History Matters: The Origins of Cultural Supply in Italy

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History Matters: The Origins of Cultural Supply in Italy

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Abstract

I investigate the consequences of long-run persistence of a societies' preference towards cultural goods. Historical cultural activity is approximated with the frequency of births of classical composers during the Renaissance and is linked with contemporary supply of cultural activities in Italian provinces. Areas with a one-standard-deviation higher number of composer births expose nowadays up to 0.4 standard deviations higher supply of cultural activities (such as concerts or theater performances). Those provinces seem to exhibit today also a somewhat lower supply of non-cultural activities. The results point at a tantalising divergence in societies' cultural preferences which is attributable to events rooted long in the past. Furthermore, the findings imply a remarkable persistency of the geography of artistic activity. While human capital is found to be potentially a driver for spill-over effects across different cultural disciplines over time, other unobservable factors, such as societies' preference traits, determine the persistency within most closely related cultural areas.

Keywords: Economic development, Culture, Institutions, Path Dependence, Endogenous preferences
JEL classification: N33, N34, O10, Z1, Z10

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1. Introduction

Cultural norms are believed to sustain within a population over long periods of time (e.g. Voigtlaender and Voth, 2012), parental investment creates long-term persistence of attitudes (e.g. Algan and Cahuc, 2010), and contemporary norms and preferences are influenced by historical institutional arrangements (e.g. Becker, 2011) or prominent people from the past (e.g. Acemoglu and Jackson, 2012). What is less clear is how meaningful is the persistency of such factors in explaining current socio-economic settings. As such, this study goes one step further and provides efforts to illuminate the economic consequences of historical persistency of preference traits within a society.

In this article, I focus on the creative sector and try to answer the question how persistent (in the very long-run) is the geography of cultural production in Italy? The choice of the cultural angle of this research is motivated by the attention that creative industries have been recently given by policy makers. The cultural and creative sectors are nowadays among the most dynamic sectors in the world economy and are arguably a substantial source of growth in the EU (European Commission, 2012). Those industries are further believed to constitute opportunities for developing countries to leapfrog into emerging high-growth areas of the world economy (UNCTAD, 2010). As such, the secondary aim of the article is to illuminate the role of history in explaining contemporary cultural activity; currently those aspects are perhaps somewhat neglected by the authorities.

As a starting point, I explore the role of economic and cultural shocks that have been associated with the period of Renaissance, in explaining contemporary cultural behaviour of a society. The Italian Renaissance has been a period of great cultural change and achievement, with some of the greatest developments occurring in the field of music. As a result, during the Renaissance classical music achieved new heights of cultural respectability and contributed to a remarkable development of music production in the centuries to come across Europe. I demonstrate that areas with established classical music production during Renaissance disclose contemporary markedly higher levels of cultural production (primarily, but not only, related to activities associated with classical music). Furthermore, this study shows that provinces with a more meaningful cultural past, supply nowadays a lower amount of non-cultural activities. The results point at a tantalising divergence in societies' preference which is attributable to events rooted long in the past.

I study the long-term persistence of a societies' preference towards cultural activities by analyzing a unique data set that covers the frequency of births of prominent classical composers in Italy over a period of seven centuries. The employed data set covers around

1,700 classical composers and is based on all composers that are listed in Grove Music Online (2011). In many areas across Italy (but not all) some of the greatest classical composers of all times have been born during the Renaissance. This emergence was certainly not a random incident and has been rather stimulated by a societies' behaviour, manifested in released funding for music education and production. The frequency of births per locality will be used therefore as an approximation for a societies' preference towards cultural activities. The historical composer database is then linked with contemporaneous entertainment activity supply in Italian provinces. Those records are available for a large array of activities, ranging from cultural events (e.g. classical concerts) to non-cultural attractions (e.g. soccer matches). Cultural demand is nowadays primarily driven by the elite, which was even more so in the past. Arguably, the elite is also most likely to transmit across generations social norms, as a conduct in accordance with such norms allows the elites to differentiate themselves from the rest of the population. This transmission should have therefore facilitated the persistence of cultural preferences.

The results imply a strong and positive association between historical composer births and contemporary supply of entertainment activities that are directly related with classical music. Provinces with a higher frequency of composer births during the Renaissance, supply nowadays more opera performances or classical concerts. The positive relationship is also found for other cultural activities that are not directly related to classical music. In provinces where more or where better composers have been born, there is nowadays offered a richer supply of theater, revue and musical performances or jazz concerts. This article provides also a tentative analysis of the drivers of the spill-over across the analysed cultural-activities. Higher human capital levels provide some explanation of the observed greater productivity in some of the related cultural areas. It is also disclosed that provinces with a less distinguished cultural past supply contemporary a somewhat greater number of non-cultural activities, such as sports events. Furthermore, it is shown that the emergence of great composers is not a random incident and it relies heavily on historical path dependence. The findings imply a remarkable persistency in geographic concentration of artistic activity over a period of six centuries. The role of history in explaining some of the observed patterns is likely however to have originated in even earlier periods.

It is difficult to attribute societies' contemporary behaviour with regard to cultural production to any particular historical incident. The emergence of great classical composers during the Renaissance period has not been an exogeneous event and as such possibly even earlier influences have shaped contemporary social norms. For example, the development of

Etruscan communities or Roman settlements during Ancient times might have had set in motion some forces that contributed to the consecutive development during Middle Ages. Those stimuli might have led to the remarkable cultural growth during Renaissance (and the emergence of influential classical composers), impacting so the development path of a society for several successive centuries. The contribution of this article is therefore limited to the demonstration of historical persistence of certain preferences towards culture as well as how this perseverance is shaped by prominent individuals in the long-run, as opposed to the identification of any specific historical factors or time-periods that have been particularly meaningful in shaping future development.

This paper is related to recent research on the long-run persistency of social norms and cultural traits. Guiso, Sapienza and Zingales (2008) disclose that Northern Italian cities that have been independent during the Middle Ages are characterised by a greater degree of interpersonal trust nowadays. Higher degrees of trust as well as lower corruption levels are found in regions that have been historically affiliated with the Habsburg Empire (Becker et al., 2011). Nunn and Wantchekon (2011) argue that individuals whose ancestors were heavily raided during the slave trade expose nowadays less trust in their neighbours. Voigtlaender and Voth (2012) find that certain types of behaviour, for example such as inter-ethnic violence, might persist over long periods even if there does not result any direct economic benefit. Historical religious and social norms can be very persistent in explaining the long-term economic and demographic development of a society (Botticini and Eckstein, 2007). Of relevance to this research are also studies on the socio-economic impact of factors such as historical population composition (Putterman and Weil, 2010) or technological starting conditions (Comin, Easterly and Gong, 2010). Previous literature within this area illustrates usually the role of historical determinants towards the development of certain social norms. Relative to this research, the main contribution of this article is to disclose how those norms may influence the behaviour of a society in the long-run. The underlying article provides thus an analysis on the long-lasting effects of certain preference endowments.

This paper links therefore also to an emerging literature strand on endogeneous preference (see Fehr, 2011). Traditionally, in economics, preferences have been treated as exogeneously given, which is in stark contrast to other social sciences (e.g. psychology), where it is disputed that institutions and other socially defined variables can influence preferences. Conclusive scientific evidence, that preferences are causally shaped by social institutional settings and cultural traits, are however practically inexistent (Fehr, 2011). The underlying research contributes to this strand as it provides some indication on the historical

persistence of a societies' taste.

Of particular relevance to this research is a recent game-theoretical study by Acemoglu and Jackson (2011). The authors formalize the notion of social norms as frames of reference and illuminate the development of social preferences over time. It is posited that "The impact of history is potentially countered by 'prominent' agents, whose actions are more visible. In particular, actions by prominent agents are observed by all future agents and this creates the possibility that future generations will coordinate on the action of a prominent agent" (Acemoglu and Jackson, 2011, p. 31). As such, the underlying study could be understood as a formal test of those theoretical predictions. I provide efforts to investigate whether prominent classical composers have the power to influence the behaviour of future generations and act as leaders by impacting the preferences of future generations.

The rest of the paper is organized as follows: the second section includes a description of the data used and presents the historical as well as contemporary cultural aspects relevant to this research. The third section introduces the empirical methodology and discusses the results. The fourth section presents concluding remarks.

2. Data and Context

This study employs data on the extent of cultural activity at two points in time – the Renaissance period and contemporary years. The indicator for Renaissance cultural activity is the number of births of prominent classical composers. The vast emergence of outstanding composers during the Renaissance in Italy has not occurred by chance and was potentially stimulated by several related factors, which are discussed below. Italy offers a particularly useful setting for the purpose of this analysis due to its political fragmentation: especially historical but also contemporary cultural activities are hardly affected by central authorities. As a result there is rich variation in cultural supply at the provincial level in Italy.[1] Therefore, it is possible to compare cultural activity of the Renaissance period with cultural supply in the same location around four centuries later.

Renaissance and Cultural Achievements

Italian Renaissance has been not only presumably the most important era in Italy's cultural history but also a meaningful precursor and source of inspiration for European Renaissance. Societal development and cultural change began in Italy around the end of the 13th century

[1] Throughout the article, I refer to Italy as the area under contemporary borders.

and lasted until the 16th century, branding so the transition between Medieval and Early Modern Europe. The era is acknowledged for its cultural achievements in the fields of literature, philosophy, science, visual arts, architecture, theater, but also, and possibly of greatest importance, in music. In fact Italian music composition exercised a dominant influence on subsequent European music production for a period of several consecutive centuries.

Music achieved new heights of cultural respectability and became for the first time self-sufficient. The demand for music was stimulated by the elites of Italian city-states, which exhibited during the Renaissance exceptional economic growth. Funding has been therefore available and was released by the Italian courts into the cultural sphere with the desire to generate a positive assertion of their own identities. The extent of geographic fragmentation in Italy and the resulting competition between the aristocratic courts is argued to be an important driver for the emergence of exceptional composers during the analyzed period (Vaubel, 2005). Music quickly developed into a vehicle for personal expression and has been increasingly often composed to express the political atmosphere of the period (Atlas, 1998). Another source of demand came from the church that often commissioned works and further stimulated music composition. In fact, sacred and secular music simultaneously benefited from each other and contributed to the remarkable heritage both in terms of quantity as well as quantity. Furthermore, with the emergence of a bourgeois class, the demand for music as entertainment has created additional incentives for music production. This is particularly attributable to the development of printing which facilitated distribution of music on a wide scale.

These stimuli on the demand side have triggered a series of important innovations. Music education has been institutionalised and based in the newly founded music conservatories (e.g. *Santa Maria di Loreto* in Naples in 1537). Those institutions created platforms for dedicated music training for the young and facilitated access to music education. The presence of music conservatoires enabled also the improvement of educational practices and have further contributed to the commercialisation of music in the early 17th century. Next, there has occurred a large series of important innovations of music instruments and their production processes. Stradivari, Guarneri and many other music instrument makers of lasting fame have developed and crafted violins, violas and cellos that maintained most of its characteristics into modern days. There have taken place also substantial innovations in the production of keyboard instruments, which ultimately led to the invention of the modern piano during the 17th century. Relevant technological developments

occurred also in architecture, allowing construction of buildings with more extreme interiors and superior resonance, stimulating creative output of numerous artists. For example, the Basilica of Saint Mark, completed in 1617, with its multiple choir lofts inspired the Venetian polychoral style and influenced the works of several consecutive composers, such as Andrea Gabrieli, Claudio Monteverdi or Giovanni Gabrieli (Crocker, 1966).

All in all, wealth shocks and a shift of the elites' preferences towards cultural goods have triggered forces that determined the music production and emergence of talent. Improvements in the available technology, education and infrastructure created not only incentives but also opportunities for composers. As a result the profession was well sought after, the career as a composer became well regarded and consequently a large wave of composers emerged.

At this stage it should be mentioned that the music-related developments have benefited also other cultural areas. For example, the newly constructed spacious and resonant buildings were holding often theater performances and have thus facilitated the development of Italian theater.[2] In addition, as music has been often used in theatrical performances, the association with classical music development has been simultaneously reinforced.

Contemporary Cultural Supply

Nowadays in Italy there is no official definition of culture, nor are the boundaries of cultural area clearly defined by government. The Ministry of Heritage and Cultural Activities is formally entrusted with supervision 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). The effective authority is however delegated to Regional Boards for Cultural Goods and Landscapes, and the local *Soprintendenze*.[3] This is in line with a decentralisation process which began in the 1970's. Usually the municipalities are the most active 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. Furthermore, local authorities seem to be aware of the potential benefits of a strong culture and arts sector and are actively involved in policies fostering those activities in their localities (Bodo and Bodo, 2011).

[2] In fact, even nowadays Italian opera houses are often holding theater performances.

[3] Five out of 20 regions are autonomous with more extended competencies also in the cultural field. 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).

Data Sources

This research is based on data that comes primary from two sources: SIAE (*Società Italiana degli Autori ed Editori* – the Italian Authors and Publishers Association) and Grove Music Online (2011). The SIAE data show the number of performances, number of tickets sold and box office revenue per province. The latest available records are for the year 2007, in which Italy accounted 107 provinces.[4] The number of tickets sold represents the number of attendees at the performance where entry tickets (purchased at box office or by subscription) are required. The box office revenue is the amount spent on tickets and subscriptions. All this information is displayed for cultural events, which include concerts and theater activities. Concert aggregate include classical concerts (band and choral concerts even if the repertoire may not be purely classical), jazz concerts and pop music concerts. The theater aggregate consists of theater, opera, revue and musical, ballet, puppets and marionettes, performing arts and circuses.

The database provides also records for non-cultural entertainment activities, such as sports events, dance and concertinos, touring amusement, exhibitions and shows, and multi-genre activities. 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 restaurants or bars. As it is not possible to disclose whether it was the cultural or artistic attraction of the performance or other factors, such as, for example, the quality of the food served at the restaurant that attracted the customer, this category is not included in any of the cultural activity aggregates. Sports events consist of the following sub-categories: soccer (international and national leagues), team sports other than soccer (such as basketball, volleyball, rugby and baseball), individual sports (boxing, cycle racing, athletics, tennis, show-jumping, motor racing, speed boat racing and horse racing), other sports (such as swimming and water polo or winter sports), bowling and go-karts. Touring amusement includes both single exhibitions and exhibitions inside amusement and leisure parks, as well as admissions to parks. Exhibitions and shows category is composed of profit-making exhibition activities. This category includes the exhibition of goods to be sold (antiques, carpets, etc.) and trade fairs. Multi-genre includes activities that may not be referable to a

[4] The records are available also for the year 2006 and are used in a robustness specification. Data on more recent years are available from SIAE for €56,700 per year, which substantially hinders the records being used for academic purposes. Previous years have a fundamentally different structure and are of limited use in this research.

unique kind of event, like open-air shows on the occasion of village fairs or religious festivals.

The second database used covers all composers that have been born in Italy and has been obtained from Grove Music Online (2011). The chosen encyclopedia is the leading resource for music research and contains more than 50,000 signed articles and 30,000 biographies. Given the large size of the source dictionary the data has been obtained by the means of an innovative on-purpose build computer application. The aim of the application is to automate information extraction from Grove Music Online through a search for composers born in Italy. The automated extraction method eliminates human error hence the reliability of the database has been supposedly optimised. The acquired sample is then processed to extract records, such as the full name, birth place, death place, birth date and death date. Second, a word count is calculated for each section – that is life, works, bibliography and writings – in the result pages. The length of a biographical entry is arguably a reliable approximation for the quality of an individual.

The obtained data set consists of 2,265 composers. The following adjustments have been conducted. The precise birthplaces of eighteen composers are equivocal as only the most likely birth location has been recorded (e.g. "?Pontecorvo"). For those composers the provided record has been used in order to identify the birth province. Even if the birthplace was not the listed location, most likely the birth occurred somewhere in proximity. In nineteen cases, the birthplace has been even more tentative (e.g. only the region or part of Italy is known). Those composers have been excluded from the following analysis. Two further composers have been born in places that are not located within current borders of Italy (i.e. Lugano in Switzerland and Pirano in Slovenia). Those observations as well as records with composers' unknown date of birth have been dropped.

Finally, this study uses records on contemporary population at provincial level which has been obtained from the annual survey on the Italian labor force. The Gross Domestic Product (GDP) is taken from disposable household income in Italian regions.

Data overview

Summary statistics on the number of performances and average ticket price for cultural and non-cultural activities are presented in Panel A and Panel B of Table 1, respectively. The concert aggregate accounts for 357 performances per province and consists of classical, jazz and pop concerts. The predominant cultural activity aggregate is the theater category that accounts for more than 1,500 performances in the average province and consists primarily of

theater and performing arts performances. The non-cultural activities consist of sports events, dance and concertinos, touring amusement, exhibitions and shows, and multi-genre activities. Panel C of Table 1 reports the population size and GDP of the average province.

[insert Table 1 here]

Table 2 provides a summary of the classical composer data set. The earliest recorded composer births in Italy occurred in the 14th century and increased sharply during the Renaissance until the 16th century when it peaked at 421 composer births. This is consistent with Borowiecki and O'Hagan (2012) who argued that by the late 16th century Italy was the musical center of Europe and accounted globally for around 40 per cent of important composers. Similar patterns arise for the length of biographical entries. In the 16th century the average length of a biography was at its peak of around two thousand words, implying the high quality of those composers. The disclosed length of biographies is even more impressive if one considers that records are generally scarcer for historically distant periods. In later centuries, both the number of births as well as the length of biographical entries is in a steady decline, which resonates the decreasing role of classical music in Italy.

[insert Table 2 here]

The map in Figure 1 shows the frequency of composer births during the Renaissance in Italy in its 2007 borders. Areas are marked in varying shades of blue (grey), depending on the frequency of composer births. Provinces marked with a darker shade of blue saw a higher number of composer births. The northern part of Italy, which is usually believed to be the better developed part, is generally characterised by a higher number of composer births.

[insert Figure 1 here]

It can be also observed that the frequency of birth varied substantially, even at the province level. Provinces in immediate proximity to each other experienced a very different history of artistic emergence. While, for example, not even one composer has been born during the Renaissance in either of the neighbouring provinces of Prato and Pistoia, the surrounding provinces have been important centers for classical music: Florence (gave birth to 33 composers), Bologna (33), Modena (12) and Lucca (8).[5] The same contrast can be observed in the southern part of Italy. In Naples, for example, there emerged 26 composers during the 15th and 16th centuries, whereas in all four surrounding provinces (i.e. Caserta,

[5] It is further interesting to observe that historically the cities of Prato and Pistoia have been not fundamentally different places than the capitals of the four neighbouring provinces. For example, the city of Pistoia has obtained its independence in 1117, less than a year later than the average for the four neighbouring capital cities. Pistoia served as the domicile for an independent local authority as well as a bishop, similar to the neighbouring provincial capitals, and had a population size in 1871 comparable with that of Modena (Guiso, Sapienza and Zingales, 2008).

Beneventa, Avellino and Salerno) in total only 4 composers have been born.[6] This is the level of variation at the province level which will be exploited in the quantitative analysis of this study.

[insert Figure 2 here]

Figure 2 shows the geographical distribution of cultural activities. Northern and central regions are areas with a relatively high supply of cultural activities per population. As in Figure 1, it can be observed that there is sufficient variation at the province level, with areas of very high cultural activity supply immediately adjacent to those with low supply.

3. Empirical Results

It is suggested that the geography of contemporary cultural supply coincides with cultural achievements during Renaissance. As described in the previous Section, the developments associated with the Renaissance period constituted a common shock that increased cultural activity. In some provinces the emergence of influential classical composers has been triggered, while in others not. It is demonstrated that across a range of cultural activities, provinces with meaningful cultural records in the Renaissance are characterised by higher contemporary supply. It is also disclosed that this emergence of cultural talent is geographically remarkably persistent over several consecutive centuries.

Methodology

The aim of this research is to investigate the long-term persistency of certain preferences of a society towards cultural activities. In order to conduct such analysis the existence of a relationship between contemporary cultural supply and historical cultural achievements are estimated. As the latest available records on contemporary cultural supply are available for the year 2007, the focus of this analysis is directed on this year.[7] It is of much greater difficulty to measure the value of cultural wealth of a geographic region and out of scope to do so directly for historical time periods. For this reason in the underlying study cultural activity needs to be approximated and it is done so by measuring the number of historical births of prominent classical composers or by estimating their successive importance. The significance of an artist is conventionally measured with the length of biographical entry. It is

[6] These observations would be equally extreme if the total length of biographical entries was considered. The Italian North-South divergence determines some of the geographic heterogeneity, however as disclosed in a robustness test, does not explain the persistency.

[7] The entertainment activity data set is available also for the year 2006, which is employed in a test presented in the Robustness Section.

likely that on average the biographical entry of the better composer would be longer. The chosen period of births are the 15th and 16th centuries, from now on termed the Renaissance. This is the earliest time period in which a meaningful number of composers have been born.[8] As several other factors could potentially influence contemporary cultural supply, it is necessary to control for them and utilise a formal econometric setting. For this reason, the following model is employed:

$$\text{Cultural Supply}_{pc,i} = \alpha_0 + \alpha_1 \text{ Historical Cultural Activity}_i + \alpha_2 \text{ Price}_i + \alpha_3 \text{ GDP}_{pc,i} + \boldsymbol{\alpha}\text{Region}_i + \varepsilon_i \quad (1)$$

Model (1) estimates the number of contemporary performances per capita in province *i* (*Cultural Supply*$_{pc,i}$) as a function of historical cultural activity, which is obtained in two ways. First, cultural activity is measured with the number of composer births that occurred during the Renaissance (that is in the 15th and 16th centuries). Second, I account for composers' quality and calculate for each province the total word length of biographical entries of composers born during the Renaissance. In order to account for varying market prices and hence different incentives to organise performances across provinces, I introduce the admission price (*Price*) as a control variable. I further include controls for GDP per capita, in order to account for wealth heterogeneity between provinces. In order to deal with further unobserved geographical heterogeneity, I include a set of indicator functions that take the value of one for each of the twenty Italian regions. The model contains also a constant (α_0) and a standard variance estimator (ε_i). In some robustness estimations, the standard errors are clustered at the region level, allowing for correlations between observations within a single region, but remaining independent between regions.

Contemporary Cultural Activities

I begin by investigating the relationship between historical preference towards cultural production, approximated with births of composers during Renaissance and contemporary cultural activities supply. The association between composer births and the number of concerts per capita or theater activity performances per capita or of a province is presented in columns 1 and 2 of Table 3. The estimation is based on the previously discussed Model 1 and contains the set of introduced control variables. Both estimated coefficients are positive,

[8] In a later section I analyse also the association between composer births during Renaissance and consecutive periods.

highly significant for concert supply, but also statistically meaningful for theater supply. The results imply that the birth of each additional composer during Renaissance coincides with contemporary around 15 more concerts and 243 theater-type of performances per one million citizens.

[insert Table 3 here]

It is likely that there exists heterogeneity in the observed returns depending on the quality of the composer. The association between cultural supply and some of the greatest composers might be different than with the average prominent artist. I allow therefore for the possibility of geographic concentration of outstanding talent and take account of composers' quality by considering the length of their biographical entries. This measure aggregates the word length of biographical entries of all composers born during Renaissance per province and is expressed in thousands of words. The results are reported in columns 3 and 4. The point estimates are consistent with the previous results and imply a positive and highly significant association with contemporary cultural supply. The coefficient for concert supply is again smaller in size, but as concert activities are less frequently organized (see Table 1), commenting on the relative significance is not possible at this stage. I report in brackets however also the standardized beta coefficients. Those estimates are obtained for variables that have been standardized so that their variances are equal to one. The conducted standardization of the coefficients allows to illuminate which of the explanatory variables have relatively larger effects on the dependent variable. The coefficients are larger for the concert category and imply that a one-standard-deviation increase in composer births would yield a 0.24 standard deviation increase in the number of concerts.

So far the analysis has looked at two types of aggregated cultural activities. Next, I disaggregate those categories and re-estimate the associations with historical cultural activity for a wide range of sub-categories. In analogy with the previous approach, historical cultural activity is first measured with the number of composer births in the Renaissance and the results are reported in Panel A of Table 4. The association between composer births and cultural supply is positive and statistically meaningful for supply of classical and jazz concerts per capita, as well as theater, opera, revue and musical performances. Those relationships are estimated with high precision and are significant at over 95 per cent confidence levels. The standardized beta coefficients (reported in brackets) imply that the strongest association is found for the theater and classical concert categories. A one-standard-deviation increase in the number of composer births would yield a roughly 0.39 standard deviation increase in the number of theater shows or classical concerts.

[insert Table 4 here]

Panel B of Table 4 reports results for estimations where the length of biographical entries is used as an approximation for historical cultural wealth. The sign and significance of the estimated coefficients are remarkably consistent with the previous approach. The association between the total length of biographical entries of composers born in a province are the strongest with the number of theater, opera and revue and musical performances per capita within the theater activity aggregate as well as for classical and jazz concerts per capita within the concert activity aggregate.

Two striking features can be deducted from the findings presented so far:

Result 1. *There exists a strong association between historical composer births and contemporary supply of activities that are closely related with classical music. In provinces where more or where better composers have been born, there is nowadays offered a greater supply of opera performances or classical concerts.*

Result 2. *The positive association exists also for other cultural activities which are not directly related to classical music. Provinces that gave birth to a greater number of classical composers are providing contemporary a richer supply of theater, revue and musical performances or jazz concerts.*

Throughout all studied events the association is in general positive, even if not always statistically significant. The only negative coefficient is found for circus performances, which are supposedly performances with the lowest cultural and artistic value. Next, non-cultural events are explored.

Non-Cultural Activities

The disclosed results so far could be explained in two ways. One explanation would be consistent with the previously suggested mechanism of a path dependence of cultural demand. Cultural preferences could be persistent over long periods of time and thus provinces with a more meaningful cultural past are also providing better artistic supply in successive time periods. An alternative explanation is that provinces with more important accomplishments in the past are simply more active throughout a wide range of various activities and provide a greater supply of any type of leisure event nowadays. This alternative

hypothesis is tested by the inclusion of a large set of non-cultural activities which are then linked with historical composer births or their quality.

The analysis of the association between historical cultural activity and contemporary non-cultural production is presented in Table 5. The point estimates for the number of composer births and length of biographical entries are presented in Panels A and B, respectively. It can be observed that most of the estimated coefficients are negative and some are even statistically significant. The results indicate that in provinces where more or better composers have been born in the past, the supply of sport performances per capita is lower. Each additional historical birth of a composer corresponds with around 53 less sports events per million citizens in a province and the association is found to be significant at the 95 per cent confidence level. The relationship is also negative, albeit not always significant, for dance performances, concertinos, touring amusement, as well as multi-genre activities.[9] Exhibitions and shows activities are the only category of events that correspond positively with composer births however the association is outside the usual statistical confidence levels.

[insert Table 5 here]

It has been previously shown that provinces with a meaningful cultural past are also contemporary involved in more cultural activities. The results presented in this section indicate that provinces that had greater cultural achievements in history seem to supply nowadays a lower number of non-cultural activities. The findings imply that:

Result 3. *There exists a divergence in the preference of a society towards cultural and non-cultural activities that is remarkably persistent over the period of more than four centuries.*

Robustness Tests

This subsection describes a range of robustness tests that have been conducted in order to test the reliability of the disclosed results. The estimations are presented in Table 6, which begins by reporting the baseline specification in columns 1 and 2.[10]

[insert Table 6 here]

[9] All dependent variables are population adjusted and measured per one million of citizens. As has been noted before, dance events and concertinos are categorized as non-cultural events as they constitute only an additional element to some other activities or entertainments, for example, live piano music in restaurants or bars. Therefore, cultural value of such events is supposedly marginal and not possible to estimate.

[10] For simplicity I report only results for the concert and theater aggregates. The findings would remain consistent if any of these categories was disaggregated.

The disclosed association with contemporary entertainment activity supply is conducted for the last available year 2007. The database is however also provided for the preceding year 2006, which I include next in a robustness specification in order to investigate the consistency of the results. The estimations are summarized in columns 3 and 4. It can be viewed that the correlation coefficients are very similar in sign, size and significance with the baseline specification for the year 2007.[11]

The dependent variable so far is measured at level and is expressed per one million citizens. This keeps the methodology as simple and objective as possible. An arising issue is however that any comparison between the categories becomes difficult as the variables have different means. For this reason I log the dependent variable as well as the main explanatory variables (i.e. number of composer births and length of their biographical entries).[12] An implicit advantage of logging the variables is that any bias resulting from outliers is decreased. It is encouraging to observe that the coefficients are consistent in sign and significance with the baseline specification (columns 5 and 6). A one per cent higher number of composers coincides with an increase of 21 per cent in the number of concert performance and a rise by 12 per cent increase in supply of theater activities. The associated increase for the concert category is consistent when the logged total length of biographical entries is considered.

Next, I lessen the previously imposed restriction to individuals born during the Renaissance and consider classical composers born in any time period. Using the unrestricted number of composer births or the total length of biographical entries per province delivers consistent results, as can be viewed in columns 7 and 8. The most significant effect can be seen for the concert category, however a positive and statistically meaningful coefficient is obtained also for the theater aggregate.

The incentives to organise any type of entertainment event might be heterogeneous across provinces and could depend on some characteristics which have not been accounted for. I have included so far controls for the wealth of a population and price of admission tickets, which should be particularly strong controls for incentives to organize a performance. The organizer of an event might have obtained however also other revenues from expenditure of the audience (e.g. from advance sales, reservation of tables, cloakroom service, purchase of drinks). In addition to the amounts paid by participants, other proceeds from partner

[11] It is unfortunately out of scope to investigate the presence of any differences between longer periods of time as adequate cultural supply data is not available. In the Persistency Sub-section I follow however a different approach in order to study inter-temporal patterns.

[12] For observations that are equal to zero, I set also the logged variable equal zero.

institutions participating in the implementation of the event might have been obtained. Such revenue could stem, for example, from sponsorship, advertising activities, public and private grants or TV shooting. Therefore, I include another set of control variables and account for the total of those additional revenue sources (i.e. turnover of a show). In order to allow for a varying number of performances across provinces and categories, the turnover is expressed as the average turnover per province. The specification that includes control variables for the average turnover is presented in columns 9 and 10. Encouraging, the coefficients of main interest are found to be very stable in magnitude and significance.

In a recent study Borowiecki and Castiglione (2012) have argued that tourism flows coincide strongly with cultural participation. If this was the case, our results could be biased by unobserved geographic variation in tourism flows. In order to address this potential concern I measure tourism flows by accounting for the number of visitors to a province, Italians or foreigners, who stayed at least one night in a tourist accommodation in the year 2007. The data set is obtained from the Italian National Institute of Statistics and is based on a wide definition of tourism accommodation.[13] The results are summarized in columns 11 and 12. The coefficients of main interest remain very stable and imply that our findings are not driven by tourism flows.

Finally, the robustness of the results is investigated by including standard errors clustered at the region level. Clustering standard errors at the region level allows for correlations between observations within a single region (e.g. within Tuscany), but remaining independent between regions (e.g. Tuscany and Lazio do not have correlated errors). The point estimates are reported in columns 13 and 14. The coefficient for the concert category remains highly significant, however the results for the theater category are estimated at somewhat lower confidence levels.

Cultural Infrastructure Endowment

Another source of incentives could stem from the scale of the show. It is presumably cheaper to organize one large scale event rather than several small ones. For this reason I account for the average number of participants at a performance and include such measure as an additional control variable. This is a particularly relevant test as to some extent it controls also for the size of the available infrastructure. Some provinces are potentially endowed with a better cultural infrastructure that allows to offer events on a larger scale. For example, *La*

[13] Tourism accommodation includes all types of facilities: hotels, motels, residences, camp sites, holiday villages, farm accommodation, holiday flat and houses, hostels, alpine refuges and so on.

Scala, the 18th century opera house in Milan, accommodates around three thousand spectators and enables therefore large scale opera performances. The results are depicted in columns 1 and 2 of Table 7. It is reassuring to observe that the average number of admissions per performance does not change the coefficients on composer births or quality. A tentative conclusion is that the predominant driver for contemporary cultural supply is the historical emergence of classical composers, rather than cultural infrastructure endowment.

[insert Table 7 here]

The divergence between the northern and southern part of Italy is arguably exceptionally marked. The well-developed northern and central parts exhibit very different social and economic characteristics than the southern part, including the islands (i.e. Sardinia and Sicily). A large portion of that variation is likely to be capture by the already introduced regional indicator variables. Nonetheless, I extend the set of control variables and include additional indicator functions to target any bias arising due to the north-south divergence. I include dummy variables that take the value one if a province was located in the less-developed south of Italy or on any of the islands. Columns 3 and 4 report the results. It can be observed that the point estimates remain very consistent with previous findings. There is no sign of a bias caused by any unobserved differences between Italy's North and South.

Explanatory Power

Based on a wide range of robustness tests conducted and discussed above it has been disclosed that the association between historical composers and contemporary cultural supply is very stable. An arising question deals with the explanatory power of the relationship: how much of contemporary cultural supply variation is associated with historical composer births. The analysis is presented in Table 8 and the focus is directed at the coefficient of determination. The number of composer births explains 9.2 per cent of the variation of concert supply and around 4.2 per cent of theater aggregate supply. The inclusion of price controls only marginally improves the explanatory power. The variables of greater significance are wealth controls and region controls. It can be also observed that the point estimates on the variables of interest for each category remain very consistent in sign and size throughout all specifications.

[insert Table 8 here]

Earlier Influence

An interesting question concerns the timing of the effect. It is not clear whether it was the emergence of great classical composers that led to the remarkable divergence in cultural and non-cultural activity supply, or rather perhaps some earlier unobserved factors. Providing an answer to this question could eventually illuminate further the mechanism of the disclosed association between historical cultural wealth and contemporary cultural supply. Such analysis is however very limited, as there are hardly any quantitative records on other cultural assets of a province in earlier time periods. As a tentative approach I study the number of archaeological sites and UNESCO world heritage sites and use those variables as an approximation for prehistoric or medieval achievements. Including controls for earlier influences allows an investigation of the relative performance of the used composer births or quality variables in explaining contemporary cultural aspects. The additional data sets have been obtained from the Ministry of Cultural Heritage and Activities in Italy and UNESCO. The archaeological sites include ancient Roman, Greek and Etruscan ruins. The average province has 3.8 archaeological sites (standard deviation 7.42). The UNESCO World Heritage List includes properties that form part of the cultural and natural heritage of outstanding universal value. The year of origin of those sites is more diverse and is mostly ancient, however some originate also from the Middle Ages or even later periods. On average, there are located 0.9 UNESCO world heritage sites in a province (standard deviation 1.4).

The estimations are presented in Table 9. It can be observed in columns 1 and 2 that the coefficients on the archaeological sites are positive and significant for the concert aggregate. The result implies that the impact of historical factors on contemporary cultural supply might be attributable to incidences from even farther past. It is nonetheless important to note that the coefficients on composer births or quality during the Renaissance remains consistent in size and is significant for the concert category. This suggests that also factors associated with the emergence of influential composers during the 15 and 16 centuries are important in explaining contemporary supply of concerts. The association between the number of UNESCO world heritage sites and contemporary cultural engagements is less clear and statistically insignificant (columns 3 and 4). The coefficients on the composer birth or quality variables remain however once again stable in size and highly significant, especially for the concert aggregate.

[insert Table 9 here]

Interpretation of the findings is difficult. The results might point at a prevalence of very early historical factors, perhaps even related to incidences that occurred during ancient

times. However, also later events, associated with the Renaissance (and approximated with composer births or quality), are found to expose meaningful relationships with contemporary cultural supply. In conclusion:

Result 4. *Historical composer births during the Renaissance expose a strong association with contemporary cultural supply also one accounts for earlier historical incidences. The role of history in explaining the observed divergence seems however to originate in even earlier, perhaps ancient periods.*

Alternative Mechanisms

While it is not the prime objective of this article, it is interesting to consider the question on the origin of outstanding talent. It is unlikely that the emergence of prominent composers in certain provinces in Renaissance Italy has been a random incident, but rather the result of some (unobservable) determinants. As such, it must be acknowledged that contemporary cultural supply could be driven by the same unobservable factors nowadays and thus enforcing the association between historical composer births and contemporary cultural supply. One of such determinants could have been the preference of a population for a certain type of leisure activity. As disclosed in a model of preference evolution by Bisin and Verdier (2001), it is possible that the distribution of preference traits remains heterogeneous in a population over a very long time period. Wealth shocks associated with the period of Renaissance might have shifted music composition into the realms of arts and culture, which in turn stimulated the domestic emergence of exceptional talent, increasing so further the demand for music. It is also possible that this reinforcing mechanism remained in play for many following centuries.

Another possible unobservable factor driving our results could be human capital. 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., 2011). Consequently, it could have been a high level of human capital that has historically stimulated the emergence of classical composers and, if it was persistent over long time periods, it shapes also contemporary cultural supply. Testing the human capital hypothesis is limited in this research as no records are available for historical education levels in Italy. Assuming persistency in human capital, as suggested by Campante and Glaeser (2009), historical education could be possibly approximated with contemporary education levels.

Education data on province level is provided in the population census, which is conducted every 10 years and is last available for the year 2001.[14]

I estimate models in which I include control variables for the shares of population that have a higher degree. The rational for this is that cultural shows are predominantly demanded by better educated people (e.g. Ateca-Amestoy, 2008).[15] The estimation is reported in Table 10. It can be observed that the association between composer births or quality and the theater aggregate disappears. The only significant relationship remains for the concert category. This is a very interesting finding, as it possibly provides an indication for the channel of the observed spill-over effects to other cultural categories. It is possible that better educated provinces supply in general more cultural activities. Therefore, once controls for education levels are introduced, the significant coefficients for the theater category disappears.

[insert Table 10 here]

When it comes to the concert category the association remains positive. In a disaggregated approach, the relationship would be once again the strongest for classical concerts, the most relevant sub-category.[16] Those associations do not get distorted through the inclusion of education controls, which suggests that some other determinants, related to the incidence of composer birth or quality, are relevant. Possibly those determinants could be attributable to the persistence of preference traits of a society. Alternatively, the disclosed patterns might be influenced by the endurance of some industrial settings, such as more advanced music production technology, superior infrastructure or better professional networks. The results provide some indication that certain productivity enhancing factors have prevailed over long periods of time, resulting in a remarkable geographic persistency of cultural activity. In summary:

Result 5. *Human capital is a likely channel through which spill-over across cultural activities occur. Within music related activities however some additional, unobserved forces, possibly due to the persistency of societies' preference traits, are predominant.*

Persistency

[14] As in 2001 Italy consisted only of 102 provinces, the following regressions are based on 102 observations.
[15] I have also tried numerous alterations (e.g. controlling for various education groups, share of worst educated population) and obtained similar results (not reported).
[16] The coefficients for classical concerts are positive, consistent in size and estimated within the 99 per cent confidence interval.

The focus of the conducted analysis so far has been directed at the comparison of two periods in time: a historical one (I have looked at the frequency of composer births primarily during the Renaissance) and a contemporary. The emerging results from the conducted analyses imply that some factors are remarkably persistent over the long time period of around four centuries. Little attention has been devoted however to the incidences that occurred during the centuries in-between those two points in time. In this part, I use the entire classical composer data set which contains records on the number of composer births in a province for each century and provide an investigation of the geographic persistency of artistic concentration.

[insert Table 11 here]

Table 11 presents a matrix of correlation coefficients for the number of composer births in a province in a given century. The estimated coefficients are always positive and usually highly significant. This implies a remarkable persistency in the geography of births: up to 86 per cent of births in a given century are occurring in the same province as in the previous century. The correlation coefficients are usually the largest for consecutive centuries and decrease in size over time. The only insignificant correlation estimates, albeit consistently positive, are found between the 14th century and periods after the 17th century, which is presumably caused by a very low number of observations for the earliest observed century.

[insert Table 12 here]

Next, I establish a more formal framework and model the number of composer births that occurred during a century as a function of births of the previous century. The estimations are based on observations for 107 provinces and six centuries. Table 12 presents the results. The association between composer births between two consecutive centuries is found to be positive and highly significant. This relationship is robust to the inclusion of century controls, estimated with an indicator function that takes the value one for each century and zero otherwise, as well as province fixed effects. The preferred specification that includes century and province controls (reported in column 4) implies that for ten additional composers born in a province, another three births followed in the next century in the same province. This relationship is established within the 99 per cent confidence interval. The results point at a remarkable persistency of geographic concentration of artistic activity and the role of historical factors in explaining cultural aspects over a very long period. The findings are summarized as follows:

Result 6. *The emergence of great composers is not a random incident and is highly dependent on historical path dependence. Clustering of artistic activity is very persistent in its geography in the long-run.*

Migration

The issue of migration has been neglected so far. One could worry that the birth locations and work locations, in which the effective creativity stimulating forces would be located, have not been necessary the same. In this section I argue that the association exists, even if it might be lagged.

A location that becomes a meaningful destination for a certain group of artists attracts immigration, contributing so to the development of a local creative cluster. The more established an artistic discipline becomes in a location, the stronger are the forces stimulating the consecutive attraction from other regions or local emergence of outstanding talent. In addition, more established locations experience improvements of cultural infrastructure, education practices and institutional arrangements, contributing so further to the birth frequency of meaningful artists.

O'Hagan and Borowiecki (2010), for example, investigate the detailed patterns of birth locations, migration and tendencies to cluster in certain cities for classical composers born between 1750 and 1899. This is a period during which Paris has been globally the predominant location for classical music, especially in the earlier decades of the analysed period. In the 1750 to 1800 period, Paris has been the main work location for 40 per cent of composers covered by the authors' sample, followed in the first half of the 19th century by a concentration of 36 per cent and 22 per cent in the second half. These are very high proportions which clearly decline over time. The proportion of births of composers that occurred in Paris during the same period is comparably high however it is exhibiting an upward trend. Out of the composers working in Paris during each of the three half century periods, respectively, 27 per cent, 38 per cent and 47 per cent have been born in the French capital. These trends point at the previously argued lagged relationship between composer concentration rate due to immigration and the consecutive increase in the frequency of births.

4. Conclusion

Large attention, both on academic and policy level, has been devoted recently to the cultural industries. Until now however, little has been known on the role and persistency of historical influences on contemporary cultural supply. As such this research provides a useful

contribution by providing efforts to investigate the origins of cultural supply in Italy. The primary focus of this research is directed on the period of the Renaissance which is then linked with contemporary cultural supply. The Italian Renaissance is characterised by remarkable developments in the cultural sector, with particularly important changes in the field of classical music, in some of Italian provinces (but not all). The geographic heterogeneity in historical cultural development is exploited in this paper and it is approximated with the frequency of composer births that occurred during the 14^{th} to 16^{th} centuries. Those historical composer births are then linked with the supply of a wide range of entertainment events nowadays.

The emerging results provide tentative evidence on a remarkable persistency of historical factors in determining supply of cultural activities. Italian provinces that have been culturally more developed in the past expose nowadays a higher supply of cultural events. The estimated effects are large and imply about 0.2 to 0.4 standard deviations higher cultural supply in provinces that saw a one-standard-deviation higher number of composer births during Renaissance. It is even more interesting to observe that those provinces are providing nowadays a somewhat lower supply of non-cultural activities. The findings point at a divergence in the patterns of cultural supply which is attributable to forces that persisted over a period of several centuries. It is difficult to estimate the exact timing of the observed effects, which has likely originated in time periods even earlier than during the Renaissance. I also demonstrate an outstanding persistency in the birth location of prominent composers. Historical path dependence determines the geography of emergence of artistic talent over a period of six centuries.

The emergence of a prominent composer is not a truly exogenous event, but has been rather influenced by some unobserved factors. It is likely that a societies' preference, manifested in released funding for music education and production, was determining cultural development in distant past and continues so nowadays. The results indicate thus a remarkable persistency of cultural norms of a society. In light of recent studies conducted on the historical persistency of cultural traits and social norms, this research contributes by disclosing how such norms may influence the behaviour of a society in the long-run. The findings lend also first quantitative support to Acemoglu and Jackson's (2011) study that posits the role of prominent individuals on the shaping of cultural norms of future generations.

The results presented in this study constitute an important motivation for the vast research on the history of art markets. Historical factors are relevant determinants of the

cultural sector nowadays and a better understanding of their role, might potentially improve current decision making. From a policy perspective, the emerging findings point at the additional burden faced by some developing countries that did not experience a rich cultural past and yet direct their support towards the development of cultural industries in order to leapfrog into emerging high-growth areas of the world economy.[17] Entry barriers are possibly existent primarily for the traditional artistic disciplines (such as classical music composition), hence for emerging countries it could be eventually advantageous to focus on fostering of new artistic genres. Countries that possess meaningful cultural endowments could further exploit them in order to stimulate a positive assertion of their own identities. These considerations are provided with the cautionary remark that further analysis and case-studies are required in order to illuminate effective ways to exploit historical cultural wealth.

[17] This article studies the historical role of western culture, e.g. classical music, in a European country. Culture is however under no means limited to western culture and it is likely that some developing countries that had other forms of cultural wealth in the past are prone to experience comparable benefits nowadays (consider for example the traditional Chinese theatre, also called Beijing Opera).

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Tables

Table 1. Summary statistics on Italian provinces in 2007.

	Panel A: Cultural activity supply			
	Number of performances		Price	
Concert aggregate	356.8	(528.7)	15.05	(4.6)
Classical concert	135.8	(202.3)	9.79	(5.2)
Jazz music concert	51.9	(110.5)	11.09	(5.3)
Pop music concert	169	(246.1)	17.2	(6.2)
Theatre aggregate	1,581.60	(2,559.5)	6.8	(1.5)
Theatre	782.6	(1,718.1)	12.27	(4.0)
Opera	28.4	(52.9)	17.62	(15.6)
Revue and musical	28.4	(99.3)	19.92	(91.1)
Ballet	63.8	(114.0)	10.69	(4.3)
Puppets and marionettes	31.3	(56.5)	3.54	(2.6)
Performing arts	452.2	(698.6)	10.51	(6.5)
Circus	194.9	(254.9)	7.6	(3.9)
	Panel B: Non-cultural activity supply			
Sports activities	1,869.00	(2,178.1)	8.8	(4.2)
Soccer	1,077.90	(1,637.7)	8	(4.1)
Team sports other than soccer	143.5	(165.6)	8.48	(7.2)
Individual sports	77.3	(145.4)	7.27	(9.2)
Other sports	77.3	(116.6)	5.5	(5.5)
Dance activities and concertinos	8,173.40	(8,553.8)	9.43	(2.5)
Dance	4,739.80	(5,039.8)	9.43	(2.5)
Concertinos	3,433.60	(3,953.6)	8.48	(12.7)
Touring amusement activities	349.3	(702.1)	3.48	(5.4)
Touring amusement	209.5	(530.2)	0.66	(2.0)
Amusement activities	139.8	(278.4)	3.13	(5.4)
Exhibitions and shows	372.9	(648.1)	3.97	(2.4)
Multi-genre activities	419.1	(478.8)	5.04	(5.3)
	Panel C: Population size and wealth			
Population (in thousands)	557.19	(636.7)		
GDP (in million euro)	16,451.53	(26,387.9)		

Source: SIAE (2007).

Note: Standard deviation in parentheses. Statistics is based on 107 observations. Price reported in euro.

Table 2. Frequency of composer births and their quality by century in Italy.

	Composer births	Wordcount (in thousands)	
14th	7	0.09	(0.54)
15th	36	0.21	(0.76)
16th	421	2.03	(4.72)
17th	387	1.74	(4.19)
18th	346	1.79	(4.01)
19th	238	1.00	(2.03)
20th	155	0.53	(1.60)

Source: Grove Music Online (2011).
Note: Standard deviation in parentheses.

Table 3. Historical composer births and contemporary cultural supply.

	Concert aggregate (1)	Theater aggregate (2)	Concert aggregate (3)	Theater aggregate (4)
Number of births	14.81***	243.5*		
	(4.869)	(141.0)		
	[0.242]	[0.139]		
Length of biographical entries			19.13***	418.1**
			(6.362)	(181.1)
			[0.234]	[0.188]
Region controls	yes	yes	yes	yes
Price controls	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes
Observations	107	107	107	107
R-squared	0.623	0.558	0.622	0.569

Note: Standard errors are reported in parentheses. Standardized beta coefficients are reported in brackets. The dependent variable measures the number of performances per capita of a province in each category of activities. 'Number of births' measures the total number of composer births in a province that occurred during Renaissance (i.e. between 1400 and 1600). 'Length of biographical entries' measures the total number of words written on composers born in a province during Renaissance. The database is recorded on the province level and the 2007 borders are utilised. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 per cent confidence.

Table 4. Historical composer births and contemporary cultural supply. Disaggregated activities.

	Concert aggregate			Theater aggregate						
	Classical	Jazz	Pop	Theater	Opera	Revue and musical	Ballet	Puppets and marionettes	Performing arts	Circus
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel A: Number of births									
Number of births	10.66***	2.235**	2.132	36.73***	1.173**	2.376***	1.224	0.163	13.15	-1.017
	(2.765)	(1.038)	(3.181)	(7.302)	(0.554)	(0.559)	(0.952)	(0.972)	(23.07)	(4.220)
	[0.387]	[0.178]	[0.0535]	[0.389]	[0.183]	[0.419]	[0.112]	[0.0193]	[0.0609]	[-0.0165]
Region controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	107	107	107	107	107	107	107	107	107	107
R-squared	0.371	0.572	0.623	0.608	0.554	0.363	0.512	0.150	0.288	0.756
	Panel B: Length of biographical entries									
Length of biographical entries	14.23***	2.995**	2.613	55.22***	1.880**	3.351***	2.031	0.762	11.69	-2.212
	(3.691)	(1.355)	(4.162)	(9.227)	(0.715)	(0.729)	(1.250)	(1.284)	(30.70)	(5.455)
	[0.385]	[0.178]	[0.0489]	[0.435]	[0.219]	[0.440]	[0.138]	[0.0671]	[0.0403]	[-0.0267]
Region controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	107	107	107	107	107	107	107	107	107	107
R-squared	0.371	0.573	0.622	0.643	0.566	0.381	0.517	0.153	0.287	0.757

Note: See Table 3.

Table 5. Historical composer births and contemporary non-cultural supply.

		Sports activities										
	Sports activities (1)	Soccer (2)	Other team (3)	Individual sports (4)	Other sports (5)	Bowling (6)	Go-kart (7)	Dance (8)	Concertinos (9)	Touring amusement (10)	Exhibitions and shows (11)	Multi-genre activities supply (12)
	Panel A: Number of births											
Number of births	-53.30**	-16.09	-1.980	-4.560	-1.204	-18.79*	-8.277*	-99.50	-3.617	-21.46	14.56	-27.82**
	(23.38)	(19.09)	(2.959)	(2.915)	(2.703)	(11.24)	(4.467)	(70.53)	(70.78)	(22.24)	(10.16)	(12.97)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	107	107	107	107	107	107	107	107	107	107	107	107
R-squared	0.768	0.781	0.516	0.348	0.388	0.329	0.311	0.637	0.370	0.302	0.677	0.546
	Panel B: Length of biographical entries											
Length of biographical entries	-44.18	-0.137	-4.378	-6.635*	-1.093	-16.82	-11.88**	-100.2	13.04	-35.41	20.71	-35.36**
	(31.65)	(25.51)	(3.900)	(3.832)	(3.607)	(15.01)	(5.933)	(93.97)	(93.51)	(29.42)	(12.78)	(17.23)
Region controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	107	107	107	107	107	107	107	107	107	107	107	107
R-squared	0.759	0.779	0.521	0.353	0.387	0.317	0.316	0.634	0.370	0.306	0.679	0.544

Note: Standard errors are reported in parentheses. The dependent variable measures the number of performances per capita of a province in each category of activities. 'Number of births' measures the total number of composer births in a province that occurred during Renaissance (i.e. between 1400 and 1600). 'Length of biographical entries' measures the total number of words written on composers born in a province during Renaissance. The database is recorded on the province level and the 2007 borders are utilised. ***/**/* indicate estimates that are significantly different from zero at 99/95/90 per cent confidence

Table 6. Robustness tests.

	Concert aggregate (1)	Theater aggregate (2)	Concert aggregate (Year 2006) (3)	Theater aggregate (Year 2006) (4)	Concert aggregate (logged) (5)	Theater aggregate (logged) (6)	Concert aggregate (7)	Theater aggregate (8)
	Panel A: Number of births							
Number of births	14.81***	243.5*	14.25***	248.7*				
	(4.869)	(141.0)	(3.945)	(132.3)				
Number of births, logged					0.206***	0.119**		
					(0.0747)	(0.0524)		
Number of births, all composers							3.172***	54.16*
							(1.090)	(30.71)
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
Observations	107	107	107	107	107	107	107	107
R-squared	0.623	0.558	0.624	0.582	0.583	0.587	0.619	0.558
	Panel B: Length of biographical entries							
Length of biographical entries	19.13***	418.1**	17.42***	413.9**				
	(6.362)	(181.1)	(5.328)	(173.5)				
Length of biographical entries, logged					0.190***	0.0549		
					(0.0643)	(0.0485)		
Length of biographical entries, all composers							4.043***	64.98*
							(1.203)	(34.32)
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
Observations	107	107	107	107	107	107	107	107
R-squared	0.622	0.569	0.615	0.592	0.589	0.568	0.631	0.561

Note: See Table 5.

Table 6. Robustness tests (continued).

	Concert aggregate (9)	Theater aggregate (10)	Concert aggregate (11)	Theater aggregate (12)	Concert aggregate (St. Err. Clustered at region level) (13)	Theater aggregate (St. Err. Clustered at region level) (14)
	Panel A: Number of births					
Number of births	15.07***	259.5*	15.56***	263.7*	14.81**	243.5
	(4.638)	(142.6)	(4.855)	(142.5)	(5.390)	(239.3)
Region controls	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes
Turnover controls	yes	yes				
Tourism flow controls			yes	yes		
Observations	107	107	107	107	107	107
R-squared	0.662	0.562	0.630	0.563	0.623	0.558
	Panel B: Length of biographical entries					
Length of biographical entries	18.66***	416.8**	19.28***	419.7**	19.13***	418.1*
	(6.112)	(182.5)	(6.418)	(184.2)	(4.274)	(235.4)
Region controls	yes	yes	yes	yes	yes	yes
Price controls	yes	yes	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes	yes	yes
Turnover controls	yes	yes				
Tourism flow controls			yes	yes		
Observations	107	107	107	107	107	107
R-squared	0.658	0.572	0.625	0.572	0.622	0.569

Note: See Table 5.

Table 7. Cultural infrastructure endowment.

	Concert aggregate (1)	Theater aggregate (2)	Concert aggregate (3)	Theater aggregate (4)
	Panel A: Number of births			
Number of births	15.34***	336.9**	15.66***	271.8*
	(4.412)	(143.6)	(4.838)	(141.3)
Region controls	yes	yes	yes	yes
Price controls	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes
Admission controls	yes	yes		
North-South controls			yes	yes
Observations	107	107	107	107
R-squared	0.694	0.584	0.627	0.561
	Panel B: Length of biographical entries			
Length of biographical entries	18.95***	493.5***	19.57***	431.9**
	(5.819)	(181.3)	(6.365)	(181.5)
Region controls	yes	yes	yes	yes
Price controls	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes
Admission controls	yes	yes		
North-South controls			yes	yes
Observations	107	107	107	107
R-squared	0.689	0.593	0.623	0.571

Note: See Table 5.

Table 8. Explanatory power of composer births in Renaissance.

	Concert aggregate					Theater aggregate				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel A: Number of births									
Number of births	18.31***	16.83***	16.65***	15.57***	14.81***	326.1**	363.6**	277.6*	155.4	243.5*
	(5.620)	(6.080)	(5.298)	(4.521)	(4.869)	(152.1)	(166.6)	(141.5)	(131.6)	(141.0)
Price controls		yes			yes		yes			yes
GDP controls			yes		yes			yes		yes
Region controls				yes	yes				yes	yes
Observations	107	107	107	107	107	107	107	107	107	107
R-squared	0.092	0.095	0.206	0.622	0.623	0.042	0.045	0.184	0.538	0.558
	Panel B: Length of biographical entries									
Length of biographical entries	472.1**	508.4**	375.5*	323.8*	418.1**	21.02***	18.50**	17.70**	20.06***	19.13***
	(203.3)	(217.5)	(190.6)	(171.9)	(181.1)	(7.641)	(8.079)	(7.264)	(6.001)	(6.362)
Price controls		yes			yes		yes			yes
GDP controls			yes		yes			yes		yes
Region controls				yes	yes				yes	yes
Observations	107	107	107	107	107	107	107	107	107	107
R-squared	0.049	0.051	0.184	0.549	0.569	0.067	0.075	0.177	0.619	0.622

Note: See Table 5.

Table 9. Timing of the persistency.

	Concert aggregate (1)	Theater aggregate (2)	Concert aggregate (3)	Theater aggregate (4)
	Panel A: Number of births			
Number of births	12.25**	233.5	16.20***	233.9
	(4.971)	(146.4)	(5.078)	(144.9)
Archaeological places	10.10**	134.7		
	(4.555)	(134.1)		
UNESCO world heritage site			-9.813	875.0
			(26.24)	(762.9)
Region controls	yes	yes	yes	yes
Price controls	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes
Observations	107	107	107	107
R-squared	0.648	0.566	0.628	0.568
	Panel B: Length of biographical entries			
Length of biographical entries	13.67*	386.1*	20.63***	381.7**
	(6.995)	(199.8)	(6.776)	(189.5)
Archaeological places	9.318*	78.96		
	(4.898)	(140.9)		
UNESCO world heritage site			-12.64	715.2
			(26.76)	(768.4)
Region controls	yes	yes	yes	yes
Price controls	yes	yes	yes	yes
GDP controls	yes	yes	yes	yes
Observations	107	107	107	107
R-squared	0.639	0.572	0.624	0.575

Note: See Table 5.

Table 10. Persistency of cultural preferences and human capital prevalence.

	Concert aggregate	Theater aggregate
	(1)	(2)
	Panel A: Number of births	
Number of births	11.92**	-37.64
	(5.368)	(136.9)
Share of population with higher degree (in 2001)	2,068	211,624***
	(1,844)	(45,309)
Region controls	yes	yes
Price controls	yes	yes
GDP controls	yes	yes
Observations	102	102
R-squared	0.631	0.673
	Panel B: Length of biographical entries	
Length of biographical entries	15.20**	52.31
	(7.144)	(180.9)
Share of population with higher degree (in 2001)	1,977	199,981***
	(1,880)	(46,017)
Region controls	yes	yes
Price controls	yes	yes
GDP controls	yes	yes
Observations	102	102
R-squared	0.630	0.673

Note: See Table 5.

Table 11. Correlation matrix of composer births in a province by century.

	14th	15th	16th	17th	18th	19th	20th
14th	1.000						
15th	0.608*	1.000					
16th	0.268*	0.659*	1.000				
17th	0.106	0.466*	0.860*	1.000			
18th	0.164	0.444*	0.793*	0.826*	1.000		
19th	0.109	0.369*	0.702*	0.731*	0.803*	1.000	
20th	0.098	0.275*	0.582*	0.755*	0.639*	0.752*	1.000

Note: * denotes correlation coefficients significant at the 5 per cent confidence level.

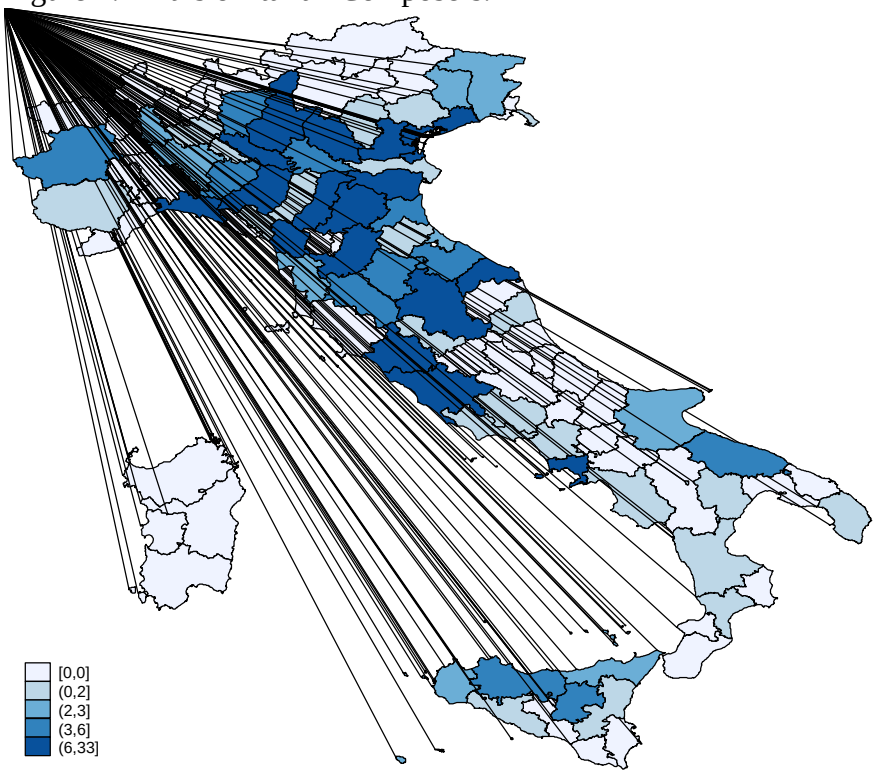
Table 12. Geographic persistency of composer births.

	Composer births			
	(1)	(2)	(3)	(4)
Composer births (previous century)	0.715***	0.733***	0.280***	0.297***
	(0.0290)	(0.0290)	(0.0377)	(0.0386)
Century fixed effects		yes		yes
Province fixed effects			yes	yes
Observations	642	642	642	642
R-squared	0.094	0.100	0.094	0.100

Note: Based on observations for 107 provinces and 7 centuries (14th to 20th).

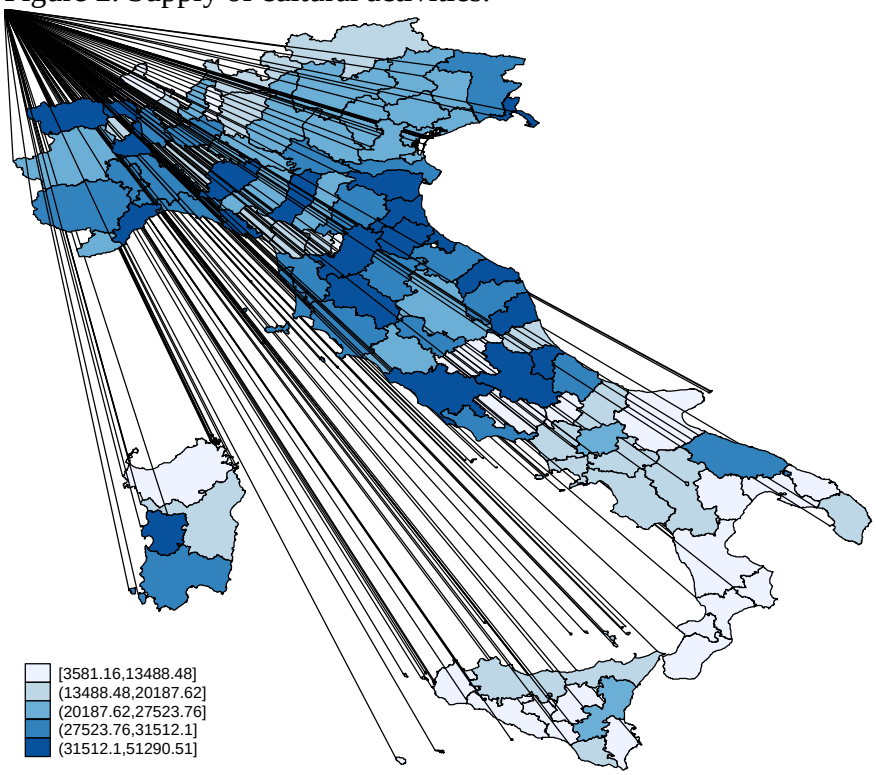
Figures

Figure 1: Births of Italian Composers.



Note: Figure depicts the number of births of prominent composer during the Renaissance.

Figure 2. Supply of cultural activities.



Note: Figure depicts the number of performance of cultural activities (i.e. concert or theater activities).