Erasmus University, Cultural Economics and Entrepreneurship

Museum districts

Final Thesis

Abstract

Cultural clusters seem to have a leading role in urban and cultural policy decisions. In recent years, more and more cultural clusters attract investments, in the hope that as an accentual part of the considered-to-be-booming cultural sector, these investments would be profitable on the long run. Such promising effects can be attributed to the development in the related cultural industries, to the growth in the tourism, accommodation and food service sector, moreover to the revitalization of city parts. For instance, if a region decides to support or develop a museum cluster in order to make the area more attractive for tourists, such decision can determine the cultural policy for years, as it is currently the case in Budapest, Hungary. The project of organizing a museum district requires several changes in the urban circumstances, cultural system and a well-developed management team, in order to successfully reorganize the image of the city and attract more tourists. But what is the exact influence of a museum district to tourism? In this thesis, I applied a mixed method analysis to answer this question. In the quantitative part, I am investigating the measurable factors that can contribute to the possibility that a region decides to develop a museum district. Based on the findings, the actual impact on tourism can be examined, but unfortunately the model I use is not without limitations. Changes in social, historical and political circumstances cannot be measured, but it turned out that they are indeed important factors. Thus, in a qualitative part I am comparing three cases of museum districts. The findings of the analysis shows that museum districts influences tourism significantly, in a positive way. But it is almost impossible to forecast its success, as it depends on special circumstances.

Keywords

Cultural clusters, cultural districts, urban planning, museum districts, cultural tourism, regional distribution of activities, econometric impact analysis

JEL: H75, L82, L83, O30, O52, R12, R15, R58, Z10

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Contents

Introduction

Culture offers interesting opportunities for policy making and urban planning. Cultural development and economic development are interdependent and go hand-in-hand in an urban environment. During the course of the last two decades, developing cultural clusters have become more and more common options to revitalize and redefine cities or districts. Clustering is just a natural reaction of actors of the cultural sector on the fact that economic development changes the location of cultural organizations and proximity matters when trying to reach the market and other producers. In that way, creative clusters are important areas to target subsidies and investments in an urban environment. Also, creative clusters are regarded as a growing and promising field of economic development with a promise of high return. Nowadays, clusterization in creative industries is getting more and more support, contributing to their success is a kind of fashion and prestige.

Moreover creative clusters, especially museum districts are designed to provide greater efficiency to reach new consumers and innovations. In Hungary, a new flagship project emerged in the last two years to create a museum district for greater economic success. It seems that economic growth is the main aim of the project, as it may focus on "the beneficial effects from the national-economic point of view", such as the growth in the amount of spendings of more visitors (Liget Budapest). This project determines the cultural policy for years in the region thus I as a future Hungarian cultural entrepreneur certainly feel the inclination to research such an important field of cultural economics.

This final thesis aims at describing how different types of developments in museum districts effects flow of visitors in regions. Since it seems that both cultural and economic investments in cities can be concentrated in museum districts, this study examines the effects of the investments, with a specific focus on tourism growth. Thus, the research question is: to what extent museum districts contribute to a growth in tourism of a region?

To answer the main research question, it is important to determine the factors which can be considered as indicators for establishing a museum district. How can these factors influence cultural policy decisions related to a museum district? It seems that economic investments and government subsidies can influence both the demand and the supply side of the cultural market and, together with other strategies, cultural development manifest in cultural tourism and in the development of the urban environment. Further research can reveal the results of economic and cultural development in museum districts. It seems that arts innovation reaches

the optimum level in art clusters, owing to the concentrated creativity, knowledge and extensive networking (Bille & Schulze, 2006). The success potential in these art clusters provides creative growth and several new ways for the cities to redefine themselves. These ways are different in each region which decided to develop a museum district, aiming to attract more tourist and redefine its international reputation. But did museum districts cause positive externalities? If so, what was the approach and what investments were organized? How did the different infrastructural, demographic, cultural and political arrangements influence the success of the investments? This work aims at answering these questions, based on a quantitative analysis of European museum districts and further investigation of different case studies. The analysis will focus on the possible factors that may influence a region to develop a museum district, such as size, attracted tourists and cultural assets, as the data collection will refer to them, but the final aim is to diagnose the impact on tourism of organizing a museum district.

After the introductory part, the literature review is followed by the description of the methodology applied and the data used. In the Methodology chapter, I introduce the two equations to be estimated; and the major steps used to identify them and also to avoid pitfalls. In the Data chapter, data used is presented, where I elaborate on the origins and accessibility of the collected data.

In the next chapter, I present the data analysis and summarize the results. For that purpose, I used the R-project statistical packages. The collected data is organized into spatial cross-sectional series and into panels, on which the statistical application is used to estimate the equations. Findings of the analysis, i.e. the importance of factors related to establishing a museum district, and whether museum districts influence the flow of tourism, are also analyzed in the Findings part.

After the quantitative analysis, the qualitative part comes. Here, I present three different cases (regions) where establishing a museum district has or has not taken place. One chapter will elaborate on the Vienna MuseumsQuartier, how the processes took place and the various conditions and circumstances which may defined the success of the project. The second chapter of this part will investigate the similar case of the Berlin Museumsinsel. The third chapter will introduce a region where cultural circumstances were similar to those of Berlin, but the local government has not decided yet to develop a museum district. In these chapters, I also make an attempt to highlight impacts on the attracted numbers of tourists, whether such advantages are connected with museum districts or not. In this way, further factors that

influence the probability of establishing a museum district can be revealed, in addition to the quantitative findings. The Final Thesis then ends with a comprehensive conclusion.

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1 Literature review

Over the last 50 years, city planning and strategies have been focusing on culture, creativity and clusterization as a tool for regenerating urban areas (Bagwell, 2008). Places can be important for economic activity when firms are clustering, generating advantages (Florida, 2003), such as the growth of cultural tourism in museum districts. In my final thesis, I analyze such connections between clusterization and cultural tourism in the case of museum districts. In order to get a broader theoretical framework for my research, I overviewed articles about clusterization in creative industries, about cultural districts and cultural tourism.

Since the 1950s the topic has emerged into one of the most important and popular field of cultural economy. Therefore, the existing literature about cultural clusters is reasonably broad. The aim of the literature review is to summarize and highlight the benefits of development strategies manifested in cultural clusters, with a focus on museum districts, and on the importance of tourism in cultural sights.

1.1 Clusterization in creative industries

As a first step, it is important to list the possible characteristics of creative industries. An industry is creative if the products, services and goods are based on creativity.

> "Industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (DCMS, 2001:05).

Traditionally, such industries are connected to culture and refer to design, art, architecture, crafts, and sometimes to media as well.

In their research, Lazzeretti et.al. characterize creative industries by agglomeration and the tendency to cluster in cities (Lazzeretti, Boix, & Capone, 2009). Or, as Porter describes, the map of today's economy is "dominated by clusters of competitive success in particular fields" (Porter, 1998, p. 78). According to Porter,

> "Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example suppliers of specialized inputs such as components, machinery and services, and provider of specialized infrastructure" (Porter, 1998, p. 78).

Based on the tendency of clusterization and the possible advantages, industrial districts were first researched by Alfred and Mary Marshall (Pozzolo, 2007). Clusterization is an important

element of the processes that contribute to an urban area becoming a district (Cinti, 2008). Marshall claimed that a set of industries specialized in various stages of the same production process would be able to provide significant advantages if they were organized into a district within a limited area (Pozzolo, 2007). Although it is not clear whether it is appropriate to derivate cultural districts from the Marshallian type of industrial districts, several features of industrial districts have been used to describe cultural districts (Pozzolo, 2007). Cultural districts are "geographical areas that contain the highest concentration of culture and entertainment in a city or town" (Hitters & Richards, 2002). In order to describe cultural districts, differences from the industrial approach has been researched. Aside from a few exceptions which will be described later in the study, cultural districts are focusing on consumption and attracting tourists and users of cultures (Pozzolo, 2007).Cultural districts can grow or can be stimulated by various strategies from the private and public sector (Hitters & Richards, 2002).

The stimulation of clusterization in cultural districts is due to various causes, possible advantages, and there are different theories on it.

- The first reason can be the factor of distance, elaborated by Bille and Schulze. For creative industries, two types of distance matters, i.e. proximity to market and proximity to other producers (Bille & Schulze, 2006). In their research, Bille and Schulze connect clusterization directly with proximity. Moreover, Lazzeretti identifies distance as well, amongst the five reasons for clustering. Historical and cultural endowment, proximity to political power, agglomeration economies related to variety, concentration of human capital and Floridas' 3T (technology, tolerance, talent) (Lazzeretti, Boix, & Capone, 2009). Additionally, for potential buyers and suppliers, distance is a determinant factor regarding cultural choices. Local museum visitors tend to choose close institutions (lower cost of travel and time), because of that such art industries tend to cluster in bigger cities.
- Another cause for clustering can be the possibility to benefit from a well-organized network. According to Santagata, firms and organizations can gain positive externalities from the network created in the cluster. A good network can lead to the buzz of knowledge and information, which contributes to the birth of new products, processes and more buyers (Santagata, 2004, p. 8). At least one part of the success of clusters is attributed to the linkages and networks created by a cluster within a business (Porter, 1998).

- On the other hand, clusterization can occur because of positive supply-side effects, from economies of scale or scope. Economies of scale occurs when an additional exhibition, events raises total costs only marginally, and level of utilization of a common infrastructure in a museum district clearly offers that. These external agglomeration economies (geographically bounded inter-firm spillovers) of similar firms (Alcacer & Delgado, 2012) are called localization. Economies of scope occurs when additional events and services can be sold under a common umbrella, e.g. in the case of a thematic tours or specialized temporarily exhibitions (Bille & Schulze, 2006). Such external agglomeration economies of different industries are called urbanization. The advantages of localization are the skilled labor market, the possible suppliers specialized in other parts of creative production chain and local knowledge spillovers (Lazzeretti, Boix, & Capone, 2009).
- The advantages of a creative milieu, might indicate clusterization as well. Some advantages of cultural clusters are generated by attracting creative people. Thus, constructing a creative environment – milieu – is fundamental in public interventions. A strong cultural and social milieu is important to Marshallian type districts, it attracts expertise, technical staff and businesses. Such a milieu can also be important to organize districts in local culture (Pozzolo, 2007).

> "A creative milieu is a place – either a cluster of buildings, a part of a city, a city as a whole or a region – that contains the necessary preconditions in terms of 'hard' and 'soft' infrastructure to generate flow of ideas and inventions. Such a milieu is a physical setting where a critical mass of entrepreneurs, intellectuals, social activists, artists, administrators, power brokers or students can operate in an open-minded, cosmopolitan context and where face to face interaction creates new ideas, artefacts, products, services and institutions and, as a consequence, contributes to economic success. " (Landry, 2000, p. 133)

The regeneration of districts may aim to attract the creative people and reanimate the cultural life of the area, while creative activity of such people can be seen as a factor of innovation, several businesses believes in progression based on creative ideas from their workers. (Lazzeretti, Boix, & Capone, 2009). Following this path, as creativity fuels economic growth, human creativity is and will be a significant resource for companies. Thus, companies move where creative people can be found. (Bille & Schulze, 2006). Creative people shift jobs fast and move to other places for new

challenges, which they can find in places where free circulation of ideas can emerge (Santagata, 2004).

- Finally, competitive advantages of clustering were described by Porter. Firms gain competitive advantages by attracting more creative talent, described in the above point (Florida, 2003). In this way, technological innovation and industries, local graduates and the rate of creative jobs, and openness towards different cultures determine local possibilities in order to develop economic growth (Lazzeretti, Boix, & Capone, 2009). Besides, clusters are increasing productivity amongst the organizations in the same area, also drive the directions of innovation, providing guidelines for future productivity and growth as well. Stimulating the creation of new businesses can be also connected to clusterization (Porter, 1998). Unfortunately, several researches proved that Porters' concept shows ambivalences, as he only concentrates on local linkages. Based on research, Simmie suggests that national and international connections are equally important for firms (Simmie, 2004).

In order to manifest such different advantages of clusterization, several strategies have been introduced in creative districts.

1.2 Cultural districts

As it has been introduced above, developing a cultural district is often different from developing industrial districts. The developing strategies and type of governance can also possibly differ, because of the role of the public sector (Pozzolo, 2007). As Lazzeretti et.al. suggest, creativity is important in district regeneration (Lazzeretti, Boix, & Capone, 2009). It may seem that for cultural districts it is not beneficial to apply a top-down model (Pozzolo, 2007). Finding the right strategy is a risky, uncertain, hard and creative process. A pure industrial approach that may be efficient in industrial districts have its limitations in the case of cultural districts (Santagata, 2004).

Thus, an empirical model was suggested by Lazzeretti et.al., which contains the limitation of the non-linear connection between clustering and its determinants (Lazzeretti, Boix, & Capone, 2009). The five factors used in the empirical model are:

1. Historical endowment of an area
2. Level of localization
3. Urbanization of economies
4. Human capital

5. Floridas'3T (This approach focuses on the importance of talent, technology and tolerance (Bille & Schulze, 2006)

Each factor uses several variables and a few dummies. The results of the research suggest that the factor of urbanization economies is not an actual determinant of economic development strategies, and the 3T of Floridas' model either has coincidences or some of them are significant in particular areas only, whereas in other areas they are not dominant. As it was articulated by Porter and Pozzolo, clusters often include governmental and other institutions, in order to provide specialized training, education, information and support (Porter, 1998). While the research in Italy and Spain revealed that the clustering of creative employment is highly correlated with the proximity to political power and funds, with firm sizes and with the level of education of the creative class (Lazzeretti, Boix, & Capone, 2009).

Although the empirical model above can help to evaluate development strategies, the factors of success may vary. In her research, Bagwell investigated the success of public involvement in Londons' inner jeweler district. The district suffered from low employment rate and public intervention attempted to raise this rate. The author describes three main factors of an effective regeneration strategy (Bagwell, 2008):

1. Presence of functioning networks and partnership
2. A strong innovation base with supporting R&D activities
3. The existence of a strong skills base

At the end of her research about the influences of governmental developing programs on London's inner jewelry district, the author questions the significance of all the three factors. Hence, the level of network linkages turned out to be hardly determinant, while some value of competitiveness are also only important to a few firms. Additionally, public intervention may have impacts, but self-selection process limits these impacts. Besides, the author could not determine a single evidence of what development strategies can achieve in different circumstances (Bagwell, 2008).

The degree of public involvement and governmental support is only one factor in the management of districts. Management processes include administration, the degree of change and cultural content as well (Cinti, 2008). In order to draw up a clearer picture of the efficiency of different management types, different development strategies in different circumstances has been researched by Hitters and Richards (Hitters & Richards, 2002). The authors' hypothesis focused on the possibility that cultural clusters are bridges that link global

and local activities. Following this path, developing a cultural district has two sides, such as developing the district for producers and develop products to attract consumers as well. In these processes, public and private intervention has various activities and consequences. Management strategies vary on the scale of hands-off to centralized approaches. Moreover, management contains administration, public involvement, principal changes and programming. In their research, Hitters and Richards (2002) examined two cultural clusters, the Witte de Wittstraat in Rotterdam and the Westergastfabriek in Amsterdam. The latter one is led in a centralized way by the local authority. The Westergastfabriek established a collective image, where attracting a mixed range of tenants and consumers are equally important. This image may focus on common characteristics of the buildings, of their advertisements and social media, but tries to emphasize the diversity of cultural workshops and entrepreneurs (Westergasfabriek). Openness both on the demand and on the supply side is fundamental. The management is organized by criteria such as combining visitor attractions and cultural activities, attractions are oriented to subsidized and commercial activities and are characterized as intercultural. On the other hand, in Rotterdam, mainly young organizations were interested in re-locating to the cluster, and these were attracted by the initiatives provided by the local authority. Moreover, a few formal collaboration were born between the organizations. Regarding their visitors, the Witte de Wittstraat cluster attracts a broad range of highly educated visitors, who use different elements of the cultural supply. Thus visitors combine two or more functions of the cluster, such as drinking a coffee in a restaurant and visiting a gallery.

As the above researches show, there are different goals for cultural districts in urban regeneration. The aim can be to reposition a place, to enhance cultural heritages, to fuel population and employment, to strengthen local community identity, to support artistic and cultural activities and to stimulate creativity and innovation (Cinti, 2008). To achieve those aims, Cinti suggests to focus on the following elements of strategies (Cinti, 2008):

- The leadership is presented with skilled actors who support district implementation
- The structure and the administration are built up from the network between actors
- Effective collaboration between private and public sector
- Carefully designed cultural content, based on shared vision and quality
- Diversified financial sources
- Trademark creation
- Regulation of property rights and quality standards

- Participatory decision-making processes

Some of these points can be important, because of their possible reflection to the museum district I will introduce later. The way of governance operates, the management model, the funding system and the branding process may all influence the establishing of a museum district. Moreover such elements can presumably determine the influence of the museum district to tourism.

1.3 Museum districts

Four types of cultural districts were introduced by Del Pozzolo, based on the distinction of Santagata (Pozzolo, 2007):

1. Industrial Cultural Districts
2. Institutional Cultural Districts
3. Metropolitan Cultural Districts
4. Museum Cultural Districts

The group of industrial cultural districts have similarities to the Marshallian industrial districts, and refers to e.g. the concentration of film industry in the Hollywood area, which is territorially limited, with several companies operating in the same field, but in various stages of processing and the local population is highly affected by the cluster. Institutional CD-s refer to the share of rights and can be similar to Industrial CD-s in some way, e.g. a wine label can be protected, referencing the locality of the process and the product, as well as the local craftsmanship and population. While the last two group differs from the Marshallian type of industrial districts, Metropolitan CD-s represent the concentration of entertainment, culture and related technical industries in a city area, but because my work focuses on museum districts, the latest group will be elaborated. In museum districts, the integration of fundamental knowledge and know-how is basic between firms in industrial districts, it is not common between museums, but some level of knowledge exchange is important to maintain a cultural atmosphere to attract consumers. Moreover, the contribution of museum districts to local economic growth is indirect and different from the industrial approach. Museum districts can be described as “the integration of museum institutions and designed to achieve greater efficiency and management effectiveness, partly by reaching a critical mass and ideal dimensions.” (Pozzolo, 2007, p. 5). Museum districts focus on attracting visitors and on their consuming cultural goods and services (Pozzolo, 2007). To reach a critical mass is a key to their survival (Santagata, 2004). A successful museum district can attract cultural users and

tourists, thus it can contribute to a better positioning of the city in the (European) culture and can provide incentives for local accommodation services (Pozzolo, 2007). Furthermore, to represent a specific image of an area, a museum district is a more visible flagship than a single museum (Cinti, 2008).

The governance and management mainly applies top-down systems, they are supported and financed by the public and private sector and do not produce profit, moreover public policy governs the museum district (Pozzolo, 2007). Usually, a museum district is a product of accurate city planning and developed where some level of cultural capital and institution of museum collection are already represented. In order to create more than just the sum of the already existing institutions, management strategies in museum districts require an adequate perspective of public policy. In that policy, determining the optimal size of the museum is crucial, where the museum can be developed alone or it can be united into an association of museums. Three possible externalities can be involved to apply a districtualization strategy: externalities of network (e.g. bandwagon effects), externalities of time and economies of scale and scope (Santagata, 2004).

In the age of globalization, economic competition has shifted on the urban and regional levels. Thus developing a "new image" of a city, acceptable for various kinds of stakeholders is an efficient strategy, in which culture plays a basic role. Examples are the museum districts of Rotterdam, Utrecht and Vienna that received regular public funding in order to attract big businesses to the area. But in several cases, as it will be elaborated describing the case of the Vienna Museumsquartier, the main purpose for developing a museum district is to generate new impulse to the tourist sector, and major resources were spent on cultural facilities and tourist services (Cinti, 2008). Besides, tourist activities are fundamental to support a lively and sustainable environment, thus strategies emphasize development to attract more tourists (Russo, 2002). In addition to the cultural energy brought by tourists to a specific area, the attracted visitors spend money on culture and on related services (restaurants, entertainment, and accommodation). Their spending contributes to the economic, social, cultural growth of a city or of a region. These spending impacts are mainly based on cultural tourism (Bille & Schulze, 2006), although it is still uncertain what is the exact definition of cultural tourism. Basically, developing a museum district is a marketing tool to determine, whether the image of the city is attractive and recognizable enough for tourists (Cinti, 2008).

Still, on a closer look, tourists are important for the museums as well, whether they are already part of a museum district or will be. Since most of the time museum districts are

supported by the government, museums has to demonstrate the effectiveness of the subsidization, with growing popularity. The needs and satisfaction of the cultural audience are become more concentrated, while the visitor numbers are about to grow. One main element is to achieve such growth is to attract tourists, who can spread the image of the museum to far away countries and markets. Besides, it was estimated that without tourists, many cultural institution would be unable to maintain their operations (Richards, 2005).

1.4 Cultural tourism

The definition of cultural tourism may be more complicated, but one approach would describe it as

> "visits by persons from outside the host community motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution." (Silberberg, 1994, p. 2).

The target or destination of cultural tourism are institutions, which may linked because of clusterization, hence cultural districts likely become focal points of such tourism (Silberberg, 1994) . Moreover, it has been researched and proven that a correlation can be drawn from the cultural purpose of the visit (museums, galleries, theaters, concert halls) and the length of the stay (Russo, 2002).

Another approach to define cultural tourism is based on culture and tourism is highly preferred, whereas both phenomenon have changed a lot at the end of the 20$^{th.}$ century. Cultural products, e.g. museums become more and more various, accessible and the number of them has been growing significantly since the second half of the 20$^{th.}$ century. The shift from the interest of a privileged social group toward amusing various public groups, is shown in the boom of the number of specialized museums. The same change can be seen in the pattern of tourism consumption. After the 1970s tourism products become more segmented to attract more social groups, where culture was seen as an indicator not a segment itself. In the age of tourism becoming a global industry creating income and jobs, governments have realized the option of attracting tourists (who are tired of crowded beaches) with cultural sites. Since the connection between tourism and culture has always been strong and recent processes made it even stronger, the definition of cultural tourism might have appeared as new and changing (Richards, 2005).

Whereas, the definition of cultural tourism maintains some uncertain features, mainly because of the changing paradigm in the field of tourism and culture. The WTO defines tourism as

> "the activities of persons during their travel and stay in a place outside their usual place of residence, for a continuous period of less than one year, for leisure, business or other purposes" (World Tourism Organization, 1993).

The notion of cultural tourism refers to two approaches that define culture as a process or as a product. Culture as a process relates to the creation and its social context and the processes through which people make sense of themselves and of their lives. Or, culture is regarded as the product of individual or group activities to which certain meanings are attached.

Moreover, in the field of tourism, tourists seeks culture in order to deepen their experiences, however such motives can be more connected with cultural consumption, whereas historical sights, famous museums and festivals can be seen as cultural products, and the focus tends be more on consuming those products, rather than participating in cultural processes. However, the definition of cultural tourism may also contain the various cultural activities of tourists, and the visits of cultural attraction (Richards, 2005). Two definitions are provided by the ATLAS of the Cultural Tourism Research Programme, which combines the above described two approaches toward cultural tourism:

> "The movement of persons to cultural attractions away from their normal place of residence, with the intention to gather new information and experiences to satisfy their cultural needs" (Richards, 2005, p. 24).

> "All movements of persons to specific cultural attractions, such as heritage sites, artistic and cultural manifestations, arts and drama outside their normal place of residence" (Richards, 2005, p. 24).

Such complicated concepts are due to the fact that cultural tourism is not a new phenomenon (e.g. The Grand Tour), only meanings attached to it have changed recently. The borders between tourism and culture have also become uncertain, e.g. former places of production of raw materials, like minor halls have become places of tourism when transformed into museums. The way how culture is consumed by tourism has shifted, and cultural tourism has become part of the everyday life. For example, not just visiting museums in another cities is considered cultural tourism, but if someone goes there to enjoy the atmosphere of another town (Richards, 2005).

1.4.1 Management strategies addressing cultural tourism

To further utilize and direct the potential of cultural tourism, different management strategies have been improved. But at first, Ted Silberberg, the Director, of LORD Cultural Resources

Planning and Management Inc. conducted a research about the market of cultural tourism (Silberberg, 1994) As the authors claim, cultural tourism brings together the personal motivation (refers to it as the interest in historical, artistic, scientific offerings of a group or community, the market) and the motivator for travel (institutions and events, refers to it as the product). The different levels of motivation is really a determinant in the research, and were left out of previous cultural tourism surveys. Based on the degrees of motivation to visit cultural institutions, the author evaluated five groups from tourists and residents as well.

1. The sector of tourists are motivated by culture: 5% of residents and 15% of province tourists.
2. The sector of visitors, partly motivated by culture: 15% of residents, 30 % of region tourists.
3. The visitors, to whom culture is "adjacent": 20% of both markets
4. Accidental cultural tourists: 20% of both markets.
5. The sector of visitors, who would not visit cultural institutions, or attend events: 40% of residents and 15% of region tourists.

Based on the results of the above estimation, it may seem that cultural tourism has shown a great shift in the last 20 years. Although, such estimation may suggest that cultural tourism is booming (Russo, 2002), a progress like that might be connected with the changing concept of tourism and cultural consumption, as it has been introduced above by Richards.

On one side, the research of LORD Cultural Resources Planning and Management Inc. revealed that cultural tourists have different motivations, but other forces such as higher education and income, less but more quality leisure time and growing health and appearance consciousness also influences their choice of destination, nonetheless they prefer variety. In this way, cultural districts can provide three types of arrangements as worthy partners for cultural tourists (Silberberg, 1994).

The first opportunity is the most common amongst cultural institutions of the same type. This arrangement is called "passport package". A district with e.g. eight museums creates a passport promotion, where a visitor visits all the seven museum, gets stamp to their passport and can visit the eighth museum for free. It turned out that this package is not really successful, because only a small percentage of the population wants to visit a high number of museums in one area (Silberberg, 1994).

The other two options mix cultural products of different types, for example festivals, and cultural and non-cultural products. The latter arrangement proved to be the most attractive version for cultural tourists, since it provides a wide range of various programs (Silberberg, 1994). As it can be seen in the research of Hitters and Richards above, visitors prefer to combine two or more functions of a cultural district (Hitters & Richards, 2002).

Another possible approach to manage cultural tourism has been introduced by Russo (Russo, 2002). The author mainly described demand-side measures, where the focus is more on visitor flows and on the possibilities of how to reduce pressure on the environment, caused by tourism. Based on the demand-side measurement, Russo evaluated a synergetic model, focusing on sustainability. As a result of the authors' research in Venice, he made a distinction between under- and over-utilized institutions. In this division, Venice museums belong to the former category. While Venice has an image of art city, not much tourists come to visit particular museums, which renders the effort to sustain the city's art image inutile. On the other hand, the landscape of Venice suffers from the over-flow of tourists and masses. As a result of the research, the author evaluated the following criteria for sustainable tourism in clusters:

1. Empathy for tour operators, tourists, local tourism/ cultural organizations, local hospitality providers.
2. Continue to expand the "tourist region", favoring overnight stays.
3. Rationalizing the mode of tourist use and access to the city.
4. Containing the process of quality decline of tourism products.

As it can be seen in some cases e.g. in Vienna or in Venice, growth of tourism flow is not desirable, because such mass might influence the condition of World Heritage sites in a negative way. Since some museum districts are World Heritage sites (e.g. in Berlin) or part of them (e.g. in Vienna) such tension between the preservation of heritages and negative effects of tourism should be solved. The mutual understanding toward the above sectors can raise the utilization of cultural clusters in cultural tourism, and it can be stimulated by applying information and communication technologies.

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To sum up, it can be say that the clusterization in cultural industries happens because of possible advantages, such as proximity to the potential market, to participate in a well-organized network and because of competition advantages. Based on such advantages of

clusterization of creative industries, several stimulation of public and private urban planning has been introduced in order to develop cultural districts. Such planning can have several goals, e.g. to create a lively area, a new image and position in the cultural scene, or to boost employment rate, all contributing to regenerate a city area. The success of achieving those goals depend on the social, historical and political circumstances, plus on the management style of the plans. One type of cultural districts is the museum district, which requires already existing institutions with cultural assets and a well-directed public policy. The main aim of developing museum districts is to provide an attracting place for tourists and culture consumers, who can contribute to the economic and cultural growth of the city. Thus, the concept of cultural tourism is strongly connected to museum districts, although it is complicated to exactly determine the definition of such phenomenon. Even so, the management strategies of museum districts are usually focusing on catching the tourists with different degree of cultural motivation and to rise their interest to enjoy the facilities in the museum association. This is important because it can highlight the connection between museum districts and tourism and can further indicate the influence on each other.

2 Methodology[1]

In order to prove my hypothesis that clusterization of museums influences the cultural tourism of cities, an impact evaluation will be conducted. Since I am not an expert, I asked an econometrician for a consultation, who also has the required IT programs. How to do this evaluation? First, let us try to identify the impact of clusterization in an individual city. The following *equation* is introduced:

$$y_{it}=\lambda_t+\mu_i+\alpha\times d_{it}+v_{it}, \tag{1}$$

where:

y_{it} may refer to any indicator of tourism in the city: to nights spent, to number of visitors or to all the spending of tourists (or of those tourists who visited the region with the explicit intention to attend cultural events or visit cultural sights);

d_{it}: is the so-called *cluster dummy*: 0 for the years when no cluster functioned, and 1 for years of operation;

λ_t: the general trend (temporal fixed effect) of tourism in the particular year t;

μ_i: average tourism (regional fixed effect) in the particular city (region) i;

α: impact of the cluster on tourism (net of any other impact): the parameter we are interested in, hopefully significantly positive;

v_{it}: non-observable random effects.

with i denoting the individual cities (regions) in the analysis, numbering from 1 to I, and t indicating the particular year, numbering from 1 to T. The panel (i.e. the observations regarding y_{it} and d_{it}) has the size of I×T.

Moreover, we are only interested in identifying α, the other (so-called *nuisance*) parameters λ_t and μ_i are unimportant (for the topic of my thesis), and they can be simply filtered out from the statistical inference. Subtracting year-wise and city-wise means of tourism data from the original panel, a process called *within transformation* or *demeaning*, we get rid of observable and unobservable[2] heterogeneity of data due to the diversity of cities (regions) or to general

[1] Contents of this chapter has been compiled with the active participation of dr. Tétényi Tamás. The interested Reader may find further references in (Major, 2013)

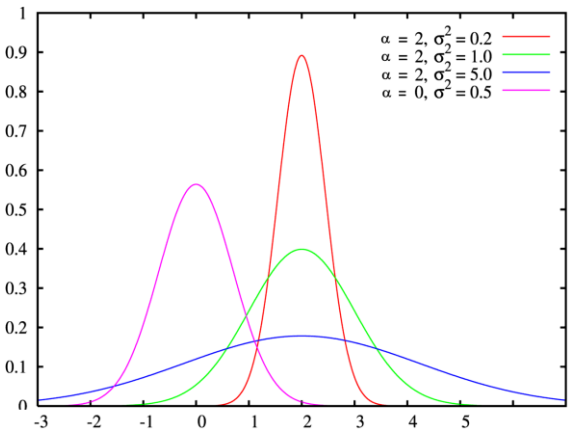
[2] An observable heterogeneity, e.g. size, population or level of economic development, relates to a feature that is directly observable (by administrative area, headcount or value-added per capita in a given year). An

tendencies and shifts in world tourism (like 9/11 aftereffects). Removing regional and temporal heterogeneities, the so-called fixed effects, also removes information contained in the data[3] characterizing fixed effects, and leaves us with filtered information related to diversity within years and cities. The drawback of demeaning is that cities having an operational museum district throughout the whole period cannot be analyzed, as information related to the impacts of such museum districts are constant in the data and, as such, are filtered out as regional fixed effects. On applying the within transformation on the data, the modified equation

$$(y_{it} - \lambda_t - \mu_i) = \alpha\, d_{it} + \epsilon_{it} \qquad (2)$$

has α as the only one unknown parameter which can be easily identified using the Ordinary Least Squares method.

1 Estimations with normal distribution, various means and standard errors



While α is a parameter, its estimation is a statistics, i.e. a random variable. Under fairly general assumptions[4], the estimation is unbiased, i.e. its means equals to α, the theoretical parameter. However, the statistician also has to consider the significance of the parameter estimation by calculating the statistical characteristics of the estimate, its mean and standard error. If the former is substantially larger than the latter, the impact is significant (different from zero); and if it is significant[5], then the estimated mean of the parameter α shows how many additional (cultural) tourists spend how many nights more (and spend more) in cities with an operating cultural cluster (depending on our choice which data we could collect for y_{it}).

---

unobservable heterogeneity relates to a feature like manegement skills and practices or goals of local politics, sometimes measurable in theory but actually not measured.

[3] Uncertainty related to a random variable, and equally information in the actual data related to that uncertainty, is characterized with the variance of the random variable, or the variance of the actual data.

[4] The equation describes a casual relation and the OLS estimation is unbiased only if the observable and non-observable variables in the equation are not correlated (independent).

[5] A parameter estimation is said to be weakly significant, i.e. significantly differs from 0, if the absolute value of the probability that the parameter is negative despite of the parameter estimation is positive (or vice versa) is less than negligible (5%). The parameter estimation is significant if the said probability is less than 1%, and is highly significant if it is less than 1‰ (the notion was developed by Ronald Fisher a century ago).

There may be a rather subtle problem with the estimation of α called *selection bias*. To estimate the above equation directly, one has to suppose that clusterization occurs *per se* and its impact on cultural tourism is a consequence, not the cause, of establishing museum districts. This hypothesis, if failed, would lead to selection bias[6]. In reality, the possible outcome of growth in the number of tourists may indeed be the aim of stimulating clusterization. The narrative is that whenever the option of establishing a museum district gets to a decision-making forum, the forum calculates the foreseeable impacts of their positive decision, taking into account at least observables (e.g. number of visitors and quality of the already operating museums in the city). Then, the decision would be positive only if the calculated impacts exceeded costs. Assuming the same impact for cities not yet having an operating cultural cluster would overestimate the actual impact: a city not yet having built a cultural cluster may have not done it just because its impact was calculated lower than the estimated costs. Thus we would know that our estimate on the parameter α is biased upwards.

How can we develop a valid statistical inference on all cities? The selection bias can be eliminated, with the help of Donald Bruce Rubin's framework. The obvious answer is pairing: if we *match* cities *with* an operational cluster to *similar* cities *without* one, then all the differences measured in tourism would be due to, and taken as the impact of, clusterization. The actual problem is that cities differentiate in many observable x_{ik} aspects: connectivity, size, commuting, language, industry, image, cultural and natural heritage etc. No two cities exist with identical features, and "similar" is a vague concept. Let us try to make it usable! In essence, Rubin's Theorem suggests that, although cities may differ in many features, to eliminate selection bias, similarity in a single (not directly measurable) dimension is enough. The way to identify this

$$pi = \beta 1 xi1 + \beta 2 xi2 + \ldots + \beta K xiK \tag{3}$$

dimension (called *propensity*) is to compare cities in order to determine why they developed museum clusters, or, more precisely: the propensity is the probability of a given city to develop an operating cultural cluster. We have to establish and test a working theory regarding the propensity of cities to establish cultural clusters. This one dimension may contain the size of the city and of the cultural assets, such as number of sights, cultural events etc. Following this

[6] Independence between d_{it} and ϵ_{it}, violated when the planned outcome is a factor in the decision d, is a requisite for applying OLS.

path, the probability of a city to develop museum clusters (called a *propensity score*) can be identified. Then, and based on this identified theory, matching city pairs can be arranged, where *pairs of cities of identical propensity scores* will be selected both from cities with an operating cultural cluster (called the *treated group*) and from cities without one (the *control group*). The new sample of cities re-established by this procedure called *propensity score matching* will thus contain cities with and without operating cultural clusters of the same magnitude and estimating α on this matched sample will be free of selection bias.

This methodology of *propensity score matching panel regression* offers an estimation of the impact of cultural clusters on tourism. Moreover, it also implies testing a theory which cities do develop cultural clusters. To apply this methodology, data were collected:

- on the nights spent in tourist accommodations for y_{it}
- on the existence and operation of cultural clusters (d_{it})
- for some fifteen years
- and data about the culture and size (x_{ik}), World Heritage sites, number of museum visitors and the number of existing superstar museums
- of some 280 regions.

* * *

I performed a five-step quantitative analysis called propensity score matching consisting of two estimations. The second estimation is dependent on the first one, thus the findings of the second one change as the first estimation is modified. The analysis was completed using R-Project (R Development Core Team, 2008).

1. As a first step, an estimation about factors related to the probability of developing a museum district called the propensity equation (3) took place.
2. The second step involved calculating the propensity scores, i.e. the probability of creating a museum district in every region in the EU, based on the identified propensity equation.
3. Then, in the third step, the panel of tourism data was demeaned to get rid of the nuisance parameters and the demeaned tourism panel data was pooled.
4. In the fourth step, the pairing of cities and years with and without museum districts with identical propensity scores, called matching, followed to offset selection bias using Rubin's Theorem. As part of this step, we had to get rid of regions where museum districts operated throughout the whole period described by the original

sample. Regions in the control group with propensity scores non-identical to those in the treated group were also removed[7].

5. At last, the second estimation of the so, called the impact equation (2) was performed on the demeaned matched pooled sample to identify impacts of a museum district on regional tourism.

[7] Regions without matching controls should have also been removed, but there were no such museum districts in the actual sample – except for those already removed because of the within transformation.

3 Data

In this chapter, I describe data collected: sources and types of data used and adjustments made. I collected a dataset, containing six data series adjusted in MS Excel tables and fed to R-project via .csv (semicolon-delimited text) files.

Some general adjustment were completed in every data series. First, I chose to work on the uniform territorial unit of NUTS2 regions, because their size is not too big to attribute influences to a single city. Additionally, Eurostat offers several dataset related to the NUTS2 Regions. EU members and some other countries (e.g. Switzerland) regularly provide data to Eurostat. Such data are usually balanced, but can still contain some missing value in the case of the time-period I investigated, e.g. when a country simply did not exist at the time.

The examined time period includes data from 2002 to 2013. That length allows the researcher to measure dynamic impacts. All the panel data are arranged by years and NUTS2 regions.

Unfortunately, the related NUTS2 regions were not identified in some of the data series, only the cities. In such cases, the NUTS2 regions could still be identified because of the lower level of locality of the given data (i.e. regions containing the cities could be determined). In order to determine the NUTS2 regions concerned, I used a program called geovocab (Geovocab) that calculated the regions based on the longitude and latitude data. Furthermore, in the panel of number of museum visitors, I generally chose data compiled by the Urban Audit project. This project was a data collection exercise (now it is called City Statistics) undertaken by several European national statistical institutions, the Directorate-General for Regional and Urban Policy and the Eurostat in 2011 (City Statistics).

3.1 Museum districts

Data on museum districts were the most complicated to collect and to specify. The first step was to identify which city operated a museum district and which did not. I made the search based on the literature review, concentrating on a couple of rules.

- A museum district is not equal to museums operating besides each other. An association has to be developed, and has to perform joint operations, e.g. in museum nights, in joint tickets etc. Moreover, a museum district is spatially determined, placed in one close location, and governed by one owner.

- In addition to the first rule, it is not enough to find a simple statement referring to the museum association as “museum district”, evidence that they are operating in relation with each other, and are organized into a district, is needed.

Following these rules, I looked after every city that maintained more than three museums, mentioned in www.artcyclopedia.com. Data could be found the easiest in relatively freshly organized museum district webpages, such as in Copenhagen or in Vienna. It was more challenging to find data about historical and long-existing museum districts, i.e. in London, and determine whether it had developed or just spontaneously had “grown”. Most sources were not academic ones (see the appendix), and as there seems to be a vague border between historical museums existing beside each other and historical museum districts, the chance of a mistake is high. Moreover some cities where, according to public knowledge, museum districts exist, have been excluded due to lack of evidence. Tilburg and Madrid are examples of such cities. Yet, some cities on the list are still questionable, e.g. London, Dublin and Utrecht where I found uncertain information.

The second step was to determine the date when the museum district started operation. Again, the newer the museum association, the easier the identification of the starting date was. In those cases, I tried to find the earliest date where the museums worked together, or to locate a municipality document where urban policy referred to the territory as a museum district. In some cases, I found the date of the first or the last operating museum in the association. The starting date is important to define because that is from when the potential influence on tourism was exerted. It is plausible to assume that no non-operating museum cluster had any impact on tourism (i.e. no lead impact, just lags). In the case of historical districts, this impact cannot be told apart from unit-specific fixed effect, since I have tourism data from the beginning of 2000, and historical museum districts opened, or re-opened way before that.

All in all, there is a scarcity of systematic data concerning museum districts. In lack of a registration of that kind, I used internet sources to compile the data I needed.

3.2 Population of regions

For the propensity equation, I needed to find factors which could influence the probability of a city to develop a museum district. The first factor I choose was the size of a region, determined by its population. Data came from Eurostat, it described the changes in population in every NUTS2 region from 2003 until 2014. I used the cross-section data of 2011.

3.3 World heritage sites in regions

Another factor that can determine the probability of developing a museum district is how many (if at all) world heritage sites a region hosts. As it has been introduced in Chapter 1.2., the historical assets of a region might be determinant in the process of developing a museum district. If this hypothesis is true, the more world heritage a specific region has, the chance to organize a museum district is more significant.

The data collection has been downloaded from the site www.unesco.org. The dataset contains all the cultural world heritage sites (in closer Europe), with the date of the year they have been inscribed, together with its geographical (longitude and latitude) values.

3.4 Number of museum visitors

Number of museum visitors represents a proxy for the demand for museum districts. In the region where museums are popular, it could be beneficial to develop a museum association from the already popular museums. The popularity of museums can be connected with cultural tourism, as it has been highlighted in Chapter 1.4. The museums that are highly visited are already considered as attractions, and it might be efficient to organize joint programs and tickets with other museums, in order to further develop the popularity. In this case, the possibility of a successful and frequently visited museum district is already there.

The opposite may also be true. In regions where the number of museum visitors is low, the government may consider the possibility of organizing a museum district, to increase the sum of individual attractions by exploiting potential synergies. In this case, the already given circumstances are not ideal, and a possibly future project may contain some risk. The purpose of developing a museum district based on such conditions might also be directed to attract more museum visitors.

Data was downloaded from Eurostat. It contains European cities with the total amount of museum visitors. The data collection is set from 2003 till 2013. Sad to say, the collection is really deficient. The most data can be found in 2011, but even in this period, many cities do not have statistics. Important cities where museum districts can be found, i.e. Vienna, Berlin and Rotterdam, did not provide data. Besides, all the cities had to be located in NUTS2 regions. Moreover, with this level of scarcity of data, there is a chance that the estimation related to this factor may not be significant.

3.5 Superstar museums

Superstar museums are important institution from the viewpoint of tourism. Such museums are “must see” attractions in cities for tourists. Even if the main purpose of visiting is not culture-related, most tourists will go and visit superstar museums because of their famous reputation. The relation between museum districts and superstar museums may be delicate. At first sight, the existence of a superstar museum may influence the probability of creating a museum district in a negative way. Several times, there is no sense to organize a bigger association when an already world-famous museum or museums represent the cultural image of a city, e.g. in the case of the Louvre or of the Musée d’Orsay in Paris. But on the other hand, a museum district may develop one of the member museums into a superstar. In this case, taking part in a museum district is more of an asset than a liability.

The data collection is based on the Wikipedia list of the most visited museums, the article about visitor figures from The Art Newspaper (Pes & Sharpe, 2015) and from the webpage. www.europeanbestdestinations.com and its list about the best museums in Europe. Then, I identified the related NUTS2 regions to each museum.

3.6 Tourist nights spent

Estimating the impact equation is a way to characterize the impact of museum districts on tourism. To prove the potentially positive influence, data about cultural tourism would be pertinent and ideal, as it has been introduced in Chapter 1.4. Unfortunately, this type of data collection does not exist. Eventually, UNWTO collects such data, but only for countries, which is not enough to drawn any conclusion on the regional level. Possible growth in cultural tourism of Germany may be impacted by, let us say, a museum district in Berlin only marginally, because it is such a small part of the cultural attractions in the whole country. Besides, some countries (e.g. Germany and Austria) also collect satellite account data about cultural tourism, but still the basic unit is the country, there is no breakdown by the division of NUTS2 regions.

Because of the scarcity of such data collection, I can only try to identify the impact of the museum districts on general tourism. Nights spent in tourist accommodations are good indicators of the changes in tourism flow. The dataset was downloaded from Eurostat, and contains data broken down by NUTS2 regions. Separate data was also collected on resident and non-resident tourist nights.

* * *

All in all, the scarcity of cultural and tourism data limits research in this field. Another problem is the variable territorial level of data collection. Even if the data is available and accessible, it requires plenty of time to adjust the collections into a dataset ready to analyze.

4 Quantitative analysis

To contrast theory to actual data, I performed a five-step analysis called propensity score matching consisting of two estimations. Several variations of the original methodology was performed, however, in this chapter only one analysis is presented. As findings of the variations were more or less similar, the statistical inference is fairly robust.

4.1 The propensity equation

The first estimation relates to the question: What factors are needed for a museum district to possibly be created? What are the factors contributing and what are those hindering the creation of a museum district? Obviously many factors exist, but what are the major levers? To answer this question, I experimented with the following factors potentially influencing the possibility of creating a museum district in a region[8]:

- The population of the region
- The cultural assets of the region, how many world heritages can be found there?
- How many museum visitors are attracted by the region?
- Is there a superstar museum in the region?

These factors, if well-chosen, may indicate that where the possibility is big enough to create a museum district. The *goodness* of the estimation depends on the choice of the right factors. The European Union has some 280 regions, and only 20 museum districts have been created. Thus, the forecasting value of the trivial negative forecast (stating that no museum district is plausible) is high, 260 cases out of the total 280 forecasts would prove to be right. I faced the daunting task of identifying a non-trivial forecast equation (the propensity equation), based on additional factors, that has a forecasting value similar or better than that of the trivial negative one.

I experimented with several equations, adding or leaving this or that factor from the above list and using different link functions (called *calls*). Population of a region proved to be insignificant in any call, and the same happened with the number of museum visitors. But the number of World Heritage sites and Superstar Museums did influence the probability of

[8] as the spatial unit of the statistical analysis, I chose the NUTS-2 regions in the European Union for accessibility of data and because it seemed an area largely corresponding to a tourist destination, i.e. big enough to serve as a unique target of a single-stop tourist trip and small enough to be "covered" in a week-end.

establishing a museum district in a positive way. After several calls, I ended with the following Ordinary Least Squares estimation[9]:

Call: lm(formula = Cluster ~ WorldHeritage + SuperstarMuseum, data = Data)

Coefficients:	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.03669	0.02033	1.805	0.0722
WorldHeritage	0.01366	0.01028	1.329	0.1848
SuperstarMuseum	0.14541	0.03654	3.980	8.81e-05 ***

Residual standard error: 0.2484 on 279 degrees of freedom

Multiple R-squared: 0.07375, Adjusted R-squared: 0.06712

Estimation results above show that one World Heritage site rises the probability of establishing a museum district with about 1.4%[10], but there is a considerable uncertainty of 1%[11] in this statement. Thus this result represents a positive but not significant influence. It is indeed more likely that more World Heritage sites will rise the probability of developing a museum district in a region, but there is a chance of 18,5%[12] that it actually influence it in a negative way.

On the other hand, the number of superstar museums seems to be a factor with positive and significant impact. One superstar museum in the region can rise the probability of establishing a museum district with 14.5 %, and there is only a tiny chance well below 0.1% of a negative impact. A superstar museum may actually be the engine behind creation of a museum district.

Finding a significant and a less significant factor behind creation of a museum district, we still could not identify most of the levers. The multiple R^2 shows that identified factors are responsible only for 7% of the variance of the establishment of a museum district. Anyway, this formula could be used to predict propensity scores, thus offsetting potential selection bias related to observables superstar museums and world heritage sites.

[9] Actually, the (statistically more correct, but harder to interpret) logit and probit estimations generated similar propensity scores and identical matches.

[10] see the Estimate column

[11] see the Std. Error column

[12] see the Pr(>|t|) column, giving the integral of the density function from t, where t equals to the ratio betweem the Estimate and the Std. Error (see t value column)

4.2 Matching and the within transformation

Out of the 282 regions for which tourism data was available, 168 regions (19 museum districts and 149 controls) showed exact match in the sense of the propensity score. However, museum districts and their matching controls had to be discarded whenever the museum districts operated throughout the whole period as regional fixed effects absorbed effect of the museum districts. There remained 44 observations (years and regions) of 8 museum districts with 1840 control observations (with controls also from regions where museum districts became operational only later during the period). These observations covered three regimes of propensity scores: 0.05034931 (one world heritage site and no superstar museum), 0,06401064 (two world heritage sites and no superstar museum) and 0.22307817 (one world heritage site and one superstar museum).

Tourism data panel was demeaned and then pooled. Having estimated the propensity equation and calculated the propensity scores, the demeaned and pooled tourism data was used to match those regions and years where and when *museum districts were operational* with regions and years *without museum districts but with exactly the same probability of having one* (i.e. having the same propensity score). The within transformation (Croissant & Giovanni, 2008) created the dataset to be used in identifying Equation (1). Tourism data was characterized by a variance of 4.85244e+15. Out of this, 9.41% was due to temporal fixed effects, while regional fixed effects proved to be negligible (3.012608e-14) [13].

4.3 The impact equation

The estimation of the impact (Sekhon, 2011) was as follows:

Estimate... 475280
AI SE..... 153625
T-stat..... 3.0938
p.val..... 0.0019763

Original number of observations..... 1840
Original number of treated obs..... 43
Matched number of observations..... 43
Matched number of observations (unweighted). 24859

Propensity score matching suggests that having a museum district raises tourism with an annual 475 thousand nights, a museum district adds 150000-800000 tourist nights with the

[13] e standing for the exponential over 10, i.e. 4.85244e+15 refers to 4 852 440 000 000 000, while 3.012608e-14 stands for 0.000 000 000 000 301 260 8

probability of 95.5%. The probability that the museum district adds to the tourist nights is above 99.8%, thus the positive impact is significant.

The impact equation refers to the influence of developing a museum district on the flow of tourism. Of course, as tourism is a complex phenomenon related to several factors, I did not expect to arrive at an equation defining most of the variance in (demeaned) tourism data, but my hope was to arrive at a significant impact parameter. Seemingly I did succeed in it.

* * *

Filtering out temporal (and negligible regional) heterogeneity and controlling for world heritage sites and superstar museums, selection bias could be avoided. The resulting unbiased estimation shows that establishing a museum district raises annual tourism by some half-a-million tourist nights in each year. The result carries over to all regions, with the possible exception of cities with more than one superstar museums, it remains valid for all the regions with a single superstar museum or with none. Thus, the result remains valid for most of the existing museum districts with no respect to the date of its foundation, with no respect to whether they have been used in the estimation.

My results are limited in both senses. First, there are some cities where validity of the finding requires extrapolation. A positive impact of a similar magnitude is likely to hold for Toscana, Catalonia, Berlin, Madrid, Vienna and Eastern Scotland, but the finding may not be relevant at all for Paris and London. Second, the number of existing museum districts is limited and estimations, even if unbiased, are not too precise. Precision of both the propensity and the impact equation estimation may improve by time, by more museum districts, by more observations.

5 The potential of museum districts in local economic development actions and in urban development

In this part, I highlight two cases of organizing a museum district, and one case where such process has not been completed. I will introduce an outstanding and unique case, a museum district that has no matching pair (based on the propensity score estimation). The other museum district and its controlling will be compared. Based on the findings of the data analysis, the circumstances and given pre-conditions are important in the process of establishing (or not) a museum district. Besides, some changes and circumstances could not been part of the estimation and were left out from the quantitative part, but they might be important based on the suggestions of Chapter 1.2., e.g. political and social background of a region. Moreover, the relevance of management of a cultural district in Chapter 1.2, and its possible influence on the aims of developments in museum districts in Chapter 1.3, have been introduced. In this way, significant aspects will be highlighted, based on content analysis of the related literature and documents, as an attempt to answer the question: What is the purpose of developing or not developing a museum district and why did the process take place in the exact locality? Moreover, the connection between the cities and tourism will be examined and the potential influence of museum districts on tourism will be investigated. To what extent museum districts contribute to the growth of tourism in a region?

5.1 The case of the Vienna MuseumsQuartier

In this chapter, I will introduce the museum district of Vienna. At first, the historical, cultural and social background of the city will be elaborated. Later, the development processes and strategies will be presented. At last, the influence on tourism of establishing the museum district will be demonstrated.

5.1.1 The city of Vienna

Vienna is the capital of Austria, the largest city of the country. It has a population of 1,8mn, ever-growing since the capital is a popular target of immigration, mostly from Eastern Europe. Vienna still remained as a sort of “capital” of the former countries of the Habsburg Monarchy. Beyond the buzzing social life of the city, Vienna has a long-standing and burgeoning relationship with culture. The city has been a cultural center since the mediaeval years, and has become “the ultimate place to be” since the beginning of the 20$^{th.}$ century. Vienna gathered the most fresh and talented minds of science (like of psychology) and art. The movement of “secession” or “art nuovo”, a style that conquered fine arts, architecture and

design in the whole world, originated from the Austrian capital. Since then, Vienna remained one of the most important cultural centrums, especially for Central-Eastern Europe. Although World War II and the years after made the city slightly less significant, the cultural and artistic image of Vienna is still remarkable. The Austrians consider themselves as a "cultural nation" (Mokre, et al., 2010).

In order to maintain revitalize the city image of Vienna, urban policies considered the possibility of arranging some major changes in the life of the city at the end of the 20th. century. A reason behind the possible changes was the future enlargement of the European Union. Throughout the 20th. century, Austria served as the border country between the EU and Eastern Europe. As a capital of a strategically important country, a major focus point between East and West, Vienna attracted significant economic and cultural investments. This situation has been terminated by the challenge, and later by the reality, of extending the EU toward Eastern Europe. Accommodating this change, urban policy of Vienna concentrated its efforts to boost up the city image, with the aim of attracting more investments and new tourism, but also to maintain its importance as a bridge between East and West. This process had to reach results before the new and spatially close members of the EU (e.g. capital cities as Bratislava, Prague, and Budapest) could join the European space, probably before 2004 (Frantz de, 2005). Urban policy between 1990 and 2004 concentrated on changing and developing the former image by new projects in culture that might also attract economic investments (as it can be seen in the Literature review). To focus on cultural projects and on creativity as possible sources of economic growth was common and popular amongst the international politic strategies at that time.

Another change occurred in the 1990s which could have had an impact on the success of the Vienna MuseumsQuartier, when the political leadership of the city shifted from the long-standing consensus of political coalition toward a more aggressive competition between (new) parties. As the issue of cultural policy was based on the agreement between parties, the new direction of cultural policy was influenced by symbolic political operations (Frantz de, 2005).

5.1.2 Museums and World heritage sites

One of the reasons why Vienna is still one of the most notable capitals of Europe is the ancient inner town, with baroque palaces and luxurious museums. Both two world heritage[14]

[14] Historic Centre of Vienna and the Palace and Gardens of Schönbrunn (World Heritage List, 2015)

sites are connected to the Habsburg Empire, a connection that modulates the cultural policy of the city. In a way, Vienna has never refused to have the image of the "imperial town", which title serves as truly beneficial. In this way, the atmosphere is somehow related to the 19th. century and to the peaceful middle-class pageantry. On the other hand, Vienna literally fights against the return of the Habsburg family and regularly attempt to "re-develop" the city image as a less classical and more modern version of an art center.

One such attempt is the revitalization of imperial palaces, with buildings usually turned into museums. Vienna has more than a hundred museums, most of them hosted by former palaces. The main part of the museums' collections are focusing on Austrian history, representing artworks from classical Austrian artists from the past five centuries and luxurious design pieces. With little exceptions, the collections are composed of classical pieces and not from contemporary art pieces (Museums in Wien). In this way, there was still place for the institutions of the MuseumsQuartier to fulfill.

Moreover, Vienna can be proud of world-famous museums, such as the Belvedere, one of the two most visited museum in the world (List of most visited art museums in the world). Such attractions are visited by almost 9 million people every year, which number can be considered as high (See Annex).

5.1.3 Tourism

Vienna is frequented by tourists. The city provides several tourist attractions beyond the world heritage sites and museums. The city organizes and operates festivals, trades, sport events, fun parks. The night life is buzzing with pubs and clubs, universities are attended by students from every corner of the world. All in all, Vienna is still an important target for tourism. The numbers show its popularity: in the tourist accommodations in Vienna, more than 12 million nights have been spent (Eurostat, 2015), and the number has shown a significant growth over the past decade.

5.1.4 The history of the quarter

The Vienna MuseumsQuartier is situated in the historical center of the city, near the famous Hofburg, a castle started built in the 18th. century. The museum association consists of five museums (the MUMOK, the Leopold Museum, the Kunsthalle Wien and the

Architekturcentrum Wien), a couple of galleries, some other types of cultural centers and facilities as shops, restaurants and cafes. It seems that, besides offering the possibility of enjoying art, the quarter offers entertaining as well.

> "The MuseumsQuartier is an integrative place for living and experiencing where you can enjoy the cultural offers or just relax or meet with friends for a casual get-together." (Chronology of the Museumsquartier Wien, 2015)

The first time when the possibility turned up of organizing a museum district in Vienna was in 1983. At that time, the city was in competition to hold the World Exhibition of 1995. The idea at that time was to create a cultural forum. According to the concept, instead of focusing on the historical values of Vienna, cultural policy concentrated on contemporary art and design, aimed at a "dehistorization" of the city. The specific part of the Hofburg was in use since the imperial times as the palace of the royal family. After the World War I, it served as a place for trades, propaganda events, but after World War II it was out of use (Chronology of the Museumsquartier Wien, 2015).

From the beginning, the concept was to build new buildings hosting contemporary art and architecture. An operating company was organized to start the constructions and to further develop the plans in 1990. The Board of Directors consisted of two CEOs and the chairman, the latter being the head of the Cultural Section of the Foreign Ministry. This was not the only connection of the development to the government. In 1994, the parliament passed the "Act on the Financing of the Acquisition of the Leopold Collection" that emphasized the importance of fundamentally revitalizing the area with new buildings and institutions. The development was the center of a heated political debate, where the Social Democrats preferred a less dramatic rejuvenation of the urban area; moreover, a civil initiative was presented as an alternative of the plan (Chronology of the Museumsquartier Wien, 2015).

The redesigned plan got the pass from the Parliament and from the public as well. The MuseumsQuartier was ready to fulfill the "colorful mixture of uses" and replace monotony in 1996. After achieving political and public agreement, construction started in 1998. The Vienna MuseumsQuartier with several new buildings opened to the public in 2001. After the opening, the governance of the museum district still arranged improvements regularly. Further restorations took place in the baroque parts and, in addition to that, festivals, summer and winter programs are being organized during every session. In the last couple of years, the MuseumsQuartier developed a residency program for artists, several public happenings and organized an open event to think about future plans together with the civil society. During

these years, the aim of attracting more visitors was visible, as well as the co-operation between the governing company and the government (Chronology of the Museumsquartier Wien, 2015).

5.1.5 The project of Vienna MuseumsQuartier

The development of the museum district in Vienna was determined by the political, social, historical and cultural circumstances mentioned above. The final form of the MuseumsQuartier might more be considered as a flagship project, achieved by a "conflictive process of political self-reflection" and barely by a strictly planned urban-revitalization process (Frantz de, 2005, p. 64).

From the first moment, the aim of the Vienna MuseumsQuartier project was to revitalize the image of the city, by making it more attractive for tourists and inducing a growth in the related economic sectors (accommodation and food services) of the city. The following political and social debates concentrated around the architectural way of such revitalization. As the first plans were revealed, the planned modernist skyscrapers as buildings for museums provoked a heated debate. One part of the debate was caused by the opposition against the modern architectural style. Quite high percentage of the public opinion connected modernism with the regime of National Socialism. The original plan of the museum district contained two towers (skyscrapers) and a concrete block building. Unfortunately, nearby to the planned museums, the Nazis built and left a bunker tower in the 1920s. Some aesthetic congeniality was drawn between the modernist style of the totalitarian regime and the new museum district buildings. These references to the dark times shed malevolent lights on the new plans and left it heatedly criticized by public and political powers (Frantz de, 2005).

On the other hand, it was not just the architectural style that was highly criticized. As I already mentioned, the museum district takes place in the area of world heritage of central Vienna. This area is fulfilled with memorials from the medieval, baroque and classical times. Although the aim of the project MuseumsQuartier was to revitalize the image of the city, such modern buildings wedged among the heritage buildings were regarded as a disrespectful act. The historical sites were seen as a symbol of respected times, when Vienna was a capital of an empire as broad as the whole Europe. The inner city, the Stephansdom and the Hofburg became part of the World heritage in 1995, and were cherished as a social and cultural pride. Ruining the sight of such a highly-valued sight with modern buildings provoked a heated opposition once again (Frantz de, 2005).

Another indicator of the opposition might be the grandiose atmosphere that ruled the marketing of the museum district project.

> "The Museumsquartier Wien is one of the ten largest cultural complexes in the world. But above all, it is a forward-looking, inner-city cultural district that will have an enormous impact on future trends. The Museumsquartier unites baroque buildings, new architecture, cultural institutions of all sizes, various disciplines of art, and recreational facilities in a single spectacular location." (Chronology of the Museumsquartier Wien, 2015)

Such powerful and grandiose vision might had further developed the resemblance to totalitarian politics and the impression of disrespectfulness. The project had a reputation of an attempt to outshine the historic and honored Vienna and bring back Nazi rhetoric (Frantz de, 2005).

As a consequence of these political and social debates, the development of the MuseumsQuartier project took almost 20 years. The last buildings were especially built taking care of the world heritage (Frantz de, 2005). Because of the broad opposition, the total size of the newly planned buildings were almost halved. Architect Manfred Wehdorn was responsible to adjust the form of the MuseumsQuartier to fit the Hofburg (Chronology of the Museumsquartier Wien, 2015).

In this way, the result of the project and the whole process were extremely influenced by the political context and the importance of the world heritage site. The case of the Vienna museum district proves that developing a museum district depends greatly on factors of political interests and power, a factor that could not have been represented in the quantitative research.

5.1.6 The management and marketing strategies of the MuseumsQuartier

As it could be seen, the MuseumsQuartier Wien project was strongly connected with politics. Establishing a museum district in Vienna can be referred to as a process where various political interests were expressed and collided. Another approach can also justify the strong political relation. The connection between art and politics is tight in Austria, this comes as a tradition from the times of Emperor Joseph II. The absolutistic emperor elaborated a strong cultural policy in which he established and subsidized several Austrian cultural institution (Mokre, et al., 2010).

Therefore, the biggest supporter of the arts and culture in Austria is still the government. This is the same situation in the case of the museum district in Vienna, the MuseumsQuartier

Company relies on the funds of the city and of the federal government. The whole project of developing a museum district was and is financed from public money, and it was not influenced by the cutbacks of the cultural sector. Although, there were some issues when Social Democrats were in governance in the city and the Christian-Democratics and the Freedom Party were in charge in the federal government (Mokre, et al., 2010).

The MuseumsQuartier covers a 60,000 square meter area, and almost 70 institutions can be found there. The MuseumsQuartier Company is responsible for the site and the operations, it works as an umbrella organization and rents out the area (based on the land ownership model). Most of the institutions are tenants of the area and founded by the state as well. Seemingly few company from the private sector can be found in the district, and even if an institution belongs to a private company (e.g. the case of the Leopold Museum), it is mainly supported and controlled by the federal and the city government. In this way, the connection between the tenants can be described as a hierarchical management model, where lack of co-dependence and interdependence from the state leads to competition between the tenants. Additionally, to organize a common program or unified branding is a highly complicated issue in such an environment (Mokre, et al., 2010).

Nevertheless, because most of the cultural organizations are supported by the government, their main goal is to attract more funding and not concentrating on more visitors. The influence of the MuseumsQuartier on tourism, might be determined by the described management strategy of the district (Mokre, et al., 2010).

5.1.7 The influence on tourism

The aim of the MuseumsQuartier project was to increase (international) tourism and attract new investments. Regarding new businesses, the museum district started attracting small companies in the area at the beginning, implicating a fundamental change in the cultural activity. Concerning the tourism, the expectation was to attract 1,1 million visitors every year (Mokre, et al., 2010). In 2004, 2,5 million people visited the quarter and this number is slowly growing above 3,6 million. Meanwhile, the tourism flow in the city changed as well (Chronology of the Museumsquartier Wien, 2015). Since the opening of the MuseumsQuartier, the tourist nights spent in Vienna raised from 7,6 million to 12,6 million (Eurostat, 2015). After the opening of the MuseumsQuartier, the annual number of tourist nights spent in the region has risen by 5 mn. As the previously introduced findings suggest, a

museum district can rise the annual number of tourist nights spent with half a million. Thus, 10% of the growth can be attributed to the establishment of the MuseumsQuartier.

* * *

As in all following cases, the historical, political and cultural circumstances of the region were important points of the analysis. Such conditions can influence the outcome of any cultural investments, as it turned out to be the case in Vienna and seems to confirm the propositions in Chapter 1.2. In the analysis, I also concerned the related cultural assets and tourism flow, since it have been proved to be important factors for developing a museum district in Chapter 4.1. Another aspect of the analysis is based on the literature review, as investigating the management strategies of a museum district may help understanding target groups, advertisement decisions and co-operating styles, introduced in Chapter 1.3. In the case of Vienna, such factors indicate that special circumstances influence the public support for a museum district and determines several management decisions as well. Additionally, it may determine the final shape and success of the project, approving the suggestions of Chapter 1.2.

5.2 Berlin Museumsinsel

In this chapter, I analyze the different processes that occurred or are foreseen in the future in the Museumsinsel in Berlin. The type of museum district which Berlin has established has some different features than the one in Vienna. The museum district in Berlin had developed since 1860, but the II. World War and the following political and territorial separation stopped it. After 1989, new motives emerged to rejuvenate the buildings and area of the Museumsinsel.

5.2.1 Berlin

Berlin is the capital of Germany, and the largest city of the country. It has a population of 3,5 million, constantly growing in the last years. The cultural, social and political development of the city started when the city became the capital in the 1880s. A couple of new buildings, institutions and monuments were designed in order to present the grandiosity and the imperial style of the Prussian Empire. By the beginning of the 20th century, the city become an important centrum for the arts and culture, a lively area where cultural and social activities emerged. The movement of the German Expressionism found its fertile hub in Berlin where artists created several famous paintings, movies and buildings. After the World War I, the Greater Berlin Act inaugurated the city into the metropolis of the 1920s. During these years,

both the size and the population of the city doubled. Moreover, Berlin demonstrated its „heydays" as a capital for culture, science, government, industries, higher education and city planning. Unfortunately, the World War II and the years of the Berlin Wall suppressed potential developments.

The revitalization of the city started after 1989, and today Berlin can be considered as a creative hub. The capital is recognized as a world-famous center of culture and creative industries, tourism and technological investments. Berlin is important for the international film industry, music, young artists and was awarded as the „city of design" by UNESCO in 2005 (Culture in Berlin).

5.2.2 Museums and World Heritage sites

Berlin is a home of more than 700 galleries and almost 80 museums. Amongst the various art collections of these institutions, the Museumsinsel contains special ones, concentrating on visualizing and presenting mixed media and art from all over the world, from several time periods but also reflecting to the local history and culture. Besides, art galleries are focusing more on contemporary art (Culture in Berlin). Berlin offers two institutions amongst the most visited museums on Earth, the Pergamon and the Neues Museum. Museums attract more than 15 million visitors in each year, showing a great popularity (Eurostat, Number of museum visitors, 2015).

The city maintains two World heritage sites, one of them is the Museumsinsel itself, the other is the Modernism Housing Estates (World Heritage List, 2015).

5.2.3 Tourism

Despite of the fact that Berlin cannot offer an ancient inner city or too many world heritage sites, it is still a target point for tourism. More than 26 million tourist nights (Eurostat, 2015) is spent in Berlin every year, and this number shows a significant growth in the last years. Such popularity might be an indication of the cultural and historical attractions, of the vivid social life and by a modern image of socio-cultural advantages of a city. After all, „Berlin is the place to be" (Berlin homepage).

5.2.4 History of the Museumsinsel

The history of the Museumsinsel started in 1823 when a project emerged driven by the idea of Enlightenment. The area bordered by the river Spree was conceptualized as the heart of Berlin and a 'sanctuary of art and science'. As such, several great architectures of the time worked

on the five museums, inspired by the ancient churches and creating neo-classical buildings (SMB site).

The Museuminsel represents the culture of the World from ancient times till the German classicism of the 19th. century. As such, the Altes Museum was opened in 1830, providing a collection of Classical Antiquities, followed by the Neues Museum representing the Papyrus Collection and the Nationalgalerie showing sculptures and paintings from the 19th. century. The Bode Museum opened a bit later, offering a unique insight into the Sculpture Collection until the 18th. century. Finally, the Pergamonmuseum was opened in 1930, with a monumental collection representing the architecture of ancient Egypt, Near-East, Greece and Rome. Unfortunately, the complex was shut down after a decade and was largely damaged during the World War II (SMB site).

Before 1989, the Museumsinsel belonged to East-Germany, but the collection was distributed over many places of Europe. After the fall of the Berlin Wall, the urban and federal politics tried to reunite the collections and renovate the buildings (SMB site).

The Masterplan Museumsinsel Berlin 2000 is a joint framework, aiming at redesigning the Museumsinsel and develop it into a modern, visitor-oriented complex. The project started in 1999 and will hopefully be finished in 2026. The development strategy is elaborated by the Stiftung Preussischer Kulturbesitz and the Museum Island Planning Group, ensuring close co-operation with the authorities responsible for the heritage. The aim to create a more modern image of the complex is absolutely straightforward, as the overall control of the restoration is taken by David Chipperfield Architects, who have designed modern buildings all over the world (The Masterplan).

As it can be seen in the first re-opened building, in the Neues Museum, the architect copied the original proportions and layouts of the old building while preserved the old parts and bullet holes, made them visible from the outside of the building. The new parts are certainly recognizable in the form of used bricks, metal and wood but here and there covered with original fragments. The result is a modern museum, but also a preservation of the history. A history that also covers the darkest times of the German culture – therefore, some argued that the standing but damaged parts should be destroyed and the whole museum should be rebuilt in its original form (Kimmelman, 2009).

Beside the modernization, the restored museum complex would offer more open spaces, e.g. the Colonnades and Promenades, a visitors' center and more improvement in the landscape.

Moreover, new institutions such as the Archeologisches Zentrum and the James-Simon Galerie are planned to open. The project is eager to re-create the island as the heart of Berlin (The Masterplan).

5.2.5 The Masterplan 2000

After the re-unification of Berlin, the collections of the Museumsinsel were in a chaotic condition, as well as the buildings themselves. Therefore, the development of the museum district evolved around the restoration of the buildings and their collection. Strengthening co-operation and joint programs will follow. Moreover, the museum district will be made more accessible for the visitors and more connected to the city (The Masterplan). The plan focuses on the inner connection between the institutions and the revitalization of the particular part of the city. While redesigning the area was important in the Vienna MuseumsQuartier, its strategy focused on creating a city image appealing for tourists. Contrary to the Vienna project objectives, the plans of the Berlin Museumsinsel usually mention attracting the public (not just tourists) as only a second goal, after restoring the museums and link them into the urban pulsation.

The permanent exhibitions attract mainly international visitors and the temporary exhibitions are more popular between the locals. But as the Museumsinsel is expected to be dedicated to the theme of archeology, a very specialized field, it may serve the local and regional market more than the international (Aalst & Boogaarts, 2002).

5.2.6 Management and marketing

Although it seems that attracting more visitors is not the most articulated goal of the Masterplan 2000, the marketing strategy emphasizes the importance to examine visitor behavior patterns and organize different programs for them. Following this path, a shortened route for tourists who do not have much time for the exhibitions will be introduced, in the form of an underground promenade with stops at the most famous objects d'art only (Aalst & Boogaarts, 2002).

Since the plan is focusing on renovating the buildings, the on-going constructions make (at least one museum is still under construction, currently the Pergamon Museum) it complicated to organize joint exhibitions and programs. Such events would be important for developing a cooperative image (a brand). But on the other hand, there are several co-operation between the museums in the fields of marketing and public relation. Contrary to the situation in Vienna, all the brochures are in the same style, organized by the Staatliche Museen

Preussischer Kulturbesitz, and each advertise other museums. In addition, all the museums belonging to the SMPK can be visited with a museum pass. A joint brand would be also essential because there might be a competitive situation with other museums or museum clusters in the city. Although a day pass for the island is also presented, the fact that other two art clusters are being developed in the city may effect negatively the popularity of the Museumsinsel (Aalst & Boogaarts, 2002).

Besides, the governance of the museum district is in the hand of an umbrella organization (the same situation is seen in Vienna) and will further be affected by the restorations. Moreover, the Masterplan 2000 is investigating the possibility of organizing the island into a campus and establish further festivals. Yet, the management is not planning to establish more opportunities for entertainment, only one café but no restaurants or creative organizations. In this way, the main attraction will be the museums, and an uncertain situation of co-operation with tenants, where a hierarchical management model can emerge and interdependence of the state replaces co-dependence amongst the participants of the museum district, the same that is tried to avoid in Vienna. Cafes, restaurants and smaller cultural organizations can create the liveliness of the area (e.g.in the Vienna Museumsquartier), the lack of such atmosphere is visible today, the Museumsinsel is not an inviting place after the dark. The lack of a busy nightlife might even threaten the rise of cultural activities and the revitalization of the area. Since most of the museums have specific and (with a few exceptions) not too broad target groups and complementary organizations and places (cafes, galleries) are not found in the island, the magnetism of the complex is questionable (Aalst & Boogaarts, 2002).

The Masterplan 2000 notices the interest of the locals, and it seems that civil initiatives have emphatic interference in the development processes, e.g. as the result of few (or none) entertainment and tourist accommodations can be found in the Masterplan 2000. Similar to the case in the Vienna Museumsquartier, the development plan of the museum district has been adjusted to please the local and regional population. The not-for-visitors functions, e.g. libraries, research centers, depots and archives are going to be moved into a peripheral part of Berlin (Aalst & Boogaarts, 2002).

To conclude the establishment of the Museumsinsel, it can be seen that reserving the world heritage sites and their reputation were important factors during re-design, just like in Vienna. Although political and public interests play a less demonstrative role than in Vienna, the sign of favoring the local is still visible. The Masterplan focuses on the inner connection between the institutions of the museum district and, although the related processes are still in an early

phase, they are already more significant than in Vienna. Probably, the historical nature of the museum district limited the emerging public and political debates on a possible re-design, as the Museumsinsel had already had a noble reputation and the plans aimed at preserving and restoring the composition and the function of the island. To cope with this situation, the operating company restricted the number of new buildings and activities, not focusing on commercialism and on attracting tourists but to re-create a locally honored image of the museum complex.

5.2.7 Influence on tourism

Although attracting tourists is only a second or third goal of the revitalization of Museumsinsel, it is likely to have a spillover on tourism. Tourism quickly grew in Berlin between 2002 and 2013, number of tourist nights spent in the region rose from 11 million (Eurostat, 2015) by an annual growth of 8%. Less than 5% of this increase of 15,5 million tourist nights can be attributed to the establishment of the Museumsinsel.

* * *

All in all, it seems that the Museumsinsel influences the tourism in Berlin in a positive way, even if that effect has limitations (based on the methodological findings). The related development project, the Masterplan 2000 introduced some important aspects, such as special factors of the local history, culture and population which determined the formation of the project, just like in the case in Vienna. In addition, examining such aspects helped understanding some differences, e.g. between management styles, which may reflect the importance of Chapter 1.2-3.

5.3 Madrid

Based on the data analysis, the probability of establishing a museum district in Berlin is slightly more significant than in Vienna, its propensity was predicted around 37%. There is one region which has the same propensity scores, but did not decide to develop a museum district yet, and this is Madrid (considering the value of the propensity score it is also close to Vienna, but has more world heritage sites), with the propensity score of 35.5%. It means that the region Madrid has the same chance to establish a museum district as Vienna or Berlin. It would be interesting to investigate how the tourism flow evolved in similar circumstances but without a functioning museum district. With such an analysis, a statement on the influence of museum districts on tourism would be more grounded.

5.3.1 The city of Madrid

Madrid is the capital city of Spain, the city itself is the third most populated in the country, and as a province it is the most populated. The capital is also the economic, cultural and political centrum of the country and significant in the Mediterranean. Similarly to the cases in Berlin and in Vienna, Madrid has a long-standing devotion to culture. Between the 15th. and 17th. century, the population started growing, and at the same time the political and cultural importance of the city become more visible and continued to be such until the beginning of the 20th. century. The architectural sights and cultural institutions were established during the time of the „Spanish Golden Age" and in the 19th. century. The current image of the city supports the historic sights and parts, but also invests in developing a modern infrastructure. During the 1970s, the economic boom in the area benefitted Madrid with a rise in wealth and population, detected in the industrialized new parts in the south and developed new parts in the north, ranking the city as third biggest GDP produced in the EU. The urban improvement continued in the '80s and the '90s and Madrid turned into an important center of culture, technology, education and economy in the European Union (Madrid homepage).

5.3.2 Museums and World Heritage sites

Madrid covers more than 20 museums (Madrid homepage) and these museums attract almost 9 million visitors each year, not as high in Berlin but similar to the museum popularity in Vienna. Moreover, Madrid contains a museum cluster of the „Golden Triangle of Art". The cluster includes the Prado and the Reina Sofia Museum (Corrigan, 2015), two of the most visited museums in the World, and provides collections from the Renaissance till today. Although the conditions are similar to those in Berlin (but less specific collections), the city has not decided yet to develop a museum district in the area. Instead, a modern wing of the Prado opened in 2008 and urban marketing has started to emphasize the attractive image of the cluster for tourists. Besides, there are more museums in the neighborhood with different collections and buildings not directly connected to the three World Heritage sites[15], and survived upheavals of the last century. A possible museum district development in the area would probably not cause such debates about restorations and constructions as it did in Vienna or in Berlin. But, developing a harmonious co-operation between such famous institutions. Such developments would question the outstanding position of the Superstar

[15] Monastery and Site of the Escorial, University and Historic Precinct of Alcalá de Henares and the Aranjuez Cultural Landscape (World Heritage List, 2015)

Museums, creating a competitive situation with smaller museums and future galleries in the area. This might trigger re-assessment of the situation and development of a museum district.

5.3.3 Tourism

Although Madrid has the image of a cultural capital with buzzing night life, the relationship with Barcelona or with some other beach destinations can be considered as competitive regarding attracting tourists. Madrid attracts way less tourists than the region of Catalonia, Valencia, Andalusia and the Balears. In the capital, more than 19 million tourist nights (Eurostat, 2015) have been spent, less than in Berlin and has shown a recession recently. In such a complex situation, where the capital city is not the most visited town in the country, a possible strategy of attracting more tourists into Madrid can be ambivalent. From one side, it would further deepen the competitive relationship with the cities above (effecting the fragile political harmony between the provinces). On the other hand, the capital may be pleased with the current image of the city, which is not focusing on tourism but on the cultural, economic, political and infrastructural importance of the city. Besides, if other regions are focusing on attracting tourists much more effectively, why would the capital stand in the line as a less successful region? The question is that besides these complexities, should the urban governance consider the advantages of a museum district, the possible economic and cultural gain of attracting more tourists?

5.3.4 Influence in tourism

The flow of tourism in Madrid looks hectic. The number of tourist nights spent in the region, 13,993,975 in 2002, peaked at 22,279,681 in 2011, than started to decrease and amounted 19,750,051 in 2013 (Eurostat, 2015). 20% of the fall of two and a half million tourist nights could have been offset by establishing a museum district in Madrid in due time.

* * *

To sum up, it can be stated that although Madrid not decided to develop a museum district just yet, it may happen in the near future. However, the related cultural, social and political circumstances highly determine such decisions, as it confirms the ideas in Chapter 1.2 and 4.1-2.

6 Conclusion

As a conclusion, I will introduce the analytical results of the formerly investigated cases of regions and museum districts.

6.1 Significant factors

The quantitative analysis has identified certain observable factors that may influence the probability to organize a museum district, such as cultural assets. World heritage sites and, mainly, superstar museums can raise the propensity of cities to develop a museum district. However, as the number of museum districts is relatively small in EU regions and the observed years are also limited to slightly more than a decade. Thus, the propensity analysis may be furthered to identify additional factors, it is unlikely that only one significant factor can been found.

Afterwards, in the qualitative analysis, I tried to further examine the importance of the positive factors and additionally introduce unobservables, context that could not have been analyzed quantitatively in Chapter 4. As it has been shown in the case of Vienna and in Berlin, world heritage sites do play an important role in the development of a museum district (underlying the findings of Chapter 1.2). First, lack of utilization and under-utilization determined the plans and location for both museum districts in Vienna and in Berlin. The existing, but non-functioning or injured world heritage sites can be considered as an indication and a lever for cultural re-vitalization of the area. Second, the social and cultural reputation of the world heritage sites not only motivated, but also structured the strategy and processes of the establishment. The connection between the locals and the world heritage sites influenced the management of the museum districts in various ways.

Political, social and cultural circumstances seem to be the major determinant of establishing a museum quarter. Both in Vienna and Berlin, a change in the (inter)national political system indicated re-positioning and rejuvenation of the city. The development of the museum districts is specified by the desire to create a new image for the city, an image that may contribute to gain reputation and importance on the international scene. In the case of Madrid, major political changes have not occurred, so a major drive for creating a new image via establishing a museum quarter has been missing. Despite the fact that many regions have the right abilities to develop a museum district (shows in the propensity estimation, e.g. related

number of Superstar Museums and World Heritage sites), relatively few have decided to support such a process. It shows clearly that the decision to organize a museum district is rather influenced by political, social, cultural and management factors introduced in the qualitative part. Thus, the big changes in such circumstances in directly affected regions (the re-unification of Berlin, enlargement of the European Union) may play a more important role than cultural assets, adding new factors to suggestions summarized in Chapter 1.2 and Chapter 1.3., e.g. historical endowment, proximity to political power, access to heritage sites and mixing cultural products of different types.

6.2 Influence on tourism

In the second part of the quantitative analysis, I tried to prove and quantify the impact of developing a museum district on the tourism of the region concerned. The results revealed that this influence is positive and significant, albeit the estimation was rather imprecise. This lack of precision may be attributed to the small number of observations. If in the future more museum districts would be established and more important factors proven to be significant and revealed, the number of observations would grow as well and the quantitative inference might gain in precision. In the qualitative analysis of Chapter 5, I showed that in both cities where museum districts had been established the flow of tourism has risen. It seems that establishing a museum district influenced the tourism in a positive way, although not all the growth is directly attributable to museum districts – cultural tourism in general and museum districts specifically account only for a part of growth and tendencies in tourism. In contrast, in the region of Madrid with similar observables but no museum district developed yet, tourism has started to decline. This does not prove but by no means contradict the statistical inference in Chapter 4, the latter showing that, although establishing a museum district would add to tourism with half a million tourist nights, but could not offset or reverse the reduction.

6.3 Implications

The influence of museum districts on tourism is significant, and the quantitative analysis revealed that in all cases this influence is positive, although the small number of observations makes this result inconsistent. Moreover, a superstar museum would significantly raise the probability to organize a museum district in the region, although the qualitative analysis revealed that unobservables, such as the political, historical and cultural context, influence the propensity to develop a successful museum district as well. These results can be considered in the future urban plans and projects of organizing a museum district, for instance in Budapest

and in Brussels. Such results indicate a moderately positive motivation towards developing a museum district, in city planning in order to make the city image more attractive for tourists. Instead, the possible influence is limited, as it has been revealed in this thesis.

For example, an impact assessment written by KPMG about the Budapest Liget project conceived that a museum district would raise tourist nights spent in local accommodations with 1-1,5 million in an annual base (KPMG Advisory Ltd., 2014). Such prediction (with several other unrealistic statements, e.g. that cultural tourism gives 40% of the tourism market in general) is widely unreasonable. According to the findings of this thesis, there is below 1% the probability of that growth.

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Annex

Annex 1. Data tables

Table 1. Factors of NUTS 2 regions

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
AT11	0	283697	1		0
AT12	0	1605897	2		0
AT13	1	1689995	2	8822709	2
AT21	0	557998	1		0
AT22	1	1205045	1	401170	0
AT31	0	1409253	1	78926	0
AT32	1	526730	2	900788	0
AT33	0	704662	0	565329	0
AT34	0	368366	0		0
BE10	1	1089538	3	2704155	0
BE21	0	1744862	2	1227089	0
BE22	0	838505	1		0
BE23	0	1432326	1	698992	0
BE24	0	1076924	1	120098	1
BE25	0	1159366	2	932533	0
BE31	0	379515	0		0
BE32	0	1309880	4	151296	0
BE33	0	1067685	1	303783	0
BE34	0	269023	0		0
BE35	0	472281	1	49929	0
BG31	0	865332	0	307330	0
BG32	0	873801	2	421471	0
BG33	0	971932	1	313362	0
BG34	0	1087181	2	242057	0
BG41	0	2132634	3	868042	0
BG42	0	1490886	0	180646	0
CY00	0	819140	3	0	0
CZ01	0	1227932	1	3150000	0
CZ02	0	1247330	1	17000	0
CZ03	0	1205834	3	187000	0
CZ04	0	1133425	0	50500	0
CZ05	0	1506467	1	173600	0
CZ06	0	1671993	4	548000	0
CZ07	0	1229931	2	356500	0
CZ08	0	1239176	0	131000	0
DE11	0	4000848	1	2372607	0
DE12	0	2740503	2	3143991	0
DE13	0	2196018	2	568761	0
DE14	0	1807552	1	780731	0
DE21	1	4346465	2	5314036	0

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
DE22	0	1189194	1	180179	0
DE23	0	1081417	1	285069	0
DE24	0	1076400	2	307818	0
DE25	0	1710145	0	1669129	0
DE26	0	1321957	1	719404	0
DE27	0	1784753	0	724994	0
DE30	1	3442675	3	13193827	2
DE40	0	2511525	1	1617379	0
DE50	0	661716	0	1463590	0
DE60	0	1774224	0	2075814	0
DE71	0	3792941	2	2064671	0
DE72	0	1044269	0	241133	0
DE73	0	1224741	1	464260	0
DE80	0	1651216	1	1501024	0
DE91	0	1616720	1	682729	0
DE92	0	2142440	3	653582	0
DE93	0	1693654	2	225342	0
DE94	0	2476001	1	408872	0
DEA1	0	5172839	1	3468864	0
DEA2	1	4383044	3	4144746	0
DEA3	0	2597636	0	905107	0
DEA4	0	2043212	0	529469	0
DEA5	0	3676032	0	1547643	0
DEB1	1	1490711	1	192888	0
DEB2	0	513794	1	286819	0
DEB3	0	2008170	1	1020448	0
DEC0	0	1022585	1	135567	0
DED2	0	1631486	1	2946625	0
DED4	0		0	393133	0
DED5	0		0	989028	0
DEE0	0	2356219	3	862864	0
DEF0	0	2832027	2	856705	0
DEG0	0	2249882	3	1644544	0
DK01	1	1680271	1	2970924	0
DK02	0	820564	2		0
DK03	0	1200277	1	446447	0
DK04	0	1253998	0	13667464	0
DK05	0	579628	0	185034	0
EE00	1	1333290	2	1308885	0
EL11	0	612985	0	9979	0
EL12	0	1936369	3	118999	0
EL13	0	288157	0		0
EL14	0	751963	1	22686	0
EL21	0	347866	0	13457	0
EL22	0	210213	1		0

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
EL23	0	696405	1		0
EL24	0	562674	2	2541823	0
EL25	0	592061	4	20077	0
EL30	0	4023238	1	847465	1
EL41	0	200938	1		0
EL42	0	333167	3		0
EL43	0	627480	0	163581	0
ES11	0	2772466	3	941104	0
ES12	0	1077102	1	559463	0
ES13	0	588512	1	218960	0
ES21	0	2179521	1	1185215	1
ES22	0	633023	0	252393	0
ES23	0	319934	1	178220	0
ES24	0	1344181	2	207082	0
ES30	0	6373546	3	8707388	2
ES41	0	2547401	8	487890	0
ES42	0	2084468	3	461435	0
ES43	0	1099610	3	361690	0
ES51	0	7463488	5	10794746	2
ES52	0	4989631	3	4297476	1
ES53	0	1083679	2	2065683	0
ES61	0	8276008	5	2571541	0
ES62	0	1453543	0	382245	0
ES63	0	79294	0	0	0
ES64	0	76049	0	0	0
ES70	0	2045163	3	1426632	0
FI19	0	1355168	5	581924	0
FI1B	0	1517542	2	2275128	0
FI1C	0	1154648	1		0
FI1D	0	1296335	1	111723	0
FI20	0	27734	0		0
FR10	0	11786234	4	32924869	0
FR21	0	1335923	1	292583	0
FR22	0	1914844	2	205930	0
FR23	0	1836954	1	507122	0
FR24	0	2548065	3	437678	3
FR25	0	1473494	0	663719	0
FR26	0	1642115	2	413345	0
FR30	0	4038157	4	967848	0
FR41	0	2350920	1	916920	0
FR42	1	1845687	1	1262679	0
FR43	0	1171763	2	472519	0
FR51	0	3571495	0	677948	0
FR52	0	3199066	1	568653	0
FR53	0	1770363	1	302359	0

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
FR61	0	3232352	4	685991	0
FR62	0	2881756	3	721743	0
FR63	0	742771	0	58567653	0
FR71	0	6230691	4	1611290	0
FR72	0	1347387	0	68368	0
FR81	0	2636350	3	664206	0
FR82	0	4899155	3	2015657	1
FR83	0	309693	1	119427	0
FR91	0	449272	0		0
FR92	0	394173	0	6823	0
FR93	0	229040	0		0
FR94	0	821136	1		0
HR03	0	1415971	7	305889	0
HR04	0	2886876	0	6315	0
HU10	1	2951436	1	3685500	0
HU21	0	1098654	0	91466	0
HU22	0	996390	2	127450	0
HU23	0	947986	1	407016	0
HU31	0	1209142	3	93835	0
HU32	0	1492502	1	231768	0
HU33	0	1318214	0	188984	0
IE01	0	1227429	0	80491	0
IE02	1	3321999	2	2666147	1
IS00	0	317630	0		0
ITC1	0	4362041	4	2116675	0
ITC2	0	126686	0		0
ITC3	1	1576443	2	560490	0
ITC4	0	9600951	7	3320350	0
ITF1	0	1307778	0	46153	0
ITF2	0	315536	0	13959	0
ITF3	0	5758375	5	2077470	0
ITF4	0	4048007	2	115688	0
ITF5	0	581140	1		0
ITF6	0	1966336	0	150524	0
ITG1	0	4997429	5	269465	0
ITG2	0	1641347	1	84299	0
ITH1	0	498315	0	0	0
ITH2	0	518796	1	283794	0
ITH3	0	4841933	6	3372948	1
ITH4	0	1221569	3	568371	0
ITH5	0	4306684	4	610446	0
ITI1	0	3657340	7	5726222	2
ITI2	0	880202	1	205855	0
ITI3	0	1540272	1	18284	0
ITI4	1	5442963	6	2193869	1

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
LI00	0	35894	0		0
LT00	0	3141976	4	1114854	0
LU00	0	502066	2	181254	0
LV00	0	2120504	2	1194861	0
MK00	0	2052722	1		0
MT00	0	414027	2	1165886	0
NL11	0	576668	1	305500	0
NL12	0	646305	1	88496	0
NL13	0	490981	0		0
NL21	0	1130345	0	74964	0
NL22	0	1998936	0	1579290	0
NL23	0	387881	1	12467	0
NL31	1	1220910	1	279000	0
NL32	1	2669084	3	0	1
NL33	1	3505611	2	0	0
NL34	0	381409	0		0
NL41	0	2444158	0	342069	0
NL42	0	1122701	0	98377	0
NO01	0	1123359	0		0
NO02	0	375925	0		0
NO03	0	928852	0	0	0
NO04	0	706823	0	338217	0
NO05	0	835517	3	580022	0
NO06	0	422102	2	737467	0
NO07	0	465621	2	92889	0
PL11	0	2535866	0	391391	0
PL12	0	5217587	1	3065603	0
PL21	0	3280603	5	3010592	0
PL22	0	4590630	0	560175	0
PL31	0	2161679	1	415789	0
PL32	0	2081154	1	100962	0
PL33	0	1272156	0	192847	0
PL34	0	1176151	1	130377	0
PL41	0	3410721	0	417043	0
PL42	0	1696985	0	124865	0
PL43	0	1009605	1	55890	0
PL51	0	2876509	3	930923	0
PL52	0	975283	0	94440	0
PL61	0	2074489	1	354782	0
PL62	0	1428496	0	102043	0
PL63	0	2234955	1	602640	0
PT11	0	3705980	3	1949567	1
PT15	0	445824	0		0
PT16	0	2337787	5	10615911	0
PT17	0	2808205	2	5571348	0

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
PT18	0	762068	2		0
PT20	0	246900	0		0
PT30	0	266715	1	476758	0
RO11	0	2719719	1	396296	0
RO12	0	2524418	2	11537855	0
RO21	0	3712396	1	731330	0
RO22	0	2811218	1	799544	0
RO31	0	3267270	1	344683	0
RO32	0	2261698	0	1306580	0
RO41	0	2246033	1	511351	0
RO42	0	1919434	1	89685	0
SE11	1	2019182	3	6442101	0
SE12	0	1558292	1	982110	0
SE21	0	810066	2	253750	0
SE22	0	1383653	1	384680	0
SE23	0	1866283	2	909702	0
SE31	0	825931	2		0
SE32	0	369708	0		0
SE33	0	507567	4	225850	0
SI01	0	1084935	1	160774	0
SI02	0	962041	3	1062351	0
SK01	0	597999	0	511138	0
SK02	0	1842763	0	217844	0
SK03	0	1350286	3	463299	0
SK04	0	1599362	4	188700	0
UKC1	0	1168781	1	0	0
UKC2	0	1412315	0	0	0
UKD1	0	500458	1		0
UKD3	0	2651011	0		0
UKD4	0	1455120	0	0	0
UKD6	0	898513	0		0
UKD7	0	1498042	1		0
UKE1	0	914144	0	0	0
UKE2	0	791442	1		0
UKE3	0	1328405	0	0	0
UKE4	0	2205139	1	0	0
UKF1	0	2090780	1	0	0
UKF2	0	1689857	0	0	0
UKF3	0	708733	0		0
UKG1	0	1288952	0	0	0
UKG2	0	1558437	1	0	0
UKG3	0	2699492	0	0	0
UKH1	0	2361712	0	0	0
UKH2	0	1706697	0	0	0
UKH3	0	1711120	0	0	0

NUTS2	MuseumDistrict	Population	WorldHeritage	MuseumVisitors	SuperstarMuseum
UKI1	1	3157127	3	0	3
UKI2	0	4845494	1	0	0
UKJ1	0	2242650	1	0	0
UKJ2	0	2709001	0	0	0
UKJ3	0	1877812	0	0	0
UKJ4	0	1705146	1	0	0
UKK1	0	2324183	2	0	0
UKK2	0	1261896	1	0	0
UKK3	0	530325	1		0
UKK4	0	1127629	0	0	0
UKL1	0	1924712	1	0	0
UKL2	0	1119494	2	0	0
UKM2	0	1997342	1	0	2
UKM3	0	2317233	1	0	1
UKM5	0	468596	0	0	0
UKM6	0	463388	1		0
UKN0	0	1799019	1	573230	0

Source: (Eurostat, Number of museum visitors, 2015)
(World Heritage List, 2015)
(List of most visited art museums in the world)
(Best Museums in Europe, 2015)

Table 2. Tourism (nights spent by tourists at the region)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AT11	2 090 582	2 095 821	2 038 268	2 187 388	2 260 717	2 379 555	2 474 767	2 529 421	2 581 588	2 607 258	2 617 668	2 549 486
AT12	4 918 884	5 059 092	5 271 669	5 281 556	5 485 264	5 721 002	5 901 719	5 813 863	5 861 712	6 021 715	6 085 526	5 910 564
AT13	7 616 515	7 931 531	8 418 213	8 748 779	9 342 370	9 649 485	10 224 100	9 833 991	10 850 917	11 382 773	12 233 335	12 679 225
AT21	10 905 557	11 074 574	10 691 359	10 599 216	10 338 788	10 799 314	10 998 768	10 816 952	10 438 031	10 678 729	10 888 704	10 821 533
AT22	7 815 683	7 958 165	7 684 086	7 958 496	8 034 513	8 397 374	8 804 087	8 911 822	9 087 786	9 286 510	9 463 090	9 619 986
AT31	5 687 204	5 717 952	5 714 884	5 710 254	5 815 035	5 923 485	6 127 267	6 079 155	6 005 118	6 219 301	6 444 340	6 296 414
AT32	17 523 214	17 684 500	17 963 465	18 523 502	19 054 360	19 305 248	20 042 061	19 423 427	19 563 869	19 613 068	20 721 553	21 139 146
AT33	31 675 127	32 093 901	31 863 808	32 441 847	32 232 905	32 659 589	34 118 014	33 441 600	33 517 686	33 549 266	34 684 574	35 102 108
AT34	5 537 923	5 624 114	5 612 324	5 579 551	5 565 594	5 829 300	6 018 900	5 983 227	6 035 628	5 981 042	6 401 930	6 568 911
BE10	4 686 350	4 793 357	4 717 667	4 650 013	4 835 497	5 099 264	5 271 014	5 197 256	5 556 308	5 971 663	5 988 106	6 271 037
BE21	3 138 052	3 158 261	2 991 458	3 132 351	3 266 423	3 471 379	3 577 462	3 401 194	3 677 653	3 830 585	3 872 274	3 739 815
BE22	3 672 891	3 658 105	3 693 585	3 685 153	3 884 292	3 845 947	3 843 038	3 865 184	3 888 071	3 966 058	3 578 125	3 484 843
BE23	1 310 140	1 309 659	1 279 536	1 293 270	1 390 434	1 486 846	1 559 482	1 491 832	1 619 859	1 705 785	1 810 621	1 878 689
BE24	1 214 570	1 179 848	1 349 275	1 405 998	1 470 233	1 459 292	1 529 183	1 435 153	1 494 187	1 589 607	1 797 397	1 911 212
BE25	8 251 137	8 041 235	7 702 248	7 519 789	7 693 983	7 702 074	7 513 294	7 288 832	7 510 736	7 887 451	7 718 261	7 750 871
BE31	307 412	312 079	318 009	326 271	344 051	352 920	337 699	355 050	410 337	408 237	410 494	406 807
BE32	401 987	399 987	490 987	633 891	753 725	767 936	814 853	808 657	863 013	856 851	879 049	855 679
BE33	2 178 797	2 109 194	2 079 843	2 064 652	2 066 391	2 020 067	2 075 525	2 012 344	1 996 048	2 008 646	2 063 910	2 055 932
BE34	2 616 977	2 687 532	2 519 308	2 426 134	2 472 462	2 468 267	2 340 512	2 309 414	2 226 610	2 088 011	2 077 611	2 067 215
BE35	1 314 228	1 369 250	1 352 480	1 243 171	1 193 434	1 175 364	1 109 777	1 085 465	1 055 204	1 066 950	1 071 593	1 026 080
BG31	219 629	227 943	234 835	281 428	383 932	394 303	430 078	403 805	361 218	432 186	483 858	539 547
BG32	336 522	363 313	373 574	455 427	494 525	587 294	601 620	533 360	462 765	552 822	671 282	644 307
BG33	5 270 050	5 496 732	5 906 080	6 409 154	6 364 331	6 192 026	6 050 560	4 863 998	5 119 160	6 250 748	6 618 837	6 917 967
BG34	2 020 005	3 778 299	4 826 044	5 703 397	6 419 156	6 532 899	6 614 353	5 696 053	6 396 622	7 422 388	7 784 126	8 459 346
BG41	1 367 902	1 673 920	1 767 927	1 995 842	2 221 777	2 653 027	2 800 689	2 325 887	2 368 724	2 421 402	2 865 755	3 113 154
BG42	1 071 560	981 272	1 051 607	1 226 065	1 471 642	1 617 109	1 685 623	1 453 897	1 430 627	1 576 515	1 828 180	1 943 153
CY00	16 159 347	14 457 937	14 717 269	15 058 319	14 438 592	14 377 667	14 380 375	13 003 673	13 800 788	14 284 731	14 576 573	14 048 529

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CZ01	7 024 756	8 424 332	10 666 404	11 204 950	11 277 671	12 200 291	12 174 591	11 218 200	12 121 133	12 948 091	14 443 143	14 654 282
CZ02	2 240 950	2 531 896	2 597 255	2 167 035	2 222 696	2 064 921	1 806 363	1 713 592	1 688 986	1 796 742	2 114 840	2 066 099
CZ03	4 371 844	5 071 571	5 320 369	5 004 433	5 307 270	4 700 483	4 403 117	4 284 427	4 096 691	4 009 644	4 687 581	4 658 094
CZ04	5 622 177	5 191 680	5 081 395	5 058 067	5 589 989	5 627 319	5 577 857	5 166 640	5 095 808	5 341 409	5 938 627	5 764 989
CZ05	8 216 462	7 955 804	7 809 292	7 700 219	7 815 499	7 189 924	6 879 761	6 439 100	6 301 288	6 189 117	6 973 862	6 797 895
CZ06	3 261 971	3 816 056	3 445 889	3 481 729	3 563 064	3 491 290	3 289 334	2 990 867	2 886 780	3 127 652	3 785 268	4 018 438
CZ07	3 796 012	3 917 662	3 742 546	3 638 773	3 615 904	3 520 638	3 223 682	2 998 109	2 984 193	3 013 799	3 319 925	3 400 921
CZ08	2 575 663	2 434 249	2 117 558	2 065 271	2 055 704	2 036 206	1 928 769	1 851 257	1 733 932	1 808 634	2 015 211	1 947 561
DE11	7 827 455	7 777 194	8 874 643	8 958 972	9 458 451	9 055 056	9 516 160	8 332 881	8 825 481	9 653 382	10 312 973	10 444 980
DE12	8 023 476	7 766 752	9 593 438	9 672 752	9 714 934	8 708 828	8 728 950	8 089 713	8 506 481	8 943 279	9 262 754	9 294 919
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DE14	5 334 148	5 376 148	7 109 578	7 198 523	7 160 389	5 749 536	5 965 842	5 747 575	5 929 135	6 303 142	6 617 212	6 536 321
DE21	25 473 660	25 621 674	28 075 823	28 924 030	29 164 397	28 175 962	28 582 868	27 054 563	28 861 675	30 157 451	31 806 034	32 392 072
DE22	10 993 399	10 857 452	12 218 979	12 076 941	11 825 220	10 192 344	10 168 977	9 647 343	9 591 976	9 882 658	10 022 349	9 797 057
DE23	4 671 058	4 574 382	4 732 619	4 663 265	4 498 490	4 473 189	4 362 286	4 025 104	4 101 906	4 317 694	4 359 766	4 337 676
DE24	3 923 748	3 866 484	4 327 750	4 323 739	4 295 905	3 752 565	3 783 698	3 471 386	3 578 889	3 743 489	3 900 867	3 737 408
DE25	5 524 533	5 465 625	6 037 749	6 133 675	6 400 780	6 031 013	6 161 289	5 478 330	5 953 302	6 273 152	6 551 793	6 523 274
DE26	4 541 733	4 475 636	5 862 310	5 921 077	6 049 128	4 658 253	4 705 148	4 164 443	4 294 212	4 572 116	4 749 856	4 762 502
DE27	11 462 432	11 374 902	12 405 767	12 530 837	12 457 250	11 420 111	11 660 566	11 137 170	11 236 362	11 850 602	12 346 389	12 363 739
DE30	11 134 583	11 425 390	13 260 393	14 620 315	15 910 372	17 285 837	17 770 277	18 814 154	20 688 935	22 239 852	24 764 564	26 806 789
DE40	7 706 141	7 816 359	9 256 546	9 380 117	9 551 643	8 531 174	8 662 113	8 479 006	8 904 366	9 283 731	9 650 492	9 713 625
DE50	1 260 885	1 314 156	1 422 449	1 375 753	1 469 454	1 530 823	1 650 883	1 639 093	1 812 720	1 930 606	1 916 281	2 028 776
DE60	5 149 174	5 444 959	5 945 507	6 435 106	7 177 327	7 402 423	7 727 621	8 190 145	8 946 635	9 530 300	10 634 012	11 603 135
DE71	12 439 038	12 159 923	14 629 251	14 717 577	15 532 069	13 897 975	14 266 623	13 416 526	14 583 102	15 052 003	15 754 679	16 396 495
DE72	1 842 220	1 823 625	2 180 850	2 300 755	2 221 602	1 989 964	2 060 801	1 921 855	1 943 963	2 007 850	2 038 461	2 062 726
DE73	6 259 000	6 135 825	8 043 293	8 155 673	8 214 509	6 289 943	6 179 918	6 162 933	6 153 113	6 391 578	6 550 343	6 352 662
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DE91	5 739 162	5 751 858	6 002 753	5 842 872	5 932 558	5 285 721	5 230 195	5 280 218	5 345 908	5 505 710	5 641 174	5 659 089
DE92	3 817 971	3 930 209	5 039 879	5 308 826	5 400 324	4 465 479	4 913 469	4 736 334	5 004 150	5 427 328	5 482 783	5 498 370

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
DE93	8 306 831	7 928 477	8 211 362	8 048 669	8 234 933	8 092 033	8 405 261	8 344 467	8 228 542	8 373 407	8 404 146	8 288 544
DE94	13 506 786	13 474 388	15 235 441	15 084 189	15 317 009	13 749 189	13 876 011	14 222 197	14 587 633	14 723 216	14 800 312	14 695 354
DEA1	7 807 479	7 439 269	8 303 797	8 457 035	8 781 307	8 787 930	9 521 879	8 617 042	9 500 151	9 837 137	10 248 435	10 467 100
DEA2	9 352 728	9 199 667	10 659 036	11 175 264	11 381 201	10 980 276	11 009 970	9 736 749	10 385 073	11 072 529	11 270 042	11 488 838
DEA3	3 432 949	3 416 389	3 464 071	3 584 757	3 682 390	3 790 957	3 950 800	3 120 496	3 228 526	3 359 744	3 409 179	3 385 103
DEA4	3 905 474	3 653 714	6 244 712	6 308 204	6 337 553	3 812 919	3 785 278	3 580 448	3 600 684	3 691 428	3 679 071	3 712 014
DEA5	7 715 124	7 550 516	9 018 589	8 908 897	9 079 860	7 725 293	7 847 065	6 947 181	7 213 341	7 553 060	7 670 969	7 640 065
DEB1	#N/A	7 001 298	8 315 060	8 374 826	8 286 624	7 023 684	7 288 074	6 984 138	7 255 544	7 953 648	7 621 238	7 569 188
DEB2	#N/A	5 978 093	6 421 728	6 391 003	6 359 489	5 977 860	5 854 428	5 642 049	5 652 540	5 720 336	5 571 861	5 490 251
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DED4	3 714 610	3 872 317	4 666 078	4 615 493	4 626 900	3 749 676	3 711 626	3 702 528	3 783 762	3 945 859	4 101 440	3 983 019
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DEE0	4 628 103	4 730 061	5 874 270	967 281	6 414 065	5 522 607	5 658 678	5 723 755	5 855 327	6 100 215	6 352 582	6 136 379
DEF0	19 790 074	20 333 680	22 132 760	22 361 555	23 044 017	20 365 466	20 499 566	21 016 885	21 200 965	21 336 567	21 163 641	21 452 891
DEG0	6 728 110	6 828 264	8 537 858	8 858 366	8 731 062	7 352 791	7 368 410	7 290 839	7 269 156	7 445 097	7 596 210	7 496 555
DK01	6 289 301	6 250 327	6 628 196	6 958 200	7 331 516	7 519 427	7 387 969	6 933 773	7 504 098	8 215 682	8 616 599	9 046 543
DK02	2 998 579	3 120 661	3 074 274	3 123 716	3 275 749	3 346 901	3 297 900	2 959 541	2 819 264	2 760 033	2 646 810	2 662 486
DK03	7 049 230	7 425 274	7 124 188	6 983 231	7 357 899	7 707 078	7 968 349	7 939 723	8 199 896	8 243 424	7 953 000	8 007 168
DK04	4 474 128	4 549 592	4 379 723	4 258 188	4 370 824	4 499 577	4 515 685	4 231 620	4 259 807	4 388 644	4 316 489	4 414 072
DK05	4 862 406	4 943 271	4 912 684	4 904 101	4 931 062	4 994 611	4 857 126	4 426 806	4 363 882	4 603 303	4 507 337	4 370 568
EE00	2 695 669	3 084 433	3 757 715	4 111 577	4 543 330	4 674 501	4 602 212	4 122 526	4 700 680	5 399 392	5 544 537	5 734 033
EL11	1 546 853	1 490 824	1 509 539	1 536 703	1 543 865	1 654 973	1 759 226	1 911 480	1 726 488	1 689 396	1 647 621	2 342 759
EL12	3 556 211	3 824 103	4 475 094	5 246 823	5 966 191	7 153 293	7 891 536	9 943 723	9 652 380	9 906 253	9 304 097	11 520 296
EL13	373 896	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	511 211	448 002	409 874	330 855	375 870
EL14	1 735 091	1 729 936	1 540 565	1 949 851	1 828 356	1 957 952	1 983 379	3 112 702	2 868 717	2 707 857	2 493 254	2 782 050
EL21	880 861	893 816	671 898	753 923	784 257	936 866	900 065	1 650 669	1 699 546	1 697 677	1 428 677	1 801 485
EL22	6 749 848	6 344 924	4 536 920	7 074 696	7 028 971	7 522 757	7 381 425	12 441 689	11 872 315	12 333 328	11 045 094	10 543 079

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
EL23	1 448 971	1 502 241	1 457 550	1 380 900	1 499 143	1 957 596	1 860 051	2 000 156	1 888 327	1 849 907	1 583 852	1 691 924
EL24	1 436 622	1 434 775	1 303 321	1 395 279	1 427 199	1 762 551	1 643 172	2 476 864	2 382 904	2 052 362	1 525 144	1 789 731
EL25	2 134 389	2 304 281	2 251 447	2 572 597	2 320 933	2 704 207	2 569 268	3 132 900	3 027 239	3 065 040	2 350 366	3 100 791
EL30	5 967 457	5 810 426	5 907 270	6 149 738	6 772 536	7 706 563	7 315 351	7 474 861	7 169 313	7 362 512	6 090 051	7 013 354
EL41	1 888 892	1 799 200	1 690 643	#N/A	#N/A	#N/A	#N/A	2 147 143	1 941 979	1 909 342	1 552 071	2 042 376
EL42	14 924 256	14 971 146	13 696 547	12 768 980	13 172 260	14 690 087	14 546 143	18 372 194	19 187 454	20 802 616	18 138 741	23 579 791
EL43	11 822 962	12 010 224	13 159 757	12 499 798	13 469 216	15 324 936	15 729 316	19 187 154	19 879 156	21 765 012	20 687 531	23 327 136
ES11	7 522 946	7 640 816	9 191 098	9 003 471	9 141 195	9 409 227	9 175 581	8 866 204	9 654 775	8 538 669	7 946 703	8 049 132
ES12	3 584 324	3 803 549	4 040 982	4 602 595	4 927 821	4 967 304	4 523 227	4 486 497	4 552 217	4 618 127	4 265 885	4 185 965
ES13	3 941 213	3 918 119	3 984 405	4 452 910	4 748 953	4 525 454	4 289 752	4 478 407	4 366 918	4 298 005	4 100 291	4 041 240
ES21	3 466 517	3 682 815	4 022 385	4 330 894	4 728 840	4 743 195	4 642 321	4 635 002	5 032 116	5 528 954	5 526 693	5 433 851
ES22	1 744 416	1 808 942	1 904 342	2 118 961	2 277 685	2 186 186	2 215 738	2 158 576	2 202 709	2 466 202	2 325 110	2 325 219
ES23	1 066 295	1 091 352	1 120 690	1 167 088	1 329 191	1 320 443	1 346 935	1 352 576	1 358 967	1 434 782	1 366 666	1 364 335
ES24	5 203 497	5 381 277	5 360 519	5 522 160	5 930 207	6 280 083	7 007 159	5 819 572	6 088 582	6 013 092	5 693 780	5 708 560
ES30	13 993 975	13 765 532	14 942 625	16 584 935	18 251 589	19 660 122	18 926 093	18 280 731	20 665 848	22 279 681	20 789 463	19 750 051
ES41	7 833 234	7 768 380	8 349 368	8 488 332	9 372 530	9 962 781	9 848 627	9 535 530	9 470 106	9 466 969	8 736 512	8 690 150
ES42	3 451 668	3 525 936	3 714 745	4 005 777	4 277 669	4 629 100	4 563 707	4 318 046	4 350 225	4 203 769	3 777 847	3 754 592
ES43	2 015 945	2 111 233	2 185 793	2 178 929	2 535 993	2 706 403	2 713 577	2 703 638	2 656 021	2 884 548	2 705 020	2 613 185
ES51	58 306 399	57 597 954	58 124 216	60 604 372	63 409 902	63 399 740	63 199 942	60 954 363	65 106 850	69 301 704	69 692 113	70 521 899
ES52	33 564 801	34 536 607	35 862 548	37 125 458	39 048 464	39 787 171	38 105 312	35 821 372	36 491 056	37 740 672	37 417 806	39 034 198
ES53	59 305 465	60 287 743	58 506 798	60 213 255	63 453 752	62 166 198	60 637 827	55 358 331	58 211 928	64 271 326	64 651 179	65 286 846
ES61	44 769 074	46 614 637	48 725 521	51 411 992	53 875 106	54 675 767	54 277 991	50 198 859	50 620 618	52 160 794	51 496 216	53 815 982
ES62	4 786 018	5 016 563	4 948 997	4 986 151	4 918 031	5 294 990	5 061 894	4 556 905	4 634 742	4 573 452	4 351 830	4 542 751
ES63	#N/A	160 987	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	148 704	155 531
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ES70	84 073 439	83 763 836	79 037 004	76 324 084	86 781 961	85 904 577	85 015 211	74 753 527	79 123 230	89 798 978	87 549 896	89 812 124
FI19	3 347 146	3 485 262	3 632 951	3 719 007	3 874 033	4 075 289	4 114 680	3 961 538	4 115 017	4 158 126	4 185 470	4 109 254
FI1B	#N/A	#N/A	3 893 556	4 039 603	4 352 332	4 596 333	4 742 367	4 468 786	4 856 835	5 194 606	5 262 273	5 103 405
FI1C	#N/A	#N/A	2 764 856	2 855 012	3 055 593	3 174 401	3 170 281	2 984 620	3 013 145	3 213 509	3 300 686	3 271 657

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FI1D	#N/A	#N/A	5 878 889	6 193 297	6 450 557	6 762 071	6 985 724	6 736 802	6 857 807	6 994 805	7 163 485	7 348 441
FI20	440 021	436 455	456 338	452 118	436 354	428 571	452 568	415 592	405 253	426 825	405 668	408 300
FR10	62 080 214	58 085 076	59 674 027	62 565 134	63 105 173	68 677 853	67 528 487	63 638 435	73 958 172	77 403 960	78 104 744	77 518 033
FR21	3 136 453	3 080 460	3 286 541	3 396 399	3 292 166	3 347 560	3 360 208	3 224 249	3 484 641	3 668 441	3 726 418	3 859 435
FR22	3 005 450	3 212 026	3 167 081	3 503 786	3 538 081	3 446 409	3 452 360	3 673 539	4 934 881	5 151 236	5 119 158	5 198 415
FR23	3 296 547	3 602 162	3 676 116	3 640 008	3 538 664	3 436 307	3 531 917	3 446 442	4 742 082	4 870 454	4 727 499	4 856 911
FR24	7 464 901	7 497 002	7 398 476	7 564 291	7 429 204	7 486 620	7 564 041	7 311 107	9 074 769	9 187 317	9 114 939	9 116 433
FR25	6 595 983	6 915 857	7 465 470	7 035 209	7 288 590	7 284 914	7 136 155	7 212 236	8 790 113	8 701 972	8 472 458	8 528 941
FR26	5 738 219	5 546 084	5 910 836	6 166 266	5 957 118	5 961 625	5 969 794	5 860 506	6 352 193	6 503 400	6 558 819	6 356 531
FR30	6 903 139	6 660 183	6 977 713	6 677 648	6 901 879	6 804 154	6 807 952	6 337 878	7 065 453	7 214 671	7 241 637	7 336 536
FR41	4 460 938	4 689 101	4 572 459	4 538 088	4 514 806	4 618 511	4 531 246	4 467 208	6 026 719	5 921 230	6 330 364	6 478 736
FR42	6 964 834	6 858 249	6 859 870	6 772 660	6 436 912	6 588 825	6 612 599	6 736 283	7 995 094	8 443 259	8 393 751	8 575 068
FR43	3 226 537	3 409 420	3 258 284	3 306 334	3 095 874	3 059 979	3 123 821	3 264 511	4 052 554	3 958 575	3 935 689	3 833 857
FR51	14 394 122	15 255 064	15 205 551	15 394 007	15 967 858	15 793 027	15 936 422	15 789 928	19 440 199	19 846 149	19 447 452	19 723 103
FR52	14 857 654	16 377 928	16 403 048	16 145 246	16 645 211	15 779 376	15 301 471	15 502 657	19 106 413	19 428 533	18 568 689	19 881 416
FR53	11 160 209	11 004 170	10 983 699	11 052 437	11 095 113	10 995 808	11 055 640	11 173 172	13 214 900	13 684 810	13 650 916	13 718 926
FR61	21 301 155	19 274 325	20 596 022	20 771 854	21 708 395	21 376 576	21 239 290	21 721 847	29 680 364	30 803 662	30 104 651	30 951 305
FR62	13 743 320	13 698 324	13 575 484	13 752 150	13 863 482	13 591 233	14 483 670	13 212 616	17 396 067	17 580 528	17 627 461	17 152 129
FR63	2 111 846	2 113 180	2 079 246	2 145 192	2 177 012	2 055 095	2 080 535	2 101 657	2 618 344	2 691 986	2 655 808	2 623 307
FR71	26 028 380	26 154 264	25 202 709	25 742 463	25 730 866	25 671 871	25 720 657	25 335 950	48 544 357	47 847 618	48 709 067	48 828 855
FR72	5 286 113	5 461 356	5 297 044	5 413 734	5 217 893	4 894 640	4 975 259	5 043 645	6 475 964	6 495 039	6 608 783	6 523 787
FR81	24 756 568	23 919 417	23 491 268	23 403 070	23 670 822	24 383 675	24 624 646	25 216 754	32 784 928	33 589 653	33 686 937	34 258 726
FR82	36 389 252	33 947 088	32 469 338	34 822 817	34 427 420	35 125 884	35 154 952	34 117 544	52 666 923	55 265 601	55 484 758	54 684 261
FR83	6 638 292	6 336 566	5 467 140	6 122 194	6 384 444	6 240 956	6 186 201	6 532 007	9 083 320	8 802 647	8 499 165	9 751 180
FR91	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1 080 637	1 064 837
FR92	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1 471 578	1 575 099
FR93	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	349 483	328 281
FR94	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	854 696	853 167
HR03	32 755 461	33 501 177	34 232 215	35 380 464	35 252 998	36 056 269	36 185 521	35 341 784	34 915 552	37 058 026	59 855 870	61 785 377

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HR04	1 591 214	1 744 721	1 759 256	1 911 984	2 091 624	2 262 569	2 346 551	2 142 837	2 093 630	2 192 764	2 328 055	2 632 915
HU10	5 499 168	5 696 988	6 586 306	7 041 143	6 664 181	6 833 136	6 691 447	6 240 216	6 513 308	7 030 658	8 267 517	8 739 463
HU21	2 415 628	2 420 278	2 289 498	2 433 313	2 343 054	2 400 212	2 256 155	2 126 842	2 097 976	2 045 864	2 700 068	2 730 712
HU22	3 485 829	3 609 627	3 590 864	3 676 727	3 772 570	3 896 780	4 041 252	3 962 837	4 281 664	4 351 246	4 649 091	4 729 787
HU23	2 753 078	2 525 011	2 249 126	2 256 163	2 258 464	2 281 133	2 268 607	2 075 975	1 858 431	1 643 208	2 507 817	2 810 969
HU31	1 513 586	1 534 617	1 460 190	1 493 157	1 533 103	1 535 105	1 540 998	1 440 708	1 409 932	1 522 431	1 837 221	2 072 053
HU32	1 813 597	1 776 027	1 695 869	1 735 303	1 977 898	2 055 311	2 011 800	1 802 810	1 813 097	1 687 804	1 866 326	1 948 492
HU33	969 049	1 048 566	1 027 630	1 101 552	1 102 756	1 126 857	1 164 155	1 060 358	1 056 326	1 153 703	1 341 493	1 394 672
IS00	1 860 685	1 984 448	2 133 630	2 189 208	2 411 246	2 602 054	2 673 060	2 863 922	2 937 274	3 172 441	3 719 126	4 280 685
ITC1	8 592 395	8 943 998	9 342 471	10 179 127	11 063 326	10 317 171	11 558 330	11 593 822	12 365 022	12 845 074	12 415 037	12 690 568
ITC2	3 304 210	3 496 219	3 198 211	3 188 648	3 207 724	3 106 584	3 113 340	3 133 921	3 107 827	3 126 165	3 166 295	2 981 002
ITC3	15 119 556	14 769 598	14 214 124	13 832 991	14 212 325	14 170 265	14 130 514	13 952 944	13 754 235	14 060 622	13 401 547	13 149 699
ITC4	25 605 809	25 972 014	26 473 149	26 494 968	27 021 759	28 648 519	28 303 505	29 456 808	31 126 864	33 123 562	33 366 636	33 960 641
ITF1	6 856 015	7 115 155	6 933 216	6 853 114	7 449 579	7 374 646	7 560 476	6 653 927	7 306 951	7 422 437	7 252 826	6 938 239
ITF2	717 039	769 334	754 964	747 805	742 536	652 171	659 205	602 526	559 245	680 523	540 050	451 400
ITF3	20 323 213	19 708 952	19 907 514	19 206 477	19 145 883	19 774 742	18 722 386	17 942 458	18 556 993	19 554 988	18 410 150	17 722 308
ITF4	10 260 701	10 702 634	10 395 189	10 829 774	10 320 781	11 481 603	12 183 376	12 509 693	12 982 987	13 505 731	13 291 863	13 359 216
ITF5	1 698 138	1 761 639	1 922 098	1 954 865	1 743 680	1 856 789	1 862 373	1 888 718	1 890 108	1 963 474	1 881 814	1 949 123
ITF6	6 785 000	7 333 813	7 701 394	7 838 849	8 155 053	8 731 335	8 493 339	8 454 728	8 147 269	8 548 275	8 358 186	8 002 838
ITG1	13 147 132	13 152 348	13 351 037	13 721 380	14 574 524	14 602 145	13 938 319	13 765 339	13 503 839	14 057 897	14 273 969	14 490 861
ITG2	10 261 806	10 383 975	10 303 418	10 208 792	10 530 940	11 851 213	12 293 922	12 310 384	12 172 923	11 448 683	10 843 177	10 680 628
ITH1	#N/A	#N/A	25 698 308	26 139 024	26 400 389	27 293 308	27 699 447	28 067 592	28 568 205	28 872 461	29 398 900	29 017 046
ITH2	#N/A	#N/A	13 848 755	14 495 715	14 589 041	14 703 083	14 873 012	15 235 186	15 191 244	15 287 619	15 488 347	15 482 582
ITH3	#N/A	#N/A	54 559 238	56 725 302	59 359 084	61 529 573	60 607 073	60 444 395	60 820 311	63 401 304	62 352 831	61 536 258
ITH4	#N/A	#N/A	8 568 595	8 391 287	8 483 114	8 734 021	8 878 927	8 833 753	8 665 896	8 949 565	8 802 721	7 842 377
ITH5	#N/A	#N/A	36 287 912	36 219 769	37 469 142	38 174 466	38 361 397	38 188 724	37 674 889	38 619 332	37 383 182	36 449 540
ITI1	#N/A	#N/A	35 454 949	37 960 671	40 943 455	41 695 840	41 261 956	40 971 354	42 031 975	43 684 791	42 651 126	42 696 395
ITI2	#N/A	#N/A	5 753 804	5 820 925	6 137 303	6 252 102	6 011 326	5 584 081	5 626 727	6 037 002	5 825 889	5 685 954
ITI3	#N/A	#N/A	12 853 376	12 497 502	13 048 927	13 584 582	11 478 362	10 701 166	10 792 486	11 024 248	10 925 958	11 017 961

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ITI4	#N/A	#N/A	28 094 505	31 709 665	32 166 213	32 107 593	31 676 127	30 470 858	30 696 554	30 680 979	30 680 979	30 680 979
LI00	165 822	165 941	161 128	165 305	170 308	183 360	187 306	176 340	166 835	#N/A	141 042	135 303
LT00	1 656 063	1 660 032	2 167 879	2 622 957	2 935 729	3 263 661	3 249 339	2 548 114	2 792 135	3 266 858	5 741 252	6 089 056
LU00	2 669 973	2 736 134	2 721 730	2 682 040	2 611 142	2 527 820	2 432 004	2 256 166	1 859 564	2 237 724	2 543 830	2 637 481
LV00	1 692 929	1 807 337	2 065 904	2 634 207	3 113 846	3 324 690	3 501 063	2 543 111	2 834 104	3 294 232	3 546 736	3 775 192
MK00	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1 354 266	1 313 992	1 266 095	1 435 015	1 459 771	1 499 076
MT00	#N/A	#N/A	7 737 121	7 567 827	7 405 218	8 082 229	7 917 563	6 903 106	7 560 834	7 681 557	7 832 229	8 501 147
NL11	1 128 000	1 307 000	1 192 700	1 148 700	1 402 000	1 346 000	1 320 200	1 485 900	1 182 700	1 208 300	1 172 343	1 323 719
NL12	5 312 300	5 397 300	4 851 200	4 556 400	4 625 300	4 744 500	4 556 100	5 142 200	4 749 100	4 737 900	4 625 356	5 162 879
NL13	5 676 900	5 160 000	4 976 600	4 787 600	5 665 900	5 656 700	5 644 400	5 776 600	5 724 000	5 225 300	5 697 507	6 148 434
NL21	5 077 400	5 195 700	5 531 500	5 404 900	5 061 800	5 179 400	5 343 200	5 575 000	5 252 100	5 443 000	4 907 242	5 490 652
NL22	9 640 600	10 260 600	9 109 700	9 661 800	9 440 200	10 181 500	9 812 800	9 538 900	9 501 300	9 499 200	9 159 448	10 515 234
NL23	1 453 200	1 667 300	1 477 100	1 580 900	1 669 100	1 641 900	1 647 000	1 709 700	1 622 300	1 333 300	1 873 569	2 416 696
NL31	2 162 900	1 735 600	1 926 400	2 320 300	2 406 700	2 410 200	2 420 400	2 370 700	2 185 400	2 381 300	2 293 059	2 763 343
NL32	17 161 700	16 581 800	17 249 800	17 654 500	19 194 600	19 835 000	18 682 200	18 882 100	20 196 900	20 324 400	19 961 251	22 467 095
NL33	8 581 200	7 569 700	7 561 500	7 423 900	7 942 000	8 642 100	8 578 300	8 332 100	8 212 900	8 334 600	8 142 256	9 485 952
NL34	7 647 100	8 521 800	8 326 600	7 577 500	8 182 800	9 115 200	7 478 500	7 648 300	8 033 900	8 029 000	7 226 760	8 981 367
NL41	8 231 400	7 819 800	8 934 700	8 229 500	8 217 400	9 031 900	8 936 900	8 371 000	8 774 100	9 063 500	8 999 335	10 481 395
NL42	10 298 500	9 989 100	9 774 700	9 814 500	10 135 400	10 482 400	10 032 300	9 683 000	9 438 200	9 788 800	9 992 283	10 837 364
NO01	3 892 395	3 805 650	4 238 855	4 809 614	4 745 740	5 004 396	4 885 552	4 810 902	5 149 327	5 414 462	5 668 380	#N/A
NO02	3 930 873	3 798 461	4 096 703	4 302 511	4 280 554	4 363 538	4 294 081	4 315 364	4 195 224	3 941 669	3 846 813	#N/A
NO03	4 905 117	4 657 388	4 896 300	6 762 561	5 108 896	5 246 996	5 166 501	5 083 346	5 190 174	5 214 372	5 328 286	#N/A
NO04	1 706 603	2 573 306	3 048 829	3 135 279	3 580 960	3 755 598	3 818 372	3 591 692	3 697 390	3 807 185	3 952 406	#N/A
NO05	5 687 903	4 696 402	4 560 053	4 725 711	5 049 155	5 378 005	5 443 302	5 261 663	5 280 571	5 364 907	5 597 701	#N/A
NO06	1 792 545	1 751 128	1 893 022	1 917 112	2 050 246	2 125 245	2 133 766	2 138 395	2 163 063	2 235 709	2 399 639	#N/A
NO07	2 468 267	2 526 264	2 540 417	2 645 931	2 673 030	2 769 666	2 826 053	2 800 726	2 843 087	3 096 009	3 121 607	#N/A
PL11	1 340 310	1 275 875	1 308 377	1 367 326	1 483 911	1 718 950	1 864 377	1 941 237	1 959 656	1 980 927	2 137 220	2 035 643
PL12	3 523 085	3 499 750	4 052 356	4 280 733	4 491 545	4 816 195	5 106 840	4 936 318	5 572 996	5 622 981	5 898 844	6 256 024
PL21	6 188 306	6 530 230	7 081 725	7 375 810	7 562 642	8 014 017	7 953 631	7 958 504	7 973 724	8 394 103	9 563 909	9 678 888

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PL22	2 551 422	2 827 564	3 148 096	3 811 710	4 247 946	4 154 790	4 333 866	4 437 815	4 585 385	4 584 072	4 631 977	4 557 062
PL31	1 264 387	1 263 682	1 275 919	1 238 665	1 286 645	1 410 282	1 555 548	1 602 459	1 612 094	1 487 661	1 531 607	1 593 913
PL32	1 307 015	1 345 736	1 338 040	1 540 609	1 629 396	1 814 199	1 886 570	1 941 953	2 059 123	2 108 452	2 284 453	2 297 077
PL33	574 349	567 496	594 491	806 138	800 865	1 119 254	1 072 492	1 129 826	1 206 889	1 248 622	1 347 481	1 342 186
PL34	756 774	754 006	792 776	586 624	841 693	942 813	907 520	862 916	903 286	901 695	984 939	1 018 614
PL41	2 368 762	2 472 785	2 430 160	1 190 923	2 577 952	2 715 128	3 022 100	2 789 527	3 060 711	3 012 320	2 954 451	2 840 949
PL42	8 773 210	9 268 350	8 888 396	2 492 288	9 115 675	9 564 232	10 033 801	9 766 489	9 445 058	9 928 007	10 936 992	11 221 437
PL43	1 070 670	1 169 793	1 182 930	9 064 907	1 271 271	1 435 725	1 524 694	1 307 148	1 319 987	1 333 716	1 310 365	1 195 624
PL51	5 178 588	4 788 361	4 699 439	4 705 632	4 888 524	5 268 222	5 229 121	4 762 517	4 814 319	4 998 693	5 718 092	5 921 122
PL52	366 858	410 415	485 812	497 556	523 867	584 917	635 988	570 653	552 041	568 663	613 049	595 441
PL61	1 972 798	2 006 867	2 168 519	2 395 374	2 659 138	2 830 316	2 892 903	2 838 606	2 668 695	2 818 779	3 145 503	3 167 258
PL62	1 860 405	1 952 192	2 068 044	5 249 226	2 279 662	2 407 709	2 459 639	2 372 186	2 407 502	2 470 096	2 555 145	2 691 604
PL63	5 114 645	5 214 743	5 142 047	2 014 893	5 574 233	6 156 973	6 166 428	5 801 913	5 653 001	5 689 466	6 400 863	6 546 610
PT11	4 652 274	4 504 916	4 429 699	4 763 876	5 136 348	5 456 433	5 353 260	5 278 202	5 380 160	5 479 709	5 447 501	6 107 442
PT15	15 807 276	16 125 202	15 175 219	15 763 019	16 179 537	16 692 909	16 244 877	14 897 142	15 060 855	15 859 200	16 019 714	16 681 486
PT16	5 277 642	5 011 357	5 391 515	5 579 603	5 886 494	6 194 906	6 201 555	5 981 664	6 110 056	5 988 216	5 623 559	5 464 895
PT17	7 786 862	7 376 611	8 199 366	8 350 929	9 377 199	10 228 516	10 039 073	9 483 048	10 233 296	10 721 696	11 086 065	11 948 402
PT18	1 903 740	1 859 753	1 935 608	1 907 773	1 914 292	2 104 127	2 041 087	2 123 015	2 118 147	2 134 211	2 054 006	2 309 958
PT20	834 735	855 989	1 019 556	1 185 168	1 222 006	1 234 747	1 177 885	1 047 990	#N/A	1 074 471	1 010 526	1 150 552
PT30	5 548 669	5 671 143	5 571 984	5 714 714	5 806 028	6 052 971	6 271 100	5 553 681	#N/A	5 600 355	5 539 720	6 225 524
RO11	2 132 009	2 250 979	2 221 119	2 290 196	2 362 911	2 549 490	2 536 890	2 098 589	1 884 543	2 083 679	2 105 177	2 105 502
RO12	2 316 091	2 424 302	2 664 724	2 782 126	2 930 392	3 177 434	3 152 080	2 665 298	2 719 381	3 311 637	3 648 349	4 018 630
RO21	1 332 005	1 450 403	1 489 903	1 435 848	1 599 057	1 691 905	1 676 761	1 509 550	1 372 623	1 556 366	1 676 402	1 664 013
RO22	5 214 225	5 153 477	5 397 206	5 139 161	4 853 718	5 294 207	5 317 647	4 423 728	3 734 288	4 050 309	4 401 688	4 063 864
RO31	1 623 185	1 704 006	1 781 940	1 807 218	1 940 531	2 175 482	2 115 893	1 674 366	1 564 697	1 678 760	1 764 261	1 701 721
RO32	1 059 693	1 183 875	1 359 160	1 481 256	1 657 978	2 024 483	2 212 892	1 835 779	1 980 397	2 129 626	2 238 446	2 373 012
RO41	1 690 919	1 643 159	1 647 670	1 601 872	1 640 929	1 673 496	1 730 168	1 441 604	1 290 263	#N/A	1 502 277	1 499 831
RO42	1 908 677	2 034 382	1 938 828	1 835 311	2 006 179	2 006 852	1 983 650	1 676 496	1 504 943	1 682 795	1 754 779	1 875 195
SE11	7 236 877	7 322 696	7 673 813	8 289 833	8 859 199	9 323 565	9 385 578	9 371 623	10 010 623	10 405 413	10 675 264	10 950 741

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
SE12	4 614 861	4 757 918	4 541 379	4 790 074	5 164 164	5 312 662	4 982 055	4 944 234	5 065 059	5 242 725	5 059 397	5 297 680
SE21	5 163 809	5 224 017	4 801 114	5 199 913	5 387 029	5 465 350	4 857 432	5 260 102	5 199 264	5 063 848	5 125 965	5 166 751
SE22	5 249 072	5 110 416	5 088 231	5 109 913	5 526 478	5 519 864	5 012 245	5 134 884	5 139 273	5 268 621	5 232 388	5 410 802
SE23	8 939 335	9 563 306	9 150 333	9 428 262	9 970 101	10 032 428	9 901 690	10 284 814	10 148 335	10 305 701	10 332 838	10 724 246
SE31	6 037 370	6 316 989	5 977 731	6 460 579	6 737 819	6 709 942	6 286 669	6 302 375	6 437 564	6 093 379	5 962 301	5 905 040
SE32	2 540 345	2 612 675	2 407 682	2 496 656	2 644 757	2 689 938	2 693 128	2 662 047	2 484 450	2 469 280	2 570 689	2 583 956
SE33	3 113 655	3 145 542	3 025 708	3 165 026	3 406 999	3 551 484	3 422 071	3 430 897	3 415 730	3 573 706	3 627 130	3 671 211
SI01	2 916 680	2 980 960	3 035 889	3 075 186	3 191 075	3 384 890	3 855 823	3 801 693	3 765 892	3 917 611	4 074 219	3 956 817
SI02	4 111 310	4 217 413	4 265 802	4 232 481	4 257 001	4 607 820	5 014 325	4 754 429	4 658 849	4 942 717	5 331 790	5 514 754
SK01	#N/A	1 360 618	1 430 082	1 661 395	1 714 114	1 750 133	1 853 790	1 571 725	1 566 174	1 738 851	1 955 498	2 179 842
SK02	#N/A	3 078 652	2 699 266	2 640 523	2 696 677	2 828 979	3 136 192	2 639 520	2 637 329	2 523 691	2 593 816	2 632 772
SK03	#N/A	3 955 129	3 499 040	3 489 331	3 684 167	3 806 449	4 056 676	3 413 655	3 435 188	3 539 647	3 551 934	3 672 178
SK04	#N/A	3 544 259	3 003 571	2 830 047	2 916 482	3 037 082	3 212 457	2 627 757	2 601 788	2 613 448	2 669 080	2 860 849
UKC1	1 677 000	2 254 000	1 442 889	1 957 421	1 301 904	1 474 123	2 055 989	1 231 412	1 363 656	1 466 520	1 945 471	#N/A
UKC2	4 734 000	3 395 000	4 121 934	4 662 334	4 394 742	4 910 648	4 109 603	4 769 325	4 181 213	3 397 661	6 404 705	#N/A
UKD1	5 760 000	6 318 000	6 078 515	8 525 488	7 398 523	7 969 247	6 233 504	8 052 835	5 997 177	5 690 398	9 399 842	#N/A
UKD3	4 596 000	4 276 000	5 200 085	5 773 839	4 889 999	5 929 060	5 538 022	5 584 957	4 750 797	4 739 819	6 128 672	#N/A
UKD4	8 579 000	7 740 000	5 990 070	8 879 870	6 631 996	6 975 069	5 576 109	6 438 735	5 261 012	4 084 293	5 484 192	#N/A
UKD6	2 323 000	2 019 000	1 842 782	1 754 771	2 177 336	1 925 298	2 459 971	2 047 020	2 268 406	1 810 713	2 231 462	#N/A
UKD7	2 331 000	1 672 000	1 618 120	2 697 055	3 039 305	2 428 788	2 653 198	2 305 806	2 133 365	3 260 329	3 767 560	#N/A
UKE1	2 283 000	2 282 000	1 499 620	2 208 376	2 122 966	1 602 250	1 572 039	2 433 838	1 826 124	1 796 912	2 642 410	#N/A
UKE2	8 818 000	8 045 000	7 631 252	10 198 560	8 153 085	8 811 709	8 654 498	9 800 916	7 179 764	8 086 643	10 312 821	#N/A
UKE3	1 292 000	1 853 000	1 270 811	1 127 504	1 465 307	1 013 301	1 519 611	1 650 857	1 604 243	1 279 375	2 295 336	#N/A
UKE4	2 985 000	3 814 000	11 121 572	3 415 077	2 382 606	3 015 810	2 897 746	2 640 412	2 343 102	3 188 675	3 950 507	#N/A
UKF1	4 393 000	4 515 000	5 012 012	5 821 456	4 766 275	4 782 447	5 139 351	5 625 982	3 930 041	5 275 705	5 624 704	#N/A
UKF2	2 275 000	3 249 000	2 458 963	2 754 372	2 757 695	2 428 228	2 773 695	1 930 052	2 170 209	3 003 037	3 289 672	#N/A
UKF3	4 801 000	3 746 000	3 779 630	5 443 704	5 567 522	3 810 937	4 324 166	4 887 747	4 534 776	4 299 678	5 150 225	#N/A
UKG1	3 911 000	3 747 000	3 735 889	4 887 952	3 909 748	3 575 054	3 761 285	3 827 054	3 360 934	3 044 630	4 502 958	#N/A
UKG2	3 819 000	2 913 000	3 199 619	3 658 820	2 593 032	2 744 022	3 072 447	2 774 747	2 759 590	2 039 684	2 888 897	#N/A

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
UKG3	5 481 000	#N/A	5 486 344	5 044 512	5 700 466	5 102 374	4 944 468	5 017 709	4 109 778	4 370 704	6 448 699	#N/A
UKH1	11 060 000	9 704 000	10 145 684	14 199 842	11 143 277	11 917 378	10 544 761	10 622 021	9 475 767	9 367 272	13 755 880	#N/A
UKH2	2 482 000	2 722 000	2 001 393	2 338 831	2 548 570	2 961 110	2 401 431	2 057 130	1 811 320	2 295 588	2 670 062	#N/A
UKH3	2 630 000	2 113 000	2 855 040	2 770 041	2 928 137	2 603 340	2 795 638	2 578 168	2 366 015	1 839 542	2 273 249	#N/A
UKI1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	49 391 533	44 825 602	#N/A
UKI2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2 145 897	#N/A	15 920 757	#N/A
UKJ1	7 950 000	8 492 000	6 679 796	7 389 866	8 003 418	6 311 310	7 897 763	6 975 760	6 203 051	8 317 325	9 040 586	#N/A
UKJ2	9 125 000	11 043 000	8 125 363	8 227 281	10 375 896	10 779 760	9 163 147	9 941 269	8 461 644	8 422 751	9 963 023	#N/A
UKJ3	10 072 000	7 759 000	7 529 750	7 909 529	7 293 025	7 384 396	7 431 235	9 832 030	6 397 537	6 202 730	9 079 451	#N/A
UKJ4	4 642 000	4 280 000	3 396 397	4 836 054	5 052 126	4 461 408	4 149 011	4 568 622	4 049 405	4 623 364	5 555 577	#N/A
UKK1	8 151 000	7 420 000	6 527 836	7 802 963	8 058 387	8 037 699	7 972 218	8 690 302	6 830 753	7 511 946	9 223 493	#N/A
UKK2	10 721 000	11 864 000	9 665 031	12 089 542	12 377 741	13 026 704	12 445 175	13 496 470	10 299 486	8 953 437	11 799 160	#N/A
UKK3	26 459 000	11 580 000	10 526 653	13 034 185	13 221 980	11 631 927	10 430 175	12 828 446	9 308 525	9 058 663	13 161 809	#N/A
UKK4	#N/A	12 495 000	10 578 604	15 785 739	12 835 092	11 935 257	10 204 940	11 337 176	9 930 320	9 097 939	12 384 935	#N/A
UKL1	13 041 000	13 807 000	11 407 035	16 205 352	4 379 697	11 929 199	13 169 439	12 407 007	10 905 110	10 936 878	17 273 407	#N/A
UKL2	4 492 000	5 379 000	3 378 215	5 665 896	14 116 248	3 630 410	4 695 960	3 675 061	3 212 753	3 515 025	5 150 338	#N/A
UKM2	12 831 000	12 143 000	11 283 040	14 311 796	12 705 754	13 506 848	12 144 782	11 344 102	12 035 210	11 123 705	16 022 706	#N/A
UKM3	6 731 000	6 876 000	6 217 279	9 878 735	7 596 277	9 381 693	7 324 959	8 063 232	7 138 000	5 930 551	7 238 996	#N/A
UKM5	2 216 000	1 804 000	1 815 784	2 605 057	2 312 822	2 154 982	2 004 795	2 152 997	1 559 058	2 028 823	2 704 858	#N/A
UKM6	8 997 000	10 017 000	6 880 876	9 635 931	9 158 410	8 642 879	7 365 299	8 148 308	7 080 105	6 421 619	9 212 882	#N/A
UKN0	2 577 000	2 612 000	2 179 646	2 541 846	2 091 112	2 604 910	2 459 402	2 475 001	2 830 668	2 688 433	3 839 625	#N/A

Source

(Eurostat, Nights spent at tourist accommodation establishments by NUTS 2 regions, 2015)

Table 3. Museum districts in the European Union

Region	Notes	NUTS2	StartYear	Source
Steiermark		AT22	2011	http://www.inexhibit.com/mymuseum/joanneum-museum-quarter-graz/
Salzburg		AT32	2014	http://www.domquartier.at/en/the-domquartier/five-members-one-experience/
Wien		AT13	2001	http://www.mqw.at/en/
Eesti		EE00	2006	http://en.wikipedia.org/wiki/Art_Museum_of_Estonia
Hovedstaden		DK01	2013	http://parkmuseerne.dk/en/
Berlin	historical	DE30	1999	https://www.museumsinsel-berlin.de/en/home/
Koln		DEA2	1995	http://www.hda-koeln.de/pressespiegel/index.php/tag/museumsquartier/
Koblenz		DEB1	1990	http://en.wikipedia.org/wiki/Museumsufer
Oberbayern		DE21	2013	http://en.wikipedia.org/wiki/Kunstareal
Southern and Eastern		IE02	2005	http://72.9.148.189/library/Museum_district
Liguria		ITC3	2004	http://www.parchidinervi.it/musei_nervi.html
Lazio	historical	ITI4	2000	http://mv.vatican.va/3_EN/pages/MV_Home.html
Noord Holland	historical, in 2006 become state-owned	NL32	2006	http://www.amsterdam.info/museumquarter/
Utrecht	historical, in 2006 become state-owned	NL31	2006	http://www.bezoek-utrecht.nl/inhetmuseumkwartier
Zuid Holland		NL33	1927	http://en.wikipedia.org/wiki/Museumpark
Inner London		UKI1	1851	http://en.wikipedia.org/wiki/Exhibition_Road
Alsace		FR42	1998	http://www.musees.strasbourg.eu/index.php?page=histoire-du-reseau-des-musees-en
Stockholm		SE11	2000	http://en.wikipedia.org/wiki/Skeppsholmen
Bruxelles		BE10	2015	http://www.montdesarts.com/
Budapest HU10		HU10	2015	http://www.ligetbudapest.org/

Source: Own elaboration

Annex 2. R-project scripts

```
citation()

Data <- read.csv("~/R/DataProp.csv", header=TRUE, sep=";")

estimation <- lm(MuseumDistrict ~ WorldHeritage + SuperstarMuseum, data=Data)

summary (estimation)

predict(estimation, type="response")
```

```
library("plm", lib.loc="~/R/win-library/3.1")

citation("plm")

library("Matching", lib.loc="~/R/win-library/3.1")

citation("Matching")

Data <- read.csv("~/R/Tourism.csv", header=TRUE, sep=";")

Data <- pdata.frame ( Data, index=c("NUTS2","Year"))

Data$TouristNights <- Within(Data$TouristNights, effect = c("individual", "time"))

X <- stack(Data$PropensityScore)

PSM <- Match(Y=Data$TouristNights, Tr=Data$MuseumDistrict, X=X[1])

summary(PSM)

RES <- cbind(PSM$index.treated,Data[PSM$index.treated,c(5,3)],Data[PSM$index.control,c(3)])

write.csv(RES, file = "~/R/Matched.csv")
```

Annex 3. Results

Table 4. Propensity scores

Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
266	UKI1	1	3	3	0.51389059
121	FR24	0	3	3	0.51389059
172	ITI1	0	7	2	0.42312968
104	ES51	0	5	2	0.39580703
47	DE30	1	3	2	0.36848438
100	ES30	0	3	2	0.36848438
3	AT13	1	2	2	0.35482306
278	UKM2	0	1	2	0.34116173
175	ITI4	1	6	1	0.26406215
169	ITH3	0	6	1	0.26406215
189	NL32	1	3	1	0.22307817
105	ES52	0	3	1	0.22307817
137	FR82	0	3	1	0.22307817
217	PT11	0	3	1	0.22307817
101	ES41	0	8	0	0.14597859
153	IE02	1	2	1	0.20941685
143	HR03	0	7	0	0.13231726
158	ITC4	0	7	0	0.13231726
14	BE24	0	1	1	0.19575552
89	EL30	0	1	1	0.19575552
96	ES21	0	1	1	0.19575552
279	UKM3	0	1	1	0.19575552
107	ES61	0	5	0	0.10499461
112	FI19	0	5	0	0.10499461
161	ITF3	0	5	0	0.10499461
165	ITG1	0	5	0	0.10499461
203	PL21	0	5	0	0.10499461
219	PT16	0	5	0	0.10499461
17	BE32	0	4	0	0.09133329
33	CZ06	0	4	0	0.09133329
88	EL25	0	4	0	0.09133329
117	FR10	0	4	0	0.09133329
124	FR30	0	4	0	0.09133329
131	FR61	0	4	0	0.09133329
134	FR71	0	4	0	0.09133329
155	ITC1	0	4	0	0.09133329
171	ITH5	0	4	0	0.09133329
177	LT00	0	4	0	0.09133329
239	SE33	0	4	0	0.09133329
245	SK04	0	4	0	0.09133329
10	BE10	1	3	0	0.07767196

Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
60	DEA2	1	3	0	0.07767196
232	SE11	1	3	0	0.07767196
25	BG41	0	3	0	0.07767196
27	CY00	0	3	0	0.07767196
30	CZ03	0	3	0	0.07767196
56	DE92	0	3	0	0.07767196
71	DEE0	0	3	0	0.07767196
73	DEG0	0	3	0	0.07767196
81	EL12	0	3	0	0.07767196
91	EL42	0	3	0	0.07767196
93	ES11	0	3	0	0.07767196
102	ES42	0	3	0	0.07767196
103	ES43	0	3	0	0.07767196
111	ES70	0	3	0	0.07767196
132	FR62	0	3	0	0.07767196
136	FR81	0	3	0	0.07767196
149	HU31	0	3	0	0.07767196
170	ITH4	0	3	0	0.07767196
198	NO05	0	3	0	0.07767196
212	PL51	0	3	0	0.07767196
241	SI02	0	3	0	0.07767196
244	SK03	0	3	0	0.07767196
7	AT32	1	2	0	0.06401064
40	DE21	1	2	0	0.06401064
79	EE00	1	2	0	0.06401064
157	ITC3	1	2	0	0.06401064
190	NL33	1	2	0	0.06401064
2	AT12	0	2	0	0.06401064
11	BE21	0	2	0	0.06401064
15	BE25	0	2	0	0.06401064
22	BG32	0	2	0	0.06401064
24	BG34	0	2	0	0.06401064
34	CZ07	0	2	0	0.06401064
37	DE12	0	2	0	0.06401064
38	DE13	0	2	0	0.06401064
43	DE24	0	2	0	0.06401064
51	DE71	0	2	0	0.06401064
57	DE93	0	2	0	0.06401064
72	DEF0	0	2	0	0.06401064
75	DK02	0	2	0	0.06401064
87	EL24	0	2	0	0.06401064
99	ES24	0	2	0	0.06401064
106	ES53	0	2	0	0.06401064
113	FI1B	0	2	0	0.06401064

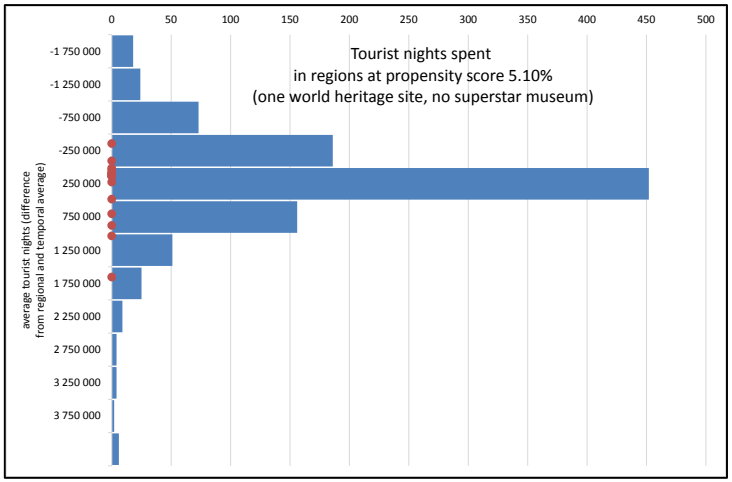
Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
119	FR22	0	2	0	0.06401064
123	FR26	0	2	0	0.06401064
127	FR43	0	2	0	0.06401064
147	HU22	0	2	0	0.06401064
162	ITF4	0	2	0	0.06401064
178	LU00	0	2	0	0.06401064
179	LV00	0	2	0	0.06401064
181	MT00	0	2	0	0.06401064
199	NO06	0	2	0	0.06401064
200	NO07	0	2	0	0.06401064
220	PT17	0	2	0	0.06401064
221	PT18	0	2	0	0.06401064
225	RO12	0	2	0	0.06401064
234	SE21	0	2	0	0.06401064
236	SE23	0	2	0	0.06401064
237	SE31	0	2	0	0.06401064
272	UKK1	0	2	0	0.06401064
277	UKL2	0	2	0	0.06401064
5	AT22	1	1	0	0.05034931
64	DEB1	1	1	0	0.05034931
74	DK01	1	1	0	0.05034931
126	FR42	1	1	0	0.05034931
145	HU10	1	1	0	0.05034931
188	NL31	1	1	0	0.05034931
1	AT11	0	1	0	0.05034931
4	AT21	0	1	0	0.05034931
6	AT31	0	1	0	0.05034931
12	BE22	0	1	0	0.05034931
13	BE23	0	1	0	0.05034931
18	BE33	0	1	0	0.05034931
20	BE35	0	1	0	0.05034931
23	BG33	0	1	0	0.05034931
28	CZ01	0	1	0	0.05034931
29	CZ02	0	1	0	0.05034931
32	CZ05	0	1	0	0.05034931
36	DE11	0	1	0	0.05034931
39	DE14	0	1	0	0.05034931
41	DE22	0	1	0	0.05034931
42	DE23	0	1	0	0.05034931
45	DE26	0	1	0	0.05034931
48	DE40	0	1	0	0.05034931
53	DE73	0	1	0	0.05034931
54	DE80	0	1	0	0.05034931
55	DE91	0	1	0	0.05034931

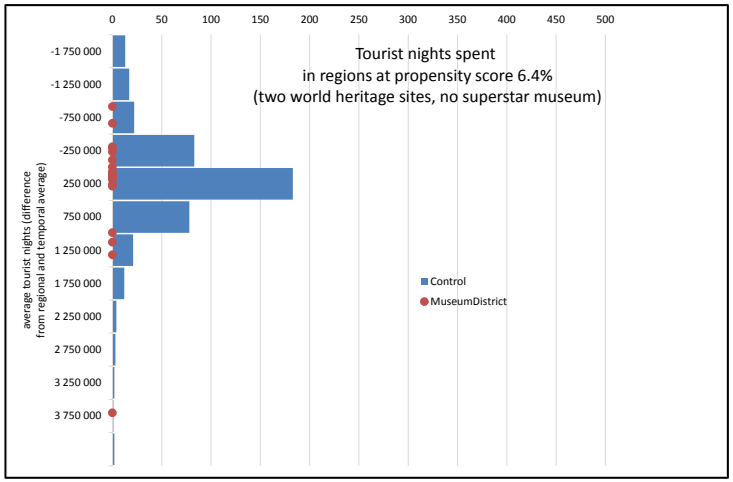
Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
58	DE94	0	1	0	0.05034931
59	DEA1	0	1	0	0.05034931
65	DEB2	0	1	0	0.05034931
66	DEB3	0	1	0	0.05034931
67	DEC0	0	1	0	0.05034931
68	DED2	0	1	0	0.05034931
76	DK03	0	1	0	0.05034931
83	EL14	0	1	0	0.05034931
85	EL22	0	1	0	0.05034931
86	EL23	0	1	0	0.05034931
90	EL41	0	1	0	0.05034931
94	ES12	0	1	0	0.05034931
95	ES13	0	1	0	0.05034931
98	ES23	0	1	0	0.05034931
114	FI1C	0	1	0	0.05034931
115	FI1D	0	1	0	0.05034931
118	FR21	0	1	0	0.05034931
120	FR23	0	1	0	0.05034931
125	FR41	0	1	0	0.05034931
129	FR52	0	1	0	0.05034931
130	FR53	0	1	0	0.05034931
138	FR83	0	1	0	0.05034931
142	FR94	0	1	0	0.05034931
148	HU23	0	1	0	0.05034931
150	HU32	0	1	0	0.05034931
163	ITF5	0	1	0	0.05034931
166	ITG2	0	1	0	0.05034931
168	ITH2	0	1	0	0.05034931
173	ITI2	0	1	0	0.05034931
174	ITI3	0	1	0	0.05034931
180	MK00	0	1	0	0.05034931
182	NL11	0	1	0	0.05034931
183	NL12	0	1	0	0.05034931
187	NL23	0	1	0	0.05034931
202	PL12	0	1	0	0.05034931
205	PL31	0	1	0	0.05034931
206	PL32	0	1	0	0.05034931
208	PL34	0	1	0	0.05034931
211	PL43	0	1	0	0.05034931
214	PL61	0	1	0	0.05034931
216	PL63	0	1	0	0.05034931
223	PT30	0	1	0	0.05034931
224	RO11	0	1	0	0.05034931
226	RO21	0	1	0	0.05034931

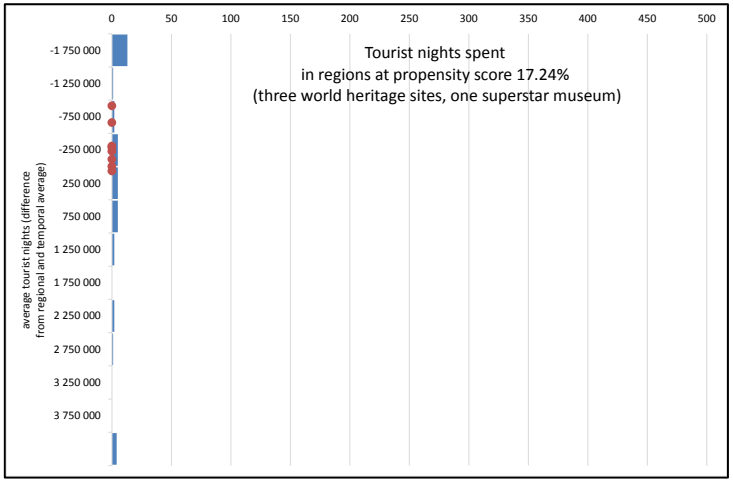
Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
227	RO22	0	1	0	0.05034931
228	RO31	0	1	0	0.05034931
230	RO41	0	1	0	0.05034931
231	RO42	0	1	0	0.05034931
233	SE12	0	1	0	0.05034931
235	SE22	0	1	0	0.05034931
240	SI01	0	1	0	0.05034931
246	UKC1	0	1	0	0.05034931
248	UKD1	0	1	0	0.05034931
252	UKD7	0	1	0	0.05034931
254	UKE2	0	1	0	0.05034931
256	UKE4	0	1	0	0.05034931
257	UKF1	0	1	0	0.05034931
261	UKG2	0	1	0	0.05034931
267	UKI2	0	1	0	0.05034931
268	UKJ1	0	1	0	0.05034931
271	UKJ4	0	1	0	0.05034931
273	UKK2	0	1	0	0.05034931
274	UKK3	0	1	0	0.05034931
276	UKL1	0	1	0	0.05034931
281	UKM6	0	1	0	0.05034931
282	UKN0	0	1	0	0.05034931
8	AT33	0	0	0	0.03668799
9	AT34	0	0	0	0.03668799
16	BE31	0	0	0	0.03668799
19	BE34	0	0	0	0.03668799
21	BG31	0	0	0	0.03668799
26	BG42	0	0	0	0.03668799
31	CZ04	0	0	0	0.03668799
35	CZ08	0	0	0	0.03668799
44	DE25	0	0	0	0.03668799
46	DE27	0	0	0	0.03668799
49	DE50	0	0	0	0.03668799
50	DE60	0	0	0	0.03668799
52	DE72	0	0	0	0.03668799
61	DEA3	0	0	0	0.03668799
62	DEA4	0	0	0	0.03668799
63	DEA5	0	0	0	0.03668799
69	DED4	0	0	0	0.03668799
70	DED5	0	0	0	0.03668799
77	DK04	0	0	0	0.03668799
78	DK05	0	0	0	0.03668799
80	EL11	0	0	0	0.03668799
82	EL13	0	0	0	0.03668799

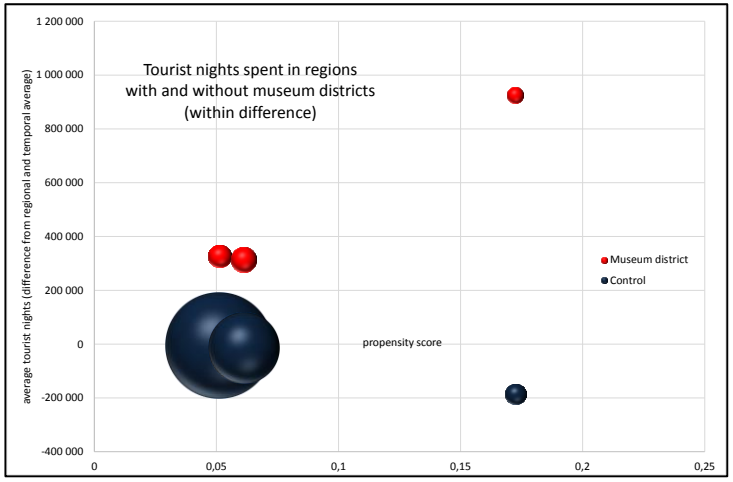
Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
84	EL21	0	0	0	0.03668799
92	EL43	0	0	0	0.03668799
97	ES22	0	0	0	0.03668799
108	ES62	0	0	0	0.03668799
109	ES63	0	0	0	0.03668799
110	ES64	0	0	0	0.03668799
116	FI20	0	0	0	0.03668799
122	FR25	0	0	0	0.03668799
128	FR51	0	0	0	0.03668799
133	FR63	0	0	0	0.03668799
135	FR72	0	0	0	0.03668799
139	FR91	0	0	0	0.03668799
140	FR92	0	0	0	0.03668799
141	FR93	0	0	0	0.03668799
144	HR04	0	0	0	0.03668799
146	HU21	0	0	0	0.03668799
151	HU33	0	0	0	0.03668799
152	IE01	0	0	0	0.03668799
154	IS00	0	0	0	0.03668799
156	ITC2	0	0	0	0.03668799
159	ITF1	0	0	0	0.03668799
160	ITF2	0	0	0	0.03668799
164	ITF6	0	0	0	0.03668799
167	ITH1	0	0	0	0.03668799
176	LI00	0	0	0	0.03668799
184	NL13	0	0	0	0.03668799
185	NL21	0	0	0	0.03668799
186	NL22	0	0	0	0.03668799
191	NL34	0	0	0	0.03668799
192	NL41	0	0	0	0.03668799
193	NL42	0	0	0	0.03668799
194	NO01	0	0	0	0.03668799
195	NO02	0	0	0	0.03668799
196	NO03	0	0	0	0.03668799
197	NO04	0	0	0	0.03668799
201	PL11	0	0	0	0.03668799
204	PL22	0	0	0	0.03668799
207	PL33	0	0	0	0.03668799
209	PL41	0	0	0	0.03668799
210	PL42	0	0	0	0.03668799
213	PL52	0	0	0	0.03668799
215	PL62	0	0	0	0.03668799
218	PT15	0	0	0	0.03668799
222	PT20	0	0	0	0.03668799

Obs	NUTS2	MuseumDistrict	WorldHeritage	SuperstarMuseum	OLS
229	RO32	0	0	0	0.03668799
238	SE32	0	0	0	0.03668799
242	SK01	0	0	0	0.03668799
243	SK02	0	0	0	0.03668799
247	UKC2	0	0	0	0.03668799
249	UKD3	0	0	0	0.03668799
250	UKD4	0	0	0	0.03668799
251	UKD6	0	0	0	0.03668799
253	UKE1	0	0	0	0.03668799
255	UKE3	0	0	0	0.03668799
258	UKF2	0	0	0	0.03668799
259	UKF3	0	0	0	0.03668799
260	UKG1	0	0	0	0.03668799
262	UKG3	0	0	0	0.03668799
263	UKH1	0	0	0	0.03668799
264	UKH2	0	0	0	0.03668799
265	UKH3	0	0	0	0.03668799
269	UKJ2	0	0	0	0.03668799
270	UKJ3	0	0	0	0.03668799
275	UKK4	0	0	0	0.03668799
280	UKM5	0	0	0	0.03668799
Legend	treated regions				
	matched control regions				


Tourist nights spent
in regions at propensity score 5.10%
(one world heritage site, no superstar museum)
average tourist nights (difference from regional and temporal average)
0
50
100
150
200
250
300
350
400
450
500
-1 750 000
-1 250 000
-750 000
-250 000
250 000
750 000
1 250 000
1 750 000
2 250 000
2 750 000
3 250 000
3 750 000


Tourist nights spent
in regions at propensity score 6.4%
(two world heritage sites, no superstar museum)
average tourist nights (difference from regional and temporal average)
0
50
100
150
200
250
300
350
400
450
500
-1 750 000
-1 250 000
-750 000
-250 000
250 000
750 000
1 250 000
1 750 000
2 250 000
2 750 000
3 250 000
3 750 000
Control
MuseumDistrict


Tourist nights spent
in regions at propensity score 17.24%
(three world heritage sites, one superstar museum)
average tourist nights (difference from regional and temporal average)
0
50
100
150
200
250
300
350
400
450
500
-1 750 000
-1 250 000
-750 000
-250 000
250 000
750 000
1 250 000
1 750 000
2 250 000
2 750 000
3 250 000
3 750 000


Tourist nights spent in regions
with and without museum districts
(within difference)
average tourist nights (difference from regional and temporal average)
1 200 000
1 000 000
800 000
600 000
400 000
200 000
0
-200 000
-400 000
0
0,05
0,1
0,15
0,2
0,25
propensity score
Museum district
Control