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Exploring Cultural Goods:
New Perspectives on Consumer Behaviour in Italy

Concetta Castiglione

Supervisor: John W. O'Hagan

Thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy (Ph.D.)

Department of Economics

Trinity College Dublin

2013

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Declaration

I declare that this dissertation has not been submitted as an exercise for the degree of Doctor of Philosophy (Ph.D.) at this or any other university. All research contained herein that is not entirely my own but is based on research that has been carried out jointly with others is duly acknowledged in the text wherever included.

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Thesis 9

Summary

The socioeconomic composition of attendance at the arts has interested researchers and policy–makers for decades and re–emerges as an issue every few years. This thesis studies cultural attendance in Italy and its main determinants. For this, extensive econometric analysis is carried out using specifically constructed datasets. It aims to extend the cultural participation literature which has mostly concentrated on the US to date, by offering an empirical analysis of the Italian cultural participation, specifically theatre, and adopting a new approach to cultural capital.

The thesis is introduced in Chapter 1, which outlines the context, motivation and aim of this research. Furthermore the structure and a summary of the approach as well as the main findings of the remaining chapters are described.

Chapter 2 examines theatre participation in Italy over the period 1995–2006. We have used a large dataset of more than 50,000 individuals for each year. Explanatory variables are determined by identifying their contributions to both the individual's decision to attend, and the frequency of attendance. Three different models are used: the logistic regression model, the ordered logistic regression model and the finite mixture model. In the first two cases the contribution of each variable is not so different, in the case of the finite mixture model the significance of the variables is not the same in the two components. For instance, the variable education, a proxy for cultural capital, is always significant in determining participation, but not in frequency of participation. In general, our results show that participation is not specific to a particular theatrical event since people who attend one art activity are more likely to attend others. Finally, our results show that traditional socio-economic variables such as income and education are highly correlated with participation in the arts.

Chapter 3 analyses the demand for theatre under the hypothesis of myopic and rational addiction. Although there is a large body of literature that investigates the myopic and rational addiction approach on the consumption hypothesis of alcohol, cigarette and drugs, this approach has rarely been adopted to investigate cultural goods, with the exception of some attempts for cinema demand. The analysis of

Italian theatre attendance is based on a unique panel data of 20 Italian regions for the years 1980–2009, and provides support for the theory of rational addiction. We have estimated three different specifications of the model. The first specification is estimated in order to check for the myopic addiction hypothesis. Results show that the theatre is an addicted good because past consumption significantly raises the marginal utility of current consumption. The second specification regards the rational addiction hypothesis, where future attendance influences current attendance. The estimated results show that both past and future attendance and prices, significantly affect current attendance, demonstrating that Italian theatregoers are fully rational in line with Becker and Murphy's (1988) seminal paper and their choices are not made myopically.

Chapter 4 investigates the association between participation in entertainment activities and tourism flows in a panel of 107 Italian provinces over the two year period 2006–2007, and finds that admission to theatre-type activities increases as the number of domestic tourists goes up, whereas admission to museums and concerts rises with an increase in foreign tourists. Admissions to exhibitions and shows attract both domestic and international tourists, while the role of non-cultural activities in determining tourism flows is statistically insignificant. The results provide important empirical support for the existence of a strong relationship between tourism flows and cultural participation. The findings also imply that the demand for entertainment varies depending on the origin of the tourist. In this econometric model, an innovative measure of cultural capital is introduced. In particular, the birth of classical composers in Italian provinces, recorded in Grove Music on Line (2011), is assumed to be a more suitable proxy than the level of education that is generally used. This is mainly because the birth of classical composers may increase the cultural capital of an area through local festivals, exhibitions and similar events. And this captures those aspects of cultural capital that are not visible in the education variable. As for the results, the innovative proxy for cultural capital has turned out to be significant especially for museums, theatre, concerts, exhibitions and shows and multi–genre participation.

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Chapter 1

Introduction

Setting the context

The socioeconomic composition of attendance at the arts has interested researchers and policy–makers for decades and re–emerges as an issue every few years (see for example: Bridgewood and Skelton, 2000; Di Maggio and Mukhtar, 2004; Ateca–Amestoy, 2008; Collins et al., 2008; Frateschi and Lazzaro, 2008; Kraaykampet al., 2008; Nagel et al., 2010), especially when the funding levels are up for public debate.[1] In the past, the main concern was that some art forms are elitist in terms of attendance, and at the same time are the recipients of large public funding, especially when this is converted into subsidy per attendee. Such funding therefore is seen as very inequitable. This concern remains but relates to just one form of involvement with the arts, namely the consumption of or attendance at the arts.

The evidence on attendees suggests a markedly skewed distribution according to socioeconomic characteristics. It is a picture that appears to have changed little in few countries in the last forty years. Why then are arts ministries and other arts bodies still 'going through the motions' of emphasizing the importance of access for all to attendance at the high arts when it is known that so little changes? A second question is why has so little changed, i.e. what causes the variation in attendance rates and what are the barriers that are preventing greater access to attendance for those with low incomes and educational attainment? And does it really matter that the socioeconomic composition of those who attend the high arts is so skewed towards the highly educated and richer person?

If education and income are the two main variables in determining cultural participation, then attendance should increase over time. On the contrary,

[1]The setting of the context is taken from: O'Hagan and Castiglione (2010).

professional US theatre organizations report an overall decline in audiences of about 8 per cent for the period 2002–2006, despite increases in the number of performances offered over those years by nearly 2 per cent (Ateca–Amestoy, 2008).

These issues introduce us to the study in depth of cultural participation and its main determinants. The National Endowment for the Arts in the US has adopted a tripartite definition of participation: (i) through attendance at live arts events; (ii) through the media by watching or listening to arts programs and (iii) personal involvement, be it by creating or displaying art or by performing either as an amateur or as a professional. Cherbo and Peters (1995) add a fourth definition: studying the arts. In this thesis we focus on the first definition of attendance as this is the activity where inequalities are most pronounced (Borgonovi, 2004) and estimate models that incorporate variables related with cultural capital to capture the influence of the availability of personal resources on attendance (Ateca–Amestoy, 2008).

We know that the cultural sector differs substantially from country to country and also within the European Union in terms of its organisational structure and systems of public support. This fact was confirmed by many researches in various papers applied to U.S. data. We know, also, the importance and the utility of rigorous cross–national studies and their help in revealing not only intriguing differences between countries and cultures, but also aspects of one's own country and culture that would be difficult or impossible to detect from domestic data alone (Jowell, 1998; Lievesley, 2001; Madden, 2004; Schuster, 2007). However, we do not try to compare our result with those obtained in other countries, given the difficulties to have harmonized statistics, even at an EU level (see Schuster, 2007). Therefore, our choice is to focus on Italy, to do so we utilize unexplored and reliable datasets that allow us to study several interesting hypotheses.

The rest of this chapter outlines the motivation and approach of this research within this context.

Motivation

The initial inspiration for this thesis was the lack an analysis of cultural participation in Italy; in fact, the majority of performing art and cultural participation studies are based on U.S. data. Moreover, despite the existence of a rapidly growing body of literature in the field of cultural economics in Italy (Fuortes 2002; Cellini and Cuccia, 2007; Favaro and Frateschi, 2007; Sisto and Zanola, 2010) the study of the demand for cultural goods is relatively underdeveloped (Favaro and Frateschi, 2007). Even rarer have been

attempts to compare the determinants of demand for different types of cultural goods and services using both individual and aggregate level information. This is in contrast with the current international tendency in the field (especially in the U.S.), where more and more empirical research has been analysing the determinants of various cultural consumption patterns making use of nation-wide micro data (Favaro and Frateschi, 2007).

Why look at cultural participation in Italy? There are different reasons to do so. The first one is because we do not know in detail what cultural participation is and which are the main determinants of it in this country. In order to investigate this, we start by studying participation rates in cultural activities comparing them with those of the U.S. in recent years.

The second reason is that, despite the fact that cultural consumption is considered an experience good (Lévy-Garboua and Montmarquette, 2002) with past consumption playing an important role in determining current consumption, very often only a one-period model is estimated. To overcome this weakness, we would like to take into account a dynamic model where past and future consumption may play an important role in determining theatre participation.

Finally, the last motivation of this work is to investigate the impact of tourism flows in different kinds of cultural participation in Italy (theatre, concerts, sport activities, dance activities and recitals, touring amusement activities, exhibitions, show and multi-genre activities). According to Bille and Schulze (2006) cultural tourism is decisive for the economic impact that a cultural institution of a region has on the local or regional economy. This research idea is, also, based on the fact that we analyse a country where tourism plays, potentially, a very important role both in cultural participation (cultural tourism) and for economic growth.

Given the historical importance of culture in Italy and given the evidence in existing studies that underline that cultural capital is an important determinant of cultural participation, we in particular test the hypothesis whether or not the number of classical composers born in the past in the Italian provinces increase current cultural capital. Moreover, this approach can also be a solution to the problem of the lack of data on education, which is frequently used in the literature as a proxy of cultural capital, at provincial level.

To study in depth Italian cultural participation our analysis is conducted at different levels of aggregation, individual and aggregate data (regional and provincial level) using different sources of data and econometric techniques. This is for two main reasons. The first is that we aim to study cultural participation in detail at various

levels of aggregation. Such an approach is necessary, given that there is an important social and economic difference between regions in Italy, e.g. from the centre-north and the south. The second reason is that an important difference exists also within the same region. For example, we believe that cultural participation varies within the Lombardy Region where there are very different social and cultural centres, such as Milan, Lecco, Pavia, etc. (this concept is analysed in details in chapter 4). Consequently, our major contribution is to provide an analysis of the main determinants of cultural participation at different levels of aggregation in Italy, checking various hypotheses regarding cultural participation. In particular, in the first paper we use individual data at national level and estimate the model with a cross-section analysis for three separate years. In the second paper we estimate cultural participation at regional level. In this case we use a panel data covering thirty years period and twenty Italian regions. Finally, (third paper) we move to a more disaggregated level (provincial level) and test our hypotheses for two different years.

Aim and structure of thesis

The structure of the thesis can be broadly described as follows: it first introduces some new hypotheses to explain cultural participation in Italy both at individual (chapter 2) and aggregate (chapter 3) levels and, more broadly, links cultural participation with tourism and new innovative measure of cultural capital (chapter 4). To do this, large datasets are utilized (not previously explored) at different level of aggregation (national, regional and provincial) and extensive econometric analysis is conducted in the different chapters. A more detailed overview of the structure of the thesis is given below.

Paper 1

The first paper examines the determinants of individual theatre participation in Italy over the three years 1995, 2000 and 2006.

In order to investigate the individual demand for theatre explanatory variables are determined by identifying their contributions to both the individual's decision to attend, and the frequency of attendance. Socio–demographic and socio–economic characteristics, cultural capital, participation in other cultural activities, ticket price and number of theatre performances are taken into account.

As highlighted earlier we are studying the first definition of participation given by The National Endowment for the Arts: attendance at live arts events. To reach this point an interesting dataset is constructed using two sources: the Italian Authors and Publishers Association (Società Italiana degli Autori ed Editori – SIAE) and – the National Institute of Statistics (Istituto Nazionale di Statistica – ISTAT). The survey data carried out by ISTAT, named the Multi–purpose Survey of Italian Households (Indagine Multiscopo sulle famiglie Italiane) is conducted with a two–stage stratified sampling scheme carried out every five years since 1995. The 2006 (most recent) survey pooled 19 921 households, 14 630 core families and was distributed to 50 569 people in 850 municipalities of different sizes. The dataset contains personal and family information and information on whether a person participated in a number of performing arts events as well as the frequency of such participation. The SIAE data show the number of performances, number of tickets sold, box office expenditure, public expenditure and turnover per geographical area, region and kind of municipality. All this information is displayed for theatrical activities (theatre, opera, revue and musical, ballets, puppets and marionettes, performing arts and circus), concerts (classic, pop and jazz), sports activities, dance activities and concertinos, touring amusement activities, exhibitions and show and multi–genre activities.

Three appropriate estimation methodologies are used: the logistic regression model, the ordered logistic regression model and the finite mixture model. In the first two cases the contribution of each variable is not so different, in the case of finite mixture model the significance of the variables is not the same in the two components. For instance, the variable education, a proxy for cultural capital, is always significant in determining participation, but not in frequency of participation. In general, results show that participation is not specific to a particular theatrical event since people who attend one arts activity are more likely to attend others. Moreover traditional socio–economic variables such as income and education are highly correlated with participation in the arts.

Paper 2

Paper 2 applies a dynamic model which takes into account past, present and future consumption and examines the myopic and rational addiction hypothesis for theatre attendance. This analysis was not possible to undertake in the framework of paper 1 because the Multi–purpose Survey data (used in paper 1) are available only for one

year while other surveys are not constructed as a panel. Consequently, the choice has been made to utilize a not very explored dataset that allow us to take into account past and future consumption, by using a pooled cross–section and time series data on 20 Italian regions over the period 1980 to 2009.

Although there is a large body of literature that investigates the rational addiction hypothesis on the consumption of alcohol, cigarette and drugs, this approach has rarely been adopted to investigate cultural goods, with the exception of some papers on cinema demand. According to Becker and Murphy (1988), a person is potentially addicted to good c if a rise in the current consumption of c increases its future consumption. This definition implies that a person is addicted to a good if, and only if, past consumption increases the marginal utility of present consumption. In this case, current cultural consumption is expected to be positively correlated to past and future consumption (adjacent complementarity). The adjacent complementarity hypothesis between present, past and future consumption introduces a dynamic link between the demand decisions that form the bases of the model to be tested. In fact, current demand for cultural goods is influenced by past exposure, and hence a well-specified demand model should take into account this inter–temporal dynamic.

Also in this case data are provided by SIAE and ISTAT. For the SIAE data we use the same dataset utilized for the first paper, but at regional level and for more years, in order to merge it with the ISTAT data. Data provided by ISTAT come from different sources. Population at provincial level and total population, labour force and education of the labour force at regional level come from the annual survey on the labour force. Value added is taken from the disposable income of families in the Italian regions. Finally, given the increasing importance of cultural tourism (see paper 3) we take into account tourists flows. Again, it was not possible to study the importance of tourism in paper 1 because the database does not provide any information on tourism/travel. Data for arrivals and stays for Italians and foreigners are taken from the "Movimento dei clienti negli esercizi ricettivi" survey. The latter is a monthly survey (it is also summarized in an annual version that we utilise in our work) carried out at national, regional and provincial levels through a census that provides data on the flow of Italians and foreigners in Italy based on the daily declaration that the owners of the tourist accommodation send to the local tourist board.

The results provide evidence that theatre is an addictive consumption good and consumer choices are not made myopically, confirming the rational addiction hypothesis. We have estimated three different specifications of our model. The first

specification is estimated in order to check for the myopic addiction hypothesis. Results show that theatre attendance is an addictive good because past consumption raises significantly the marginal utility of current consumption. The second specification regards the rational addiction hypothesis, where future attendance influences current attendance. The estimated results show that both past and future attendance significantly affects current attendance. However, our complete specification with the introduction of past and future prices into the model demonstrates that Italian theatregoers are fully rational according to Becker and Murphy's (1988) seminal paper and their choices are not made myopically. Moreover, the impact of past on current consumption is greater than that of future consumption. In relation to other variables we have found that cinema is a good substitute for theatre and that income and the level of education influence theatre attendance.

Paper 3

Finally, in Paper 3 the association between tourism flows and the demand for a wide set of cultural/leisure activities considered in the previous chapter is investigated. This is because nowadays an important part of demand of cultural activity come from tourists. In fact, cultural tourism, defined as "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", can play an important role in determining cultural attendance. This happens especially in such culturally attractive countrieslike Italy. Therefore, the purposeof thispaper is tosee the impactthatdifferentforms of tourism (arrivals vs. stays and Italians vs. foreigners) have on different types of cultural activities. In fact, the existing research is mostly constrained on the analysis of a single type of cultural activity (e.g. McKercher et al., 2005) and, therefore, any comparison of the results across different cultural activities results would be interesting.

Also in this case there are several reasons for focusing on Italy. First, it is a country with a long and remarkable cultural history. As a result the supply of cultural goods is plentiful and varied. Second, the geographic distribution of cultural supply is very wide. More than 9 per cent of municipalities host cultural and historical goods of some interest (Ministero del Turismo, 1991). This ensures that estimates from cross–sectional analysis are reliable.

The empirical analysis is based on a panel of 107 Italian provinces for the two–year period 2006–2007 and records the number of performances, admission and

price of a large set of cultural goods (SIAE data used on the previous papers). In this paper we move from regional to provincial level given that tourism flows are different also within the same region. For example, in the Lazio region, the flow of tourists to the city of Rome is much higher than any other city (i.e. Latina, Viterbo, etc.). The introduced dataset is complemented by records on museum attendance (number of visitors and revenue) provided at provincial level by the Ministry of Cultural Heritage and Activities. Museums are divided into paying and non-paying. Data on the number of visitors for paying museums are collected according to the numbers of tickets issued while for the non–paying museums estimations are based on register attendance or a countingdevice.

Data provided by ISTAT comes from different sources. Arrivals and stays for Italians and foreign as for the paper 2 are taken from the "Movimento dei clienti negli esercizi ricettivi" survey. Population at provincial level, total population, labour force and education of the labour force at regional level come from the annual survey on the labour force (Indagine sulle forze lavoro). The GDP is taken from disposable household income in Italian regions (Il reddito disponibile delle famiglie nelle regioni italiane). The price index is taken from the publication of the value of money 2007 (Valore della moneta 2007). We link those data with the number of composer births that occurred in each Italian province, as recorded in Grove Music Online (GMO). This thereby allows us to introduce a novel potential measure of cultural capital, in contrast to the usual measure used in most studies and in Paper 1 above, namely education (see later).

Results show that admission to theatre–type activities increases with the number of domestic tourists, whereas admission to museums or concerts rises with an increase in foreign tourists. Admissions to exhibitions and shows attract both domestic and international tourists, while the role of non–cultural activities in determining tourism flow is statistically insignificant. The results provide empirical support for the existence of a relationship between cultural participation and tourism flows. The findings also imply that the origin of tourist is also important in determining cultural attendance.

Finally, given that cultural attendance (e.g. theatre) has been investigated in paper 1, showing that education is one of the main determinant of theatre attendance, while paper 2 has demonstrating that theatre attendance is an addictive behaviour. In both papers, as well as in the existing literature, education is used as a proxy for cultural capital and the latter is considered a major determinant of cultural attendance and in econometric studies often we use education as a proxy for cultural capital.

Moreover, given that education at provincial level is not available (this data is available only in census years – each ten years after 1861) we decide to introduce a new and innovative hypothesis on cultural capital. In fact, in this work we investigate whether a rich cultural life in the past can approximate contemporary cultural capital better than education and then can positively influence cultural participation. In our case, the richness of cultural life in the past is measured by the number of births of important creative individuals (composers).

In our opinion, locations with an important history could play nowadays a non-negligible role in explaining cultural attendance. This can happen for two main reasons. The first is due to the association between historical composer births and contemporary cultural demand can be presumably linked to some unobserved factors (such as better education, higher demand in the past etc.). We can assume that such unobserved characteristics that could have driven both composer births in the past and consumption of cultural goods nowadays. The second, and perhaps more important reason, maybe that are region that has seen the birth of an important composer in the past can now organize a series of cultural events that increase exposure to the culture. Classicalexamples areexhibitionsorfestivalsthat are organizedto celebrate composers (i.e. Bellini's festival in Catania, etc.). In other words, if a person sees the advertisement of the Bellini's Festival she will probably ask who Bellini was and what he did. This could trigger a process of interest, at least initially, to the composers. Moreover, as shown in paper 1, the increase in the number of performances of a cultural activity implies an increase of attendance, probably, due to the effect of the short-run quantitative and/or qualitative supply constraints on demand (see paper 1). This causes two different but complementary effects: the first implies that a person is just exposed to a cultural event; the second is that it can trigger a mechanism such as that the new experience to the consumer reveals a positive increment in his taste for it (Seaman, 1996).

The picture that emerges is very interesting. The birth rate of composers is positively related to attendance of cultural events such as theatrical or musical performances, but not to any other type of leisure activity (e.g. sports). In our opinion the births of classical composers in a province is a more suitable proxy than the level of education that is generally used. This is mainly because the birth of classical composers may increase the cultural capital of an area through local festivals, exhibitions and similar events. And this captures those aspects of cultural capital that are not visible in the education variable.

Chapter 2

Italian Theatre Participation through Attendance: a Microeconometric Investigation

2.1 Introduction

One of the most consistent findings in the literature on arts participation has been that traditional socio-economic variables, such as income, education and employment are highly correlated with participation in the arts. This means that those in higher socio-economic groups are more likely to be exposed to the arts in their schools or social networks. Cultural and arts classes in-school increase later cultural participation persistently (Kracman, 1996; Kraaykamp, 2003). Nagel et al. (2010) assert that such courses have a minor, albeit significant effect compared with the influence of family and educational level. Income is another important factor, yet the empirical literature indicates that education plays a far greater determining role (O'Hagan, 1996; Borgonovi, 2004; Seaman, 2006). In fact, socio-economic status may have a positive initial impact on consumption of the arts. Moreover, preferences for the arts are reinforced by ongoing consumption experiences (Lunn and Kelly, 2008).

In this study, participation through attendance in the performing arts is analysed both in terms of simple participation and in terms of frequency of participation. The objective is to understand the contribution of each variable on whether or not an individual attends and the number of visits made.

The first step of the analysis is to study arts participation rates in Italy over the period 1995–2006 for each kind of cultural event. The second step is to examine which variables make a population more likely to participate in arts events. In this case, three models are used: logistic regression model, ordered logistic regression model and finite mixture model. The logistic regression model is used to understand

the variables that can influence theatre attendance. In this case, the dependent variable takes value 0 or 1, taking into account the simple participation model. The ordered logistic regression model, whichis used to understand the variables that can make a population more likely to attend the theatre more often, consists of ordered variables. The finite mixture model takes into account heterogeneity in our population. In fact, although we cannot distinguish between those who never go to the theatre because they do not like it and those who never go but would like to, we can distinguish between groups with high average participation and low average participation, hence this kind of model provides a sound approach.

Results show that arts participation is not specific to one art form, because people who participate in one arts activity are more likely to attend others, and because traditional socio-economic variables, such as income, education and occupation status are directly related to arts participation. Furthermore, education is a much greater determining factor in terms of attendance than any other personal characteristics. The most noteworthy results show that people participating in the arts are more likely to participate in all manner of performances; indeed, our results show that individuals who go to the cinema and museums are more likely to attend theatre events.

The second section of this chapter focus on the literature review on participation in the arts. The third section explains our hypotheses. The fourth considers demand functions for cultural goods and the fifth section explains our empirical approach. The sixty section includes a description of the data used. To conclude, results and comments are presented.

2.2 Participation in the Arts: Review of the Literature

The National Endowment for the Arts in the US has adopted a tripartite definition of participation: (i) through attendance at live arts events; (ii) through the media by watching or listening to arts programs and (iii) personal involvement, be it by creating or displaying art or by performing either as an amateur or as a professional. Cherbo and Peters (1995) add a fourth definition: studying the arts.

In this study we focus on the first definition of participation. According to Ateca-Amestoy (2005), the empirical literature on participation in the arts describes consumption patterns in terms of three different dimensions: participation level, the characteristics of participants and the determinant of participation.

In particular, the empirical literature on which factors lead individuals to participate in the arts has demonstrated that adult attendance at arts events is influenced by several variables: adolescent exposure to the arts, educational achievement, gender, age, race, partner's background, current income, early childhood and social relations (Upright, 2004; Seaman, 2006; Ateca-Amestoy, 2008; Bille, 2008).

According to Seaman (2006), basic linear ordinary least square (OLS) especially the double-log form, has been the most common primary estimation technique. Other techniques have been studied: step-wise OLS, two stage least square (TSLS), conditional maximum likelihood estimation, the almost quasi ideal demand system, logit, tobit, probit and zero inflated negative binomial model (ZINB).

In particular, the empirical studies on theatre attendance could be divided into two strands: aggregate demand (i.e. Bonato et al., 1990; DiMaggio and Mukhtar, 2004; Zieba, 2009) and individual demand (i.e. Borgonovi, 2004; Ateca-Amestoy, 2008; Frateschi and Lazzaro, 2008; Lunn and Kelly, 2008). In the first case, researchers show the relationship of price elasticity and income elasticity of the demand with other cultural economic goods. In the second case, cultural goods are considered to be experienced goods, and past consumption is an important determinant of current consumption.

DiMaggio and Mukhtar (2004) show that the role of the arts as cultural capital is in decline in the US, and the extent of the decline differs depending on the event in question. Specifically, attendance rates at galleries and jazz concerts have increased, and in other cultural events, attendance has dropped more slowly for women and college graduates than for others. Regarding individual demand, Borgonovi (2004) shows that arts education is closely correlated with participation, though there is less correlation with frequency of attendance. Moreover, arts education is not equally distributed in the population, as socio-economically disadvantaged groups have less arts education both in terms of quality and quantity. Given that many studies on arts participation use SPPA surveys, they fail to take into account the price of participation. Determining factors in price could include the cost of admission, the geographic density of an adequate supply in the area, the opportunity cost of time and the shadow price determined by human capital and learning-by-consumption. Ateca-Amestoy (2008) estimates a theatre participation model using the 2002 SPPA from the United States. Her model relies on the use of a ZINB model, which provides for monitoring two distinct behaviours in the observable attendees: one group of those who never attend and a sub-population that may attend. For a more detailed survey on theatre participation see Seaman (2006).

One of the few attempts to study the demand for performing arts in Italy was compiled by Bonato et al. (1990). The authors estimate a demand function from 1964–1985 by OLS estimation, using annual data provided by SIAE and ISTAT. Their results show that increases in both real income and performances offered produce a significant increase in attendance. Zanardi (1998) studies two different models: a participation model (using probit regression) and a frequency model (using the Poisson model). Zanardi shows that the decision to attend a cultural event is influenced by education and cultural capital. Frequency of cultural attendance is influenced by several variables, such as socio-demographic characteristics, income and price. Frateschi and Lazzaro (2008) focus on the reciprocal influence that married people's preferences and characteristics can have on the cultural background of their partner. Frateschi and Lazzaro use the first two Multi-purpose Surveys of Italian Households carried out by ISTAT to estimate the mutual influence of a partner's educational and cultural background on consumption at three kinds of cultural venues: museums, theatres and opera houses/concert halls. They found different patterns depending on the type of artistic activity. The performing arts seemed to be more social, with partner's educational achievement having a stronger effect on joint attendance, whereas visiting a museum was more particular to the individual, as the level of education of each individual played a greater role in the decision to attend than that of their partner.

2.3 Factors Influencing Theatre Participation: Hypotheses

Participation in arts events is generally accepted to be an important kind of cultural capital, and the empirical literature that finds a positive relationship between high culture, higher educational achievement and higher income supports this view (Upright, 2004). 'Cultural capital could be defined as the acquired taste that enables the possessor to appreciate the art. We visit museums because we feel richer knowing how to appreciate art' (Klamer, 2002: 462). In fact, in the case of cultural goods, the material and physical aspects of consumption appear to lose out to the cultural, symbolic and other non-material aspects (Ateca-Amestoy, 2008).

Moreover, the utility of such goods depends on the consumption of other people. People are able to enjoy theatre performances mainly because they are widely enjoyed, and attendees can share their enjoyment with others (Klamer, 2002). In this sense, cultural goods are also social goods (Hirsch, 1978), meaning that arts

participation is a social activity, i.e. only a product of personal experiences and attributes, but also of ongoing social relationships (Upright, 2004).

In the analysis, we divided the factors influencing theatre participation into four different categories: socio-demographic characteristics, socio-economic characteristics, time constraints and participation in other cultural activities. Henceforth, the empirical analysis is focused on the following hypotheses:

Hypothesis 1: Cultural capital endowment is an important factor in arts participation.

Hypothesis 2: Cultural goods are normal goods.

Hypothesis 3: Time availability is an important factor in determining preferences as regards arts participation.

Hypothesis 4: People interested in the arts are more likely to consume several kinds of cultural goods.

In order to test the first hypothesis, education, family education, age, gender and number of theatre performances are included in our model. Education is expected to have a positive linear relationship with attendance: the higher the level of educational achievement, the higher the likelihood of a person attending performing arts activities. The assumption behind this is that better-educated individuals have a greater capacity to appreciate and understand the qualities of artistic performances. A positive relationship between participation and an individual's parents' or partner's level of education is also expected; this could be seen as an initial cultural capital endowment. Culture is an acquired taste; people need time to appreciate the arts. If cultural tastes develop over a long period, there should be a positive linear effect on theatre participation with age, which also explains the importance of arts classes in childhood and education level to attendance (Katsuura, 2008). Moreover, life effects can influence participation rates through the learning-by-consumption processes, which emphasizes the fact that the more performances one attends, the more enjoyable they become. According to Bille (2008) the positive/negative effect of age on participation, also, depends by the kind of cultural good (namely: cinema, museum and art exhibition, classical concerts). Moreover, the life-cycle effect suggests a non-linear relationship between arts participation and age. This is the reason for assigning dichotomous variables for each age class. There is no intrinsic reason to expect

different participation rates between men and women. Although different experiences during childhood may play a role, e.g. boys tend to participate more in sports and less in arts and music than girls (Katsuura, 2008). Finally, following Bonato et al. (1990), the number of performances is included to allow for the effect of the short-run quantitative and/or qualitative supply constraints on demand. [2] This is because 'performing arts is anything but a homogeneous good. Quality aspects matter' (Bonato et al., 1990: 41).

In order to test the second hypothesis the variables of income, occupation and ticket price are taken into account. According to the demand theory, the positive relationship between income and participation implies that arts participation is not an inferior good, and cultural capital increases demand. In our database, as there is no information on income we will use homeownership as a proxy of income, based on information on whether the individual is an owner occupier or a tenant, this is common in empirical estimations using the same survey. As for occupation, employed people have a higher probability of attending; in this paper we take into account employed, those seeking employment and 'others'. However, as Borgonovi (2004) pointed out, the opportunity cost of participating in the performing arts rather than working increases with income level. Ticket price is one of the variables that has usually been omitted from the literature to date. Some studies (Lévy-Garboua and Montmarquette, 2002) have found that the demand for the arts is price-elastic, and that the arts are luxury goods. However, according to Seaman (1996), the econometric investigation does not agree on price elasticity, as it is not clear that arts are luxury goods with their own-price elastic demands.

In order to test the third hypothesis regarding marital status, children under the age of six, children between the ages of six and thirteen, and geographic area are taken into account. This because people with young children to care for are likely to have less leisure time. Another problem is whether the individual has reached a constrained or an unconstrained maximum. Time constraints determine substitution effects between leisure activities. According to McCarthy et al. (2001), the nature of the performing arts make them particularly susceptible to time constraints, as they require extensive planning and dedication to be enjoyed.

Possible substitute or complementary goods for theatre are taken into account when we study the fourth hypothesis. We consider participation in another three different cultural goods: museums, cinemas and television. According to Borgonovi (2004), substitution effects will prevail in the case of television, while

[2] A brief demonstration can be found in Bonato et al. (1990).

museum visits and attendance at other performing arts events will produce a complementary effect, which supports the omnivore theory on arts attendance (National Endowment for the Arts, 1993; Chan and Goldthorpe, 2007).

2.4 Demand Function for Cultural Goods

Demand for cultural goods can be divided into two parts. The first is the dichotomous choice of whether or not to attend arts performances; the second, once one has chosen to attend, is to determine the optimum level of consumption: the number of performances that an individual would attend.

In the first instance, the decision to attend an arts event is influenced by the process of formation of consumer preferences for cultural goods. In this case, the learning-by-consumption phenomenon is crucial, as is past consumption of those goods. The second decision (frequency) depends essentially on income and price, which enter the standard formulation of a demand function. Frequency may be considered to be time-consuming private goods. Consequently, leisure time and entrance price have a positive influence on arts participation.

However, as Ateca-Amestoy (2008) has pointed out, people who do not attend cultural events can be divided into two distinct sub-populations. The first is comprised of those individuals who never go to the theatre and would never consider doing so whereas the second group would consider going. In order to study the demand function for theatre we have to take into account that we cannot distinguish if a non-attendee falls into one or the other of these sub-categories.

The demand of any given individual can be ascertained from a maximization problem of a quasi-concave utility function subject to both budget and time constraint.

The maximization problem can be written in the following way:

$$\max_{x_a, x_s, x_o} u(x_a, x_s, x_o)$$

$$\text{s.t. } \mu + wl = p_{x_a} x_a + p_{x_s} x_s + p_{x_o} x_o \quad \text{with } x_i \geq 0 \text{ and } \nabla \quad i \quad and \quad T \geq l \geq 0$$

where x_a is the theatre attendance, x_s are substitutes for theatre, x_o are other goods and p_{x_a}, p_{x_s}, p_{x_o} are the respective prices; μ is the non-labour income and wl is the labour income, and T is total time (24 hours minus the time to sleep and so on).

The leisure-consumption choice is represented in Figure 2.1. The horizontal axis depicts time and the vertical axis depicts quantity of consumption goods. The attainable combinations of consumption and leisure are given by the quadrilateral OCAD, where OC is the maximum consumption level and is attainable with zero leisure and consumption is equal to $\frac{\mu + wl}{\sum p}$. The budget line will go from the consumption intercept to the leisure intercept. In fact, OD is the maximum leisure attainable with zero consumption.

The solution to this maximization problem could be written thus in the reduced form:

$$y_i = f(x_i) = f(X_1, X_2, X_3, X_4)$$

where X_1 represents socio-demographic characteristics (first hypothesis), X_2 represents the socio-economic characteristics (second hypothesis), X_3 time constraint variables (third hypothesis) and X_4 indicates participation in other cultural activities both substitutive and complementary (fourth hypothesis).

2.5 Empirical approach

The categorical form of the dependent variables, in our analysis, is not suitable for ordinary regression, and in such a case logistic regression and ordered logistic regression are used often in the literature. In this paper, we use the standard logistic and order logistic regression models and a latent class model (finite mixture model) in order to take into account the information contained in the data more efficiently.

In order to choose the variables for the participation model, we must first consider that the decision to attend is influenced by the process of formation of the consumer's cultural preferences. The logistic regression model takes the following form:

$$\log it(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 x_1 + \ldots + \beta_n x_n + \varepsilon$$

The interpretation of the estimated β parameters is as the additive effect on the log odds ratio for a unit change in the jth explanatory variable. The model has an equivalent formulation:

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \ldots + \beta_n x_n)}}$$

If the dependent variable is in the form of ordered categories, ordered logistic regression is used. Examples of ordinal outcomes include the attitudes of respondents to a certain issue (strongly disagree, disagree, agree, strongly agree) or performance indicators (excellent, satisfactory, insufficient). However, for estimation purposes, the actual values taken by the dependent variables are irrelevant, though higher values are assumed to correspond to higher outcomes (Borgonovi, 2004).

In order to choose the variables for the frequency model, we must remember that frequency depends on the availability of resources, namely, money and time. The ordered logistic regression model takes the following form:

$$\ln\left(\frac{p(Y = j)}{p(Y = (j-1))}\right) = \beta_0 + \beta_1 x_1 + \ldots + \beta_n x_n + \varepsilon$$

Finite mixture model (FMM) provides a natural way of modelling continuous or discrete outcomes that are observed from populations consisting of a finite number of homogeneous sub-populations. Such models have a naturally represented heterogeneity in a finite, and usually small, number of latent classes, each of which may be regarded as a type. According to Ateca-Amestoy (2008), if we believe that we cannot distinguish between those who never go to the theatre and those with a positive probability of attending, but can distinguish between groups with high average participation and low average participation, then this kind of estimation provides a good approach. The same methodology was used by Fernández-Blanco et al. (2004) to estimate cinema demand in Spain.

In the FMM we do not have to know which group produced an observation since both individual preferences and the probability of membership of a particular group are estimated simultaneously. Individuals are probabilistically separated into several classes and a behaviour function is estimated for each class. Since each observation might have a non-zero probability of belonging to any class, all the

observations in the sample are used to estimate the behaviour function for each (Fernández-Blanco et al., 2004).

2.6 Variables and Descriptive Statistics

The data used in this analysis comes from two different sources: ISTAT and SIAE. The survey data carried out by ISTAT we use is the Multi-purpose Survey of Italian Households (Indagine Multiscopo sulle famiglie Italiane). The survey is conducted with a two-stage stratified sampling scheme carried out every five years since 1995. Currently, there are three surveys available: 1995, 2000 and 2006.

The surveys were conducted via direct interviews for most questions, and if for some reason, anyone was unable to attend the interview, the information was provided by another member of the family. Otherwise, the questions were answered directly by the interviewee. The main information is the real family together with the anagraphic family surveyed. A member of the real family is defined as a person who: 1) is normally resident in the same house as the head of the family; 2) has a relationship or friendship with the head of the household, or works in a service capacity for the family. In defining the 'real family', the most important concepts are 'residence' and 'normal residence' as compared to the registration for those who are living together. Within each real family can be found: no core family members or one or more core family members. The definition of core family is more restrictive than that of family and can be defined as: a) a couple, whether married or cohabiting, with or without children, or a couple who are never been married or cohabited, with no children; 2) with one parent with one or more children, never married, never married cohabited, with no children of their own. The real family members who do not satisfy anyone of these requirements are considered to be 'isolated members'.

All three surveys are divided into five different categories: citizen and communication technologies; leisure time activities; books and language; music and performances; sport and physical activities. The most recent survey pooled 19 921 households, 14 630 core families and was distributed to 50 569 people in 850 municipalities of different sizes.

The first part of the information on each record concerns the individual, the second part is about the family and the third part concerns calculated information (not directly pooled). With the information contained in the survey it is possible to perform three different kinds of analyses:

a) Individual analysis: each individual has a sequential number indicating their family and another number indicating his/her sequential number in the family.

b) Family analysis; in order to perform a family analysis, it is necessary to select the sequential number of the family.

c) Core family analysis: in order to perform an analysis of the core family, one must choose the first person in each core family.

The dataset contains personal and family information and information on whether a person participated in a number of performing arts events as well as the frequency of such participation. There are two questions referring specifically to the theatre. The first asks, 'How many times did you go to the theatre (including circus) in the last 12 months?', to which there were four possible answers: a) never; b) 1 to 3 times; c) 4 to 6 times; d) 7 to 12 times; e) more than 12 times. The second asks, 'Which kind of theatre performances did you see?' Theatre; opera; classical music performance; ballet; musical and operetta; dialect theatre; theatre for children; circus; other.

Regarding museum and cinema visits, the first question on the frequency of attendance remains the same. Further questions on the cinema included 'What kind of movies have you seen in the last 12 months?' Comedy; drama; action/adventure; murder mystery/thriller; humour; cartoons; fantasy; horror; documentary; short film; musical; historical; biographical; other. 'Generally, when do you go to the cinema?' On weekdays, whenever there is a discount; during the weekend; during the holidays; whenever; when possible. 'Why did you never go to the cinema this year?' There is no cinema in my village or town; I prefer to watch films on television; I prefer to watch films on VHS or DVD; It is too expensive; I do not have enough time; I have problems relating to my health/age/family that prevent me from going; The selection of films is not interesting; I don't like the cinema; I have no one to go with; Other.

The only difference between the 2006 and the 2000 surveys is the size of the sample group pooled. As above mentioned the 2006 survey pooled a total of 50,569 individuals, 19,921 families and 14,630 core families. The 2000 survey pooled a total of 54,239 individuals, 19,996 families and 21,108 core families. The 1995 survey is a slightly different. Specifically, the first question about attendance at various events was the same. The second question was: 'Who did you usually go with:' spouse/boyfriend/girlfriend; children; parents; grandparents; grandchildren; friends; other. There were two questions about cinema and theatre: 'What was your main reason for going to the cinema/theatre?' I like it; It is a way to spend my leisure time;

It is relaxing/enjoyable; It is a way to spend time together; It is a way to grow and develop an appreciation for culture.

The data source for ticket prices and number of performances was the SIAE annual report. Since 1936, the SIAE's annual report has included this information; the qualitative and quantitative data available from the SIAE's library is a direct result of collecting taxes on performances, a task delegated to the SIAE by the Ministry of Finance. 'Because of the nature of this task and the strict control over live performances this implies, the SIAE data set must be considered very reliable' (Bonato et al., 1990: 51).

The SIAE data show the number of performances, number of tickets sold, box office expenditure, public expenditure and turnover per geographical area, region and kind of municipality. The number of performances represents the number of days worked for each kind of performance. The number of tickets sold represents the number of attendees at the performance where entry tickets (by ticket or subscription) are required. The box office expenditure is the amount spent on tickets and subscriptions. Public expenditure is the total amount spent by the audience, including the amount paid at the box office and all the other costs (cloakroom, compulsory and optional bar orders, etc) paid by the audience. Turnover includes all the receipts obtained by the organizer and includes the amount paid by the public, and all other earnings from sponsors, TV rights, advertising, private and public contributions, etc. Variables present in the SIAE datasets are displayed in table 2.1.

Table 2.2 presents brief definitions of the symbols of variables involved in the empirical estimation of the models and the parameters' expected sign in the estimation.

The descriptive analysis shows that those who attended the theatre over the last year saw an average of more than three performances (table 2.3). Across all surveys, there was an average attendance of 2.31, of 2.40 and 2.39 in 2006, 2000 and 1995, respectively.[3] According to Lévy-Garboua and Montmarquette (1996), these figures suggest that there is a significant positive effect of accumulated theatre-going experience on current theatre consumption. Nevertheless, attendees do not choose to attend the theatre over other artistic performances, since on average theatre-goers also go to the cinema and museums more often than non-theatregoers (see table 2.3). This finding also supports our fourth hypothesis, given that we assume the omnivore theory.

[3]Where 2 = 1–3 times; 3 = 4–6 times, 4 = 7–12 times; 5 = more than 12 times.

2.7 Results and Discussion

2.7.1 Trends in arts participation in Italy

Until now, there have not been many studies that analyze trends in arts participation. This is because researchers have been 'frustrated by the absence of comparable data collected at different points' (DiMaggio and Mukhtar, 2004: 172). However, DiMaggio and Mukhtar (2004) did present a long-term analysis with data provided by Survey of Public Participation in the Arts from 1982 to 2002 in the USA.

Our strategy is to compare results from the 1995, 2000 and 2006 surveys, and to see if trends in arts participation are consistent with the view that there has been a decline in attendance at arts events.

Table 2.4 shows participation rates for the entire sample in each of the core activities for each survey year. The final column indicates the percentage change in the odd of attendance (the attendance rate divided by the rate of non-attendance) between 1995 and 2006. The odd ratio is calculated as follows:

$$r_{jk} = \frac{\frac{p_j}{1-p_j}}{\frac{p_k}{1-p_k}}$$

In some activities, attendance went up slightly, while in others it declined. The greatest decline was in classical music concert attendance, where the odd of attendance declined by 73 per cent. These results support those obtained by DiMaggio and Mukhtar (2004) and Ateca-Amestoy (2008), who assert that cultural attendance has decreased to some degree.

Figures 2.A1–2.A4, in appendix A, show the participation rate across our sample. Specifically, Figure 2.A1 shows the participation rates for theatre, cinema and museums; we can see that attendance decreased from 1995 to 2000 for theatre and cinema, and increased from 2000 to 2006, while attendance decreased slightly for museums. Figure 2.A2 shows theatre attendance across Italy. All areas show the same trend, with attendance decreasing between the first two surveys and increasing between the last two. The area with the highest participation rate is the northwest (Area 2), which is not surprising since Area 2 covers, to give but one example, the Teatro Regio in Turin. On the other hand, Area 4 has the smallest participation rate, which highlights the divide in participation between the north and the south of Italy.

Figure 2.A3 shows the difference in participation rate by education. Education 1 represents primary school education; Education 2, secondary school education and Education 3, third-level studies. The results agree with the previous literature finding that education is an important factor in determining arts attendance, as participation rates increase with the level of education attained. Figure 2.A4 shows the difference between the genders regarding theatre attendance. In our sample, women attend more. The only explanation for this provided by the literature to date is that female children are more exposed to the arts during childhood.

2.7.2 Participation and frequency models

Table 2.5 displays the odd ratio and marginal effects seen in the basic logistic regression model fitted using participation rates in theatre. [4] Marginal effects determining the change in a regression on the conditional probability that y=1. In general, the marginal effects computed are calculated as the marginal effects for an average individual. However, sometimes it is preferable to compute the average marginal effects – that is, the average for each individual's marginal effect. In fact, the marginal effect computed at the average x differs from the average of the marginal effect computed for the individual x_i. This is because marginal effects differ at the point of evaluation x_i.

Almost all variables are significant and of the expected sign. Only the occupation variable ('employed', 'seeking employment' and 'other') has no influence on theatre participation, which supports our four hypotheses.

We tested whether cultural capital endowments were an important factor in deciding theatre participation (Hypothesis 1). The results show that education, education of parents/partner, age, gender and number of performances are always significant and positively related to current attendance. Alternately, regarding theatre supply, if the numbers of theatre performances increase, the probability to attend a theatre performance increases too.

In the table, we can see the difference between the age categories, as people aged between 55 and 64 years are more likely to attend compared to the other categories. This agrees with the theory that theatre attendance could be seen as an experienced good. Moreover, a marginal change in education from the average of 1.56

[4] The correlation matrix for all the coefficients in the models shows that coefficients are not affected by multicollinearity. However, there is a strong correlation between education and parents'/spouse's education. In order to check whether our results are affected by this problem we ran two different regressions one with both variables and one without the parents/spouse variable, and the results are not significantly different.

(which indicates secondary school education) is associated with a 12 per cent increase in theatre participation. The biggest contribution comes from the northwest (Area 2) compared to other territorial areas, as suggested by the descriptive analysis.

The results on the test of our second hypothesis (i.e. cultural goods are normal goods) are not as strong as those supporting the first. As it turned out, the variables concerning 'house' (rented, owner occupier/life tenant, other) and occupation are not always significant, while ticket price always has a significantly negative effect on participation, namely that if the price of tickets increase, attendance at arts events decreases.

Variables linked with time availability (third hypothesis) are not always significant (i.e. number of children in the household), which is not a surprise since, in this model, we test attendance and not frequency, thus making time constraints less important. Furthermore, regarding our third hypothesis (i.e. time availability being an important factor in determining arts participation preferences), cinema and museum attendees are more likely to attend more theatre performances, supporting the omnivore theory. The marginal effects imply that people who visit museums are more likely to attend the theatre than people who go to the cinema, whereasthe more television people watches, the less likely they are to attend theatre performances, as those who watch a significant amount of television attend less (or no) theatre.

Table 2.6 shows the ordered variables that have been constructed to reflect differences in participating behaviour among non-attendees, occasional and frequent attendees. The econometric model used is ordered logistic regression. In this table we can see that price elasticity is equal to 0.513 in 2006. This finding is consistent with the previous literature, which supports our hypotheses. Moreover, those most likely to attend the theatre are between 55 and 64 years of age, and people who attend any arts activity have a higher theatre attendance than others.

Equally in this case, households with children (either under six years or between 6 and 13) are less likely to attend or to attend more than either people without children or those with children over 14 years. Education and cultural capital are important variables in determining attendance and frequency of attendance. Also, in this case, people who go to the cinema and museums are more likely to attend more theatre performances (fourth hypothesis).

2.7.3 Latent Model

Table 2.7 presents our results in the case of finite mixture model. The table displays two columns for each survey. The first column contains the results on component one in our sample (attendance) and the second column contains results on component two (frequency of attendance).

In this way, we can see that the sign and the significance of the variables are not the same in the two components. For example, the education variable, here a proxy for cultural capital, is always significant in the first component, but not in the second. This is because, according to our hypotheses, cultural capital is crucial to the process of the formation of preferences, and therefore plays an important role in the decision to attend a theatre performance, but it is not as important as regards the frequency of attendance. This is the same for other variables; men are less likely to attend than women, but gender bears no relation to the frequency of attendance.

All of this serves to confirm the hypothesis that, in our sample, there are two different populations (those who never go to the theatre and those with a positive probability of attending), and the behaviour of those populations is not the same.

2.8 Conclusion

In this study, participation through attendance at theatre events in Italy was analysed both in terms of simple participation and frequency of participation. To distinguish what determines whether a person attends or not from what determines the number of visits that person makes we used three different models: logistic regression, ordered logistic regression and finite mixture models. The first was used to examine the variables that influence attendance, the second to understand the variables that make a population more likely to attend arts events, and the third to take into account the two different sub-populations in the samples. The first population reached an unconstrained maximum to never attend theatre performances, and the latter only reaches a corner solution, as they would like to attend but are constrained from doing so.

One of the most consistent findings in the literature on arts participation has been that traditional socio-economic variables such as income, educational and occupational status were highly correlated to participation (O'Hagan, 1996; Kracman, 1996; Kraaykamp, 2003; Borgonovi, 2004; Seaman, 2006; Nagel et al. 2010). Our results show that the determinant of theatre participation in Italy is not much different

from that of other countries, in that the principal variables, such as price, education and income, have a significant impact on participation.

Descriptive analysis shows that over the period analysed attendance in some sectors went up slightly, while in others it declined. The greatest decline was in classic music concert attendance, where the odd of attendance declined by 73 per cent. These results support those obtained by DiMaggio and Mukhtar (2004) and Ateca-Amestoy (2008), who assert that attendance has decreased to some extent.

The logistic and order logistic results are not much different each other. Cultural capital together with time availability, ticket price, number of performances and participation in other cultural activities are the most important factor in determining theatre participation. Education is much more important in determining attendance and frequency than any other personal characteristic. However, the most important results say that people who attend arts events are more likely to attend all kind of performances, and among that group, individuals who attend arts events are most likely to attend the theatre. Price elasticity varies over the period analysed. In all estimation techniques it increases from 1995 to 2000 and decreases thereafter. In the order logistic regression model it was -0.03 in 1995, -0.971 in 2000 and -0.51 in 2006. These results are not unlike those summarised by Seaman (2006), in which he shows different studies with price elasticity that ranges from 0.3 to 1.65 confirming that the Italian consumers react to price changes like theatre consumers in other advanced countries. Other variables analysed also produce expected signs. For example, our proxy for income shows that a low income decreases the probability to attend to theatre performance. This is in line with the previous literature confirming the validity of our proxy for consumer's income.

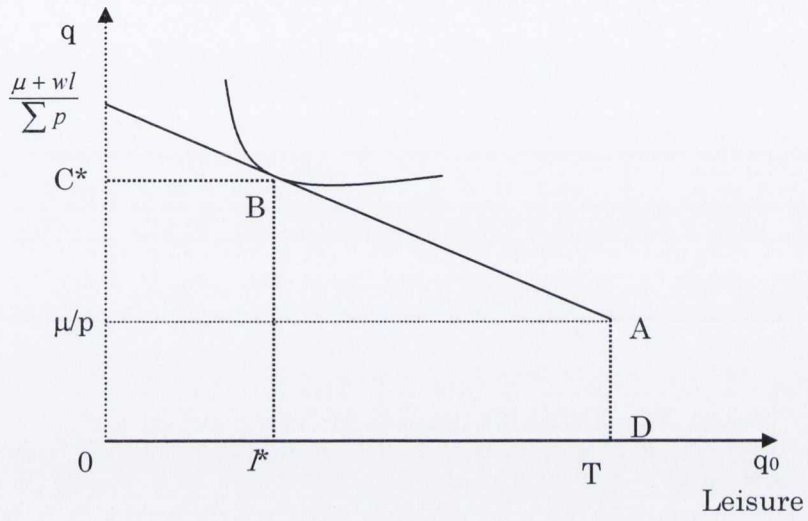
Finally, latent model shows that the significance of the variables is not the same in the two components. For example, the variable education, a proxy for cultural capital, is always significant in the first component, but not in the second. This is because, according to our hypotheses, cultural capital is key to the process of the formation of preferences, and then plays an important rule in the decision to attend a theatre performance, but it is not as important in the decisions about the frequency of attendance.

It is important to stress that cultural participation is central to all advanced economies, to the extent that it is positively associated with an increase in the per capita income. In Italy, however, cultural participation assumes a special relevance for three main reasons. The first is due to the country's artistic and cultural heritage; according to UNESCO, Italy has the largest number of arts-related protected heritage

sites; the second is due to the Italian debates on public funding of culture and the third because few studies have tried to examine theatre participation in Italy. For these reasons, our study is important for policy-makers, since it provides information that could be used when deciding how to promote culture in Italy.

Figures

Figure 2.1: The consumption/leisure choice



Tables

Table 2.1: SIAE data

Macro-aggregate	Kind of performances
Cinematographic activity	Cinema performances
Theatre activity	Drama, dialectal drama, *teatro napoletano*, reading or recital, opera, operetta, musical, classical and modern ballet, dance concert, puppets/marionettes, variety shows, circus
Concert activity	Classical concert, band concert, choral concert, jazz concert
Sports activity	Football, basketball, volleyball, rugby, baseball, boxing, cycling, athletics, tennis, show-jumping, motor racing, motorcycling, motor boating, swimming and water polo, winter sports, bowling, go-karting
Dance and concerts	Dance with orchestra, Dance with recorded music, concerts with orchestra, concerts with recorded orchestra
Travelling performances	Travelling attractions, amusement parks
Shows and exhibition	Shows and exhibitions
Other activities	Outdoor performances, variety shows

Table 2.2: Definitions and symbols of variables

Variables (symbols)	Description	Hp
Dependent variables		
Part_th	Respondent attended a theatre performance in the last 12 months. Dichotomous variable 0=No; 1=Yes.	..
FQ_th	Frequency of attendance at theatre performance 1=Never in the last 12 months; 2=Occasional (once or twice); 3=Frequent (three times or more)	..
Explanatory variables		
	Socio-demographic characteristics	
Edu (E)	Education level. Categorical variable. 1=primary education; 2=secondary-school; 3=third level; 4= post-graduate level	+
Fam_edu (M)	Education level of spouse and educational level of parents (same category as Edu)	+
Age (A)	Age categories (Dichotomised in final analysis). Reference group category 1=18–24; 2=25–34, 3=35–44, 4=45–54, 5=55–64, 6=65–74, 7=75+	+
Gender (S)	Gender: Dichotomous variable 0=female, 1=male	+/-
Number of performances (SUP)	Numbers of theatre performances in the region	+
	Socio-economic characteristics	
House (I)	Proxy for family income. Categorical variable. 1=rented; 2=owned / life tenancy; 3=other	+
Occup (O)	Employment status. (Dichotomised in final analysis) Reference group 1=employee; 2= seeking employment; 3=others	+/-
Ticket (TP)	Ticket price for theatre	-
Time constraint		
Marital Status (MS)	Marital status: 0=Single; 1=Married	+/-
Children 0–5 years	Family with children 0–5 years old	-
Children 6–13 years	Family with children 6–13 years old	-
Area	Geographic area categories (Dichotomised in final analysis): 1=northwest; 2=north-east; 3=central; 4=south; 5=islands	+/-
	Participation in other cultural activities	
Cinema (Cin)	Respondent visit cinema in the last 12 months – Dichotomous variables 0=No; 1=Yes	+/-
FQ_cin	Frequency of attendance at cinema showing 1=Never in the last 12 months; 2=Occasional (once or twice); 3=Frequent (three times or more)	+/-
Museum (Mus)	Respondent visit museum in the last 12 months – Dichotomous variables 0=No; 1=Yes	+/-
FQ_mus	Frequency of visit to museum – 1=Never in the last 12 months; 2=Occasional (once or twice); 3=Frequent (three times or more)	+/-
TVHrs (-)	Hours of TV watched per day capped at 11 (11=11+)	-

Table 2.3: Theatre-goers and non-theatre-goers and cinema and museum attendance

	Theatre-goers	Non-theatre-goers
2006		
Cinema	2.53	1.69
Museum	1.83	1.22
2000		
Cinema	2.59	1.62
Museum	1.91	1.27
1995		
Cinema	2.60	1.66
Museum	2.13	1.29

Where 1= never go; 2= 1–3 times; 3= 4–6 times, 4= 7–12 times; 5=more than 12 times

Table 2.4: Participation rates for each core activity for each year, full sample

Event Type	*1995*	*2000*	*2006*	*Percentage Δ odds*
Theatre	17.22	15.3	18.51	9.21
Drama	..	7.69	0.01	..
Variety show	..	1.79	1.52	..
Ballet	..	1.69	2.28	..
Musical, operetta	..	3.35	4.52	..
Theatre in local dialect	..	4.51	4.81	..
Children's theatre	..	2.06	3.21	..
Circus	..	1.01	3.11	..
Others	..	..	1.32	..
Museum	29.97	28.23	25.99	-17.97
Exhibition	..	24.43	23.40	..
Archaeological site	..	15.66	14.93	..
Monuments	..	39.02	30.80	..
Visit to historical city	..	37.92	36.37	..
Visit to point of natural beauty	..	34.58	35.88	..
Zoo, aquarium, botanic garden	..	15.97	16.25	..
Nature reserve	..	16.68	17.21	..
Cinema	46.73	43.13	47.81	4.44
Classical music concerts	8.90	5.37	4.99	-73.33
Lyrical music concerts and opera	..	3.55	3.47	..
Rock and pop music concerts	..	9.46	9.60	..
Jazz and blues concerts	..	4.04	3.92	..
Folk and ethnic music concerts	..	5.94	4.41	..
Other music concerts	..	6.47	8.18	..
Disco	31.48*	28.10*	18.93	..
Dance hall or night club	..	..	14.36	..
Festival, street entertainment	62.29	53.91	45.82	-60.2

Source: Our elaboration on ISTAT data.

*Disco and dance hall

Table 2.5: Participation model – Dependent variable: Theatre attendance

	2006		2000		1995	
	OR	ME	OR	ME	OR	ME
Edu	1.271	0.027	1.329	0.024	2.084	0.063
	(0.109)**	(0.001)**	(0.150)*	(0.009)*	(0.056)**	(0.002)**
Fam_edu	1.255	0.025	1.391	0.028		
	(0.109)**	(0.011)**	(0.157)**	(0.01)*		
age_2	1.304	0.031	1.147	0.012	1.216	0.018
	(0.101)**	(0.009)**	(0.077)*	(0.006)*	(0.068)**	(0.005)**
age_3	1.874	0.076	1.383	0.03	1.377	0.03
	(0.153)**	(0.011)**	(0.104)**	(0.007)*	(0.090)**	(0.007)**
age_4	1.795	0.071	1.588	0.044	1.958	0.07
	(0.146)**	(0.011)**	(0.116)**	(0.008)*	(0.124)**	(0.008)**
age_5	2.568	0.12	1.821	0.06	2.221	0.087
	(0.214)**	(0.012)**	(0.144)**	(0.009)*	(0.154)**	(0.009)**
age_6	2.254	0.102	1.583	0.044	1.975	0.073
	(0.211)**	(0.013)**	(0.148)**	(0.01)*	(0.167)**	(0.011)**
age_7	1.459	0.045	0.835	-0.014	1.252	0.021
	(0.169)**	(0.015)**	(0.111)	(0.01)*	(0.16)	(0.013)**
male	0.69	-0.041	0.705	-0.029	0.69	-0.032
	(0.027)**	(0.004)**	(0.027)**	(0.003)*	(0.024)**	(0.003)**
Nr. Perf.	1.081	0.009	1.214	0.016	1.169	0.046
	(0.025)**	(0.003)**	(0.034)**	(0.002)*	(0.024)**	(0.006)**
house1	0.798	-0.024	0.896	-0.009	0.99	-0.001
	(0.080)*	(0.01)*	(0.089)	(0.008)*	(0.092)	(0.008)**
house2	0.991	-0.001	1.016	0.001	1.059	0.005
	(0.088)	(0.011)	(0.09)	(0.007)*	(0.091)	(0.007)**
Employee	0.953	-0.005	0.905	-0.008	0.91	-0.008
	(0.049)	(0.006)	(0.045)*	(0.004)*	(0.039)*	(0.004)**
Seeking_empl.	0.739	-0.032	0.744	-0.022	0.769	-0.021
	(0.070)**	(0.009)**	(0.069)**	(0.006)*	(0.057)**	(0.005)**
Ticket	0.61	-0.055	0.415	-0.074	0.968	-0.003
	(0.047)**	(0.008)**	(0.040)**	(0.008)*	(0.010)**	(0.006)**
Marital status	1.007	0.001	1.005	0.001	1.024	0.002
	(0.017)	(0.002)**	(0.018)	(0.001)*	(0.017)	(0.001)**
Children_0–5	0.937	-0.007	0.797	-0.019	0.737	-0.026
	(0.05)	(0.006)	(0.044)**	(0.005)*	(0.034)**	(0.004)**
Children_6–13	1.045	0.005	0.908	-0.008	0.878	-0.011
	(0.043)	(0.005)	(0.038)*	(0.004)*	(0.033)**	(0.003)**
Area_1	1.221	0.023	1.734	0.052	1.019	0.002
	(0.093)**	(0.009)**	(0.144)**	(0.009)*	(0.076)	(0.007)**
Area_2	1.546	0.051	2.23	0.082	1.21	0.017
	(0.113)**	(0.009)**	(0.175)**	(0.009)*	(0.092)*	(0.007)**
Area_3	1.29	0.029	1.703	0.051	1.209	0.017
	(0.097)**	(0.009)**	(0.141)**	(0.009)*	(0.089)**	(0.007)**
Area_4	0.92	-0.009	1.083	0.007	1.228	0.019
	(0.07)	(0.008)	(0.085)	(0.007)*	(0.090)**	(0.007)**
Cinema_part	3.192	0.137	3.739	0.127	4.011	0.135
	(0.148)**	(0.006)**	(0.170)**	(0.005)*	(0.168)**	(0.004)**
Museum_part	4.428	0.211	3.875	0.15	4.936	0.187
	(0.173)**	(0.006)**	(0.148)**	(0.005)*	(0.172)**	(0.005)**
TVHrs	0.967	-0.004	0.941	-0.005	0.943	-0.005
	(0.011)**	(0.011)**	(0.011)**	(0.001)*	(0.011)**	(0.001)**
Observations	27071	27071	30423	30423	38208	38208

Standard errors in parentheses

* significant at 5%; ** significant at 1%

Table 2.6: Frequency model – Dependent variable: Theatre attendance

	2006	2000	1995
edu	0.241	0.291	0.709
	(0.079)**	(0.110)**	(0.026)**
Fam_edu	0.249	0.393	
	(0.080)**	(0.111)**	
age_2	0.282	0.083	0.175
	(0.077)**	(0.068)	(0.055)**
age_3	0.709	0.352	0.36
	(0.081)**	(0.075)**	(0.065)**
age_4	0.71	0.526	0.766
	(0.081)**	(0.074)**	(0.063)**
age_5	1.005	0.596	0.781
	(0.083)**	(0.079)**	(0.068)**
age_6	0.833	0.313	0.561
	(0.092)**	(0.093)**	(0.082)**
age_7	0.241	-0.411	0.028
	(0.114)*	(0.131)**	-0.123
male	-0.402	-0.382	-0.374
	(0.038)**	(0.039)**	(0.033)**
Nr_perf	0.069	0.203	0.567
	(0.023)**	(0.028)**	(0.069)**
house1	-0.312	-0.153	0.047
	(0.098)**	(0.099)	(0.09)
house2	-0.034	0.005	0.105
	(0.086)	(0.089)	(0.084)
Employee	-0.016	-0.077	-0.043
	(0.05)	(0.049)	(0.041)
Seeking_empl-	-0.25	-0.305	-0.28
	(0.093)**	(0.093)**	(0.073)**
Ticket	-0.513	-0.971	-0.030
	(0.074)**	(0.095)**	(0.010)**
Marital Status	0.008	0.007	0.017
	(0.016)	(0.017)	(0.016)
Children_0–5	-0.004	-0.161	-0.167
	(0.051)	(0.055)**	(0.045)**
Children_6–13	0.093	0.026	-0.018
	(0.039)*	(0.041)	(0.036)
area_1	0.138	0.611	-0.066
	(0.074)	(0.083)**	(0.073)
area_2	0.4	0.845	0.117
	(0.070)**	(0.078)**	(0.074)
area_3	0.155	0.525	0.087
	(0.073)*	(0.083)**	(0.071)
area_4	-0.139	0.096	0.183
	(0.074)	(0.078)	(0.071)*
Cinema	0.478	0.533	0.516
	(0.017)**	(0.016)**	(0.015)**
Museum	0.826	0.596	0.835
	(0.024)**	(0.021)**	(0.018)**
TVHrs	-0.032	-0.057	-0.038
	(0.011)**	(0.012)**	(0.011)**
Observations	27071	30423	38208

Standard errors in parentheses

* significant at 5%; ** significant at 1%

Table 2.7: Finite mixture model – Dependent variable: Theatre attendance

	2006		2000		1995	
	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2
edu	0.182	0.209	0.218	0.035	0.55	0.439
	(0.053)**	(0.17)	(0.072)**	(0.189)	(0.022)**	(0.051)**
Fam_edu	0.226	0.113	0.355	0.278		
	(0.054)**	(0.171)	(0.073)**	(0.188)		
age_2	0.173	0.44	0.079	-0.009	0.064	-0.028
	(0.075)*	(0.23)	(0.06)	(0.131)	(0.048)	(0.106)
age_3	0.489	0.562	0.36	-0.002	0.198	0.057
	(0.078)**	(0.241)*	(0.065)**	(0.146)	(0.056)**	(0.123)
age_4	0.373	0.999	0.434	0.062	0.47	0.262
	(0.080)**	(0.223)**	(0.065)**	(0.14)	(0.054)**	(0.116)*
age_5	0.591	1.185	0.488	0.292	0.477	0.315
	(0.081)**	(0.221)**	(0.070)**	(0.141)*	(0.061)**	(0.117)**
age_6	0.469	1.001	0.189	0.205	0.282	0.057
	(0.094)**	(0.232)**	(0.089)*	(0.159)	(0.076)**	(0.14)
age_7	-0.403	0.811	-0.828	0.033	-0.236	-0.519
	(0.146)**	(0.241)**	(0.178)**	(0.184)	(0.147)	(0.217)*
Male	-0.338	-0.056	-0.352	-0.024	-0.261	-0.11
	(0.036)**	(0.075)	(0.034)**	(0.067)	(0.029)**	(0.063)
Nr. Perf.	0.009	0.228	0.138	0.031	0.111	0.042
	(0.022)	(0.053)**	(0.025)**	(0.046)	(0.018)**	(0.037)
house1	-0.226	-0.503	-0.123	-0.005	0.038	-0.255
	(0.097)*	(0.219)*	(0.086)	(0.182)	(0.079)	(0.163)
house2	-0.048	-0.029	0.044	0.02	0.095	-0.138
	(0.084)	(0.175)	(0.076)	(0.167)	(0.073)	(0.148)
Employee	0.031	-0.141	-0.098	0.093	-0.006	0.027
	(0.048)	(0.105)	(0.044)*	(0.089)	(0.036)	(0.078)
Seeking_empl.	-0.179	-0.124	-0.308	0.219	-0.226	-0.077
	(0.095)	(0.21)	(0.088)**	(0.155)	(0.065)**	(0.136)
Ticket	-0.268	-0.576	-0.766	0.216	-0.132	0.01
	(0.069)**	(0.148)**	(0.085)**	(0.169)	(0.014)**	(0.029)
MS	0.015	-0.01	-0.005	0.008	0.008	0.016
	(0.015)	(0.026)	(0.016)	(0.027)	(0.014)	(0.028)
Ch_0–5	-0.079	0.102	-0.183	-0.122	-0.126	-0.143
	(0.053)	(0.122)	(0.052)**	(0.105)	(0.043)**	(0.097)
Ch_6–13	0.054	-0.129	-0.016	0.101	-0.005	-0.073
	(0.034)	(0.112)	(0.036)	(0.075)	(0.032)	(0.079)
area_1	0.088	0.119	0.511	-0.175	0.035	-0.075
	(0.071)	(0.142)	(0.079)**	(0.136)	(0.072)	(0.115)
area_2	0.274	0.342	0.605	-0.018	0.14	0.215
	(0.067)**	(0.134)*	(0.075)**	(0.127)	(0.072)	(0.114)
area_3	0.156	-0.184	0.416	-0.124	0.145	0.036
	(0.070)*	(0.153)	(0.078)**	(0.134)	(0.070)*	(0.111)
area_4	-0.108	-0.105	0.06	-0.234	0.208	-0.309
	(0.073)	(0.141)	(0.077)	(0.12)	(0.072)**	(0.121)*
Cinema	0.359	0.205	0.442	0.162	0.387	0.245
	(0.014)**	(0.036)**	(0.013)**	(0.031)**	(0.013)**	(0.027)**
Museum	0.454	0.539	0.366	0.275	0.492	0.367
	(0.016)**	(0.067)**	(0.014)**	(0.048)**	(0.013)**	(0.035)**
TVHrs	-0.039	0.015	-0.063	-0.016	-0.027	0.034
	(0.012)**	(0.019)	(0.012)**	(0.019)	(0.011)*	(0.018)
Constant	-2.585	-1.987	-2.666	-1.322	-4.159	-1.358
	(0.252)**	(0.544)**	(0.275)**	(0.551)*	(0.153)**	(0.338)**
imlogitpi1		2.691		3.323		2.998
		(0.201)**		(0.120)**		(0.166)**
pi1		0.936		0.965		0.952
		(0.119)**		(0.004)**		0.007
pi2		0.064		0.347		0.047
		(0.119)**		(0.004)**		0.007
Observations		27071		30423		38208

Appendix A

Figure 2.A1: Participation rate by year (per cent)

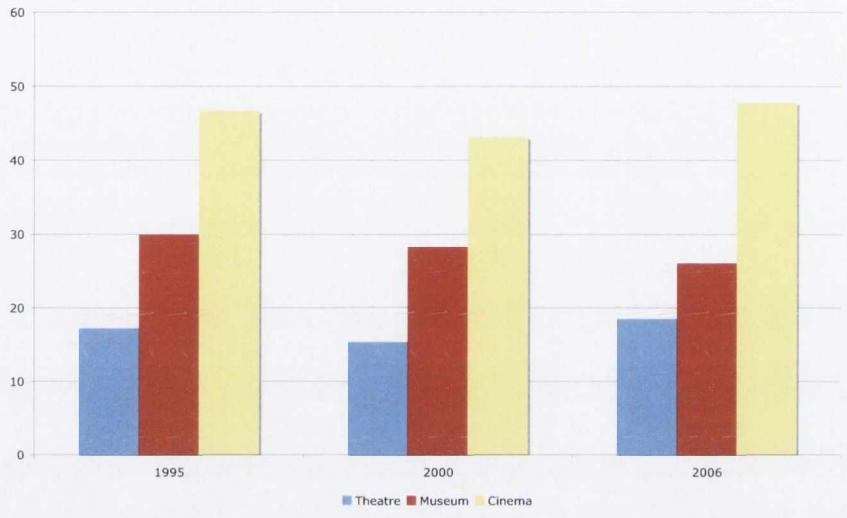


Figure 2.A2: Theatre participation rate by education and year (per cent)

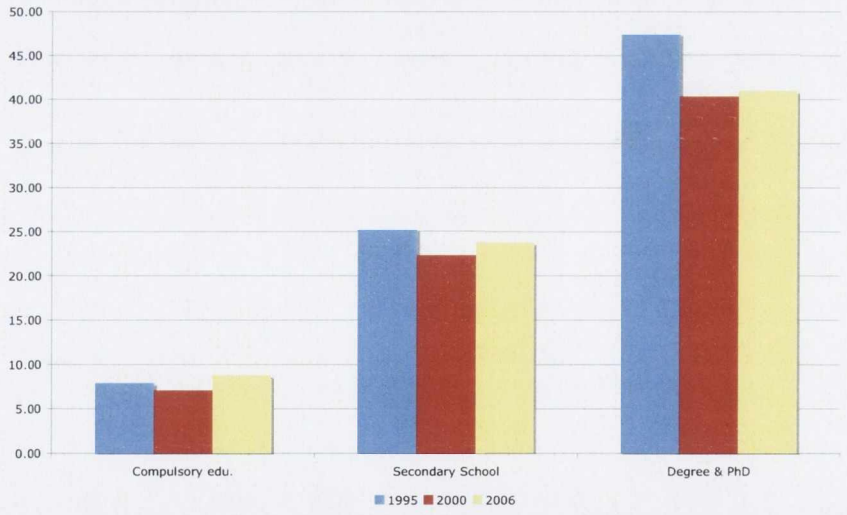


Figure 2.A3: Theatre participation rate by area and year (per cent)

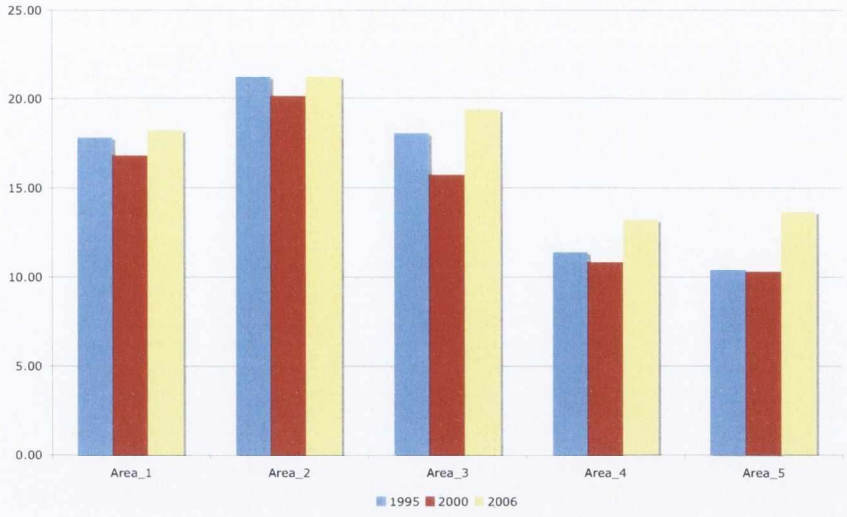
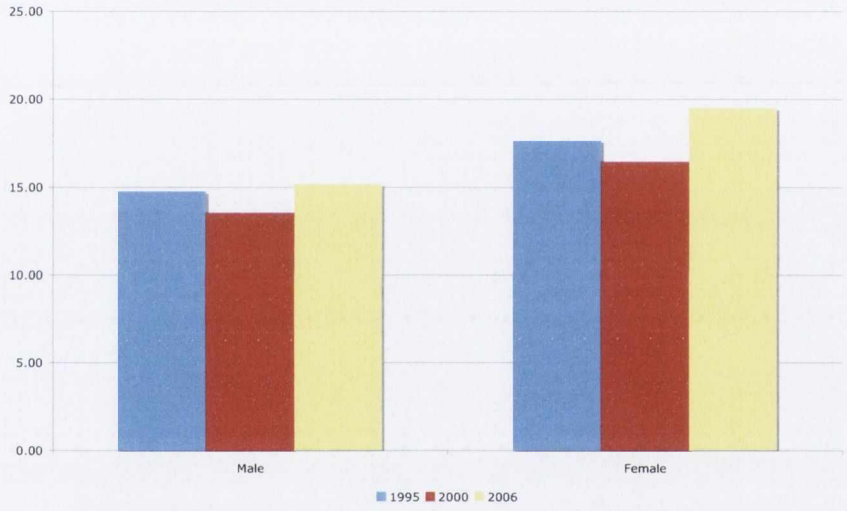


Figure 2.A4: Theatre participation rate by gender and year (per cent)



Chapter 3

Are Italian theatregoers addicted?

3.1 Introduction

The consumption of cultural goods (e.g. theatre, cinema or museum) has been investigated in numerous studies with different econometric techniques (see second chapter) often via a model based on a single period, using standard economic variables to estimate the price and income elasticities. There have, also, been some attempts to study different theories: myopic or rational addiction (i.e. Collins et al., 2008; Sisto and Zanola, 2010).

Many studies have demonstrated that those goods can be seen as experience goods (Lévy-Garboua and Montmarquette, 2002) and the importance of cultural capital has been repeatedly stressed. Consequently, current demand for cultural goods is influenced by past exposure, and hence a well-specified demand model should take into account this inter-temporal dynamic.

According to Seaman (2006) there are three theories on the cultivation of taste: habit formation, learning by consumption and rationaladdiction. The objective of this study is to analyse the demand for theatre under the rational addiction hypothesis.

Becker and Murphy (1988) assert that rationality means that individuals, by maximizing an intertemporal utility function, anticipate the expected future consequences of their current consumption. In fact, cultural goods are 'special' economic goods because they have certain characteristics that consumer goods do not. For instance, it could happen that tastes change over time, which can lead to diminishing marginal utility. If this occurs, it can be described as a normal good, while it can be described as an addictive good if the increase in past consumption causes an increase in current consumption's marginal utility, through a process of "learning by doing" as summarized by the stock of "consumption capital". However, Becker and

Murphy (1988) state that such behaviour can be considered myopic, although rational, since it neglects the consequences of future actions. For Becker and Murphy, consumer behaviour is fully rational if it takes into consideration both past and future consumption.

The myopic and rational addiction approaches have been applied to drugs (Grossman and Chaloupka, 1998; Bretteville-Jensen and Biørn, 2003), cigarettes (Chaloupka, 1991; Becker et al, 1994; Pierani and Tiezzi, 2009), alcohol (Waters and Sloan, 1995; Grossman et al., 1998; Bask and Melkersson, 2004; Castiglione et al., 2012) and cinema (Cameron, 1999; Yamamura, 2009; Sisto and Zanola, 2010). Studies that analyse the influence of past and future consumption on current theatre demand seem to be relatively rare with some exceptions focusing on myopic addiction and learning by consumption (Bonato et al., 1990; Lévy-Garboua and Montmarquette, 1996).

The aim of this research is to test both myopic and rational addiction models using pooled cross-section and time series data on 20 Italian regions over the period 1980 to 2009. The results provide evidence that both past and future consumption play an important role in determining present consumption; consequently, the demand for theatre seems to conform with a rational addiction approach.

Regions, provinces, municipalities, metropolitan cities (e.g. Turin, Milan, Venice, Florence, Rome and eleven more) and central government are the five elements of the Italian Republic. There are twenty regions, five of which have a special status (Sicily, Sardinia, Trentino–Alto Adige, Valle d'Aosta and Friuli Venezia Giulia). Three of these regions (Valle d'Aosta, Sicily and Trentino Alto Adige) exercise exclusive and direct legislative and administrative responsibility for their own heritage assets, museums and sites (Bodo and Bodo, 2011). The Trentino–Alto Adige region contains only two autonomous provinces (Trento and Bolzano), both provinces have the same legislative powers as those of the regions. The province is a territorial local authority which belongs to a region and consists of several municipalities. In 1861 (year of Italian Unification) the number of provinces was been fixed at 59, but this increased over time until 110 in 2004.

In Italy there is no official definition of culture, nor are the boundaries of the cultural field clearly defined by government. Since 2000 the Ministero per i beni e le attività culturali (Ministry of Heritage and Cultural Activities) has been entrusted with authority over a wide range of cultural institutions, such as museums, libraries and archives, visual arts, performing arts and cinema, and copyright (Bodo and Bodo,

2011). In 17 out of 20 regions, ministerial authority is delegated to Regional Boards for Cultural Goods and Landscapes, and the local "Soprintendenze".

Provincial governments have little involvement in cultural policies, although there are some exceptions such as the autonomous provinces of Trento and Bolzano (Bodo and Bodo, 2011). After the central government, the municipalities are the most prominent public actors on the cultural scene in Italy. Through their municipal departments for culture (Assessorati Comunali alla Cultura) they play an important role in the direct and indirect management of cultural institutions: museums and sites of cultural interest, archives, libraries, theatres etc. (Bodo and Bodo, 2011).

This chapter complements previous literature in four ways. First, we estimate theatre demand in a rational addiction framework. Second, we apply different methodologies (IV, models for not stationary variables) of a threshold model to estimate the dynamic demand in a panel structure. third, we examine whether the data in each estimated period are consistent with either myopic addiction, rational addiction and full rational addiction of theatre demand. Finally, characterizing theatre demand as a myopic or rational nature has important policy implication. Myopic addiction implies that consumers ignore the future implication associated with their addiction and then there is limited information for policy implications (Chen and Lin, 2012).

The rest of the chapter is organised as follows. Section 2 examines the economic process of the formation of preferences. Section 3 outlines the role of past and future consumption on theatre demand. Section 4 describes the econometric model. Section 5 presents the data utilised, Section 6 describes the results, while Section 7 concludes the paper.

3.2 The economic process of the formation of preferences

In the economics literature, participation in cultural events is a function of preferences, education, income and price, and it is assumed that consumers maximize their utility function (Kracman, 1996; Kraaykamp, 2003). Almost all theories assert that current demand for the arts is influenced by previous experience. In fact, according to Lévy-Garboua and Montmarquette (1996), as the theatre-going experience is not a simple measurement of innate taste and other demand factors, the static consumer model does not apply. Past consumption is a strong determinant of current consumption, which supports the theory that cultural goods are experience goods. 'Any new experience of a good reveals to the consumer a positive or negative

increment in his taste for it' (Seaman, 1996: 444). In this way, a taste for the arts is acquired or discovered, and the rate of art consumption increases over time with exposure. Thus the effect of past consumption on present appreciation will be positive through the consumption of cultural capital that has been accumulated up to that point (Ateca-Amestoy, 2005).

Lévy-Garboua and Montmarquette (2002) show the average variation of taste over time. The taste for experienced goods increases and eventually levels off because additional tastes have been acquired through repeated exposure and experience. By contrast, the taste for non-experienced goods remains stable. Even though the average individual might initially prefer non-experienced goods, ultimately, he/she willenjoy the experienced good more later.

There are two important models of preference formation for the arts. The first is based on the rational addictionapproach (Stigler and Becker, 1977; Becker and Murphy, 1988) and the second on thelearning-by-consumption approach (Lévy-Garboua and Montmarquette, 1996, 2002). Seaman (1996) indicates a third process of preference formation called 'habit formation'In his opinion, habit formation is the most passive explanation for past consumption affecting current and future consumption. His theory derives from a study by Houthakker and Taylor (1970), which estimated an OLS consumer demand in the United States including a lagged dependent variable in the arts demand equation. Their equation covered 1929–1964 using the Survey of Current Business data. In contrast with the habit formation the key assumption on rational addiction model is the consistent forward-looking behaviour, in fact, consumers maximise an intertemporal utility function such that they may sacrifice current utility to get the benefits of life-long consumption. Moreover, past consumption has a positive effect on present consumption, as the accumulation of past experiences increases cultural capital. Becker (1996) asserts that the taste for the arts requires an investment, so 'the ability to enjoy the consumption of art appears to be a return on an investment' (Klamer, 2002: 454).

In the learning-by-consumption model, consumers are uncertain of the quality of performances, and so update their preferences in response to their experiences of particular arts events. In other words, Lévy-Garboua and Montmarquette (1996) assume that each time a consumer participates in an arts event, he will experience a degree of enjoyment, on the basis of which he will revise his future expectation of his own taste; 'tastes are given but unknown' (Lévy-Garboua and Montmarquette, 2002: 9).

Bask and Melkersson (2004) assert that the rational addiction behaviour is assumed to involve reinforcement and tolerance. In the first case, an increase in past consumption increases the craving for present consumption, in other words consumption in different periods of time are complements. In the case of tolerance the satisfaction of a given consumption level is lower when past consumption is greater.

In both the rational addition and learning-by-consumption models, early experience increases the utility of future consumption. In this way, the satisfaction that visitors get appears to depend on what they bring with them in terms of knowledge and capability to experience the art form in question (Klamer, 2002) when they consume the cultural goods. However, according to Seaman (2006), unlike with the learning-by-consumption approach, the rational addition model, when combined with specific consumption capital in the household production framework, has a different modelling setup and can generate different implications.

The rational addiction model assumes that individual decisions about the consumption of harmful and addictive commodities are made on a rational basis (Becker and Murphy, 1988). In this context, a key element of rational behaviour is a tendency to take into account future consequences of current consumption decision (tendency to look forward). Different individuals may have different weights to the present relative to the future while still being fully rational (Laporte et al., 2010).

Most of the studies on habit, myopic or rational addiction model used aggregate time series or panel data (e.g. Bonato at al., 1990; Bask and Melkersson, 2004; Sisto and Zanola, 2010) since there is very little diary data to permit testing at the individual level (Andress and Heien, 2001).

3.3 The Role of Past and Future Consumption on Theatre Demand

There are a few strands of research concerning the neoclassical consumer theory that would suggest including past and future consumption in the theoretical model. A consumer fills his present consumption bundle according to prices, income, preferences and on the accumulated experience in consumption: previous experience, that of his family, friends, peer group, or as a result of the experience of advertising, habit, teaching or culture (Castiglione et al., 2012). Elliott and Hamilton (1991) assert that choice of leisure activities is not a complex decision process but is mainly based

on simple choice tactics (i.e. doing what friends are doing, doing something for a change or doing something to match the mood the respondent is in); while other studies predict cultural participation based on socio-economic and socio-demographic characteristics (see chapter 2).

According to Becker and Murphy (1988), the mechanism through which past consumption affects the current utility of the good consumed is a sort of "learning by doing" process, summarised by the stock of the consumption capital. The good is addictive if the present consumption increases when the habits derived from the past consumption build up, whereas the term 'satiating' good describes when the opposite occurs (Castiglione et al., 2012). Goods that produce harmful habits (influenced by the consumption capital) will become addictive only if the demand for them is sufficiently inelastic (Stigler and Becker, 1977). The consumption capital depends on the exposition of consumption and age, and it can be a measure for the lifelong consumption of the good by the consumer. If the past consumption was high, it is likely that it will also be high in the present and in the future, which proves a demand that is both price and income inelastic (Elster and Skog 1999).

There have been relatively few empirical studies applying the past consumption or the addiction approach on cultural goods alone and all of them are based especially on cinema (Cameron, 1999; Yamamura, 2009; Sisto and Zanola, 2010) or jointly with other potential addiction goods.Some of these studies have demonstrated the reinforcing role of past and future consumption on the current consumption of cultural goods (Sisto and Zanola, 2010), while others (Cameron, 1999), using pooled cross-section time series data of UK cinema admission over the period 1965-1983, do not find a strong support for the rational addiction model as presented in Becker and Murphy (1988). Cameron (1999) finds a significant coefficient of the lead consumption term and a quite plausible discount rate in OLS estimation with significant price effects. However, the IV procedure fails to give support for any element of the rational addiction model.

Various studies have demonstrated the reinforcing role of past and future consumption on the current consumption of cinema; while others demonstrated the reinforcing role of past, current and future consumption of television on the consumption of complementary goods, such as cinema (Sisto and Zanola, 2005); and of the substitute goods, such as video for cinema (Yamamura, 2009).

Collins et al. (2008) explore the repeated consumption of identical cultural goods, specifically movie-going. Their results suggest that there is a small section of cinema-goers who may watch more than one film more than once. They tend to be

aged 10-14, to see a film early in its run (consequently there is more time to see it again) and to come from higher socio-economic groups.

Studies that analyse the influence of past and future consumption on current theatre demand seem to be relatively rare with some exceptions focusing on myopic addiction and learning by consumption (Bonato et al., 1990; Lévy-Garboua and Montmarquette, 1996).

3.4 Econometric Model

According to Becker and Murphy (1988), a person is potentially addicted to good *a* if a rise in the current consumption of *c* increases its future consumption. This definition implies that a person is addicted to a good if, and only if, past consumption increases the marginal utility of present consumption. In this case, current cultural consumption is expected to be positively correlated to past and future consumption (adjacent complementarity). If the hypothesis of addiction is ignored, current consumption is only a function of the current price, of income and any other exogenous factor that influences demand. The adjacent complementarity hypothesis between present, past and future consumption introduces a dynamic link between the demand decisions that form the bases of the model to be tested.

Becker and Murphy's (1988) rational addiction model considers one addictive good and one non-addictive good, that in our case will be theatre and cinema, respectively. According to this model a consumer maximizes a concave and time-separable utility function subject to a lifetime budget constraint. The concave utility function at time t may be defined as:

$$U_t = U(C_t, C_{t-1}, Y_t, e_t) \tag{3.1}$$

where C_t is the consumption of the addictive good; Y_t is the consumption of the non-addictive good and e_t represents all other factors affecting utility. Assuming a constant rate of time preference, σ, a constant price of the non-addictive goods, treated as numeraire, and perfect capital markets, the intertemporal decision of individuals consists in maximising utility subject to a usual intertemporal budget constraint as follows:

$$U = \sum_{t=0}^{T} \sigma^{t-1} U(C_t, C_{t-1}, Y_t, e_t)$$

$$\text{s.t.} \sum_{t=1}^{T} r^{t-1}(Y_t + P_t C_t) \leq A_0 \qquad (3.2)$$

where r is the constant real interest rate; P_C is the price of the addictive good; and A_0 is the initial value of assets.

The maximization process gives a linear equation that takes the following form:

$$C(t) = \beta_0 + \beta_1 P_C(t) + \beta_2 P_C(t-1) + \beta_3 P_C(t+1) + \beta_4 C(t-1) + \beta_5 C(t+1) \qquad (3.3)$$

where C and P represents consumption and price, respectively. Current consumption is predicted to be negatively related to the current price but positively related to both past and future prices. Moreover, if the good is addictive current consumption is expected to be positively related to lagged and future consumption.

In our case if theatre attendance is not addictive, past consumption and price should have no effect on current consumption. However, if theatre attendance is addictive but individuals are myopic, past consumption and price should have a positive impact on current consumption, but future consumption and price have no effect. If individuals are fully rational then past and future consumption and prices should all have a positive impact on current consumption (Chaloupka, 1991).

Our intent is to assess whether past and future consumption has positive effects on current theatre consumption and whether current prices have the usual negative effect on it. In addition, we test whether the contribution of the level and pattern of prices and level of income affect the probability of becoming addicted to theatre attendance. Other additional exogenous factors influencing theatre demand are considered to reduce the omitted variables bias. Hence, we will estimate three different models:

Myopic addiction model:

$$\ln ThAtt_{i,t} = \alpha_0 + \beta_1 \ln ThAtt_{i,t-1} + \beta_3 \ln Th\,\text{Price}_{i,t} + \beta_4 \ln Th\,\text{Price}_{i,t-1} + \beta_6 \ln Incpc_{i,t} + \beta_7 Z_{i,t} + \varepsilon_{i,t} \qquad (3.4)$$

Rational addiction model 1:

$$\ln ThAtt_{i,t} = \alpha_0 + \beta_1 \ln ThAtt_{i,t-1} + \beta_2 \ln ThAtt_{i,t+1} + \beta_3 \ln Th\,\mathrm{Price}_{i,t} + \beta_6 \ln Incpc_{i,t} + \beta_7 Z_{i,t} + \varepsilon_{i,t} \tag{3.5}$$

Rational addiction model 2:

$$\ln ThAtt_{i,t} = \alpha_0 + \beta_1 \ln ThAtt_{i,t-1} + \beta_2 \ln ThAtt_{i,t+1} + \beta_3 \ln Th\,\mathrm{Price}_{i,t} + \beta_4 \ln Th\,\mathrm{Price}_{i,t-1} + \\ + \beta_5 \ln Th\,\mathrm{Price}_{i,t+1} + \beta_6 \ln Incpc_{i,t} + \beta_7 Z_{i,t} + \varepsilon_{i,t} \tag{3.6}$$

Where equation 3.4 presents the myopic addiction model, equation 3.5 presents the rational addiction model (1) with only one lag and lead of the consumption variable. Finally, equation 3.6 presents the rational addiction model (2) with lags and leads of both variables consumption and prices. $ThAtt_{i,t}$ is the per capita theatre attendance in region i at time t. The independent variables include one lag and one lead of the dependent variable. Following Chaloupka (1991), Waters and Sloan (1995) and Yamamura (2009), the theatre ticket price for region i at time t ($Th\,\mathrm{Price}_{i,t}$) and one lag and one lead are added to the final model. $Incpc_{i,t}$ represents income per capita in the 20 Italian Regions. Z are other control variables such as: the ticket price for cinema (substitute or complementary good), the number of theatre performances, the number of individuals with compulsory or less education in the labour force and the number of tourists in the region. The cross price elasticity will reveal us if cinema can be considered as a complementary or substitute good for theatre attendance. As stated in chapter 2, the number of performances is included to allow for the effect of the short-run quantitative and/or qualitative supply constraints on demand. Moreover, education is expected to have a positive linear relationship with attendance: the higher the level of educational achievement, the higher the likelihood of a person attending performing arts activities. Finally, given the importance that today assumes the cultural tourism, the number of tourists is included because we believe that the number of tourist con increase theatre attendance.

3.5 Variables and descriptive statistics

In order to estimate theatre demand we use a pooled cross-section and time series data on 20 Italian regions over the period 1980-2009. Data are provided by SIAE and ISTAT.

The SIAE data provides the number of performances, number of tickets sold, box office expenditure, public expenditure and turnover per geographical area, region and kind of municipality (see second chapter for more details).

Variables utilized in this chapter are described as follows: theatre demand per capita, $ThAtt_{i,t}$, demand is captured by the number of tickets sold in one year in a region divided by the population size. Theatre price, $Th\,\mathrm{Price}_{i,t}$, represent the ticket price at the box office. The variable is the average expenses per theatre-goer, which is the ratio between the yearly total regional receipts and the yearly number of theatre-goers. We expect that theatre demand is negatively related to ticket price. The value added, $\ln Incpc_{i,t}$, is taken from the disposable income of families in the Italian regions (Il reddito disponibile delle famiglie nelle regioni italiane – ISTAT 2011). The expected sign is positive, given that theatre attendance is expected to be a normal good. The ticket price for cinema, $Cine\,\mathrm{Price}_{i,t}$, represents the ticket price at the box office. As for the theatre, the variable is the average expenses per cinema-goer, which is the ratio between the yearly total regional receipts and the yearly number of cinema-goers. The expected sign can be both positive or negative depending on whether cinema is substitute or complementary good for theatre. The number of theatre performances is also taken from the SIAE annual book. With the increase in the number of performances it is reasonable to expect that theatre attendance increase as well. The number of tourists is taken from the Capacità e Movimento degli esercizi ricettivi (2006 and 2007) survey. This monthly survey (also summarized in an annual version utilised in our work) is carried out at national, regional and provincial levels through a census that provides data on the flow of Italians and foreigners in Italy based on the daily declaration that the owners of tourist accommodation send to the local tourist board. The statistical information is collected by means of survey form, where the number of customers arriving and departing, their country or Italian region of residence, and the length of stay are reported. The objective of this survey is to quantify arrivals, stays and the average length of stay. Arrivals refer to the numbers of customers, Italians or foreigners, spending at least one night in any tourist accommodation in the period considered. Stays refer to the numbers of nights that customers, Italians or foreigners, spend in the accommodation. The ratio between presences (number of nights) and arrivals (number of customers) represents the average length of stay. Tourist accommodation includes hotels, motels, residences, camp sites, holiday villages, farm accommodation, holiday flats and houses, hostels, alpine refuges and so on. Also in this case the expected sign is positive, given that a

higher number of tourist should lead to an increase in theatre attendance (see next chapter for further analysis). Finally, population at regional level and total population, labour force and education of the labour force at regional level come from the annual survey on the labour force.

All monetary variables are deflated at 2010 price level index. Table 3.1 includes definitions of variables and source of data. Table 3.2 provides the sample summary statistics.

During the period 1980–2009 the market for theatre in Italy has experienced a gradual increase, although since 2005 there has been a decline. The evolution of the theatre's principal variables (number of performances and attendance per capita) in 6 of the main regions selected from the north (Lombardy and Veneto) the centre (Tuscany and Lazio) and the south (Campania and Sicily) can be seen in Figure 3.1 and 3.2 in Appendix.

Table 3.B1 (in appendix) reports the correlation matrix of our main variables. The correlation matrix for all the coefficients in the models shows that coefficients are not affected by multicollinearity. However, there is a strong correlation between some variables. But given that results from the myopic and rational addiction model are not significantly different we can conclude that correlation does not influence our results.

3.6 Results and discussion

The estimation of equations 3.4-3.6 may give rise to some misleading results and needs to be carried out with extreme caution. In fact, a problem may arise from the possible non-stationarity of the regressors and presence of leads and lags level of the dependent variable among the explicative variables. If the variables are non-stationary, the parameters on the lag value of the dependent variable are consistently estimated even in the presence of serial correlation in the errors (Gospodinov and Irvine, 2005). However, if theatre attendance is integrated of order 1 and is cointegrated with theatre price and income, so are its lags and leads. This implies that some linear combination of the regressors may be stationary and the remaining theatre consumption variable would pick up part of the autocorrelation in the process As a result, the estimation of the parameters on the past and future consumption that provide information on rational addiction as well as price and income elasticities may be highly misleading (Gospodinov and Irvine, 2005).

Our analysis starts by estimating a model with the variable in levels but, due to the possible endogeneity of past and future consumption and prices, an Arellano-

Bond GMM approach is adopted. Instruments are the two lagged value of the same variables. Table 3.3 presents the results obtained by estimating equations 3.4-3.6 with different specifications.

Columns 2 and 3 present the estimation of the myopic addiction model, columns 4 and 5 present the estimation of the rational addiction model (1) with only one lag and lead of the consumption variable. Finally, columns 6 and 7 present results for the rational addiction model (2) with lags and leads of both variables, consumption and prices. Signs and significance of the variables do not change across the three different specifications.

As predicted by the rational addiction theory, the signs of the $ThAtt_{t-1}$, $ThAtt_{t+1}$, $Th\,\mathrm{Price}_{t-1}$, $Th\,\mathrm{Price}_{t+1}$, $Incpc_t$ are positive, while the sign of $Th\,\mathrm{Price}_t$ is negative, all being statistically significantly different from zero (columns 6 and 7). The effect of past on current consumption is greater than that of future consumption. Current consumption is negatively and significantly correlated with current prices. Past and future prices have a positive and significant impact on current consumption. Other control variables (Z) give the expected sign. In particular, the cross-price elasticity of cinema is positive and statistically significant, confirming that cinema is considered a substitute good for theatre. The number of theatre performances variable is also positive and statistically significant. In fact, with the increase in the number of performances it is reasonable to expect that theatre attendance will increase as well. The percentage of individuals with a maximum of compulsory school level of education is negatively correlated with attendance. This is in line with the cultural goods literature stating that the more educated people are, the more likely they will be to attend a theatre performance. Finally, as regards the number of tourists in the region variable we can see that a greater number of tourists increases current theatre attendance.

In table 3.3 the myopic addiction model estimation (columns 2 and 3) is also reported; this shows that theatre consumption is an addicted good because past consumption raises significantly the marginal utility of current consumption. However, theatre consumption can produce rational addiction behaviour also if future attendance influences current attendance (second specification), and the estimation (columns 4 and 5) shows that both past and future attendance significantly affect current consumption. The introduction of past and future prices (third specification, columns 6 and 7) into the model demonstrates that Italian theatregoers are fully rational.

Following Dewenter (2003) the results are used to derive short (η_s) and long

run (η_l) price demand elasticities. These are reported in the lower part of Table 3.3. Theatre demand appears to be relatively inelastic in the rational addiction model (1) compared with the rational addiction model (2).

The following step of our analysis is to perform the stationarity test. We carried out the three stationarity tests. Levinet al., (2002) presented in table 3.B2 in appendix as LLC, assumes that each individual unit in the panel shares the same AR(1) coefficient, but allows for individual effects, time effects and possibly a time trend. The test may be viewed as a pooled Dickey-Fuller test, or an Augmented Dickey-Fuller (ADF) test when lags are included, with the null hypothesis that of non-stationarity (I(1) behavior). The second stationarity test that we provide is the Hadri (2000) test for stationarity in heterogeneous panel data. Our final test is the Im, Pesaran and Shin (IPS, 2003). This test allows for individual effects, time trends, and common time effects, based on the mean of the individual Dickey-Fuller t-statistics of each unit in the panel. The three tests have not the same null hypothesis. In particular the LLC and IPS tests have the null hypothesis of non-stationarity (I(1) behavior), while Hadri test has a null of stationarity. The different tests do not have the same results for all variables. However, if we combine all results we can see that the variables appear to be non stationary. Moreover, Sisto and Zanola (2005), estimating a rational addiction model for cinema demand, test the stationarity with the Im et al. (2003) test and the Levin et al. 2002 test and find that the result rejects the null hypothesis of non-stationarity for all variables; however they assert that in some cases the findings of these unit roots tests have proved to be highly sensitive to the specification of the number of the lags and the time trend. Banerjee et al., (2003) showed that both IPS and LLC tests suffered from low power and failed to distinguish between I(0) and I(1). Therefore, we proceed in our analysis by estimating the model for non-stationary variables.

We performed the cointegration test (results not reported) on our main variables. The test results indicate that there is no cointegration vector among the demand-side variables. Based on these results, we estimate the theatre demand function using the first differences of all the variables.

Table 3.4 reports the estimations of the same models presented in table 3.3 but takes into account the non-stationarity of the variables, thus the variables are expressed in first differences. The results of our main variables are no different in sign and significance compared with those proposed in table 3.3, however the coefficiencts are smaller especially for the future theatre attendance. As regards the other variables the variable, income per capita is significant only in the complete rational addiction

model, while the education and the price of cinema variables are not significant.

We have estimated two more models, one taking into account the possible heterogeneity present in our panel. The adopted methodology includes a number of panel time series estimators which allow for heterogeneous slope coefficients across group members, and correlation across panel members (cross-section dependence) developed by Pesaran and Smith (1995) and Pesaran (2006). These various estimators are designed for 'moderate-T, moderate-N' macro panels, where moderate typically means from around 15 time-series/cross-section observations. The estimation results are presented in Table 3.5. Also in this case the results seems to confirm a rational addiction behaviour. In fact, our main variables are always significant and of the expected sign. In particular, the effect of past on current consumption is greater than that of future consumption. Current consumption is negatively and significantly correlated with current prices. Past and future prices have a positive and significant impact on current consumption. Other control variables (Z) give the expected sign and also the education and price for cinema variables turned to be significant. More importantly, the variable trend that refers to a group-specific linear trend is always significant meaning that in our case a linear trend is present throughout various years and regions.

Finally, table 3.6 presents the results of the same model but this time it takes into account a linear and a dynamic trend. As we can see the linear trend is always significant but the dynamic trend is significant with a level of 10% only in the rational addiction model 1. This means that only a linear trend is present in our data. As regards the other variables there is a loss of significance across the three estimations.

In conclusion, our results confirm Becker and Murphy's (1988) rational addiction hypothesis. Nevertheless, a word of caution seems appropriate since we are aware that spurious results can be obtained when estimating the rational addiction model from aggregate time series data (Auld and Grootendorst, 2004). However, our results can be interpreted as confirmation of the rational addiction hypothesis since our model is identified precisely and does not impose any restriction.

3.7 Conclusion

One of the goals of this paper was to evaluate the principal determinants of the demand for theatre in Italy, given that little is known about this country as the majority of the studies have been conducted on U.S. data. We also aimed to determine the effect of past and future consumption on theatre demand. To this end, we

modelled theatre demand as represented by Becker and Murphy (1988), which turned out to be a suitable choice. Finally, we utilised different econometric techniques to take into account non-stationarity and heterogeneity present on our data.

In the rational addiction approach if a good is addictive the consumer, when choosing this good, also takes into account the possibility that an increase in current consumption will not increase future consumption but will shift her preferences towards the addictive commodity.

Our analysis of Italian theatre attendance, based on a panel data of 20 Italian regions for the years 1980-2009, provides support for the theory of rational addiction. In this paper we construct a new and reliable dataset, that up to now, have never been used to study cultural attendance. Also in this paper SIAE data has been used, that allows us to study the rational addiction model and to control for price in the demand function for theatre. While data on the main control variables were taken from various publications carried out by ISTAT. We have estimated three different specifications of our model. The first specification is estimated in order to check for the myopic addiction hypothesis. Results show that the theatre is an addicted good because past consumption significantly raises the marginal utility of current consumption. The second specification regards the rational addiction hypothesis, where future attendance influences current attendance. The estimated results show that both past and future attendance significantly affect current attendance. However, our complete specification with the introduction of past and future prices into the model demonstrates that Italian theatregoers are fully rational in line with Becker and Murphy's (1988) seminal paper and their choices are not made myopically. Moreover, the impact of past on current consumption is greater than that of future consumption. As regards the other variables we have found that cinema is a good substitute for theatre and that income and level of education significantly influence theatre attendance.

Figures

Figure 3.1: Number of performances - Theatre

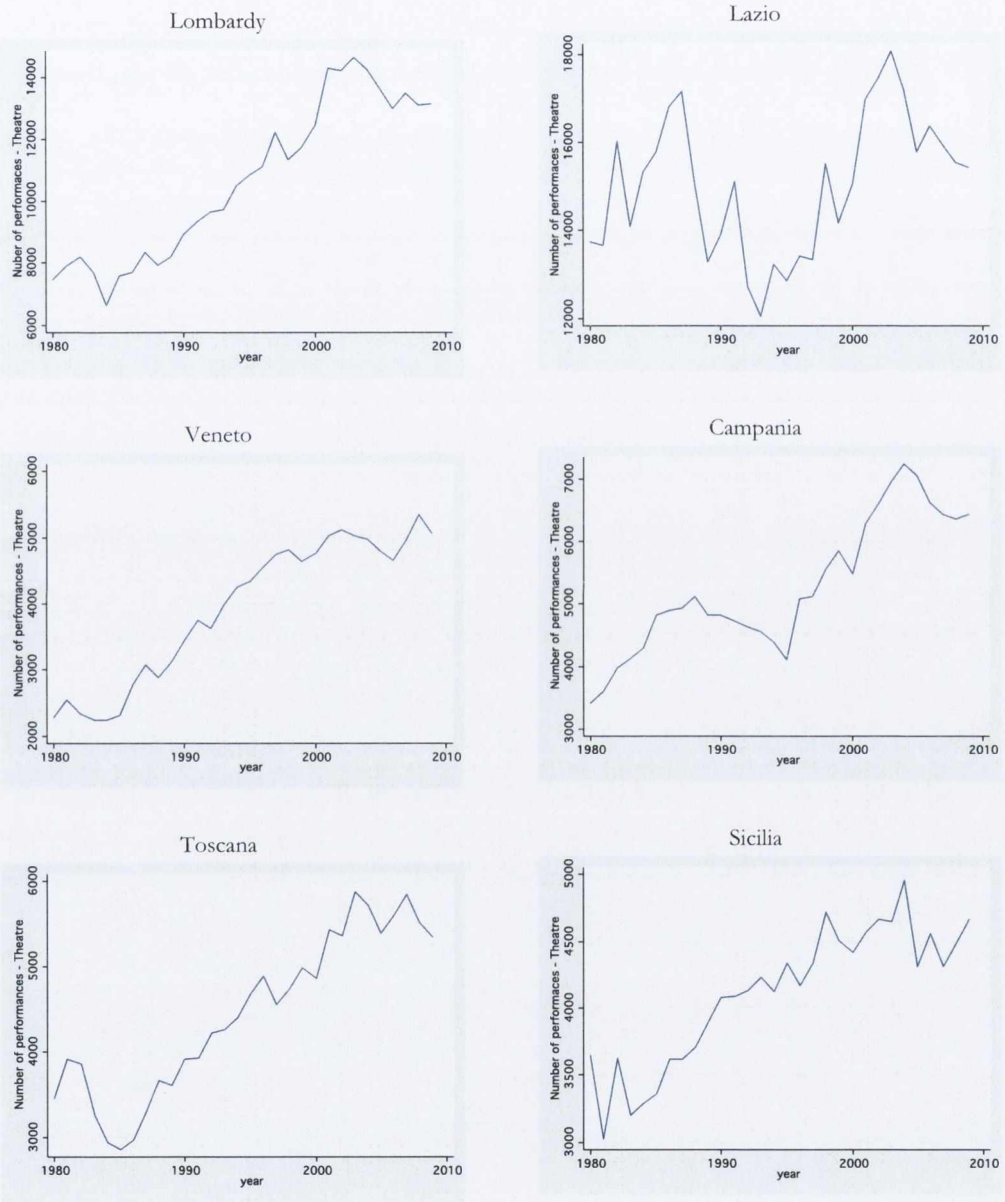
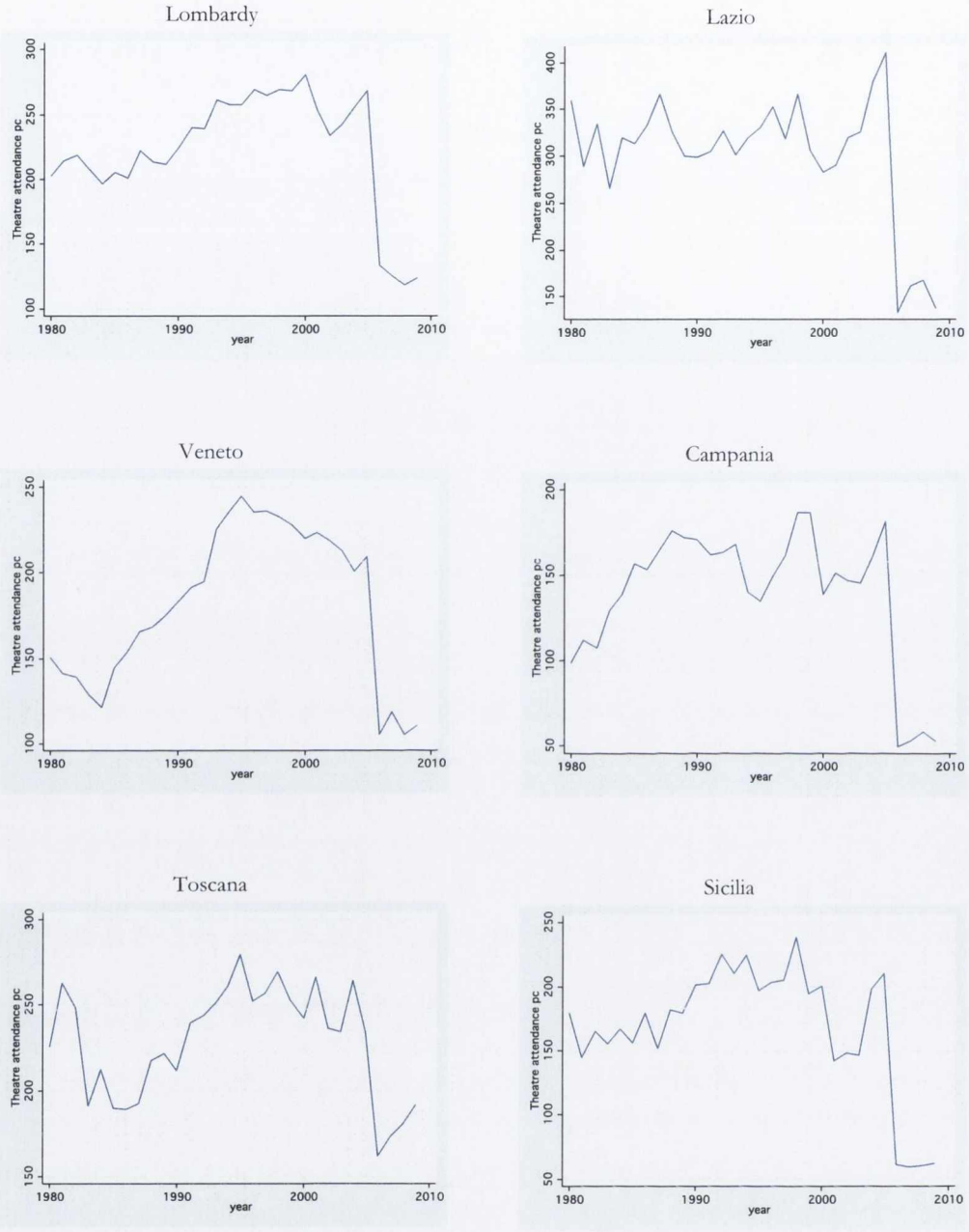


Figure 3.2: Theatreattendance per capita



Tables

Table 3.1: Data information

Variable	Definition	Source
ThAtt	Theatre attendance: per capita number of theatre tickets sold per year	SIAE-ISTAT
ThPrice	Theatre ticket price: ratio between total theatre revenue and theatre tickets sold	SIAE
Incpc	Value Added per capita	ISTAT
CinePrice	Cinema ticket price: ratio between cinema total revenue and cinema tickets sold	SIAE
ThNrPerf	Number of theatre performances	SIAE
Edu	Ratio of individuals with a maximum of compulsory school education on the labour force	ISTAT
Tur	Total presence of tourists	ISTAT

Table 3.2: Sample summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
lnThAtt	600	4.141	2.645	-5.767	6.827
lnThPrice	560	1.792	5.139	-9.979	16.034
lnIncpc	500	2.566	0.293	1.884	3.065
lnCinePrice	600	2.609	2.026	0.834	8.418
lnThNrPerf	600	7.469	1.365	2.833	9.802
lnEdu	600	6.036	1.070	2.944	8.029
lnTur	600	16.09	1.175	11.473	17.935

Table 3.3: Regression results on rational addiction model. Dependent variable lnThAtt(t)

	Myopic Addiction		Rational Addiction(1)		Rational Addiction(2)	
Variables	Estimated coefficient	SE	Estimated coefficient	SE	Estimated coefficient	SE
lnThAtt(t-1)	0.489	(0.116)**	0.344	(0.004)***	0.534	(0.008)**
lnThAtt(t+1)			0.26	(0.113)**	0.511	(0.202)*
lnThPrice(t)	-0.458	(0.003)**	-0.401	(0.006)**	-0.487	(0.005)**
lnThPrice(t-1)	0.296	(0.083)**			0.293	(0.006)**
lnThPrice(t+1)					0.139	(0.009)**
lnIncpc	4.165	(0.281)**	10.76	(0.636)**	1.956	(0.677)**
lnCinePrice	0.06	(0.007)**	0.182	(0.015)**	0.034	(0.007)**
lnTheNrPerf	-0.307	(0.128)*	-0.431	(0.318)	-0.38	-0.401
lnEdu	-0.736	(0.058)**	-1.804	(0.075)**	-0.291	(0.074)**
lnTur	0.234	(0.029)**	0.351	(0.051)**	0.146	(0.043)**
Constant	-5.038	(1.456)**	-16.724	(1.720)**	-3.002	-4.083
Arellano & Bond residual test						p-value
AR(1)	-4.2905	(0.000)	-3.152	(0.002)	-4.3641	(0.000)
AR(2)	-0.0011	0.9991	-.43977	0.6601	-1.1996	0.2303
Elasticities						
η_s			-0.359		-0.733	
η_l			-0.503		-2.761	
Observations	460		480		460	
Number of id	20		20		20	
Wald chi2	54304.83	(0.000)	176633.71	(0.000)	79315.77	(0.000)

Robust standard errors in parentheses

* significant at 5%; ** significant at 1%

Table 3.4: Regression results on rational addiction model with non stationary variables.
Dependent variable lnThAtt(t)

	Myopic Addiction		Rational Addiction(1)		Rational Addiction(2)	
Variables	Estimated coefficient	SE	Estimated coefficient	SE	Estimated coefficient	SE
lnThAtt(t-1)	0.021	(0.003)**	0.316	(0.032)**	0.651	(0.066)**
lnThAtt(t+1)			0.031	(0.005)**	0.023	(0.008)**
lnThPrice(t)	-0.019	(0.007)**	-0.63	(0.038)**	-0.561	(0.007)**
lnThPrice(t-1)	0.006	(0.002)***			0.016	(0.006)***
lnThPrice(t+1)					0.033	(0.005)**
lnIncpc	0.001	-0.001	0.015	-0.008	0.032	(0.005)**
lnCinePrice	-0.006	(0.003)*	-0.003	-0.005	-0.005	-0.007
lnTheNrPerf	0.148	(0.026)**	-0.493	(0.075)**	-0.432	(0.094)**
lnEdu	0.019	-0.015	0.083	-0.063	0.027	-0.066
lnTur	0.078	(0.008)**	0.083	(0.017)**	0.071	(0.027)**
Constant	0.019	(0.006)**				
Observations	460		480		460	
Number of id	20		20		20	
Wald chi2	752.01	0.000	3276.71	0.000	59885.65	0.000

Note: See table 3.3.

Table 3.5: Regression results on rational addiction model with heterogeneous slope.
Dependent variable lnThAtt(t)

	Myopic Addiction		Rational Addiction(1)		Rational Addiction(2)	
Variables	Estimated coefficient	SE	Estimated coefficient	SE	Estimated coefficient	SE
lnThAtt(t-1)	0.5	(0.005)***	1.351	(0.572)**	1.82	(0.667)***
lnThAtt(t+1)			0.398	(0.021)***	0.505	(0.018)***
lnThPrice(t)	-0.467	(0.010)***	-0.462	(0.016)***	-0.548	(0.018)***
lnThPrice(t-1)	0.256	(0.012)***			0.241	(0.010)***
lnThPrice(t+1)					0.139	(0.009)**
lnIncpc	0.062	(0.020)***	0.05	(0.024)**	0.053	(0.015)***
lnCinePrice	0.061	(0.009)***	0.145	(0.030)***	0.007	(0.028)
lnTheNrPerf	0.298	(0.554)	1.276	(0.882)	0.617	(0.542)
lnEdu	-0.911	(0.176)***	-1.552	(0.325)***	-0.145	(0.173)
lnTur	0.336	(0.104)***	0.776	(0.148)***	0.177	(0.094)*
Trend	0.095	(0.022)***	0.218	(0.031)**	0.054	(0.029)*
Constant	-1.549	(4.409)	-5.999	(6.38)	0.371	(5.599)
Observations	460		480		460	
Number of id	20		20		20	
Wald chi2	11145.32	0.000	1939.56	0.000	2360.17	0.000

Note: See table 3.3.

Table 3.6: Regression results on rational addiction model with heterogeneous slope and dynamic trend. Dependent variable lnThAtt(t)

	Myopic Addiction		Rational Addiction(1)		Rational Addiction(2)	
Variables	Estimated coefficient	SE	Estimated coefficient	SE	Estimated coefficient	SE
lnThAtt(t-1)	0.12	(0.031)**	-0.011	-0.006	-0.402	(0.010)**
lnThAtt(t+1)			0.031	(0.073)	-0.064	-0.054
lnThPrice(t)	-0.438	(0.105)**	-0.92	(0.005)**	-0.936	(0.007)**
lnThPrice(t-1)	0.123	(0.028)**			-0.376	(0.007)**
lnThPrice(t+1)					-0.341	(0.008)**
lnIncpc	-0.001	(0.005)	-0.003	(0.005)	-0.003	(0.007)
lnCinePrice	-0.001	(0.004)	-0.009	(0.007)	0.009	(0.007)
lnTheNrPerf	0.139	(0.045)**	0.207	(0.055)**	0.262	(0.106)*
lnEdu	-0.07	(0.049)	-0.06	(0.037)	0.1	(0.042)*
lnTur	0.042	(0.028)	0.034	(0.047)	0.061	(0.026)*
Linear Trend	0.484	(0.117)**	1.001	(0.009)**	1.001	(0.009)**
Dynamic trend	-0.001	(0.001)	-0.01	(0.004)*	-0.018	(0.01)
Constant	0.023	(0.011)*	1.484	(1.082)	0.729	-1.201
Observations	460		480		460	
Number of id	20		20		20	
Wald chi2	65.73	0.000	1939.56	0.000	2360.17	0.000

Note: See table 3.3.

Appendix B

Table 3.B1: Correlation Matrix of our main variables

	lnThAtt(t)	lnThAtt(t+1)	lnThAtt(t-1)	lnThPrice(t)	lnThPrice(t+1)	lnThPrice(t-1)
lnThAtt(t)	1					
lnThAtt(t+1)	0.8409	1				
lnThAtt(t-1)	0.2136	0.1425	1			
lnThPrice(t)	0.0345	0.1979	-0.5647	1		
lnThPrice(t+1)	0.0938	0.1729	-0.8667	0.7158	1	
lnThPrice(t-1)	0.0686	0.1862	-0.7263	0.8307	0.8529	1

Table 3.B2: Stationarity tests

		LLC		Hadri		IPS	
		variables in level	first differences	variables in level	first differences	variables in level	first differences
lnThAtt	coeff.	-0.2021	-1.5697	26.7780	1.8840	-1.6500	-4.8010
	p-value	0.9730	0.0000	0.0000	0.9686	0.2600	0.0000
lnThPrice	coeff.	-0.9389		54.6170	1.9630	-5.0210	
	p-value	0.0000		0.0000	0.9979	0.0000	
lnIncpc	coeff.	-2.1859		65.0760	0.2910	-1.3080	-3.6250
	p-value	0.0000		0.0000	0.0393	0.8400	0.0000
lnCinePrice	coeff.	-0.5720		23.1420	-0.7970	-2.8390	
	p-value	0.0000		0.0000	0.9958	0.0000	
lnThNrPerf	coeff.	-0.2759		55.0980	-2.1970		
	p-value	0.0000		0.0000	0.9997		
lnEdu	coeff.	-0.2158		50.1490		-1.9700	-4.5770
	p-value	0.0137		0.1135		0.0130	0.0000
lnTur	coeff.	-0.2486		37.4830	-2.9040	-2.1640	
	p-value	0.0000		0.0000	0.8703	0.0010	

Chapter 4

Cultural Participation, Tourist Flows and Cultural Capital: an empirical investigation of Italian Provinces

4.1 Introduction

Cultural tourism is perceived as an important economic driver and authorities endeavour to exploit this by fostering cultural activity in their respective countries or regions. Consequently, the attention given to the relationship between tourism and the cultural sector has recently increased significantly.[5] The research is, however, usually constrained to analyses of a single type of cultural activity (McKercher et al., 2005) and therefore any comparison of results across different cultural activities becomes very difficult. Furthermore, little is known on the relative importance of other activities, such as sports events, in attracting tourism. In this study we attempt to fill this gap and investigate participation in different types of cultural/leisure activity and tourist flows. We also shed some light on the differences in those relationships depending on the origin of the tourist.

Research considering tourism and cultural industries, highlights the reciprocal benefit that industries can gain from common strategies (Tighe, 1986; Hughes, 2002; McKercher et al., 2005). Other studies also focus on the influence of culture on tourist behaviour (March, 1997; Tohmo, 2005; Bracalente et al., 2011; Correia et al., 2011). Empirical studies investigate the relationship between tourism and a wide range of cultural experiences (Formica and Uysal, 1998; McKercher, 2002; McKercher et al., 2005; de Guzman et al., 2006; Stoddard et al., 2006; Kim et al., 2007).

The main contribution of this chapter to the aforementioned literature is the investigation of the association between tourist flows and the demand for a wide set

[5]Part of this chapter serves as the base of the publication: Borowiecki, K.J. and Castiglione, C. 2012. Cultural Participation and Tourism Flows. An Empirical Investigation of Italian Provinces, *Tourism Economics*, forthcoming.

of cultural/leisure activities. Knowledge of the role of various types of activities in attracting flows of tourists is important in order to develop effective policies (Richards, 1996). This work is also related to a recent study by Massidda and Etzo (2012), in which the determinants of domestic tourism in Italy are studied. By investigating patterns of the demand for entertainment by tourists our study focuses on the consequences, rather than causes, of tourism and hence, the insights are complementary to the work by Massidda and Etzo (2012). Furthermore, following the work of Garìn-Munoz (2009) which divides tourists into domestic and foreign, our model sheds light on the differences in demand depending on the origin of the tourist. This is particularly relevant in light of the influential article by Kim et al. (2007), in which the authors investigate the influence of personal traits on participation patterns by cultural tourists without, however, addressing the issue of the origin of such tourists. Finally, in this study we provide a rough estimation of the direct financial benefits that emerge from cultural tourism.

This study is, also, of relevance to the literature on cultural capital, as one of the main determinants of entertainment activities. Throsby (1999), in his seminal work in cultural economics, was the first to propose and formalize the notion of cultural capital, as "an asset that contributes cultural value". Localities with better cultural capital could be therefore characterised by their access to more advanced music education or music production technologies. Until now, however, the concept has been never adequately tested. Due to the lack of a reliable measure of cultural capital, education levels have sometimes been used as an approximation for cultural capital (e.g. Ateca-Amestoy, 2008). The use of education variables does not however allow us to disentangle the influence of human capital and hence such an approach provides only limited insights into the importance of cultural capital. Furthermore, little is known on the persistency or depreciation rate of cultural capital. Regarding the definition of cultural capital, the emergence of artistic talent might be used as perhaps a more reliable approximation of this variable. By using the frequency of births of classical composers over time, therefore, this study provides new insights into the long-run effect of cultural capital.

The empirical analysis is based on a panel of 107 Italian provinces for the two–year period 2006–2007. The data utilised in this research provides records of a large number of leisure activities (e.g. museums, theatres, concerts, sports, etc.). Those data has been linked with the number of composer births in each Italian province, as recorded in Grove Music Online (2011). Employing ordinary least squares methodology we provide reliable estimates and find a strong and positive association

between tourist flows and participation in cultural events. Tourist arrivals correspond with a significantly higher number of visits to museums, theatres, concerts and exhibitions and shows. The highest share of tourists among all visitors is detected for the exhibition and shows category: around one in three visitors is a tourist. Moreover, tourists account for around 12.8 per cent of museum visits, 4.4 per cent for theatre and 6.8 per cent for concerts. Other forms of entertainment, such as sports or multi-genre activities do not exhibit any significant relationship with tourist inflows, underlining the predominant role of cultural activities in attracting tourism. The findings indicate a very marked heterogeneity in demand for leisure activity depending on the origin of tourists. Domestic tourists tend to prefer theatre, while foreign tourists prefer museums and concerts. The exhibitions and shows category attracts both types of tourists.

Regarding the test of cultural capital we find a positive and significant relationship with historical composers and various kinds of cultural events such as museums, theatre or concerts. No relationship can be detected for other, non-cultural events, such as sport. The results seem therefore to point to the role of historical drivers of contemporaneous cultural demand.

There are several reasons for focusing on Italy. First, it is a country with a long and remarkable cultural history. As a result the supply of cultural goods is plentiful and varied. Second, the geographic distribution of cultural supply is very wide. More than 9 per cent of municipalities host cultural and historical goods of some interest (Ministero del Turismo, 1991).[6] This ensures that the estimates from cross–sectional analysis are reliable. Third, the SIAE provides databases for a wide set of entertainments that allow us to make comparisons between various activities.

Provincial governments have little involvement in cultural policies, although there are some exceptions such as the autonomous provinces of Trento and Bolzano (Bodo and Bodo, 2011). After the central government, the municipalities are the most prominent public actors on the cultural scene in Italy. Through their municipal departments for culture (Assessorati Comunali alla Cultura) they play an important role in the direct and indirect management of cultural institutions: museums and sites of cultural interest, archives, libraries, theatres etc (Bodo and Bodo, 2011).

The chapter is organized as follows: next section presents a review of the literature, followed by the economic model and empirical approach and data utilised. The final two sections discuss the results and conclude the paper.

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[6] The concentration goes far beyond the 'classical' Italian cities of art. The density of heritage structures in Italian provinces reaches 50 per km² in Siena, 46.2 in Grosseto and 42.4 in Latina (Ministero del Turismo, 1991). Note also that each province, the level at which this study is conducted, comprises of around 74 municipalities.

4.2 Literature Review

As shown in previous chapters the determinant of cultural participation has been studied in depth both at microeconomic and macroeconomic levels (see Bonato et al., 1990; Seaman, 2006; Ateca-Amestoy, 2008). The results of these studies have demonstrated that the main determinants of different kinds of cultural participation are income and education.

Economic analysis identifies three forms of capital: physical, human and natural. According to Throsby (2001) a fourth definition of capital can be added. Cultural capital can be defined as an asset "which embodies, stores or provides cultural value in addition to whatever economic value it may possess". Cultural capital may be tangible or intangible. In the first case it can have the same characteristics as physical or human capital. In the latter case, it occurs as intellectual capital in the form of ideas, practices, beliefs and values. Throsby (2001) disaggregates the concept of cultural value, describing the value of an artwork, into six categories: aesthetic, spiritual, social, historical, symbolic and authenticity. Among these the historical value is of greatest interest for our purposes, because it is able to provide a sense of continuity with the past.

According to Richards and Binink (1995), and in line with European Association for Tourism and Leisure Education (ATLAS), cultural tourism is defined as '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' (Bonet, 2003). Cultural tourism covers a wide range of activities such as visits to cultural festivals or cultural sites, longer tours constructed around a cultural theme (museums, performing arts centres, archaeological and historical sites, religious centres and zoos) and a combination of features focusing on historic, cultural and/or heritage elements (Throsby, 2001; Boyd, 2002; Bonn et al., 2007). The focus of economic studies rests, in particular, on the following three areas: the pull factor of different cultural attractions, the attributes of the cultural tourist and the identification of different segments of cultural tourists (Barbieri and Mahoney, 2010).

Research considering tourism and cultural industries highlights the reciprocal benefit that those industries can gain from common strategies (Tighe, 1986; Hughes, 2002; McKercher et al., 2005). Previous studies have demonstrated that cultural tourists are relatively well-off, better educated, older and are mainly female (Kim et al., 2007). Other studies focus on the influence of culture on tourist behavior (March, 1997; Tohmo, 2005; Bracalente et al., 2011; Correia et al., 2011). For example, Correia et al. (2011) demonstrate that the national culture influences directly the pattern of

vacation decision-making in various ways (quality, brand and price). Empirical studies investigate the relationship between tourism and a wide range of cultural experiences (Formica and Uysal, 1998; McKercher, 2002; McKercher et al., 2005; de Guzman et al., 2006; Stoddard et al., 2006; Kim et al., 2007). According to Cuccia and Rizzo (2011) cultural tourism accounts for an increasing segment of demand and this can reduce seasonal limitations in tourism. But they also show that the contribution of cultural heritage is rather limited in destinations close to the sea.

Differences in domestic and foreign tourism are also investigated in various studies (Papatheodorou, 1999; Massida and Etzo, 2012), for two main reasons, on the one hand domestic tourism is dominant with respect to international tourism in terms of both its size and economic contribution (Massida and Etzo, 2012). On the other hand, international tourism has become a mass activity in recent years, for several reasons: shorter working hours, greater individual prosperity, faster and less expensive travel, simpler bureaucratic procedures, the globalization of markets and the impact of advanced technology (Papatheodorou, 1999).

4.3 Economic Model and Empirical Approach

The main purpose of this paper is to investigate the relationship between demand for different types of leisure activities and tourist flows. The aim is to verify three hypotheses. The first one is that tourist flows have a different impact depending on the type of cultural event. The second hypothesis states that the different impact is also linked to whether the tourist is domestic or foreign. Finally, our third hypothesis is that rich cultural life in the past represents current cultural capital and consequently increases cultural participation in the present, together with tourist flows. In this work, the richness of cultural life in the past is measured by the number of births of important creative individuals (composers).

In cultural participation literature, education is often used as a proxy of cultural capital, and is found to be an important factor in determining cultural participation (see previous chapters). The association between composer births and contemporary cultural demand can be presumably linked to some unobserved factors (such as better education, higher demand in the past etc.). We can assume that such unobserved characteristics could have driven both composer births in the past and today's consumption of cultural goods. Campante and Glaeser (2009) show that human capital is important to explain the divergent path of cities, and high human capital is concentrated in the high amenity locations (Falck et al., 2010). Consequently,

in our case it could be that a high level of human capital stimulated interest in serious music (and consequently composer births) in the past and that this is the reason for higher contemporary demand for cultural goods.

In order to the three hypotheses two different specifications of our model are used. The first two hypotheses are tested by estimating the following specification:

$$Att_{pc,jit} = \alpha_0 + \alpha_1 Tourism_{pc,it} + \alpha_2 \mathrm{Price}_{jit} + \alpha_3 GDP_{pc,it} + \alpha_4 Year_t + \alpha_5 \mathrm{Re}\,gion_i + \varepsilon_{it} \qquad (4.1)$$

where attendance at leisure activities is measured by the number of admissions per capita to a leisure activity j in province i in year t ($Att_{pc,jit}$). The coefficient of major interest is α_1 which measures the relationship between per capita tourist flows to province i in year t ($Tourism_{pc,it}$) and the dependent variable. In this study we account for tourist intensity in two ways. First, we adopt a measure of tourist arrivals, that is the number of tourists who spend at least one night in another province. Second, duration of stay (i.e. the number of nights that the average tourist sojourned in another province) is taken into account. Furthermore, in order to account for varying sizes of provinces both tourist flow measures are expressed in relation to the population size of a province (e.g. $tourist\ arrivals_{it} / population_{it}$). According to Cellini and Torrisi (2009) tourism in Italy cannot be evaluated simply in aggregate terms without taking into consideration size and population, because in that case regions such as Veneto, Trentino Alto-Adige and Emilia Romagna would be the most attractive and Molise, Basilicata and Valle d'Aosta the least. The same applies at provincial level. For this reason, "it is meaningful to consider the presence normalised according to resident population or territorial sizes" (Cellini and Torrisi, 2009: 11). We account for varying prices of a performance by introducing the admission price (Price_{jit}) as a control variable and controls for GDP per capita, in order to account for wealth heterogeneity across provinces. As the Italian leisure activity database is available for two years at provincial level, 2006 and 2007, an indicator function equal to one for each of the two years is also included in the estimations.[7] In order to deal with unobserved geographical heterogeneity, we include a set of indicator functions that take the value of one for each of the twenty Italian regions ($\mathrm{Re}\,gion_i$). Finally, the model contains a robust estimation of variance (ε_{it}), which prevents any bias arising from the presence of outliers or heteroschedasticity.

[7]Out of sample estimation based on only one of the years is presented in the Robustness Section and delivers very consistent results.

As stated earlier we expect that tourist flows will vary depending on the different kind of cultural activities. For example, we expect that and higher tourist flows will increase all the considered cultural activities but with a different impact. Moreover, the influence will differ according to whether the tourist is a foreigner or an Italian.

As usual, the expected sign of the variable price will be negative (as also shown in chapters 2 and 3), given that a higher price will decrease attendance as happens for other goods. The same holds for the variable GDP, we expect that higher GDP will increase attendance. Finally, cultural attendance will be different in the 20 Italian regions.

In order to test our third hypothesis and then to investigate the relationship between contemporary cultural demand and the presence of classical composers in the past, we add a new variable to the previous model. Consequently the equation to be estimated will be:

$$Att_{pc,jit} = \alpha_0 + \alpha_1 Tourism_{pc,it} + \beta_1 HistComp_{it} + \alpha_2 \text{Price}_{jit} + \alpha_3 GDP_{pc,it} + \alpha_4 Year_t + \alpha_5 \text{Re}gion_i + \beta_2 Z_{it} + \varepsilon_{it} \quad (4.2)$$

Equation (4.2) models attendance per capita, measured by the number of admissions to a cultural activity j in province i in year t ($Att_{pc,jit}$) depending on the number of composer births in the past ($HistComp_{it}$).[8] In this equation we also add a set of control variables (Z_{it}): female and male population and age categories. Finally, the variables will take into account only the working population. For this reason our age categories are divided in: 15–19; 20–24; 25–29; 30–34; 35–39; 40–44; 45–49; 50–54; 55–59; 60–64; 65–69; and over 70s. As explained in chapter 2, we are expecting that females participate more than males in cultural activities and also we want to verify whether participation increases with age.

Both specification are estimated using ordinary least squares methodology.[9]

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[8] In the baseline specification we count all composer births that are recorded in the Grove dictionary. We have also tried to include composers from sub-periods and found consistent results.

[9] Since the dependent variables take only positive values, we have also tried alternative estimation techniques, for example a Tobit Model with a left-censoring limit set equal to zero. The results are reported in Appendix C – table 4.C1 and are found to be very robust . Since the lower limit of the dependent variables is not imposed by us, but by nature of the underlying data, Ordinary Least Squares estimations perform in general sufficiently well as long as the distance between two values of the dependent variable is constant over the whole range. This seems to be the case in this research setting.

4.4 Data, variables and descriptive statistics

The data used in this analysis comes from four sources: SIAE, the Ministry of Cultural Heritage and Activities, ISTATand Grove Music on line (2011).

The SIAE data are taken from the "Annuario dello spettacolo" (The yearbook of entertainment activities) 2006 and 2007, those data show the number of performances, number of tickets sold, box office revenue, public expenditure and turnover per geographical area, region and type of municipality (for more details on SIAE dataset see chapter 2).

This dataset is complemented by records on museum attendance (number of visitors and revenue) provided, at provincial level, by the Ministry of Cultural Heritage. Museums are divided into paying and non-paying. Data on the number of visitors for museums that charge for admittance are collected based on the numbers of tickets issued, while for the free museums estimations are based on registers or a countingdevice. The content of each entertainment activity variable is further described in Table 4.1.

Data provided by ISTAT come from different sources. Arrivals and stays for Italians and foreigners are taken from the Capacità e Movimento degli esercizi ricettivi (2006 and 2007) survey (see chapter 3 for more details on this survey). Population at provincial level has been obtained from the annual survey on the labor force (Indagine sulle forze lavoro – ISTAT, 2007 and 2008). GDP istaken from disposablehouseholdincome in Italianregions (Il reddito disponibile delle famiglie nelle regioni italiane – ISTAT 2011). The price index is taken from the publication of the value of money 2007 in Italy (Valore della moneta in Italia - ISTAT 2009).

Finally, the composer data is based on all composers born in Italy and recorded in Grove Music Online (2011). The chosen encyclopaedia is the leading resource for music research and contains more than 50,000 signed articles and 30,000 biographies. In order to obtain the data set, we employ a purpose-built Java application that automatically extracts and processes information. The aim of the application is to extract information from Grove music online through a search for all composers stored in the dictionary.[10]

The acquired information is then processed to provide the full name, place and date or birth/death, nationality and list of occupations. Second, a word count is calculated for all the sections - that is life, works, bibliography and writings - in the result pages. Third, each entry is scanned to count the occurrence of predefined terms

[10]Refer to Borowiecki and O'Hagan (2011) for a detailed description of the obtained database.

in several categories, such as, for example, geographical locations, musical instruments or types of works.[11]

Table 4.2 presents summary statistics of the variables used in the analysis. Panel A reports the admission rates to various entertainment activities. Theatre performances are the most popular and have been visited by around 2.2 people per each resident in a province. Museums and dance and concertinos have been visited each year by around 6 tourists per 10 residents in a province, followed by exhibitions and shows, sports, touring amusements and concerts. Panel B reports the summary statistics for our explicative variables. It can be observed that, on average, each province has been visited by around 884,000 tourists in a year that stay at least one night (arrivals). The average length of stay is approximately 4 nights. Around 491,000 tourists (55.5 per cent) come from other parts of Italy, while the remainder come from abroad.

Figure 4.1 presents the geographic distribution of arrivals in Italian provinces. The distribution is marked in different shades of blue, where provinces that have seen higher tourist inflows are marked with a darker shade. It is interesting to observe the high degree of heterogeneity in the arrivals.[12] Several provinces in northern Italy have been extensively visited, especially the regions of Lombardy and Emilia-Romagna, but also central Italy provides popular destinations, in particular in the Lazio region, as well as certain parts of Campania, Calabria and Sicily in the south. There is also a large number of provinces, spread quite evenly across the map of Italy, that are rarely ever visited. The distribution of participation in various types of leisure activity (see Figure 4.2) is quite heterogeneous, though more concentrated in the northern provinces. It can be observed that some contiguous provinces show a very different demand of entertainment activity. Some similarities with the tourist flows can be observed, for instance, the clustering of admissions for leisure activities in northern-central Italy.

All in all, the conducted geographical inspection is important for two reasons. First, the figures provide some tentative evidence on the comparability of the patterns of concentration of tourist flows and participation in entertainment activities. Second, we observe a certain degree of heterogeneity across Italy for each of the variables. This allows us to statistically exploit this cross-sectional variety in order to detect a more meaningful association between tourist flow and demand for entertainment.

Preliminary evidence on the positive association between demand for entertainment and tourist arrivals in Italy is shown in Figure 4.3. The diagram provides

[11]Refer to Borowiecki and O'Hagan (2011) for details on the procedure and preliminary analysis of the obtained data.

[12]A similar picture would emerge if one looked at the total duration of stay of tourists (not reported).

some indication of the heterogeneous demand for leisure activities depending on the origin of the tourist.

Figure 4.4 shows the births of Italian composers. The Figure shows that before the year 1600 the births of Italian composers grow exponentially, decreasing slowly thereafter. However, it is important to highlight that most famous composers where born after the year 1600, such as Vivaldi, Verdi or today's Ennio Morricone.

4.5 Empirical Results

4.5.1 Main Results

The association between admission to various types of entertainment and tourist flows (first hypothesis) is reported in Table 4.3. Panel A reports the coefficients for tourist arrivals to a province while Panel B summarizes the results for tourist stays (i.e. duration of stay). The correlation-coefficient between tourist arrivals per capita and the number of admissions to museums is found to be positive and highly significant. This implies that an arrival of one additional tourist corresponds with a 0.0765 higher admission rate per citizen/resident. Moreover, around every thirteenth tourist visited a museum. Given the average admission rate of around 0.59 per capita (compare Table 4.2) the results suggest that 12.8 per cent of museum demand is from tourists. The coefficient for theatre is equal to 0.091 and implies that every eleventh tourist participated in such activity, which accounted for 4.2 per cent of the overall theatre admissions. The increase resulting from tourist arrivals for concerts is equal to 0.0093, which means a share of around 6.6 per cent of the total concert attendance. The largest admission rate increase can be observed for the exhibitions and shows category: an additional tourist arrival is associated with a 0.085 higher admission rate which corresponds with a high 33.7 per cent of the total visits to exhibitions and shows. The relationship between attendance to the dance and concertinos with tourist arrivals implies that every sixth tourist attended such an activity.[13] The coefficients for the remaining categories are positive, though statistically insignificant. In Panel B it can be observed that the duration of tourist stays variable is found to be positively correlated with each of the studied entertainment activity admission rates. Statistically significant associations can, however, be detected only for the exhibitions and shows

[13]The 'dance activities and concertinos' category includes dance or music performances that are not the main element of appeal for customers (e.g. live piano performance at a bar). As it is not possible to disclose whether it was the quality of the performance or other factors, such as, for example, the quality of the staff working at the bar that attracted the customer, we do not devote much attention to this category and only report the results for consistency.

and for dance and concertinos. Each additional night spent implies a higher admission rate of 0.015 to an exhibition or show. This coefficient suggests that, on average, every tenth tourist who stays a week in a province would attend this activity.

The results of the estimation of our second hypothesis are reported in Table 4.4. In particular, the table displays the results in which we disentangle tourist flows by their origin and differentiate between domestic (i.e. tourists from a different Italian province) and foreign tourism (i.e. tourists from abroad). It can be observed that the significant positive association between tourist flows and admissions to museums persists only in the case of foreign tourists, both in terms of arrivals and duration. Almost every fourth foreign tourist has visited a museum and the probability of such a visit increases by 3.6 per cent for every additional night stayed in the province. The point estimates for theatre remain significant only for domestic tourists indicating that it is primarily Italians who demand such attractions: close to one in five tourists visits a theatre during their stay and this probability increases by 2.5 per cent for each additional night. The relationship between admissions to concerts and tourist flows prevails only for arrivals and duration of foreign tourists. Around 2.5 per cent of foreign tourists attend a concert performance and are more likely to do so if they stay longer. Once again the point estimates increase when compared to the aggregated tourist demand, and are highly significant. The correlation between admissions to exhibitions and shows remains positive and significant for Italian as well as foreign tourists, with an attendance rate approximately twice as high for domestic tourists. The results further indicate that Italian tourism inflows reveal a significantly positive relationship with admissions to touring amusement activities; however the probability of attending such attractions does not increase with the duration of stay. Italian tourism also evidences somewhat higher attendance to multi-genre activities, although the estimates are carried out with little precision. Activities covered in the sports category do not attract any additional tourist inflows.

The results of our third hypothesis are presented in tables 4.5 and 4.6. In particular, table 4.5 shows the admission of 8 types of cultural activities and tourist flows, cultural capital and other control variables. As before, panel A consider tourist arrivals while panel B tourist stays. In panel A the correlation-coefficient between composer births and the number of performances categorized under 'theatre activities' is positive and significant. Its magnitude is equal to 0.0568, and indicates that each composer birth is associated with higher theatre admissions. The coefficient remains positive and highly significant for the association with concert activities, suggesting a higher number of concerts in provinces where a greater number of composer births

have been recorded. The third column depicts the relationship between composer births and the 'concerts' category. The emerging coefficient is once again positive and significant, suggesting that more concerts are held in provinces with a higher composer birth rate. The negative coefficients is found to be statistically significant in the case of 'dance and concertinos', suggesting some type of a substitutive relationship between composer births and this type of cultural activity. The coefficient is not significant in the other cases. If we compare our results with those obtained for the estimation of equation 4.1 we can see that the sign and the significance of the other variables does not change. In panel B the tourism variable does not change sign and significance compared with the estimation presented in table 4.2, while the cultural capital variable is positively significant for museums, theatre, concerts and exhibition and shows, while it is not significant for other kinds of cultural capital.

If we disaggregate tourists into Italians and Foreigners we can see that cultural capital is always positively statistically significant for museums, theatre, concerts, touring amusements and multi–genre in the case of domestic tourists, and the magnitude is always higher for museums. In the case of foreign tourists the cultural capital coefficient is always positively significant in the case of museums, theatre and multi–genre; in this case once again the highest coefficient is for museums.

In general, these results show that the birth rate of composers listed in Grove Music Online (2011) is positively related with admissions to cultural events such as museums, theatre and concerts, but not to any other type of leisure activity (e.g. dance and concertinos and sports). It seems, therefore, that contemporary cultural demand has a strong relationship with historical culture-related factors.

4.5.2 Robustness Tests

In order to ensure the reliability of our results, we conduct a series of robustness tests, where we will consider both models presented in equation 4.1 and 4.2. The point estimate on the number of nights a tourist stays in a province (Tourist flows-stay) might not adequately capture the duration of a stay. This could be particularly the case if the relationship between duration of a stay and participation in some form of public entertainment was not linear. For this reason we estimate two further specifications of equation 4.1 in which we include an additional quadratic term, in order to allow for decreasing returns, or the variable being recorded at its logarithm. The emerging results are reported in Table 4.C2 and are in general coherent with our previous conclusions. Another way of estimating the importance of tourist flows is by including

both measures employed in this study in one model. The results of such specification are presented in Table 4.C3. The role of tourist flows is found to be particularly strong for museums, theatre and concerts. Each tourist arrival corresponds positively with the admission rate to those forms of entertainment. The relationship is, however, negative with the duration of stay, providing some indication of decreasing returns. No other category has a significant association with tourist flows, which reconfirms the predominant role of cultural activities in attracting tourism.

The data-set contains records for two years and a dummy variable is included in order to account for temporal variation. Such an indicator would not capture the time-variation if, for some reason, there occurred equal changes in the dependent and the tourist flow variable. It is quite unlikely that any large cointegrated movements would occur in those variables during the short time span of one year. Nonetheless, we re-estimate the model for each year separately. The results are reported in Tables 4.C4 and 4.C5. It can be observed that the coefficients are very robust in sign, size and significance for both years.

The divergence between the northern and southern part of Italy is believed to be quite marked and might not be sufficiently captured by the regional indicator variables introduced. For this reason we include additional dummy variables in order to take into account whether a province is located in the north, centre or south (including the islands). The point estimates are summarized in Table 4.C6 and provide very consistent findings.

Some previous studies suggest a strong relationship between tourist flows and heritage sites (e.g. Borg and Costa, 1996; Murrillo et al., 2008). In order to control for the impact of such sites on tourist flows, we obtained data on the number of UNESCO world heritage sites (UNESCO, 2012) and on archaeological and cultural sites for each Italian province provided by the Ministry of Cultural Heritage and Activities. Places of culture include museums, monuments, archaeological sites, archives, libraries and theatres. The UNESCO World Heritage List includes 936 properties all over the world forming part of the cultural and natural heritage which the World Heritage Committee considers as of outstanding universal value. These include 44 cultural and 3 natural sites in Italy. Additional specification with controls for those sites are estimated and presented in Table 4.C7 to 4.C9. It is encouraging to observe that the results remain unchanged.

In the case of the model presented in equation 4.2 we estimated the model in two more specifications: in the first case we add age categories as illustrated in section 4.3 (Economic Model and Empirical Approach) and the female and male population.

Results are presented in tables 4.C10–4.C13. These two specifications are estimated both when we consider total tourists and when we disaggregated for domestic and foreigners. The results are not statistically different from those obtained in the previous estimations, meaning that our results can be considered robust.

A word of caution regarding our results is necessary, given that the variable measuring tourism flows does not take into account day-visitors. In fact, a tourist could travel through a province without staying overnight in it and yet visit a museum or attend an entertainment event. Country-wide records on the extent of day-visitors are not available and in similar research settings are usually based on "touristicity rate", a ratio between tourism arrivals and habitants (Istituto Tagliacarne, 1992, Cellini and Torrisi, 2009). In the underlying study a similar coefficient is being calculated and utilised, as an approximation of the overall tourism flows to a province. This proxy would be biased if day tourists were choosing consistently different provinces for their visit than tourists staying at least one night. While it is possible that some tourists stay overnight outside the location that offers cultural attractions, it is quite unlikely that they would stay outside the province.

It is nonetheless possible that some tourists travel through Italy and that they participate also in some entertainment activities during this travel. Since the investigation is conducted at province level, the distances across three adjoining provinces are somewhat large to be covered within one day. The distance to be covered would be even more extreme, if the analysis was conducted at the region level. Therefore, in a further robustness test, we have aggregated all observations over the twenty regions of Italy. Those estimations have delivered consistent results. Obviously, travel through two or three regions within one day is technically possible, given however the sample of tourists under observation – usually people on vacation, who are consuming their leisure – such intense and tiresome travels are rather unlikely. We have also exploited further any arising bias by dropping provinces with the smallest geographical surface, as such provinces are arguably most likely to be travelled through in one day. The results are found once again to be consistent.

4.5.3 Discussion

Results show that museum attendance is primarily driven by cultural capital and foreign tourism, which could reflect a higher interest in Italian culture by international tourists (Lynch et al., 2011). In addition, many museums across Italy have very similar exhibitions and are presumably less attractive for Italian tourists. For example, the life

and works of Leonardo da Vinci are exhibited, among other places, in the Museo Leonardiano in Vinci, Museo Leonardo da Vinci in Florence, National Museum of Science and Technology in Milan or Museo il Genio di Leonardo da Vinci in Venice. Foreign tourists are more likely to be unique visitors (i.e. visiting for the first time) and, therefore, more interested in museums, as opposed to returning visitors who have probably visited a museum already during their previous stay.[14] This argument would not apply to a theatre performance, as the repertoire changes on a regular basis, hence attracting recurring visitors. The positive association between admissions to the theatre and Italian tourists could also be due to the language barrier that prevents many foreign tourists, from understanding some events, particularly theatre or comedy shows. In addition, some performers might be known to the Italian audience from television and hence be particularly attractive for domestic tourists. Also the marketing of theatre events usually takes place in media that are not easily accessible to foreign tourists, for example, in daily newspapers or magazines. On the other hand, concerts are an attractive option even for those who do not speak Italian. Concerts are also more likely to be advertised in publicly visible areas, such as on wall posters or street banners. Moreover, the legacy of classical composers might constitute another significant factor in attracting foreign tourists.[15] A significant association between tourist flows and admissions is found for the exhibitions and shows category. This category usually covers large events, such as cultural exhibitions and trade fairs, and therefore it is primarily targeted at tourists from outside the province. Exhibition and shows are however organised on irregular basis and associated with substantial preparatory and marketing costs. Activities encompassed by the touring amusements (e.g. amusement parks) and multi-genre (e.g. open-air shows) are of much less importance and possibly of significance only within the region.

Cultural capital is important to determine visits to museums, theatre, concerts, touring amusements and multi–genre activities for domestic tourists. As regards foreign tourists, cultural capital is important in determining visits to museums, theatre and multi–genre activities. The other variables (i.e. sex and age categories) play the normal role.

One important question concerns the economic benefit of the observed tourist flows. Tentative evidence on the relationship between GDP in a province and

[14]We do not have however data on whether a visit occurred for the first time or whether it was a returning visit. Therefore investigation of this hypothesis is left for future study.

[15]Many international tour organisers provide classical music tours to places in Italy that have played a role in the history of classical music. Note, that Italian provinces were the main center for classical music over a period of around two centuries during the Renaissance (Borowiecki and O'Hagan, 2012).

tourist arrivals is shown in Figure 4.5. As one would expect the association is positive with a correlation coefficient equal to 0.49 and significant at 1 per cent level. While little can be said on the causal relationship, this figure provides some indication of the economic importance of tourism. One can further conduct an exercise to approximate direct revenues from tourism in terms of ticket sales for cultural events. In Table 4.7 we acquire the average number of tourists who participated in each cultural activity per province by multiplying the number of tourist arrivals with the point estimates obtained from our model (presented in Panel A of Table 4.3). Using the estimated tourist attendance and multiplying by the average ticket price, one can obtain the average direct revenue per cultural activity per province. Relating the obtained revenues from tourist arrivals to the overall revenues of each of the categories, the relative importance of tourism-related direct revenues can be approximated. The weighted average contribution of tourists account for a non-negligible 6.1 per cent of total revenue. This contribution towards total revenues from tourist arrivals varies between 4 per cent for the theatre and 15 per cent for museums. This is however the lower-bound estimate, as other possible types of revenue, for example, from sales in souvenir shops, museum cafeterias or theatre bars, have not been considered. In addition, revenues from ticket sales are only of minor importance, as many of the studied activities can be free of charge. There is, for instance, no entrance fee to 46 per cent of museums or 70 per cent of art galleries in Italy (ENIT, 1992). It is beyond the scope of the present work to account for revenues earned in related sectors (e.g. the service industry).

4.6 Conclusion

This work contributes to the growing literature on tourism and cultural activities. It adds to that strand by investigating the association between tourist flows and attendance at various types of entertainment. Using data for Italian provinces we find a particularly strong and positive relationship between tourist flows and participation in cultural events. Tourist arrivals correspond with a significantly higher number of visits to museums, theatre and concerts, as well as to exhibitions and shows. Other types of public entertainment, such as sports or multi-genre activities do not exhibit any significant relationship with tourist inflows, implying the predominant role of cultural activities in attracting tourism. Demand for leisure activities is found to be very heterogeneous and dependent on the origin of tourists. Domestic tourists participate primarily in theatre, while foreign tourists are more inclined to visit

museums and attend concerts. Exhibitions and shows attract both types of tourists. This paper further provides a tentative analysis of the benefit from tourist participation in cultural activities in terms of revenue. The results indicate that at least 6 per cent of the revenues from ticket sales can be attributed to tourism. This is nonetheless only an approximation and a lower-bound as it does not account for, for example, revenues from other services provided, such as shops, cafeterias or audio-visual aids. Furthermore, revenues in related sectors (e.g. hospitality industry) remain unobserved.

The main contribution of this paper is the compilation, in a systematic way, of a framework in which the relative importance of a wide range of cultural and non-cultural activities can be compared and brought in relation to tourist flows. While it could be maintained that much of the evidence in this paper might seem to be well established already, at least in a general sense, we would argue that this is not the case in a number of respects. First, the accepted wisdom that cultural attractions stimulate tourist inflows lacked detailed information on exactly what type of cultural activity is the most meaningful in explaining a high rate of tourism. In order to illuminate the relative importance, a comparable set of data and a consistent research setting is necessary, which is provided in the present study. Second, there does not appear to have been any previous systematic documentation of the role in attracting tourism of non-cultural activities, such as sporting events.

The innovative association between cultural capital and the births of classical composers is proved to be realistic from our results. In our opinion the births of classical composers in a province is a more suitable proxy than the level of education that is generally used. This is mainly because the birth of classical composers may increase the cultural capital of an area through local festivals, exhibitions and similar events. And this captures those aspects of cultural capital that are not visible in the education variable. As for the results, cultural capital has turned out to be important especially for museums, theatre, concerts, exhibitions and shows and multi–genre participation.

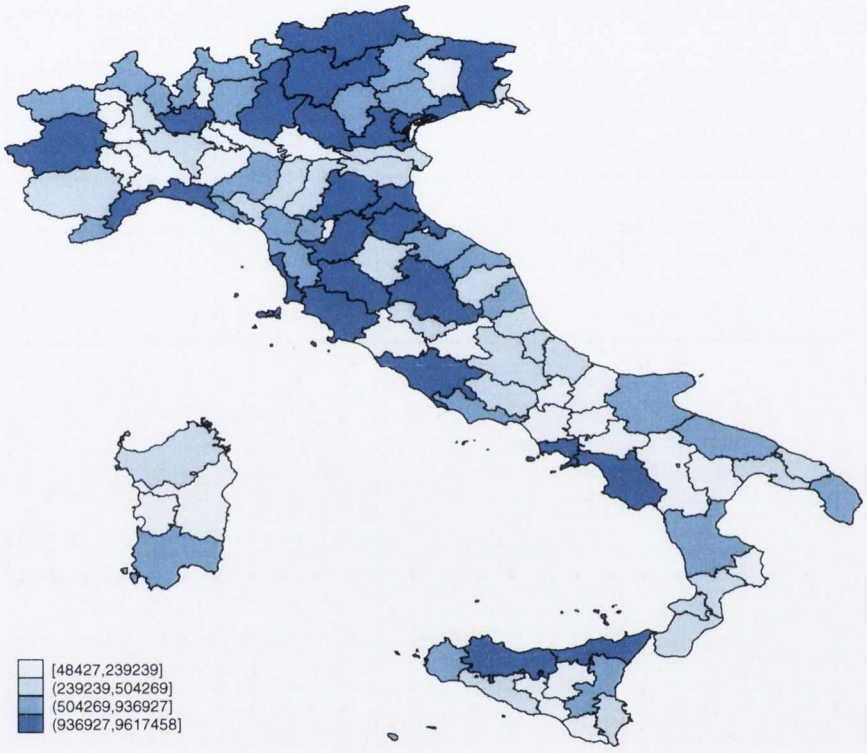
However, a word of caution should be spent regarding our results. It is important to highlight that the underlying data does not take into account day-visitors. This is because of the way the records utilised have been obtained (i.e. from owners of the tourist accommodation where a guest stayed at least one night). As a result our data might be biased against Italian tourists, since they are presumably more likely to travel for one day only. That said, the share of day-visitors is potentially limited compared to the total number of tourists. For these reasons, any bias arising would

appear to be of minor importance.

Turning to policy implications, the emerging findings imply the predominant role of cultural activities in attracting tourism. As such this study provides important empirical support for qualitative arguments in previous research highlighting the increasing significance of cultural tourism in Europe (e.g. Richards, 1996). Future planning of policies stimulating tourist inflowsmight be more effective if focus is placed on the further development and improved marketing of cultural activities. Policy makers involved in marketing particular destinations should, however, bear in mind the heterogeneous demand of tourists depending on their origin. In particular, provinces with a rich supply of theatrical events could presumably find it easier to attract domestic tourists, while provinces with a good museum or concert supply might benefit more if focus is put on tourists from abroad. One way to promote cultural activities is to foster museums in locations with a higher share of international tourists, whereas supporting theatres might be advisable in places with more domestic tourists. In cities with a long tradition of tourism, such as Florence, Rome and Venice, culture can be promoted by fostering both museums and theatres. However, given that museums are visited less often by the domestic tourist, it might be a good strategy for museums to promote one-off or temporary exhibitions. Further research investigating efficient marketing strategies and specific case studies is required in order to design best practices for attracting cultural tourism.

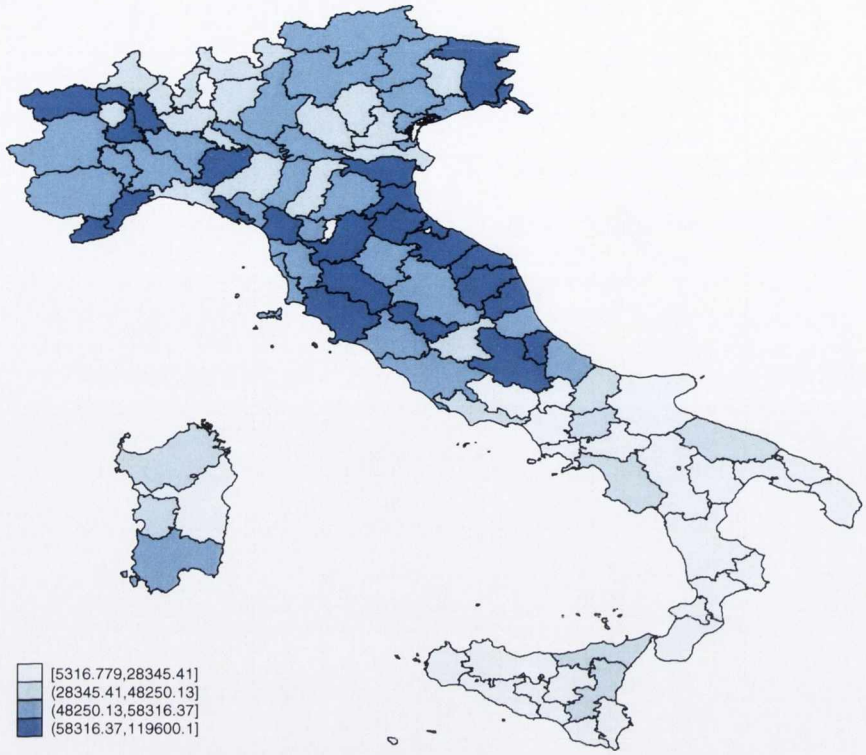
Figures

Figure 4.1: Tourist arrivals to Italian provinces



Note: The number of tourist arrivals is calculated as the average for the years 2006 and 2007

Figure 4.2: Admissions in Italian provinces



Note: The number of admissions is calculated as the average for the years 2006 and 2007

Figure 4.3:Admissions and tourist arrivals (Italian provinces, 2007)

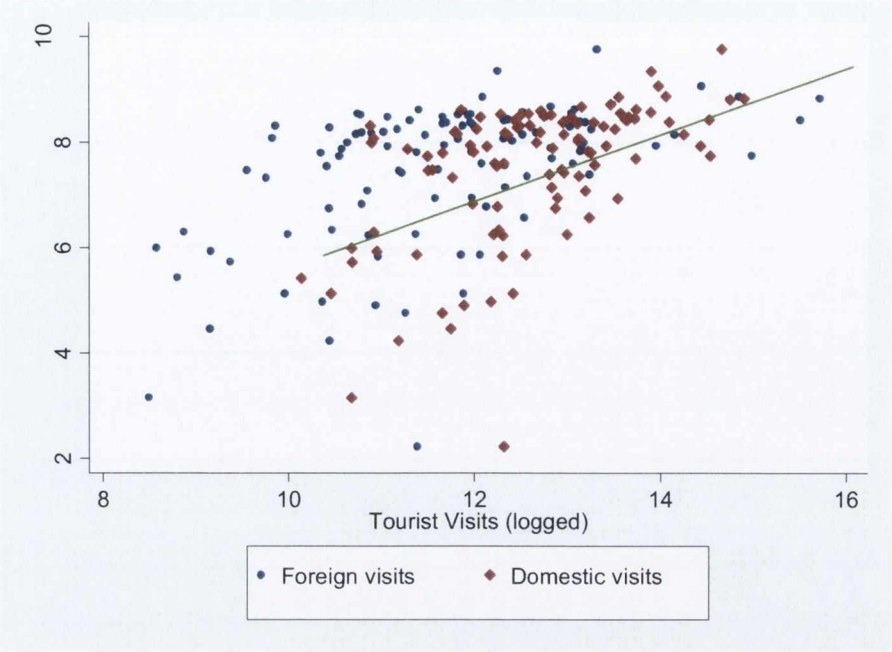
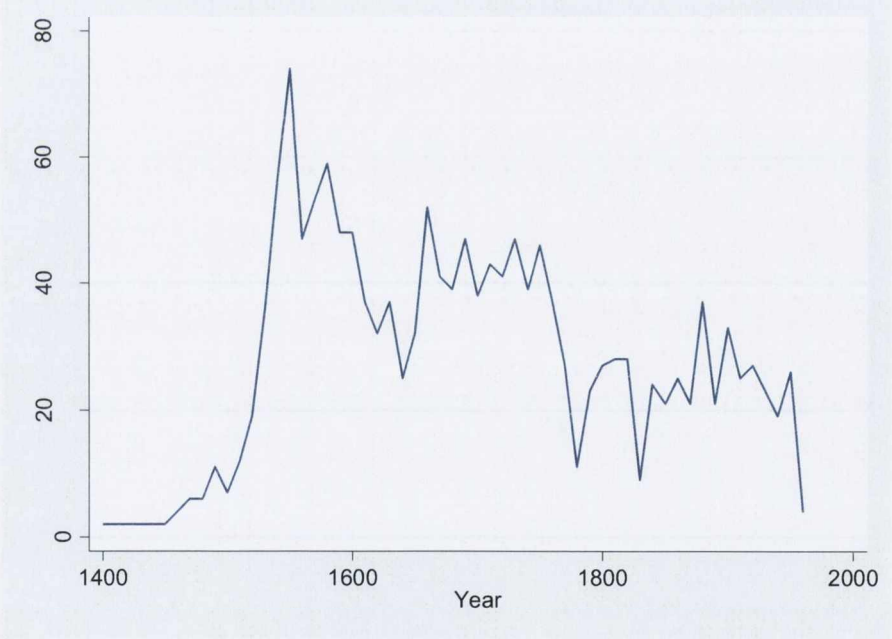
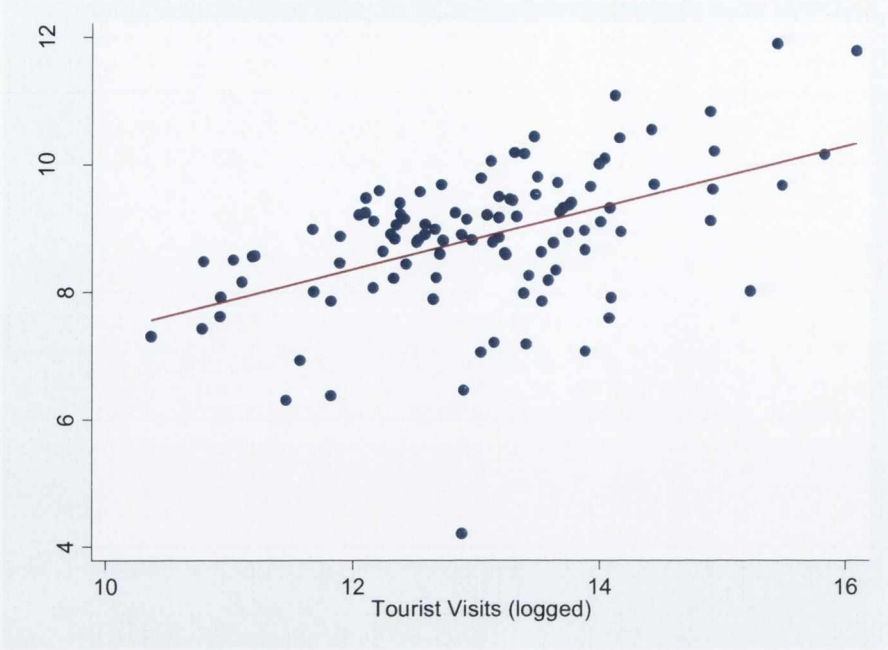


Figure 4.4: Births of Italian Composers



Note: Figure depicts composer births in Italy per decade

Figure 4.5: GDP and tourist arrivals (Italian provinces, 2007)



Tables

Table 4.1: Definitions of entertainment variables

Macro-aggregate	Definition
Museums	Museums include data on public museums, monuments and archaeological sites. In 2006 in Italy there were 196 museums and 206 monuments and archaeological area.
Theatre	Theatre macro-aggregate is composed from theatre, opera, revue and musical, ballet, puppets and marionettes, performing arts and circuses. Circus was included in the macro-aggregate of theatre since the shows carried out in the last few years - especially at international level - have made use to stage sets and techniques that definitely draw inspiration from the theatre.
Concerts	Concert activities include classical concerts (band and choral concerts even if the repertoire may not be purely classical), pop music concerts and jazz concerts.
Exhibitions and shows	Exhibitions and shows, in addition to cultural exhibitions, shows the results of profit-making exhibition activities. This category includes the exhibition of goods to be sold (antiques, carpets, etc.) and trade fairs.
Dance and concertinos	Dance refers to dance with orchestra and dance with recorded music. Concertinos consist of musical performances (live or recorded) that are only an additional element to some other activities or entertainments, for example, live piano music in bars or restaurants.
Touring amusements	Touring amusement includes both single exhibitions and exhibitions inside amusement and leisure parks, as well as admissions to parks.
Sports	Sports consist of the following sub-categories: soccer (international; A, B, C and lower leagues), team sports other than soccer (such as basketball, volleyball, rugby and baseball), individual sports (boxing, cycle racing, athletics, tennis, showjumping, motor racing, speed boat racing and horse racing) and other sports (such as swimming and water polo, winter happenings and other sports).
Multi-genre	Multi-genre includes that may not be referable to a unique kind of event, like open-air shows on the occasion of village fairs or religious festivals.

Table 4.2: Summary statistics for Italian provinces (2006-2007)

Variable	Observations	Mean	Std. Dev.
	Panel A: Admissions		
Museums pc	152	0.597	1.964
Theatre pc	152	2.169	0.920
Concerts pc	203	0.140	0.099
Exhibitions and shows pc	107	0.423	0.303
Dance and concertinos pc	213	0.639	0.656
Touring amusements pc	94	0.328	0.957
Sports pc	204	0.252	0.317
Multi-genre pc	206	0.038	0.086
	Panel B: Explicative variables		
Total tourist arrivals	214	884'086	1'402'510
Total tourist stays	214	3'473'862	5'311'357
Italians tourist arrivals	214	491'250	545'628
Italians tourist stays	214	1'977'007	2'291'844
Foreign tourist arrivals	214	392'836	927'599
Foreign tourist stays	214	1'496'855	3'401'633
GDP pc	214	22'226.85	9'282.3
Historical Composer	182	19'220.78	31'930.58
Population Size	214	554'909.2	632'870.6

Table 4.3: Admission and tourist flows. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourist arrivals							
Tourist flows (arrivals)	0.0765***	0.0911**	0.00935**	0.0855***	0.166***	0.0753	0.0119	0.00393
	(0.0266)	(0.0414)	(0.00381)	(0.0323)	(0.0597)	(0.131)	(0.0153)	(0.00443)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	152	152	203	204	213	94	107	206
R-squared	0.362	0.560	0.466	0.515	0.620	0.436	0.632	0.260
	Panel B: Tourist Stays							
Tourist flows (stays)	0.00449	0.0119	0.000546	0.0158**	0.0324***	0.0115	0.00212	0.00114
	(0.00448)	(0.00759)	(0.000582)	(0.00612)	(0.0107)	(0.0240)	(0.00318)	(0.000811)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	152	152	203	204	213	94	107	206
R-squared	0.338	0.549	0.451	0.512	0.628	0.433	0.631	0.265

Note. Robust standard errors are reported in parentheses. The dependent variable and tourist flows variables are expressed in per capita terms. Each specification contains indicator functions for Italian regions, each year of activity, as well as controls for the GDP of each province and price of each activity (not reported). ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

Table 4.4: Admission and tourist flows by origin. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
				Panel A: Domestic Tourists Arrivals				
Italian tourist flows (arrivals)	-0.0287	0.185***	0.00505	157.3***	0.347***	0.228*	0.0219	0.0116
	(0.0551)	(0.038)	(0.00518)	(18.63)	(0.0677)	(0.129)	(0.0262)	(0.00813)
Observations	152	152	203	204	213	94	107	206
R-squared	0.336	0.56	0.449	0.555	0.691	0.469	0.616	0.269
				Panel B: Domestic Tourists Stays				
Italian tourist flows (stays)	-0.00726	0.0251***	-0.0006	0.0260***	0.0560***	0.0229	0.00367	0.00232*
	(0.00964)	(0.00893)	(0.00087)	(0.00888)	(0.0137)	(0.0295)	(0.0046)	(0.00134)
Observations	152	152	203	204	213	94	107	206
R-squared	0.338	0.546	0.448	0.54	0.667	0.441	0.616	0.273
				Panel C: Foreign Tourists Arrivals				
Foreign tourist flows (arrivals)	0.224**	0.0684	0.0247***	0.0830**	0.110*	-0.169	0.0121	-0.00182
	(0.0939)	(0.08)	(0.00815)	(0.0376)	(0.0649)	(0.257)	(0.0186)	(0.00505)
Observations	152	152	203	204	213	94	107	206
R-squared	0.425	0.532	0.481	0.418	0.523	0.439	0.612	0.256
				Panel D: Foreign Tourists Stays				
Foreign tourist flows (stays)	0.0360***	0.0046	0.0039***	0.0191*	0.0327*	-0.00957	0.00188	0.000378
	(0.0111)	(0.015)	(0.00125)	(0.00977)	(0.0177)	(0.0611)	(0.00509)	(0.00112)
Observations	152	152	203	204	213	94	107	206
R-squared	0.373	0.529	0.464	0.421	0.535	0.428	0.612	0.256
				All Regressions				
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: See Table 4.3.

Table 4.5: Admission, tourist flows and cultural capital. Dependent variable: Admission per capita

	Museums	Theatre	Concerts	Exhibitions and shows	Dance and concertinos	Touring amusements	Sports	Multi-genre
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Tourist Arrivals							
Tourist flows (arrivals)	0.0568**	0.0940*	0.00707*	0.107***	0.207***	0.0745	0.0201	0.00478
	(0.0283)	(0.0498)	(0.00379)	(0.0359)	(0.0628)	(0.136)	(0.0170)	(0.00571)
Cultural Capital	5.542**	8.280***	1.497***	0.838	-2.549**	0.338	0.810	-0.0701
	(2.301)	(2.004)	(0.290)	(0.666)	(1.232)	(2.434)	(0.826)	(0.183)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.438	0.641	0.645	0.578	0.665	0.434	0.656	0.252
	Panel B: Tourist Stays							
Tourist flows (stays)	0.00438	0.0155*	0.000901	0.0201***	0.0382***	0.0116	0.00344	0.00133
	(0.00468)	(0.00907)	(0.000629)	(0.00642)	(0.0114)	(0.0244)	(0.00327)	(0.000972)
Cultural Capital	6.033**	8.958***	1.546***	1.591***	-1.156	0.758	0.961	-0.0421
	(2.353)	(2.098)	(0.294)	(0.581)	(1.047)	(2.333)	(0.778)	(0.157)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.428	0.637	0.641	0.587	0.663	0.431	0.655	0.258

Note: See Table 4.3.

Table 4.6: Admission, tourist flows by origin of tourist and cultural capital. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
				Panel A: Domestic Tourists Arrivals				
Italians tourist flows (arrivals)	0.216***	0.0113**	0.187***	0.382***	0.235*	0.0373	0.0131	-0.0191
	(0.0378)	(0.00529)	(0.0445)	(0.0630)	(0.128)	(0.0245)	(0.00914)	(0.0582)
Cultural Capital	9.406***	1.570***	1.974***	-0.165	1.674	1.318*	-0.00810	5.994***
	(2.061)	(0.296)	(0.476)	(0.794)	(2.154)	(0.725)	(0.146)	(2.265)
Observations	140	179	180	182	89	98	180	138
R-squared	0.657	0.642	0.630	0.726	0.469	0.649	0.261	0.426
				Panel B: Domestic Tourists Stays				
Italian tourist flows (stays)	0.0337***	0.00110	0.0322***	0.0625***	0.0246	0.00581	0.00266*	-0.00266
	(0.00860)	(0.000846)	(0.00825)	(0.0139)	(0.0295)	(0.00446)	(0.00152)	(0.00929)
Cultural Capital	9.725***	1.574***	2.377***	0.577	1.566	1.357*	0.0286	5.963***
	(2.122)	(0.299)	(0.493)	(0.817)	(2.104)	(0.733)	(0.143)	(2.185)
Observations	140	179	180	182	89	98	180	138
R-squared	0.645	0.636	0.624	0.695	0.440	0.646	0.267	0.426
				Panel C: Foreign Tourists Arrivals				
Foreign tourist flows (arrivals)	0.0196	0.00868	0.104*	0.177*	-0.241	0.0177	-0.00266	0.162*
	(0.0908)	(0.00915)	(0.0552)	(0.0979)	(0.298)	(0.0313)	(0.00857)	(0.0862)
Cultural Capital	8.845***	1.469***	0.805	-2.474	3.049	0.911	-0.000985	4.220**
	(2.142)	(0.300)	(0.796)	(1.745)	(3.008)	(1.064)	(0.220)	(1.887)
Observations	140	179	180	182	89	98	180	138
R-squared	0.611	0.637	0.445	0.541	0.443	0.636	0.247	0.462
				Panel C: Foreign Tourists Stays				
Foreign tourist flows (stays)	0.00277	0.00195	0.0251*	0.0458*	-0.0151	0.00384	0.000401	0.0234**
	(0.0189)	(0.00174)	(0.0134)	(0.0238)	(0.0664)	(0.00771)	(0.00165)	(0.0112)
Cultural Capital	8.966***	1.497***	1.126	-2.122	1.259	0.973	-0.0408	5.313**
	(2.110)	(0.295)	(0.714)	(1.539)	(2.492)	(0.997)	(0.189)	(2.285)
Observations	140	179	180	182	89	98	180	138
R-squared	0.611	0.637	0.458	0.556	0.426	0.636	0.247	0.439
				All Regressions				
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	Yes	yes	yes	yes	yes
Year control	yes	yes	yes	Yes	yes	yes	yes	yes

Note: See Table 4.3.

Table 4.5 - Direct Revenue from tourist demand for cultural activities, per province

	Estimated admissions tourist	Average price of activity	Revenue from tourist flows	Share of total revenue
Museums	67'633	2.54	172'052	14.96%
Theatre	80'540	4.96	399'166	3.77%
Concerts	8'266	14.11	116'609	5.09%
Exhibitions and shows	75'589	3.9	295'143	14.14%
Dance and concertinos	146'758	9.26	1'358'571	11.97%
All cultural activities	37'8787	6.18	2'341'542	6.07%

Note: 'Estimated admissions of tourists' is calculated by utilising the point estimates obtained from the model and multiplying them by total tourist arrivals.

Appendix C

Table 4.C1: Tobit Model: Entertainment admission and tourism flows by origin. Dependent variable: Admission per capita

	Museums	Theatre	Concerts	Exhibitions and shows	Dance and concertinos	Touring amusements	Sports	Multi-genre
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Domestic Tourists Arrivals							
Italian tourism flows (arrivals)	0.0911***	0.0911**	0.00935***	0.0863***	0.166***	-0.0617	0.0119	0.00401
	(0.0268)	(0.0383)	(0.00358)	(0.0307)	(0.0563)	(0.157)	(0.0137)	(0.00424)
Observations	152	152	203	204	213	94	107	206
	Panel B: Domestic Tourists Stays							
Italian tourism flows (stays)	0.00902**	0.0119*	0.000546	0.0161***	0.0324***	-0.0138	0.00212	0.00120
	(0.00412)	(0.00701)	(0.000548)	(0.00580)	(0.0101)	(0.0300)	(0.00285)	(0.000770)
Observations	152	152	203	204	213	94	107	206
	All Regressions							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: The dependent variable and tourism flows variables are expressed in per capita terms. Each specification contains controls for regions, year and price of each activity, and controls for the GDP of each province (not reported). ***/**/* indicate estimates that are significantly different from zero at 99/95/90 percent confidence.

Table 4.C2: Admission and duration of tourists' stay. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
				Panel A: Baseline				
Tourists stay	0.0045	0.0119	0.00054	0.0158**	0.0324***	0.0115	0.00212	0.00114
	(0.0045)	(0.00759)	(0.0006)	(0.00612)	(0.0107)	(0.0240)	(0.0032)	(0.0008)
Observations	152	152	203	204	213	94	107	206
R-squared	0.338	0.549	0.451	0.512	0.628	0.433	0.631	0.265
				Panel B: Duration of stay logged				
Tourists stay (log)	6.064	127.5	9.037	90.12**	172.3**	107.0	-1.850	10.30**
	(26.43)	(81.31)	(5.488)	(41.90)	(70.11)	(137.3)	(28.53)	(4.823)
Observations	152	152	203	204	213	94	107	206
R-squared	0.335	0.550	0.455	0.429	0.551	0.432	0.628	0.265
				Panel C: Duration of squared				
Tourists stay	0.00035	0.0135	0.00193	-0.00724	-0.00224	-0.0151	-0.0145**	0.00142
	(0.0093)	(0.0188)	(0.0015)	(0.00735)	(0.0138)	(0.0437)	(0.0066)	(0.0012)
Tourists stay squared	1.35e-07	-3.53e-08	-3.25e-08	5.42e-07**	8.11e-07**	5.14e-07	3.73e-07***	-6.76e-09
	(3.42e-07)	(3.83e-07)	(2.56e-08)	(2.22e-07)	(3.99e-07)	(9.17e-07)	(1.29e-07)	(3.37e-08)
Observations	152	152	203	204	213	94	107	206
R-squared	0.338	0.549	0.453	0.572	0.659	0.437	0.659	0.265
				Panel A-C				
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3.

Table 4.C3: Admission and duration of stay. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
Tourist arrivals	0.348**	0.399**	0.078***	0.0549	0.0176	0.226	0.0175	-0.0226
	(0.175)	(0.175)	(0.0173)	(0.0536)	(0.0960)	(0.386)	(0.0375)	(0.0146)
Tourist stay	-0.0545*	-0.0616*	-0.01***	0.00598	0.0292	-0.0288	-0.00110	0.00519*
	(0.0308)	(0.0314)	(0.0031)	(0.0113)	(0.0193)	(0.0682)	(0.0084)	(0.00282)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	152	152	203	204	213	94	107	206
R-squared	0.426	0.580	0.547	0.517	0.628	0.438	0.632	0.276

Note: see Table 4.3.

Table 4.C4: Admission and tourist flows by origin in 2006. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Italian tourists arrival							
Italian tourists arrivals	-0.0132	0.178**	0.000918	0.161***	0.358***	0.198	0.0533	0.00222
	(0.0881)	(0.088)	(0.009)	(0.0289)	(0.0492)	(0.133)	(0.0329)	(0.0093)
Observations	77	75	102	103	106	49	52	102
R-squared	0.319	0.617	0.440	0.543	0.698	0.507	0.653	0.253
	Panel B: Italian duration of stay							
Italian tourists stay	-0.00518	0.0245	-0.00135	0.026***	0.0582***	0.0208	0.00911	0.000899
	(0.0141)	(0.0160)	(0.0015)	(0.0050)	(0.00890)	(0.0240)	(0.0057)	(0.0016)
Observations	77	75	102	103	106	49	52	102
R-squared	0.319	0.605	0.445	0.525	0.673	0.484	0.652	0.256
	Panel C: Foreigner tourists arrival							
Foreign tourists arrival	0.227***	0.0718	0.0215**	0.0626*	0.0948	-0.144	0.0135	-0.00421
	(0.080)	(0.0991)	(0.0102)	(0.0376)	(0.0685)	(0.218)	(0.0406)	(0.0106)
Observations	77	75	102	103	106	49	52	102
R-squared	0.404	0.591	0.470	0.388	0.516	0.478	0.625	0.254
	Panel D: Foreigner duration of stay							
Foreign tourists stay	0.0364*	0.00591	0.00330	0.0153*	0.0313**	-0.00365	0.00397	-0.00044
	(0.0203)	(0.0221)	(0.0023)	(0.00826)	(0.0149)	(0.0496)	(0.0096)	(0.0023)
Observations	77	75	102	103	106	49	52	102
R-squared	0.356	0.588	0.455	0.392	0.530	0.471	0.625	0.253
	Panel A-D							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3.

Table 4.C5: Admission and tourist flows by origin in 2007. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Italians tourists arrival							
Italian tourists arrival	-0.020	0.190***	0.00610	0.155**	0.340***	0.203	-0.0211	0.0209**
	(0.0676)	(0.0541)	(0.008)	(0.0654)	(0.102)	(0.270)	(0.0317)	(0.0091)
Observations	75	77	101	101	107	45	55	104
R-squared	0.418	0.545	0.505	0.576	0.697	0.555	0.758	0.302
	Panel B: Italians duration of stay							
Italian tourists stay	-0.0060	0.0255*	-0.00034	0.0260**	0.0548***	0.0130	-0.00355	0.0038**
	(0.0116)	(0.0136)	(0.0014)	(0.0122)	(0.0208)	(0.0596)	(0.0055)	(0.0016)
Observations	75	77	101	101	107	45	55	104
R-squared	0.420	0.531	0.503	0.564	0.671	0.534	0.758	0.305
	Panel C: Foreigners tourists arrival							
Foreign tourists arrival	0.214*	0.0595	0.0231*	0.105*	0.123	-0.148	0.00619	0.000770
	(0.120)	(0.124)	(0.0122)	(0.0536)	(0.0980)	(0.391)	(0.0285)	(0.0088)
Observations	75	77	101	101	107	45	55	104
R-squared	0.505	0.516	0.528	0.465	0.539	0.539	0.755	0.263
	Panel D: Foreigners duration of stay							
Foreign tourists stay	0.0359**	0.00245	0.00346*	0.0229*	0.0340	-0.00906	-0.00029	0.00122
	(0.0162)	(0.0236)	(0.0020)	(0.0137)	(0.0262)	(0.0939)	(0.0073)	(0.0021)
Observations	75	77	101	101	107	45	55	104
R-squared	0.459	0.513	0.515	0.464	0.550	0.531	0.754	0.265
	Panel A-D							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3.

Table 4.C6: Admission, tourist flows and the North-South divide. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourists arrival							
Tourists arrival	0.077***	0.0911**	0.0094**	0.0855***	0.166***	0.0753	0.0119	0.00393
	(0.0267)	(0.0414)	(0.0038)	(0.0323)	(0.0597)	(0.131)	(0.0153)	(0.00443)
Central	-0.924	1,135***	-5.842	605.0***	1,556***	-56.44	223.4***	24.61
	(154.0)	(409.2)	(25.01)	(213.1)	(306.5)	(121.2)	(51.42)	(27.28)
South & Islands	-130.3	631.2	-72.92**	643.9***	618.0	10.50	146.0*	12.48
	(170.5)	(452.3)	(33.49)	(201.5)	(386.8)	(427.6)	(85.34)	(32.47)
Observations	152	152	203	204	213	94	107	206
R-squared	0.362	0.560	0.466	0.515	0.620	0.436	0.632	0.260
	Panel B: Duration of stay							
Tourists arrival	0.00449	0.0119	0.000546	0.0158**	0.0324***	0.0115	0.00212	0.00114
	(0.0045)	(0.0076)	(0.0006)	(0.00612)	(0.0107)	(0.0240)	(0.0032)	(0.00081)
Central	-9.379	1,759**	-41.65*	398.0***	1,417***	2.740	230.9***	127.1***
	(145.7)	(710.0)	(23.48)	(151.9)	(235.5)	(247.6)	(68.16)	(41.18)
South & Islands	-158.0	418.0	-117.6***	485.0***	364.4	-5.136	141.2	27.19
	(163.6)	(426.9)	(28.92)	(147.2)	(278.7)	(448.4)	(90.91)	(31.79)
Observations	152	152	203	204	213	94	107	206
R-squared	0.338	0.549	0.451	0.512	0.628	0.433	0.631	0.265
	Panel A-B							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3. Northern Italy is baseline category.

Table 4.C7: Admission, tourist flows and UNECO World Heritage Site. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourists arrival							
Tourists arrival	0.075***	0.0841**	0.0083**	0.0804**	0.168***	0.102	0.0118	0.00380
	(0.0262)	(0.0421)	(0.0035)	(0.0339)	(0.0603)	(0.115)	(0.0157)	(0.0045)
Unesco World Heritage site	10.76	68.29	13.00**	46.57***	-26.48	261.7**	1.962	1.172
	(21.19)	(45.79)	(5.601)	(15.76)	(24.65)	(121.2)	(15.39)	(3.502)
Observations	152	152	203	204	213	94	107	206
R-squared	0.363	0.567	0.487	0.542	0.622	0.501	0.632	0.260
	Panel B: Duration of stay							
Duration stay	0.0044	0.0114	0.000467	0.0153**	0.0324***	0.0162	0.00210	0.00113
	(0.0045)	(0.0077)	(0.0006)	(0.00627)	(0.0107)	(0.0214)	(0.0032)	(0.0008)
Unesco World Heritage site	16.91	79.20*	13.90**	52.87***	-9.257	259.3**	2.859	1.339
	(20.18)	(45.74)	(5.676)	(14.05)	(21.05)	(119.5)	(15.35)	(3.456)
Observations	152	152	203	204	213	94	107	206
R-squared	0.340	0.558	0.475	0.547	0.628	0.497	0.631	0.265
	Panel A-B							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3.

Table 4.C8: Admission, tourist flows and Archaeological Sites. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourists arrival							
Tourists arrival	0.0763***	0.0797*	0.0079**	0.0845**	0.167***	0.0675	0.0105	0.00435
	(0.0272)	(0.0440)	(0.0031)	(0.0330)	(0.0604)	(0.138)	(0.0160)	(0.004)
Archaeological sites	0.672	18.00	4.778***	2.287	-2.258	11.75	3.328	-0.849*
	(4.839)	(15.28)	(1.418)	(1.986)	(3.365)	(9.615)	(2.275)	(0.481)
Observations	152	152	203	204	213	94	107	206
R-squared	0.362	0.569	0.550	0.517	0.620	0.442	0.636	0.263
	Panel B: Duration of stay							
Duration of stay	0.00457	0.0101	0.000548	0.0158**	0.0324***	0.0113	0.00201	0.00116
	(0.00463)	(0.0082)	(0.0005)	(0.00617)	(0.0108)	(0.0244)	(0.00325)	(0.001)
Archaeological sites	1.574	20.29	4.896***	3.560*	0.181	13.00	3.535	-0.788
	(4.971)	(15.34)	(1.445)	(1.965)	(2.741)	(8.197)	(2.232)	(0.483)
Observations	152	152	203	204	213	94	107	206
R-squared	0.362	0.560	0.540	0.517	0.628	0.441	0.636	0.268
	Panel A-B							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: see Table 4.3.

Table 4.C9: Admission, tourist flows and Cultural Sites. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourists arrival							
Tourists arrival	0.0788***	0.0715	0.00936***	0.0846**	0.165***	0.0748	0.0104	0.00400
	(0.0269)	(0.0453)	(0.00352)	(0.0326)	(0.0602)	(0.135)	(0.0162)	(0.00443)
Cultural sites	0.699	9.223**	0.601***	0.713**	0.372	0.123	0.631	-0.0636
	(0.632)	(3.917)	(0.225)	(0.341)	(0.420)	(1.495)	(0.605)	(0.0533)
Observations	152	152	203	204	213	94	107	206
R-squared	0.385	0.599	0.507	0.521	0.620	0.436	0.635	0.260
	Panel B: Duration of stay							
Duration of stay	0.00525	0.0101	0.000743	0.0159***	0.0324***	0.0114	0.00193	0.00113
	(0.00460)	(0.00844)	(0.000535)	(0.00609)	(0.0108)	(0.0243)	(0.00330)	(0.000814)
Cultural places	0.631	9.758**	0.612***	0.937**	0.802**	0.485	0.666	-0.0494
	(0.641)	(4.029)	(0.228)	(0.376)	(0.380)	(1.407)	(0.593)	(0.0552)
Observations	152	152	203	204	213	94	107	206
R-squared	0.340	0.593	0.494	0.523	0.630	0.433	0.634	0.266
	Panel A-B							
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: See Table 4.3.

Table 4.C10: Admission, tourist flows, Cultural Capital and age control. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
	Panel A: Tourist Arrivals							
Tourist flows (arrivals)	0.0427	0.152***	0.00981***	0.120***	0.216***	0.155	0.0251	-6.49e-05
	(0.0346)	(0.0320)	(0.00376)	(0.0363)	(0.0614)	(0.0953)	(0.0216)	(0.00797)
Cultural Capital	4.190	-1.468	0.750***	-1.050	-3.670*	0.102	-0.247	0.178
	(3.209)	(2.207)	(0.248)	(1.251)	(2.211)	(7.004)	(1.796)	(0.413)
Age control	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.553	0.779	0.762	0.614	0.696	0.634	0.749	0.293
	Panel B: Tourist Stays							
Tourist flows (stays)	0.00239	0.0280***	0.00150**	0.0239***	0.0415***	0.0269	0.00456	0.000479
	(0.00520)	(0.00596)	(0.000670)	(0.00650)	(0.0113)	(0.0171)	(0.00402)	(0.00135)
Cultural Capital	4.634	-0.238	0.825***	-0.0817	-2.209	1.772	0.116	0.170
	(3.232)	(2.201)	(0.251)	(1.117)	(2.071)	(7.008)	(1.642)	(0.381)
Age control	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.548	0.777	0.758	0.635	0.700	0.631	0.749	0.294

Note: See Table 4.3.

Table 4.C11: Admission, tourist flows, Cultural Capital and sex control. Dependent variable: Admission per capita

	Museums	Theatre	Concerts	Exhibitions and shows	Dance and concertinos	Touring amusements	Sports	Multi-genre
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Tourist Arrivals							
Tourist flows (arrivals)	0.0526*	0.107***	0.00839**	0.108***	0.206***	0.0777	0.0302*	0.00395
	(0.0293)	(0.0375)	(0.00334)	(0.0355)	(0.0638)	(0.133)	(0.0171)	(0.00597)
Cultural Capital	5.962*	-1.081	0.577*	-0.0312	-2.146	-0.488	-1.936*	0.159
	(3.177)	(2.223)	(0.302)	(1.275)	(2.171)	(4.419)	(1.092)	(0.364)
Female/Male control	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.457	0.744	0.701	0.583	0.665	0.464	0.707	0.266
	Panel B: Tourist Stays							
Tourist flows (stays)	0.00293	0.0175**	0.00107*	0.0203***	0.0380***	0.0127	0.00510	0.00118
	(0.00524)	(0.00701)	(0.000562)	(0.00637)	(0.0116)	(0.0238)	(0.00334)	(0.001000)
Cultural Capital	6.534**	-0.229	0.647**	0.830	-0.615	-0.0370	-1.658	0.181
	(3.263)	(2.258)	(0.307)	(1.107)	(1.955)	(4.475)	(1.034)	(0.333)
Female/Male control	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes
Observations	138	140	179	180	182	89	98	180
R-squared	0.449	0.738	0.696	0.591	0.664	0.462	0.704	0.271

Note: See Table 4.3.

Table 4.C12: Admission, tourist flows by origin, Cultural Capital and age control. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
				Panel A: Domestic Tourists Arrivals				
Italians tourist flows (arrivals)	0.255***	0.0130**	0.199***	0.392***	0.300***	0.0504**	0.0104	-0.0308
	(0.0346)	(0.00531)	(0.0451)	(0.0599)	(0.108)	(0.0246)	(0.00999)	(0.0482)
Cultural Capital	-0.537	0.839***	0.623	-0.990	3.541	-0.323	0.152	4.498
	(1.933)	(0.234)	(0.918)	(1.621)	(6.808)	(1.463)	(0.338)	(3.084)
Observations	140	179	180	182	89	98	180	138
R-squared	0.784	0.759	0.658	0.760	0.662	0.748	0.300	0.548
				Panel B: Domestic Tourists Stays				
Italian tourist flows (stays)	0.0442***	0.00153*	0.0364***	0.0670***	0.0436*	0.00790*	0.00213	-0.00546
	(0.00682)	(0.000878)	(0.00825)	(0.0134)	(0.0220)	(0.00460)	(0.00173)	(0.00811)
Cultural Capital	-0.107	0.841***	0.994	-0.532	4.148	-0.181	0.174	4.410
	(1.945)	(0.235)	(0.921)	(1.715)	(7.055)	(1.445)	(0.339)	(3.118)
Observations	140	179	180	182	89	98	180	138
R-squared	0.777	0.753	0.667	0.736	0.640	0.744	0.302	0.548
				Panel C: Foreign Tourists Arrivals				
Foreign tourist flows (arrivals)	0.140*	0.0159*	0.123**	0.164	0.0171	0.0113	-0.0194	0.157*
	(0.0785)	(0.00819)	(0.0585)	(0.102)	(0.279)	(0.0513)	(0.0155)	(0.0910)
Cultural Capital	-2.642	0.615***	-1.216	-3.660	0.917	-0.822	0.358	2.578
	(2.336)	(0.230)	(1.450)	(2.651)	(8.208)	(2.277)	(0.491)	(2.937)
Observations	140	179	180	182	89	98	180	138
R-squared	0.738	0.757	0.475	0.578	0.601	0.729	0.307	0.572
				Panel C: Foreign Tourists Stays				
Foreign tourist flows (stays)	0.0310*	0.00390**	0.0309**	0.0462*	0.0356	0.00267	-0.00310	0.0223
	(0.0176)	(0.00170)	(0.0147)	(0.0253)	(0.0549)	(0.0135)	(0.00314)	(0.0152)
Cultural Capital	-2.005	0.658***	-0.784	-3.439	-1.351	-0.772	0.243	3.685
	(2.234)	(0.232)	(1.328)	(2.466)	(7.565)	(2.213)	(0.424)	(3.104)
Observations	140	179	180	182	89	98	180	138
R-squared	0.739	0.759	0.493	0.593	0.607	0.729	0.300	0.556
				All Regressions				
Age controls	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: See Table 4.3.

Table 4.C13: Admission, tourist flows, Cultural Capital and sex control. Dependent variable: Admission per capita

	Museums (1)	Theatre (2)	Concerts (3)	Exhibitions and shows (4)	Dance and concertinos (5)	Touring amusements (6)	Sports (7)	Multi-genre (8)
				Panel A: Domestic Tourists Arrivals				
Italians tourist flows (arrivals)	0.208***	0.0102*	0.187***	0.383***	0.243*	0.0452*	0.0126	-0.0280
	(0.0336)	(0.00530)	(0.0447)	(0.0637)	(0.124)	(0.0255)	(0.00907)	(0.0593)
Cultural Capital	0.610	0.695**	1.670*	1.247	1.681	-1.203	0.242	6.509**
	(2.195)	(0.306)	(0.884)	(1.546)	(4.312)	(0.890)	(0.315)	(3.128)
Observations	140	179	180	182	89	98	180	138
R-squared	0.749	0.693	0.631	0.729	0.500	0.697	0.276	0.448
				Panel B: Domestic Tourists Stays				
Italian tourist flows (stays)	0.900	0.689**	2.115**	1.980	1.374	-1.121	0.283	6.416**
	(2.228)	(0.306)	(0.876)	(1.596)	(4.360)	(0.891)	(0.313)	(3.028)
Cultural Capital	0.0323***	0.000877	0.0324***	0.0628***	0.0273	0.00711	0.00255*	-0.00515
	(0.00753)	(0.000847)	(0.00830)	(0.0141)	(0.0279)	(0.00470)	(0.00151)	(0.00963)
Observations	140	179	180	182	89	98	180	138
R-squared	0.738	0.688	0.626	0.698	0.472	0.693	0.280	0.448
				Panel C: Foreign Tourists Arrivals				
Foreign tourist flows (arrivals)	0.0807	0.0156**	0.110**	0.173*	-0.247	0.0491	-0.00520	0.162*
	(0.0760)	(0.00720)	(0.0559)	(0.101)	(0.287)	(0.0322)	(0.00982)	(0.0865)
Cultural Capital	-1.084	0.449	-0.300	-2.124	3.307	-2.298*	0.277	4.282
	(2.211)	(0.292)	(1.488)	(2.779)	(4.030)	(1.290)	(0.442)	(2.619)
Observations	140	179	180	182	89	98	180	138
R-squared	0.711	0.696	0.452	0.543	0.472	0.687	0.263	0.482
				Panel C: Foreign Tourists Stays				
Foreign tourist flows (stays)	0.0155	0.00341**	0.0265*	0.0453*	-0.0178	0.0112	-4.43e-05	0.0228*
	(0.0161)	(0.00134)	(0.0135)	(0.0245)	(0.0653)	(0.00838)	(0.00189)	(0.0124)
Cultural Capital	-0.673	0.501*	0.00194	-1.932	0.984	-2.190	0.206	5.519*
	(2.256)	(0.299)	(1.379)	(2.574)	(3.836)	(1.342)	(0.395)	(3.232)
Observations	140	179	180	182	89	98	180	138
R-squared	0.710	0.697	0.465	0.558	0.456	0.687	0.262	0.459
				All Regressions				
Female/Male controls	yes	yes	yes	yes	yes	yes	yes	yes
Region controls	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes
Year control	yes	yes	yes	yes	yes	yes	yes	yes

Note: See Table 4.3.

Chapter 5

Conclusion

Concluding remarks

The main concern of this thesis has been to analyses the determinants of cultural participation, namely participation through attendance at live art events. Within this, special attention has been paid to cultural participation in Italy.

To this end we utilized three unexplored and reliable datasets that allow us to study cultural participation at different levels of aggregation, individual and aggregate (regional and provincial). The reason to study cultural participation at different levels is that in Italy there are important social and economic differences between regions as well as within the regions.

The thesis offers two different advances. First, it investigates various hypotheses on Italian cultural participation. This is innovative given that a lot of studies have been focused on U.S. data without considering the price of the events.

The second advantage is that we construct three new and reliable datasets, that up to now, have never been used. In all three empirical papers data from the Italian Society of Authors and Publishers (SIAE) has been used. These data, in the first paper, allows us to control for price in the demand function for theatre, while the data in the second and third papers, in addition to price, allow us to measure participation in theatre and other cultural activities both at the regional level from 1980 to 2009 and at the provincial level in 2006 and 2007. Moreover, in the first paper, the SIAE dataset is complemented by the Multi-purpose survey of Italian Households carried out by the Italian Institute of Statistics (ISTAT) that polls around 50 000 individuals. In the second and third papers data on the main control variables were taken from various publications carried out by ISTAT. Finally, the data for the third paper is complemented by records on all composers born in Italy, recorded in Grove Music Online (2011).

The first study investigates Italian theatre participation over the period 1995,

2000 and 2006. Three models are estimated to take into account the nature of our data: logistic regression model, ordered logistic regression model and finite mixture model. Results show that the estimated methodologies are suitable for our data. Moreover, the estimated results indicate that participation is not specific to a particular theatrical event, since people who attend one art activity are more likely to attend others, while traditional socio-economic variables are highly correlated with theatre participation. The main contribution of this paper compared with the existing literature is that it focuses on Italian cultural participation and that it takes into account the variable price.

In the second paper the pooled cross-section time series data for the 20 Italian regions over the period 1980-2009 allow us to study the myopic and rational addiction models of theatre attendance. Up to now, theatre attendance has been seen as an experience good, while the myopic and rational addiction models have been applied only to cinema demand. Also in this case we use different appropriated estimation techniques to take into account the non-stationarity of the variables. Three different models are estimated: myopic, rational and full rational. Results confirm that Italian theatre-goers are fully rational, confirming that their choices are not made myopically.

Finally, in the third paper three innovative hypotheses are tested. The first one is that tourist flows have a different impact depending on the type of cultural event. This approach is very important since, currently, the cultural economic literature does not provide any comparison between tourism flows and different entertainment activities. The second hypothesis states that the different impact of tourism flows is also related to whether the tourist is domestic or foreign. Finally, our third hypothesis is that rich cultural life in the past represents current cultural capital and consequently increases cultural participation in the present, together with tourist flows. The results confirm the three hypotheses. The births of classical composers is proved to be a good innovative proxy for cultural capital, and has turned out to be important especially for museums, theatre, concerts, exhibitions and shows and multi–genre participation.

Policy Implications

It is important to stress that cultural participation is a central activity in all advanced economies, to the extent that it is positively associated with the increase in per capita income. In general, arts and culture can influence local development through two

effects: short-run spending impacts and long-run growth impacts (Bille and Schulze, 2006). In Italy, however, cultural participation assumes a special relevance for three main reasons. The first, is that the country is one with a long and remarkable cultural history; the second is due to the country's artistic and cultural heritage, in fact, according to UNESCO, Italy has the largest number of art-related protected heritage sites; and the third is due to the Italian debate on public funding of culture. For these reasons, our study has important implications for policy-makers, since it provides information that could be used when deciding how to promote culture in Italy. For example, from our results, it emerges that it is possible to increase cultural participation not only working on the traditional demand variables (price and income) but also on the level of education.

Since the demand for cultural goods, and especially for theatre, in the previous literature is found to be an experience good, in this study we have shown that past and future attendance are able to influence current attendance. For this reason, it is important for policy makers to increase cultural attendance for children and young people. According to Chen and Lin (2012) characterizing theatre demand to be of myopic or rational nature, has important policy implications. Myopic addiction implies that consumers ignore the future implication associated with their addiction giving limited information for policy implications, our results implying that theatre-goers are fully rational implicate that policy makers should influence consumer choices in each time period considering that consumers take into account also the future implications of their current choices.

Finally, the emerging findings of the last paper indicate the role of cultural activities in attracting tourism. Future planning of policies stimulating tourist inflows might be more effective if its focus is placed on the further development and improved promotion of cultural activities. Policy makers should bear in mind that the tourists heterogeneous demand depends on their origin. In particular, provinces with a rich supply of theatrical events could presumably find it easier to attract domestic tourists, while provinces with a good museum or concert supply might benefit more if their focus is put on tourists from abroad. One way to promote cultural activities is to foster museums in provinces with a higher share of international tourists, whereas supporting theatres might be advisable in provinces with more domestic tourists. In provinces with a long tradition of tourism, such as Florence, Rome and Venice, culture attendance can be promoted by fostering both museums and theatres. However, since museums are visited less often by domestic tourists, it might be a good strategy for museums to promote one-off or temporary exhibitions.

Future Research

The quantitative analysis of cultural participation, and particularly theatre attendance, and its main determinants is still a small research area within the cultural economics field that, however, has received more attention during the past years. Nonetheless, as mentioned earlier, only a limited number of studies are available and mostly concentrated on the U.S. market. Since this thesis represents the first study in depth on Italian theatre participation, and given the difficulties to compare and to extend results to other countries, there is large scope for further research on this topic. This section outlines several ways on how such research could be continued.

The first recommendation for future research is to discuss the concept of "theatre" in different countries in a more extensive way by drawing out what we exactly intend by theatre. For example, in the Italian data, sometimes the question asked when the surveys are carried out is: "Did you go to the theatre, including circus…". Then the question is: are the meanings of theatre performance the same in different countries?

The second recommendation is to verify the econometric model of theatre participation in other countries if suitable data exist. This would allow for an international comparison. Since reliable data are available for Spain (Cultural Habits and Practices Survey) and UK (The Taking Part Survey), it will be very interesting to verify if those data are comparable with the Italian data, and if so, to apply the same methodology to theatre participation in both countries. Alternatively, this type of analysis could be applied to other cultural activities. Data on museums and cinema available in the Multi-purpose survey of Italian Households should permit this research.

The third recommendation is to address the direction of causality between cultural participation and tourism flows. The very good data available for around 300 museums over the period 1994-2008 and carried out by the Italian Ministry of Cultural Heritage would allow for this.

Finally, the fourth recommendation is to study the myopic and rational addiction hypothesis for a country where individual data are available.

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