowledge, in many cases, the focus is on single case studies (see Benner, 2017, for the case of Cyprus, Israel and Tunisia; Del Vecchio and Passiante, 2017, for the case of Apulia in Italy; Borseková *et al.,* 2017, for the case of Slovakia; Benner, 2020, for the case of Montenegro). Another issue emerges, in most cases, studies analysed make use of the choice of tourism as a priority as a declaration of intent and not an absolute measure of funds invested in smart tourism and innovations in the tourism sector. This is because the 2014-2020 programming period cannot be adequately evaluated until complete data is available. For this reason, we concentrate our analysis on the previous period, 2007-13. Finally, the only study conducted on the impact of EU Regional Policy on tourism presents some gaps due to the multisectoral specificity of that sector. With all this in mind, the main objective of this paper is to integrate this strand of literature by adding a policy evaluation analysis that empirically contributes

to the still controversial impact of CP in European regions and particularly on the tourism and cultural sector.

3. METHOD

In policy evaluation, the main objective is to find and quantify the policy's effect under analysis has generated and judge its impact on society. The present paper implements the SCM, a valuable method for comparative studies based on a counterfactual represented by a "composite control group". This novelty, first introduced by Abadie and Gardeazabal (2003), is the main strength of this recent approach, given the standard difficulty of defining the control group when using policy evaluation techniques. Indeed, the control consists of a set of J, where each j is weighted by $W = (w_2, ..., w_{J+1})'$ such that $w_j \geq 0$ for $j=2, ..., J+1$ and $w_2 + \cdots + w_{J+1} = 1$. The scalar w_j (j = 1, ..., J) is the relative weight of each j under analysis in the synthetic control, so choosing a valid subset of control units is crucial to minimise the differences between the synthetic control and the case under study before policy application. The basic idea is that the future trajectory of the synthetic control group simulates the course that would have been observed in the treated unit in the absence of the treatment[6]. More precisely, the weights are chosen so that the synthetic control closely resembles the actual one before the treatment (Abadie and Gardeazabal, 2003). The SCM is based on the idea that when the units of observation are a small number of aggregate entities – as in the present analysis – a combination of untreated units provides a more appropriate comparison than any single unaffected unit alone. This methodology formalises the selection of the comparison units using a *data-driven* procedure (Abadie, 2021).

In detail, the procedure assumes that only one unit is subject to the treatment. $J + 1$ regions are observed, and only the first region is exposed to the intervention of interest so that J remaining

[6] This approach has already been used in many applications and fields. For an extensive overview of the method and previous applications, see Biagi *et al*. 2021.

regions are potential controls (i.e., donor pool). Moreover, it is assumed that the first region is exposed without interruption to the intervention of interest. For each unit, *j*, and time, *t*, the outcome of interest, $Y_{jt,}$ is observed. For each unit, j, a set of *k* predictors of the outcome, $X_{1j}, \ldots, X_{kj}$, which may include pre-intervention values of Y_{jt}, and which are unaffected by the intervention, are also observed. Let X_1 be a *k x 1* vector and X_0 a *k x J* matrix of the pre-treatment values related to the treated unit and control group characteristics, respectively (predictors variables). Like any other prediction procedure, the choice of predictors is a fundamental part of the estimation task. It is worth noting that predictor variables typically include both pre-intervention values of the outcome variable and other predictors. Vector (1) represents the differences between the pre-treatment characteristics of the treated unit and the control group, which is weighed by *W*:

$$X_1 - X_0 W \tag{1}$$

As anticipated above, the outcome that would be observed for region *i* at time *t* in the absence of the intervention (Y_{it}^N) and the outcome that would be observed for unit *i* at time *t* if unit *i* is exposed to the intervention in periods $T_0 + 1$ to *T* (Y_{it}^I) are compared to estimate the effect of the policy (α_{it}):

$$\alpha_{it} = Y_{it}^I - Y_{it}^N \tag{2}$$

It is assumed that the intervention does not affect the outcome before the implementation period, so for $t \in \{1, \ldots, T_0\}$ and all $i \in \{1, \ldots, N\}$, Y_{it}^I and Y_{it}^N are equivalent (no *anticipation* effect). In addition, it is assumed that outcomes of the untreated units are not affected by the intervention implemented in the treated unit (no *spillover* effect).

Let D_{it} be an indicator that takes value one if unit *i* is exposed to the intervention at time *t* and value zero otherwise. The observed outcome for unit *i* at time *t* is:

$$Y_{it} = Y_{it}^{N} + \alpha_{it} D_{it} \quad (3)$$

Because only the first region (region "one") is exposed to the intervention and only after period T_0 (with $1 \leq T_0 < T$), we have that:

$$D_{it} = \{1 \; if \; i = 1 \; and \; t > T0 \;\; 0 \; otherwise.$$

Finally, the estimator of α_{1T} for $t \in \{T_0 + 1, \ldots, T\}$ is:

$$Y_{1t} - \sum_{i=2}^{i+1} w_i^{*} Y_{it} \quad (4)$$

It is relevant to notice that predictors are only measured in the pre-treatment period, and weights are selected so that the synthetic control can minimise the Root Mean Square Prediction Error (RMSPE) in the pre-treatment period. This statistic measures the lack of fit between the path of the outcome variable for the treated unit and its synthetic control in the pre-treatment period. The analysis aims to measure the effect of the treatment on the post-treatment outcomes.

This methodology consists of three main steps: 1) create the synthetic control, 2) calculate the counterfactual outcome, and 3) conduct robustness checks. This last phase of the procedure is the most important one because it aims to evaluate whether the results obtained by the SCM (the difference between the treated unit and its synthetic counterfactual in the post-treatment period) can be considered a real effect caused by the treatment or not. It is common to use a *placebo* test (or placebo study), which consists of iteratively applying the synthetic control method used to estimate the effect of the policy under analysis to every other unit in the donor pool. In each iteration, the treatment is reassigned to one of the control regions, shifting the treated unit to the donor pool (see Abadie and Gardeazabal (2003), Abadie *et al.* (2010, 2015)). A policy exerts an effect if the trajectory of the treated unit is significantly different from the counterfactual. When the treated unit

is in line with the average of the other units, it indicates that the policy did not have an actual impact on the outcome analysed.

Following the procedure recently explained by Abadie (2021) and summarised in this section, we analyse the effect of EU CP on some tourism and cultural outcomes region by region. To better minimise the difference between the treated unit and the synthetic counterfactual in the pre-treatment period, we use the R&D expenditure of enterprises, the number of plane passengers, people who use at least once per year train transport, total employment, total accommodation, overnight stays per capita as predictors. We add the lag of the outcomes, as suggested by the SCM literature. Data and empirical strategy are described in Section 4.

3.1 Previous applications of the SCM

According to Abadie *et al.* (2010), the potential use of the SCM is relatively widespread when the aim is to compare case studies. However, so far, this method has been rarely applied. After the seminal paper by Abadie and Gardeazabal (2003) that investigated the economic impact of terrorism using the conflict in the Basque Country as a case study, later Abadie *et al*. (2010) used the SCM at a regional level to analyse anti-tobacco policies in California. More recently, Pinotti (2012) employed SCM to estimate the economic performance in two Italian regions exposed to mafia activity. In the same year, Coffman and Noy (2012) applied this methodology to evaluate the long-term impact of a 1992 hurricane on the island of Kauai (Hawaii), where the unaffected Hawaii Islands were used as a synthetic control (Biagi *et al.* 2021, p. 482). Only a few works evaluate the impact of EU cohesion policies on regional development. The paper by Di Cataldo (2017) studies, for the first time, the effect of European funds in two English Objective 1 regions (namely Cornwall and South Yorkshire) on unemployment and economic growth (per capita GDP). The author uses other English regions as synthetic control. Barone *et al.* (2016) and Albanese *et al.* (2021) analyse

the effect of the end of the cohesion policy in two Italian regions (Abruzzo in 1997 and Molise in 2008, respectively).

Some studies use the SMC approach at a country level (Lee, 2011; Hinrichs, 2012; Billmeier and Nannicini, 2013; Cavallo *et al.*, 2013; Abadie *et al.*, 2015, Saia, 2017; Addessi *et al.,* 2019). But more recent applications analyse cases at a provincial and municipality level (Castillo *et al.*, 2015; Robbins *et al.*, 2015; Gobillon and Magnac, 2016; Biagi *et al.*, 2017 and 2021; Li *et al.,* 2019).

What is relevant to notice through this analysis of the previous studies is that many applications focus on the economic performance of units affected by different policies. Indeed, in most cases, the outcome analysed is related to GDP. In very few cases, other outcomes are considered. For this work, it is essential to observe that the tourism and cultural sectors have been so far under analysed. To the best of our knowledge, only some investigations on tourism flows have been conducted (Castillo *et al.* 2017; Addessi *et al.* 2019; Biagi *et al.* 2017 and 2021; Doerr *et al.* 2020), while in the cultural sector, the SCM has not been used yet. In this context, the novelty of the present analysis is to assess the impact of the cohesion policy on tourism and cultural outcomes at a regional level by using this data-driven approach, useful in small-sample comparative studies.

4. DATA AND EMPIRICAL APPLICATION

Based on the literature that explains the positive relation between inward investments and regional economic growth[7], the hypothetical model under investigation is given in **Figure 1**. The work focuses on testing two main hypotheses. First, the investments arrived in the regions, specifically in the Convergence objective ones, generate positive effects on tourism that can be measured by an increase in overnight stays in the low season (H1). Second, the investments arrived in the regions, specifically in the Convergence objective ones, generate positive effects on the cultural sector that

[7] See the recent paper by Xu *et al.* (2020) for a review of this topic.

can be measured by an increase in the number of tickets and the per capita expenditure for theatrical and musical entertainment (H2).

[INSERT FIGURE 1 HERE]

In other words, the main objective of this analysis is to investigate if the EU cohesion policy during the programming period 2007-2013 has had a positive effect on tourism and culture as in the aim of the policy. The choice of this timespan is motivated by two main reasons, correlated with each other. First, a long time series is needed to evaluate a policy, including observations for pre- and post-treatment periods. Second, given that the most recent programming period is just finished, we cannot collect observations during the post-treatment. In particular, the effect is measured on three outcome variables: 1) nights of stay in low season as a tourism outcome; 2) cultural expenditure and 3) tickets for theatrical and musical entertainment as a cultural outcome.

To analyse this possible effect of the policy on regions, this work considers four Italian regions that were exposed to the "Convergence" objective as treated regions (Campania, Apulia, Calabria, and Sicily) and regions not exposed to this objective as the control group (Piedmont, Vallée d'Aoste, Trentino/Südtirol, Lombardy, Veneto, Friuli-Venezia Giulia, Liguria, Emilia-Romagna, Tuscany, Umbria, Marche, Lazio, Abruzzo, Molise, and Sardinia). The analysis includes the Basilicata region as a treated unit, which was admitted as an eligible area under the convergence objective for the treatment period 2007-13. **Figure 2** shows the total amount of public costs (histogram), and **Figure 3** shows the funds per capita (map) by region during the period under analysis. As reported by *OpenCoesione,* Tourism and Culture represent 7% of Italy's total resources spent on EU cohesion policy (approximately 6.3 billion). On average, regions received 116 euros per capita, with a maximum of 304 in Campania and a minimum of 8 euros in Trentino-South Tyrol and Friuli-Venezia Giulia (see **Table 1**). Moreover, the number of projects funded is heterogeneous: from 13 in Valle d'Aosta to 1,849 in Apulia.

Using the SCM, we compare each convergence objective region's tourism and cultural performance with a synthetic counterfactual that includes regions not affected by the policy during the period under investigation. The treatment year is 2007, the year when the programming period started. The pre-treatment period includes observations from 1998 to 2006, while the post-treatment ended in 2018. According to Albanese *et al.* (2021), the end of the post-treatment would be 2015, following the rule of "N+2" after the programming period. However, in this analysis, we choose to study the impact in the long run and control for some effect until 2018. To construct the counterfactual, the following socio-economic control variables are used: R&D expenditure of enterprises, number of plane passengers, people who use at least once per year train transport, total employment, total accommodation, and overnight stays per capita. This set of variables is selected among those available for the period under analysis and those that theoretical and empirical studies consider to have explanatory power for tourism and cultural demand. As suggested by the literature on SCM, some lagged values of the outcome variable are also added to the model. **Table 2** provides a complete list of variables, descriptions, and sources.

[INSERT FIGURE 2 HERE]

[INSERT FIGURE 3 HERE]

[INSERT TABLE 1 HERE]

[INSERT TABLE 2 HERE]

5. RESULTS

This section describes the main results of applying the SCM (Abadie and Gardeazabal, 2003; Abadie *et al*., 2010, 2015) [8]. As stated in the methodological part, this analysis is implemented considering only one treated unit at a time. Graphical representations for Campania, Apulia, Basilicata, Calabria, and Sicily are shown for the three observed outcomes: overnights in low season, cultural expenditure, and tickets sold for theatrical and musical entertainment. A placebo analysis is employed to evaluate the real impact of the policy. Additionally, to better interpret the effects of the policy and provide robustness to the analysis, it is provided inference (p-values) by comparing the estimated main effect with the distribution of placebo effects (Galiani and Quistorff, 2017)[9].

5.1 Synthetic control method: effect on tourism

Figure 4 shows the SCM results and the placebo tests for five treated regions. The statistic RMSPE is below zero in all cases, indicating that the synthetic counterfactual adequately mimics the path of the treated unit in the pre-treatment period. The donors and weights associated change in the regions under analysis. In general, regions more similar to the treated ones in the pre-treatment period are Trentino/Südtirol, Liguria, Molise, and Sardinia. The trend of the outcome variable overnight stays in the low season is positive and above the synthetic counterfactual some years after the treatment in each region, except for Sicily, where the variable shows a relatively static pace. Another relevant finding that arises from this analysis is the long-run effect of the policy. In other words, considering that the treatment starts in 2007 and continues until 2013 and that regions can spend funds until 2015 (*n+2 rule*), we find that after this year, the variable analysed grows the most. On the right side

[8] The STATA command *synth* is used.
[9] The recent STATA command *synth_runner* is used.

of the figure, the placebo tests confirm the positive effect of the policy, although some untreated regions show a better trend in some cases.

[INSERT FIGURE 4 HERE]

Even if the graphical representations above indicate a positive effect of the policy under analysis on the overnight stays in the low season for most treated regions, the study of the post-treatment effects does not confirm these results. Indeed, p-values are not significant, indicating that the policy did not have the expected impact on tourism flows in the low season[10].

5.2 Synthetic control method: effect on culture

This paragraph describes the effect of the policy on the two cultural outcomes analysed: cultural expenditure and tickets sold for cultural events. **Figure 5** and **Figure 6** show the SCM results and the placebo tests for five treated regions.

As far as cultural expenditure is concerned, the statistic RMSPE is below zero in all cases, indicating that the synthetic counterfactual adequately mimics the path of the treated unit in the pre-treatment period. The donors change in the regions under analysis, but in general, more similar regions in the pre-treatment period are Veneto, Liguria, Lazio, Molise, Sardinia, Umbria, Abruzzo, and Marche. The trend of this outcome variable displays heterogeneous results after the treatment. In Campania and Sicily, the effect is positive after 2011; in Apulia, it increases after 2008; in Basilicata and Calabria, the effect is negative. In this latter region, the trend is under the synthetic counterfactual. As in the case of tourism, also in the cultural sector, the effect starts some years later adopting the policy. However, on the figure's right side, the placebo tests only confirm the positive

[10] P-values are available under request.

effect for Apulia. Indeed, p-values are positive and significant only for this region every year starting in 2014.

[INSERT FIGURE 5 HERE]

As far as tickets sold for cultural events are concerned, the statistic RMSPE is between 2 and 4, indicating that the synthetic counterfactual does not adequately mimic the treated unit's path in the pre-treatment period in every region. The donors change in the regions under analysis, but regions more similar to the treated ones in the pre-treatment period are Lazio, Molise, Sardinia, and Vallée d'Aoste. The trend of this outcome variable displays heterogeneous results after the treatment. It is positive and above the synthetic counterfactual in Campania, Apulia and Sicily, while higher volatility is found in Basilicata and Calabria. The placebo tests confirm the presence of a positive effect in Campania (p-values significant in 2012 and 2014), Apulia (p-value strongly significant after 2010 for every year), and Sicily (p-values significant in 2012 and 2015).

As in the case of tourism and cultural expenditure, also with this outcome variable, the effect starts some year later the adoption of the policy. Moreover, concerning the other two outcomes analysed, the tickets sold for cultural events are more affected by the policy and seem to react in treated regions.

[INSERT FIGURE 6 HERE]

6. CONCLUSIONS

The European Union CP faces criticism mainly linked to its inefficiency. Do CP interventions lead to an optimal allocation of resources? Do they minimise interregional inequalities or produce significant effects only in areas with stronger pre-existing socio-economic conditions? These criticisms raise essential issues that need to be addressed by policymakers.

6.1 Policy implications

Our results show that CP expenditures have a positive association with the cultural sector but have been ineffective in most regions as for the tourism sector. The rationale behind the analysed programming cycle was to implement integrated projects, horizontally and vertically, capable of activating the cultural and environmental tourism chain. The low effectiveness of public policy in the 2007-2013 programming cycle is partly due to the regional strategic approach unbalanced on the valorisation of the "traditional" cultural sites.

The first policy implication is that, according to the results, project integration must be preceded by an enabling condition promoted by the policymaker. That is to say that the actors of both sectors, tourism and culture, must be able to exploit more effectively and efficiently the funds made available by the CP. Therefore, it is a question of initiating a process of institutional capacity building. This capacity building, however, must also be administrative. The regions must be able to plan the strategic phase and the executive phase of the implementation of CPs. As pointed out in the literature (Basile *et al.,* 2016), the implementation phase often significantly deviates from the strategic programming phase. This is due to the difficulties in organising the regional spending schemes. In Italy, as a matter of fact, during the 2007 – 2013 programming cycle, in 2011, the progress of spending was less than 10% of the total programmed. This regional bias matched with

the changed international context of the severe economic crisis and the limited ability of central and regional administrations to implement the intervention strategy envisaged in the programming phase effectively and expeditious. Therefore, a clear policy indication emerges in the direction of administrative capacity building.

Moreover, notwithstanding the limitation due to the complex nature of the CP framework, it seems that the regions have not been able to grasp the cross-sectoral nature of tourism policies. In fact, during the implementation phase of EU policies, the regions, especially those in southern Italy, have shown difficulty in planning systemic interventions at an operational level. More specifically, tourism policies are conceived as intersectoral. They include all activities and value-added services that have in common the objective of attracting and satisfying tourists, including through the experimentation of innovative approaches and the pervasive use of new technologies (ICT and Internet). In this sense, the public decision-maker is also called upon to think in terms of Destination Management, encourage coordination mechanisms and unitary governance of processes, to stimulate the aggregation of factors of attraction and services by looking at demand and the specific characteristics of the territory. Adopting the perspective of the tourist destination as a place (destination of the journey) in which the aggregate of cultural and natural resources is functionally integrated with services and infrastructures means facilitating the construction of a unitary tourist product, seizing an opportunity for territorial development that is ideally in tune with the potential of Italy. In addition, there is the need to improve the infrastructure and accessibility system, which is not always suitable, particularly in the South and in the Inner Areas of the country, to facilitate the arrival and stay of tourists, especially from distant countries, a problem to which the same CP is trying to respond. The consequent policy implication is a new approach to selection, and implementation methods of interventions carried out in the territories. The next CP cycle should rethink the strategic framework and strengthen the operational indications for implementation to incentivise the integration between projects and sectors.

A final consideration is needed concerning indicators. Both the scholars and the CP imperatives recognise the importance of the tourism and cultural sectors as drivers of development, reducing inequalities and generating territorial resilience. However, there is no monitoring system capable of collecting relevant data to launch more in-depth investigations at the regional (or even national) level. A policy line aimed at these purposes should encourage the creation of regional observatories on tourism and culture. Such a system of research centres would make it possible to conduct more effective analyses and responses and activate an evidence-based policy process.

6.2 Limitations and further research

As widely represented in the empirical literature, the appraisal of CP impact presents many difficulties due to the multifaceted nature of the issue. Here we assess if projects funded by the EU have positively affected tourism and the cultural sector by moving from a counterfactual approach. This work aims to find evidence to improve the regulatory mechanism behind the policy setting. Indeed, according to the methods applied and the context of analysis, we provide a helpful tool to better target policy measures in the tourism and cultural sector. From the 2007-2013 period, we have developed a new vision focused on the link between tourism and cultural and natural resources enhancement. However, the limitations of this study should be addressed. All the evidence pointed out is valid for a country-specific setting. For this reason, the future development of this work goes in the direction of comparative analysis at the European level, which requires harmonisation of the variables used to measure performance, especially in the cultural domains.

This means setting up the same identification approach, thus remaining fully comparable across countries to assess the CP impact on tourism and culture with EU-wide comparability of the results.

The counterfactual approach used in this work misses the analysis of the territorial contextual conditions and the factors conditioning the policy's success and failure. Literature suggests that the effects of CP are contingent upon several local and policy aspects (contextual). The choice to net

the policy impacts from other possible confounding factors has the main consequence of remaining uninformative on the factors influencing the effects estimated.

Both the two families of evaluation approaches, namely the contextualisation approaches, focus on the factors at the basis of policies' impacts, and (ii) the identification approaches focus on counterfactual methods to capture the net policies' impact, have strengths and weaknesses. It calls for more substantial synergies between the two approaches that involve difficulties associated with the poor availability of regional data. Moreover, the multidimensional feature of regional development led by CP calls for a more comprehensive and integrated approach to evaluating non-economic impacts that remain on the agenda for future research.

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FIGURES AND TABLES

Table 1. Data on tourism and cultural funds (2007-2013)

Regions	**Public costs €**	**Per capita funds €**	**Payment € (%)**	**Projects**

Trentino/Südtirol	7,886,944	8	7,483,977 (95)	28
Friuli-Venezia Giulia	9,287,287	8	8,650,582 (93)	34
Vallée d'Aoste	26,327,942	205	26,327.942 (100)	13
Umbria	52,751,285	58	39.871,371 (76)	397
Molise	57,282,375	179	49,977,627 (87)	159
Marche	89,336,399	57	81,448,978 (91)	446
Liguria	94,505,962	58	97,632,419 (103)	242
Sardinia	97,581,408	58	86,010,266 (88)	250
Lazio	112,561,567	20	110,206,933 (98)	97
Abruzzo	118,502,224	88	111,887,764 (94)	559
Emilia-Romagna	134,179,395	40	114,385,630 (85)	463
Veneto	140,721,821	29	134,069,917 (95)	179
Lombardy	184,770,518	19	167,855,888 (91)	140
Basilicata	195,804,589	333	116,332,267 (59)	446
Piedmont	242,569,561	54	216,309,068 (89)	481
Calabria	436,908,092	217	371,140,465 (85)	1,060
Tuscany	479,062,887	128	468,786,108 (98)	445
Apulia	876,660,003	214	719,726,627 (82)	1,849
Sicily	1,179,063,731	233	1,009,814,327 (86)	1,547
Campania	1,771,512,805	304	1,041,989,328 (59)	1,659

Source: our elaborations on OpenCoesione data

Table 2. List of variables

Name	Description	Years	Type of variable	Source
Overnights in low season	Number of nights spent by resident and non-resident tourists in a tourist accommodation establishment during non-summer months (days per inhabitants)	1998-2018	outcome	Istat
Tickets	Number of tickets sold for theatral and musical entertainment (per 100 inhabitants)	1995-2018	outcome	Istat
Cultural expenditure	Per capita average expenditure for theatral and musical entertainment (2012 constant euro)	1995-2018	outcome	Istat
GDP	GDP per capita	2000-2018	Predictor	Istat
R&D	Ratio between R&D expenditure of public and private enterprises and GDP (percentage)	1998-2018	Predictor	Istat
Plane passengers	Total number of plane passengers (per 100 inhabitants)	1998-2018	Predictor	Istat
Train transport	Ratio between people that used at least once per year the train and total population over 14 (percentage)	1998-2018	Predictor	Istat
Total employment	Labour force aged 15-64 years out of the total population aged 15-64 (percentage)	1998-2018	Predictor	Istat
Total accommodation	Total number of tourist accommodation establishments	1998-2018	Predictor	Istat
Overnights stay	Number of nights spent by resident and non-resident tourists in a tourist accommodation establishment (per inhabitants)	1998-2018	Predictor	Istat

Figure 1. Theoretical framework

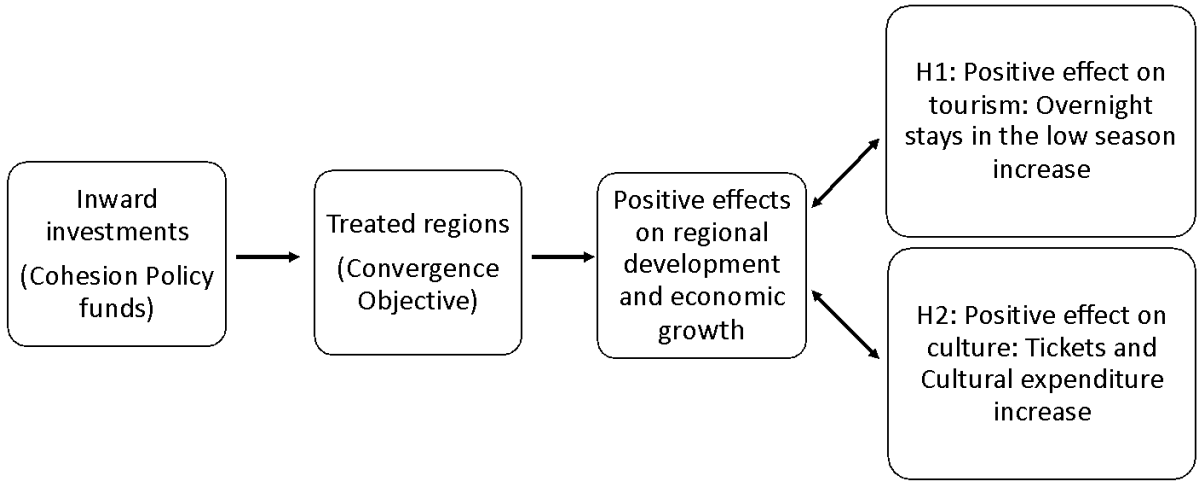
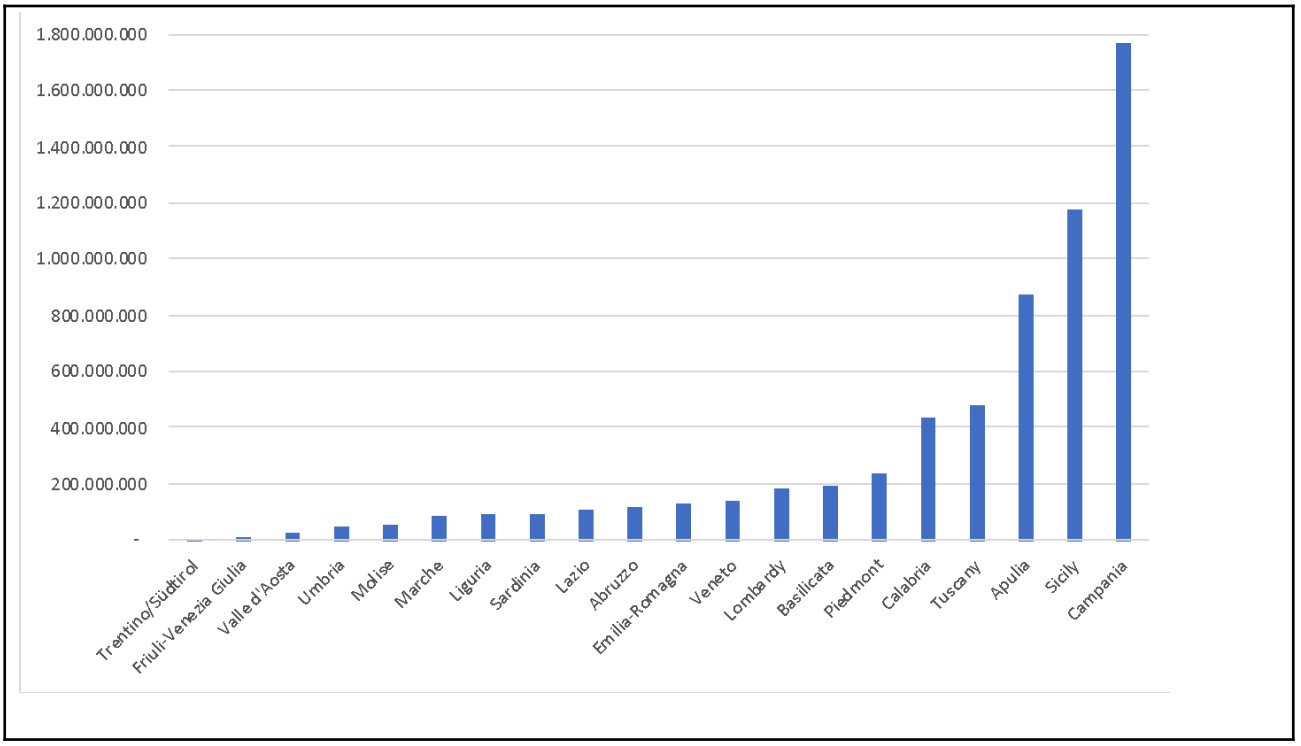


Figure 2. Public costs in tourism and cultural interventions at the regional level (2007-2013)



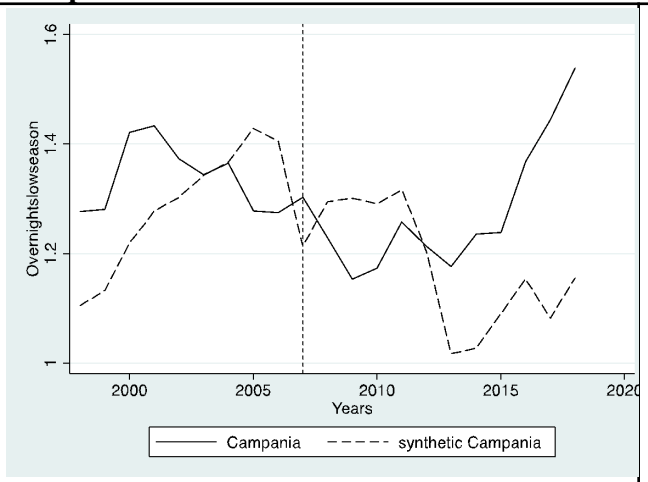
Source: our elaborations on OpenCoesione data

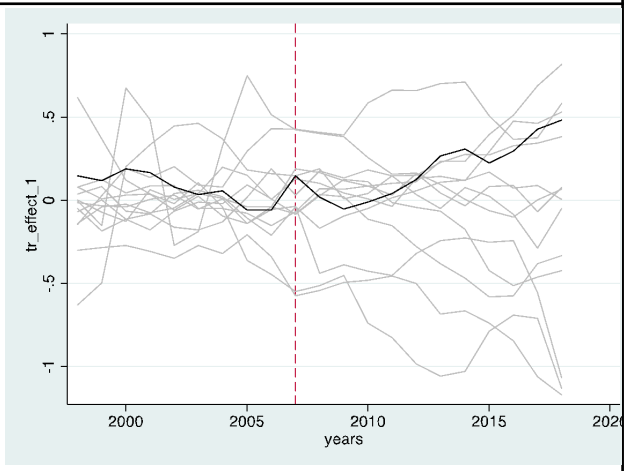
Figure 3. Per capita funds in tourism and cultural interventions at the regional level (2007-2013)

Source: our elaborations on OpenCoesione data

Figure 4. Overnight stays in low season in treated units versus synthetic counterfactual (left side) and placebo study (right side)

Campania

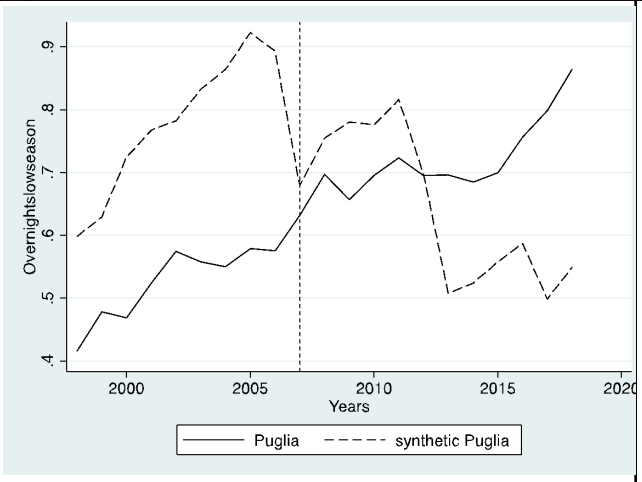


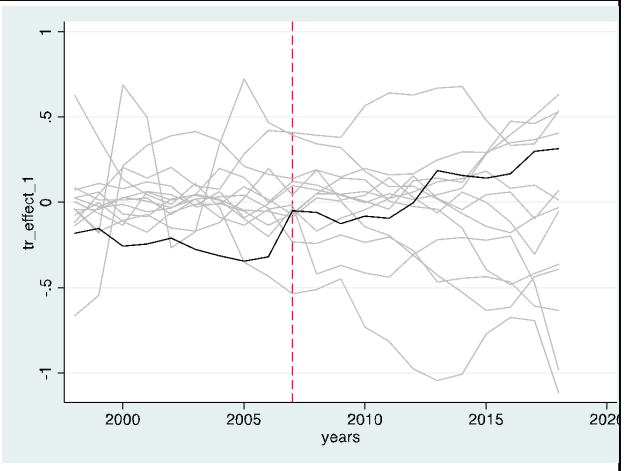


RMSPE= 0.13. Controls: Trentino/Südtirol – Liguria – Molise – Sardinia

Outliers: Vallée d'Aoste – Trentino/Südtirol

Apulia

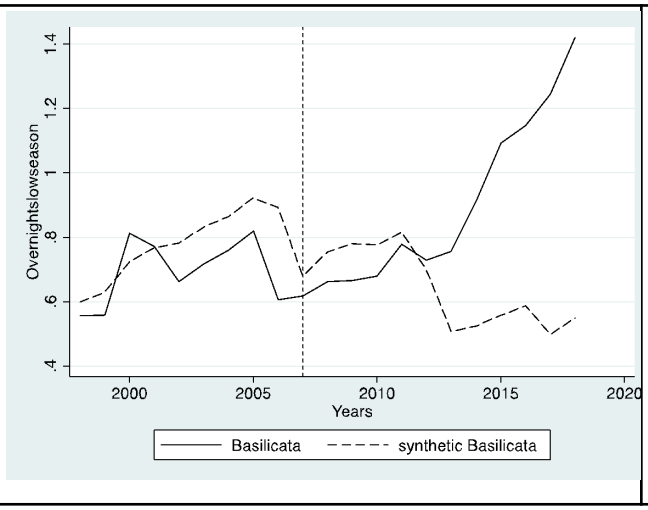


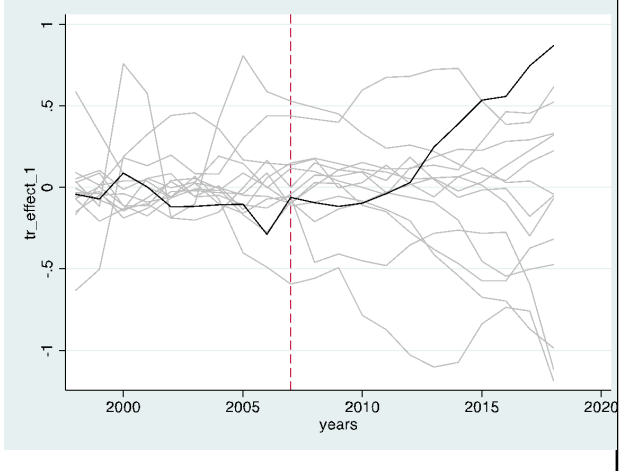


RMSPE= 0.26. Controls: Molise

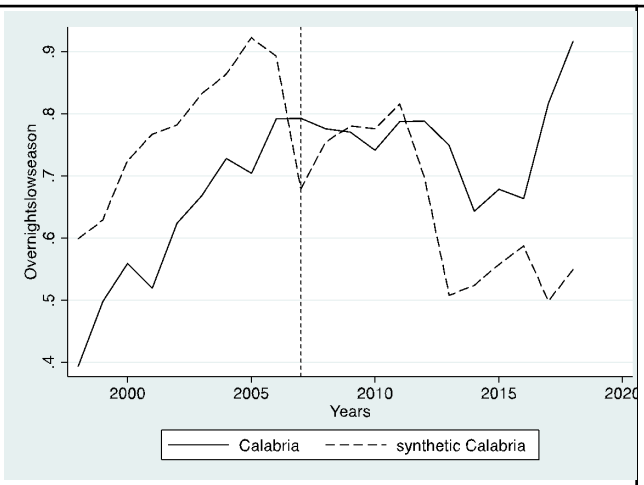
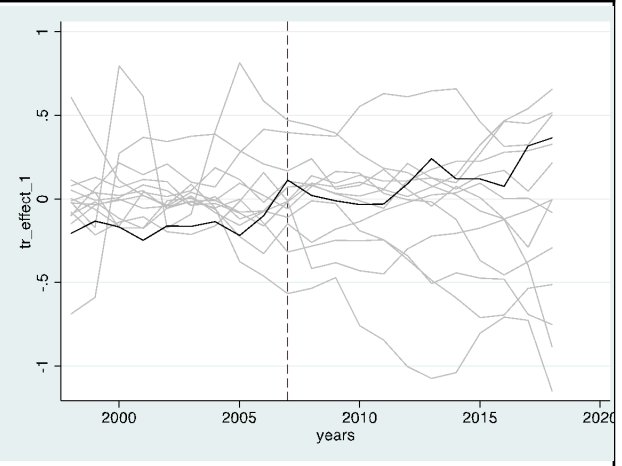
Outliers: Vallée d'Aoste – Trentino/Südtirol

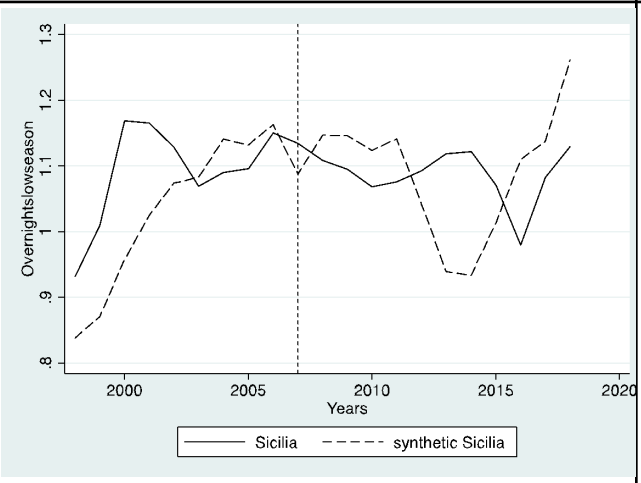
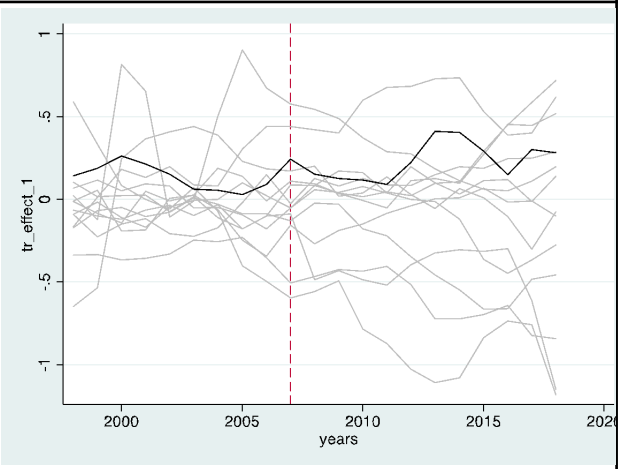
Basilicata





RMSPE= 0.13. Controls: Molise	Outliers: Vallée d'Aoste – Trentino/Südtirol

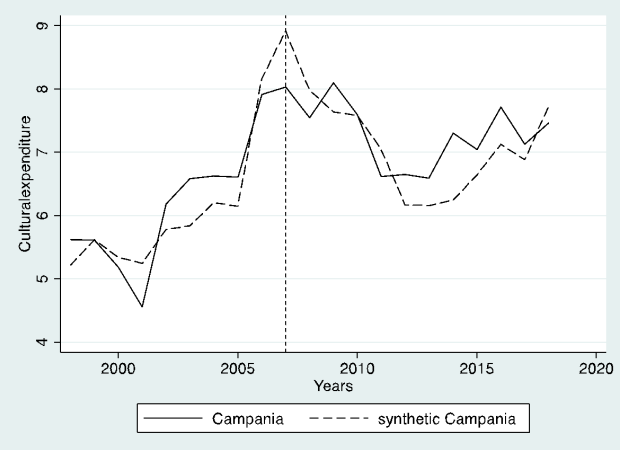
Calabria	
	
RMSPE= 0.17. Controls: Molise	Outliers: Vallée d'Aoste – Trentino/Südtirol

Sicily	
	
RMSPE= 0.10. Controls: Trentino/Südtirol - Molise - Sardinia	Outliers: Vallée d'Aoste - Trentino/Südtirol

Note: Figures on the left report the tourist overnight stays recorded in the low season. The continuous line indicates the treated unit, while the dashed line represents the synthetic control. Figures on the right report the percentage gaps between the simulated and the observed time series for the treated (in bold) and the control (in grey) units; RMSPE = root-mean-square prediction error.

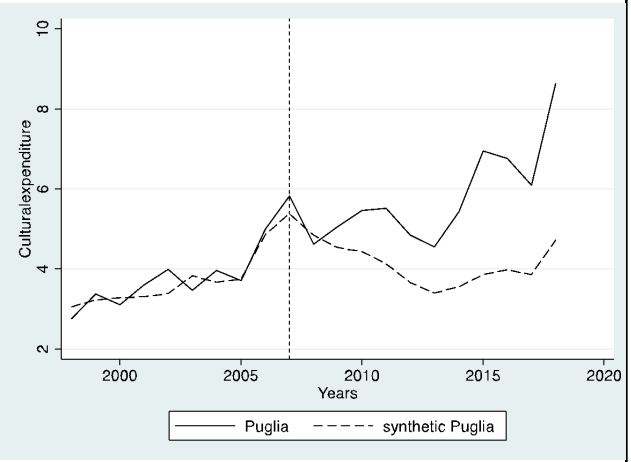
Figure 5. Cultural expenditure in treated units versus synthetic counterfactual (left side) and placebo study (right side)

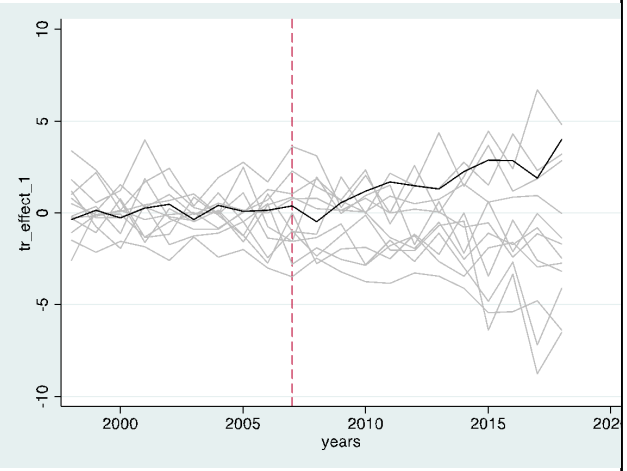
Campania



RMSPE= 0.45. Controls:
Veneto-Liguria-Lazio-Molise-Sardinia

Apulia

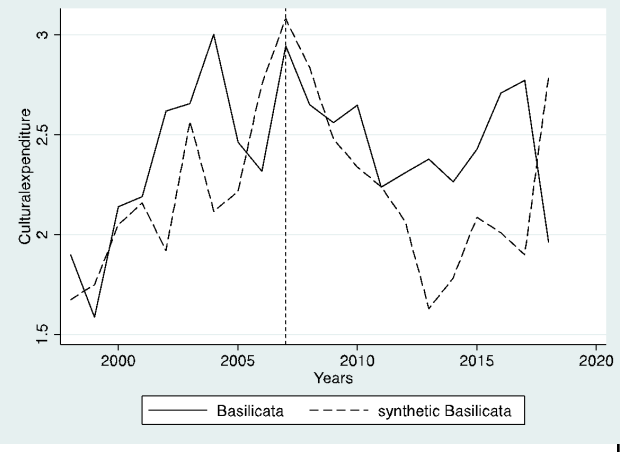


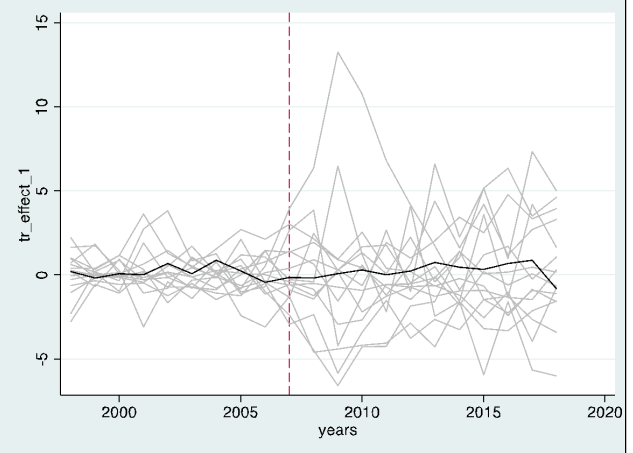


RMSPE= 0.30. Controls: Liguria-Lazio-Molise-Sardinia

Outliers: Vallée d'Aoste – Veneto – Friuli-Venezia Giulia

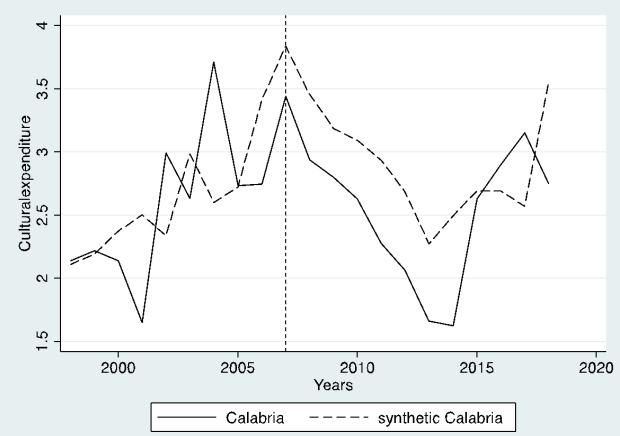
Basilicata

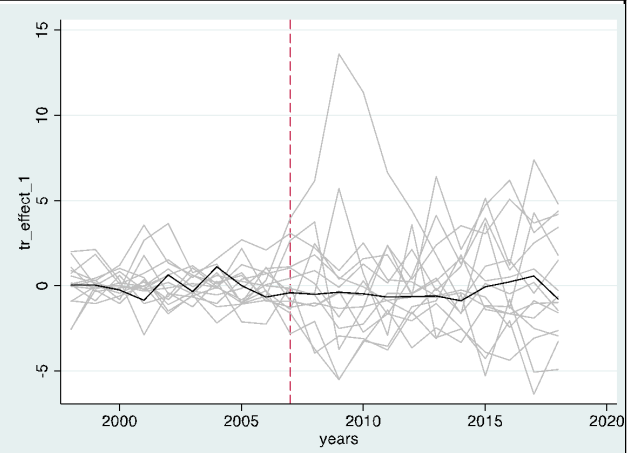




RMSPE= 0.42. Controls: Umbria-Lazio-Abruzzo-Molise-Sardinia	

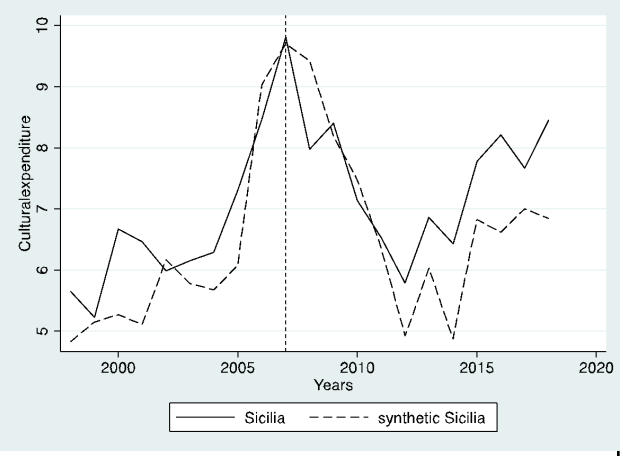
Calabria

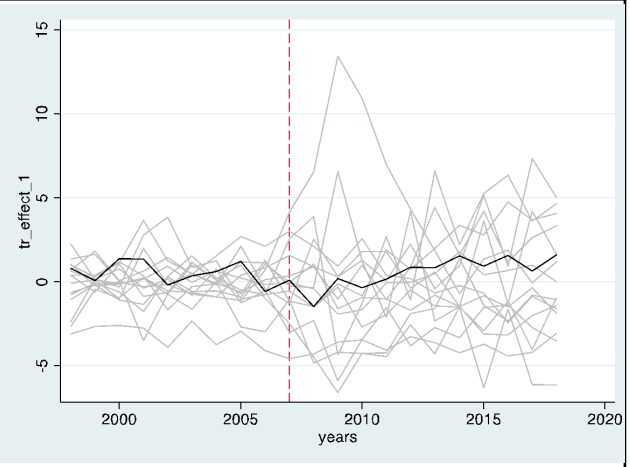




RMSPE= 0.58. Controls: Liguria-Lazio-Molise	

Sicily



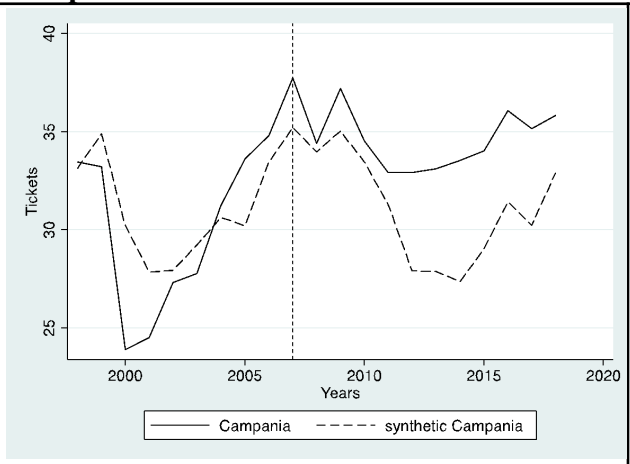


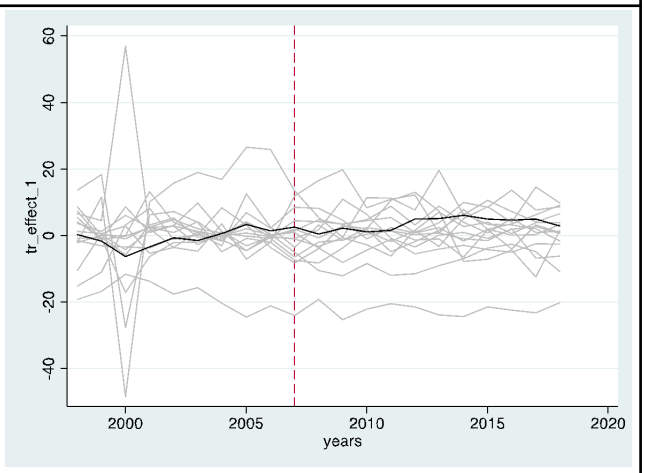
RMSPE= 0.87. Controls: Liguria-Marche-Molise-Sardinia	

Note: Figures on the left report the cultural expenditure. The continuous line indicates the treated unit, while the dashed line represents the synthetic control. Figures on the right report the percentage gaps between the simulated and the observed time series for the treated (in bold) and the control (in grey) units; RMSPE = root-mean-square prediction error.

Figure 6. Tickets sold in treated units versus synthetic counterfactual (left side) and placebo study (right side)

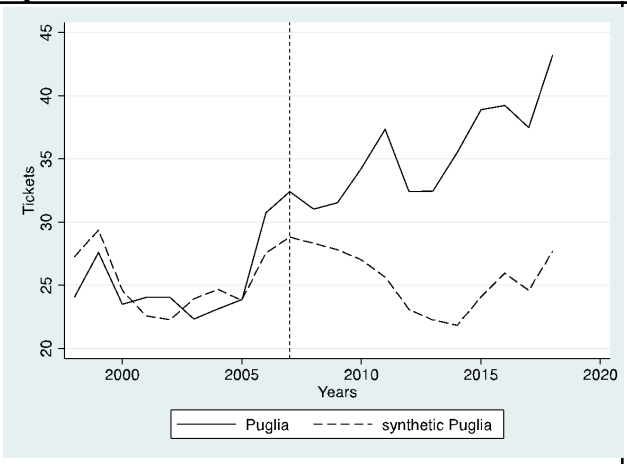
Campania

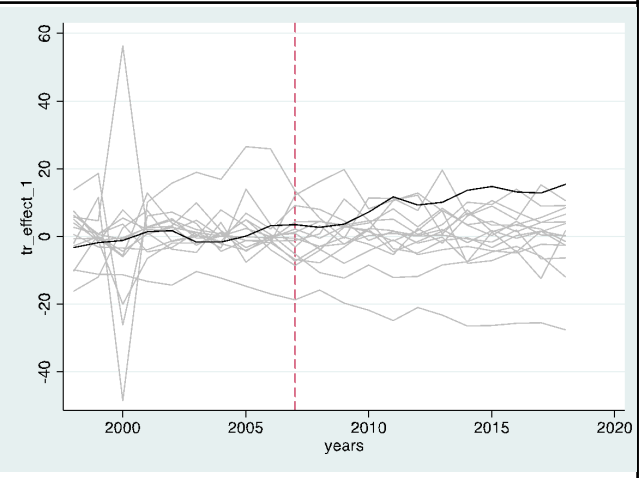




RMSPE= 2.8. Controls: Lazio-Molise-Sardinia

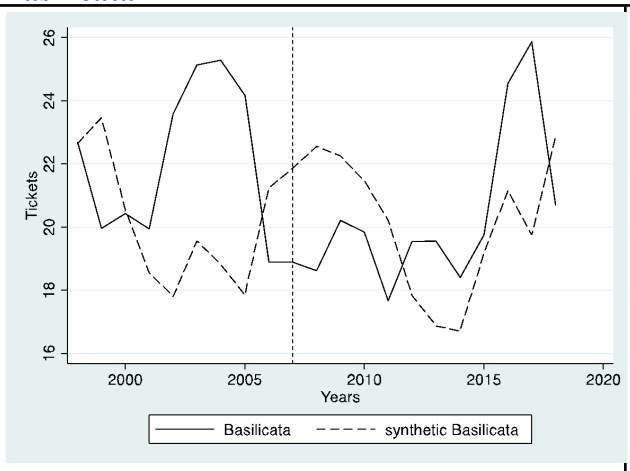
Apulia

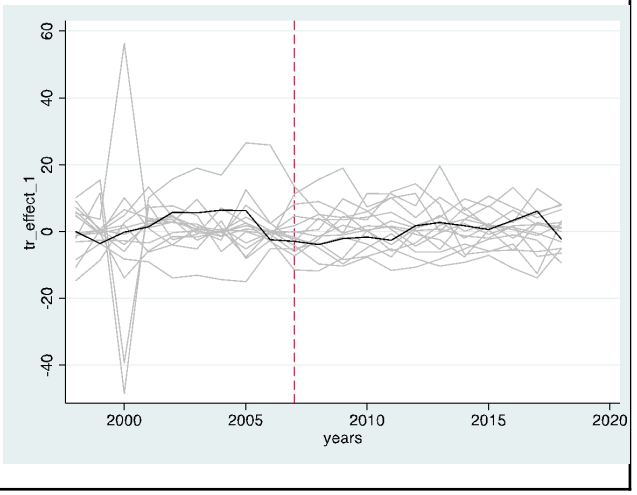




RMSPE= 1.97. Controls: Lazio-Molise-Sardinia

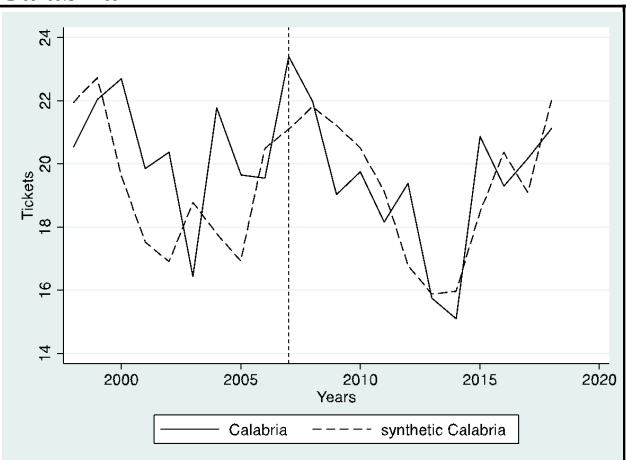
Basilicata

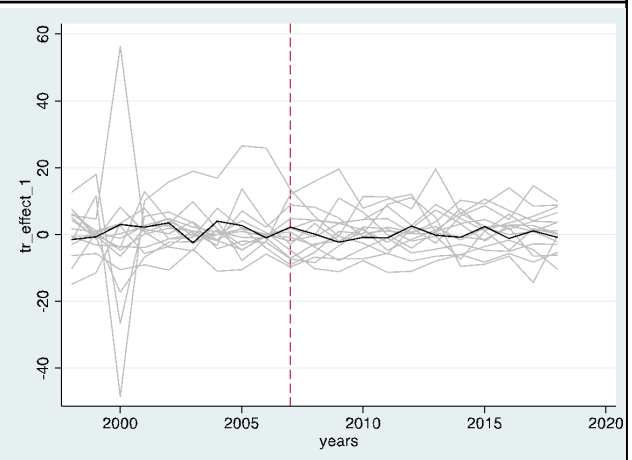




RMSPE= 4.29. Controls: Vallée d'Aoste-Molise-Sardinia

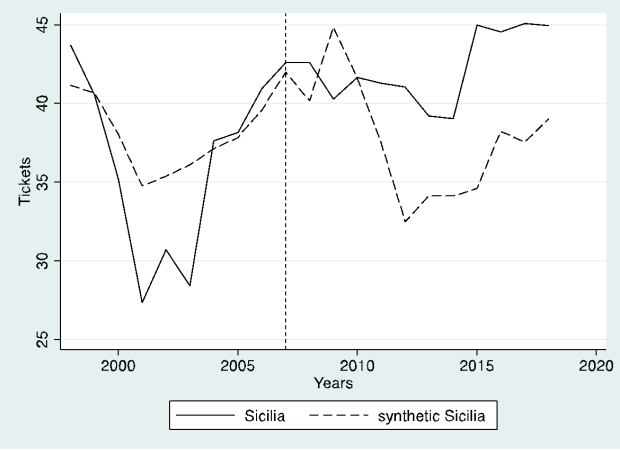
Calabria

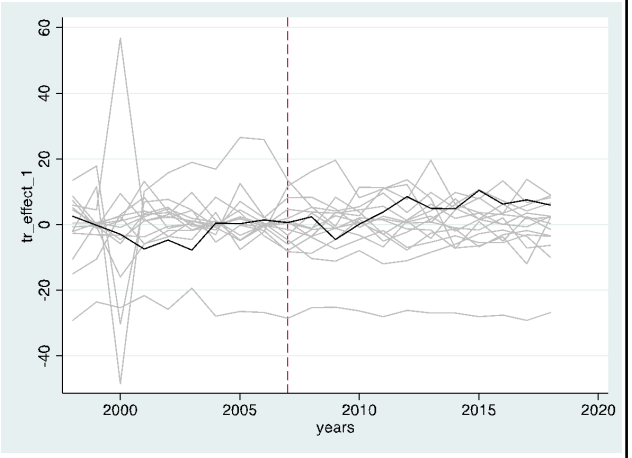




RMSPE= 2.56. Controls: Molise-Sardinia

Sicily





RMSPE= 4.13. Controls: Lazio-Molise-Sardinia

Note: Figures on the left report the number of tickets sold for cultural events. The continuous line indicates the treated unit, while the dashed line represents the synthetic control. Figures on the right report the percentage gaps between the simulated and the observed time series for the treated (in bold) and the control (in grey) units; RMSPE = root-mean-square prediction error.