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Evidence from the "Bel Paese"**

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Abstract

This paper contributes to the relatively underdeveloped empirical literature on the demand for culture, testing whether the existence of cultural goods located in one region increases the demand for cultural goods in other regions. The measurement of such spillovers is important to determine the efficient allocation of cultural resources. We develop an empirical test based on aggregate data on the demand and supply of tourism in twenty Italian regions, that we complement with survey data collected data on museums' visitors in the city of Turin (Piedmont, Italy). We find strong evidence that local supply of culture stimulates the demand for foreign cultural goods, which is coherent with the Theories of Addiction and of "Learning by Consuming." Given our data the two theories are observationally equivalent. The positive spillovers are large and call for coordinated interventions among the many local governments that finance the supply of cultural attractions.

I.   Introduction

Culture is widely known to be an important determinant for tourism within a country (Richards, 2001). Municipalities compete to attract "culture driven tourists" by increasing their supply of cultural goods. But they might not realize that by offering more art they might also induce their own residents to visit other places in search for more cultural goods.

In other words, the economic importance of culture lies not only in the ability to attract visitors that spend their money in the region to buy many other services and goods, but also, possibly, in the retention of outgoing tourism. The availability of cultural attractions might induce residents to stay and spend money within the borders of the local area instead of looking for culture abroad. If this is the case, expenditures remaining in the local area could be attributable to the local supply of cultural goods. But the local supply might also stimulate the overall demand for culture, thus increasing the demand for outside cultural goods. If this is the case, the cultural supply in the area of reference induces residents to spend abroad part of their income that, otherwise, would have been spent locally.

Hence, the question whether cultural goods located in one region increase the demand for cultural goods in other regions has important implications on the flows of cultural tourism, which in turn have a significant economic impact. The net effect of the supply of cultural goods on tourist flows is *a priori* ambiguous, its sign and size being ultimately an empirical question.

In this paper we investigate this issue using an empirical model based on region-level data. We complement the analysis using field data that we collected

in three museums in 2007 in Turin[1] (Piedmont, Italy). The scarce availability of individual data is a well-known problem for empirical cultural economics (Favaro and Frateschi, 2007).

The last twenty years have seen an increase in financing the arts with local (C. Bodo, G. Stumpo, 2004) instead of national funding (Osservatorio per lo Spettacolo, 2005). If there were spillovers policy makers would have to re-consider this trend and push for coordinating at the central level the supply of culture.

II. Theoretical framework

There are two competing theories that predict an increase in the demand for foreign cultural goods due to the increase in their local supply: the "Theory of Addiction" and the one of "Learning by Consuming."

According to the former, people get addicted not only to alcohol, cocaine, and cigarettes but also to work, eating, music, television, their standard of living, other people, religion, and many other activities (Becker and Murphy, 1988). The theory of addiction implies that the consumption of a good is deterministic and the formation of habits predictable.

Throsby (1994) applied this theory to the arts saying that "the arts can be distinguished in this theory by their being addictive, in the sense that an increase

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[1] Turin, the historical first capital of Italy, is the 4th largest Italian city (after Rome, Milan and Naples), with a population of almost one million inhabitants. It is the capital of Piedmont, which accounts for 8% of the Italian GDP. In the past decade, Turin has invested heavily in cultural activities, regarded by policymakers as a fundamental element to foster tourism and to give a renovated identity to the once mainly industrial city.

in an individual's present consumption of the arts will increase over time with exposure. In the household production model, the relative consumption of the arts will rise over time as experience, understanding, and other human capital attributes associated with the arts are acquired. Cultural consumption can be interpreted as a process leading both to present satisfaction and to the accumulation of knowledge and experience affecting future consumption."

Cultural demand, therefore, depends on the cultivation of tastes (Barros and Brito, 2005; McCaine R. A., 1979) and on the accumulation of what might be termed "consumption capital" by the consumer. The shift of tastes in favour of cultural goods is described by a rise of their marginal utility over time (Becker and Stigler, 1977). Addiction seems to be stronger for "higher" cultural goods as performing arts, including opera, classical music, jazz, classical and modern dance, "serious" drama *et similia* (Throsby, 1994), which are those we later analyse.

The other theoretical model used to explain the role of experience in the consumption of cultural goods is that of "learning by consuming" (Levy-Garboua and Montmarquette, 1996). According to this approach people are unaware of what they like until they are not exposed to it through repeated experiences that could lead to a positive or negative shift in taste. It differs from the theory of addiction since it postulates that tastes are given but unknown (Levy-Garboua and Montmarquette, 2002).

We cannot discriminate between these two theories given our data. But we can test their (joint) empirical relevance.

III. Empirical analysis

We use aggregate data on tourism inflows and outflows for the twenty Italian regions, complement them with other geographic data, and with data on the supply of cultural goods, in order to estimate a model of tourism demand. Tourist flows consist of an origin, the demand side, and a destination, the supply side.

For our empirical application we need to define cultural tourism (Mchone and Rungeling, 1999). Most authors (McKercher and Chow So Ming, 2001; Burns and McGettigan, 2001; Mchone and Rungeling, 1999; Siberberg, 1995) define cultural tourism as visits by people from outside the host community motivated by the cultural supply, e.g. festivals, performances, events and heritage attractions like museums, galleries, architecture, and historic sites. We adopt this definition.

Despite the universally recognized importance of culture as a source of attraction for tourism, data on cultural tourism are still very limited. The main reason is that international institutions such as the World Tourism Organization, the Organisation for Economic Co-operation and Development, and the European Commission, that developed methodological recommendations for the implementation of Tourism Satellite Accounts (WTO, 2000), do not distinguish between "leisure" and "culture" as a motivation for tourism.[2] Hence, information

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[2] The classification of the different motivations for travelling is (i) leisure, recreation and holidays, (ii) visiting friends and relatives, (iii) business and professional travel, (iv) health treatment, (v) religion, pilgrimages and other purposes.

on the relevance of cultural tourism is scattered and indirect, and often based on *ad hoc* surveys.[3]

To isolate the effect of the cultural goods on tourism we control for factors, i.e. income, landscape features, etc., that might be correlated with both, the supply of culture and with tourism, that would otherwise bias our result.

Lim (1997) compares all methods used in around 100 published studies of empirical international tourism demand models and identifies the most widely used specification. The dependent variable is generally classified as tourist arrivals and/or departures, tourist expenditures and/or receipts and length of stay, while the explanatory variables are usually income, transportation costs, relative prices, exchange rates and qualitative factors such as destination attractiveness, tourists attributes, the presence of political, social, and sport events.

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[3] Different multi-choice surveys show that about 25% of European holiday-makers choose towns of art, where culture is presumably an important factor of attraction, as their destination (Bellini *et al.*, 2007). Following a survey of the European Commission, roughly 30% of tourist destinations are chosen based on the presence of heritage sites, and this number increases up to 45-50% if the wider cultural sector, including festivals and other important cultural events, are considered (Klein, 2001). According to other estimates, more than 50% of tourist activity in Europe is driven by cultural heritage (Europa Nostra, 2006). Of course, the importance of cultural tourism differs greatly depending on the area considered. Culture appears to be the single most important motivation for city trips (WTO-ETC, 2005), with a steady increase in the proportion of cultural tourists; however, only a minor share of visitors to cultural sites (around 20%) report culture as the prime motivation for their journey (ATLAS Cultural Tourism Project, 2007). In a related study, the local Chamber of Commerce in Turin, Italy, estimates that cultural tourism represents 36.4 percent of the total flow of tourists in the area (CCIAA, 2003).

In this paper tourism demand is measured by the region by region-level *tourist flows*. Hence, we have a 20 by 20 matrix, i.e. 400 observations. We allow for intra-regional (own) tourism as we have data about it too.

The *population* of the region of origin represents the potential demand for tourism. The population of the region of destination is likely to influence its attractiveness as well, at least through visits by friends and relatives.

The budget constraint of tourists depends on the distribution of *income* in the region of origin, thus we control for their average *income* and for their *poverty index*. We also include two other socio-demographic variables of the region of origin in the model: the *level of education*, measured by the percentage of people with at least a middle school diploma, and the *demographic dependency ratio*, equal to the ratio between the population aged 65 or over and the population aged 20-64. The level of education is expected to be positively correlated with tourism, while the demographic dependency ratio has an a priori ambiguous effect on tourist flows, (travelling for business being more likely for prime age individuals, while pilgrimages being more frequently associated with the elderly). The *price of tourism* is generally based on travel cost and on relative prices, that is the difference in the price levels in the regions of origin and destination. We measure travel cost with the *distance* between the capital cities of the regions of origin and destination (Walsh, 1997). Since it is plausible that the relation is not linear, we control for a second order polynomial. To proxy for relative prices across regions we use the ratio between their *Parity Purchase Power Indices*. Destination attractiveness like *landscape characteristics* (possibility of sea and mountain tourism and presence of natural parks) can influence the decision to spend time in a region. The first two characteristics are

measured by two dummy variables, while natural parks are measured by their surface. We use three different variables to measure cultural endowment: *museums*, *theatrical performances*, *concerts*.

Table 1 shows the descriptive statistics of the variables and the appendix the data source.

<Table 1>

The Table outlines some characteristics of the Italian regions: population varies considerably; most have access to the sea but just a few have mountains; income is distributed unevenly, in particular, the South is relatively poor (the poverty index is as high as 31%) and the North is relatively rich, despite similar levels of education; Italy's dramatic population aging drives the dependency ratio up to almost 57%.

Model specification

Using the origin and destination matrix of the tourist flows, we estimate an econometric model where the logarithm of the *tourist flows* from region *i* to region *j* is a function of the logarithm of *cultural endowments* of the two regions, controlling for *population*, *demographic characteristics*, *income*, *distance* between the capital cities, and *characteristics of the territory* (possibility of sea and mountain tourism, the dimension of natural parks). The econometric specification chosen is a variation of the gravity equation model, a spatial model where the degree of interaction between two geographic areas varies directly with the size of population in the two areas and inversely with the square of the distance between them (Witt and Witt, 1995).

$$T_{ij} = f(X_i, X_j, C_{ik}, C_{jk}, d_{ij})$$

where i is the region of origin, j the region of destination and k the type of cultural good taken into account in the investigation (*museums, theatrical performances* and *concerts*). T_{ij} is the *tourist flow* from region i (origin) to region j (destination), C_i and C_j are, respectively, indicators of the *cultural endowment* of the region of origin and destination (*theatres, concerts, museums*), X_i and X_j are other characteristics of the two regions (like *income*, opportunity for *mountain* or *sea* tourism, etc.), and d_{ij} is the *distance* between the capital cities in the two regions.

Our focus is on the sign of the coefficients of cultural endowments. A positive sign for C_i indicates that a higher cultural supply in the region of origin increases the outgoing tourist flows; on the contrary, a negative sign indicates that the higher the cultural supply of the region of origin, the lower the outgoing tourist flows.

We use the following log-linear specification:

Log $T_{ij} = \beta_0 + \beta_1 Pop_i + \beta_2 Pop_j + \beta_3 \Delta Sea_j + \beta_4 \Delta Mount_j + \beta_5 Inc_i + \beta_6 Inc_j + \beta_7 Educ_i + + \beta_8 Educ_i$

$+ \beta_9 Pov_i + \beta_{10} Pov_{ij} + \beta_{11} CPI_i / CPI_j + \beta_{12} Dep_i + \beta_{13} Dep_i + \beta_{14} Dist + + \beta_{15} Dist\^2 +$

$+ \beta_{15} Park_i + \beta_{16} Park_j + \beta_{17} Log \ C_i + \beta_{18} Log \ C_j + u_{ij}$

where:

Pop is the population of the region (divided by 100 000); ΔSea a dummy variable for the presence of sea; $\Delta Mount$ a dummy variable for the presence of mountains; *Inc* measures the region's average income (in Euro, divided by 100 000); *Educ* measures the share of people with at least middle school education; *Pov* is the Poverty Index, CPI_i / CPI_j is the ratio between the Power Purchase Parity in the

region i and that of region j; *Dep* is the dependency ratio; *Dist* is the distance between the capital cities in the two regions (in km,divided by 100); *Dist*2 its squared value; *Park* measures the surface covered by parks (in hectares, divided by 100 000); *C* measures the supply of different types of cultural goods; and, finally, *u* is a stochastic disturbance term. We use three different proxies for *C, the supply of museums*, *theatrical performances*, and *concerts*. Since these three cultural goods are highly correlated with each other we cannot simultaneously control for all three of them, but later we use an aggregated measure, a *cultural index*, which is a normalized sum of the three.

Given the log-log specification the coefficients of the variables representing the cultural endowments can be interpreted in terms of elasticities. The results of the regressions are reported in Table 2.

<Table 2>

IV. Discussion of the results

The results show the existence of spillovers between foreign and local consumption of cultural goods, for all the typologies of cultural goods selected (*museums*, *theatrical performances*, *concerts*) and for their sum (*cultural index*). In the equations, the elasticities of foreign (origin) and local (destination) cultural goods are always close in value: respectively, 0.63 and 0.62 for museums, 0.49 and 0.31 for theatrical performances, 0.67 and 0.60 for concerts, 0.65 and 0.63 for the cultural index, and we could hardly reject their equality. In other words, a 1 percentage increase in the cultural endowments in the region of origin has on

the flow of tourists the same effect as a 1 percentage increase in the cultural endowments in the region of destination!

All measures appear to be good proxies for the supply of culture, which is also why their normalized sum gives very similar results.

We now briefly comment the estimates for the coefficients of the other variables. *Population* of both the region of origin and destination is significant and with the expected positive sign. The ratio between the *Purchasing Power Parity* in the region of origin and that of destination has the expected positive sign. The higher the difference in prices the higher the tourist flows from the most expensive to the least one. The level of *education* of the region of origin is significant and positively correlated with the tourist flows. The *demographic dependence ratio* is significant and positive for the region of origin and negative for that of destination. This may be due to the fact that retired people travel more (for all motivations for tourism except business), while a higher share of active population is likely to characterize a region as more attractive as a business destination. *Distance* discourage tourism but, as predicted by the gravitational theory, with decreasing marginal effects. *Landscape characteristics* are significant in all the regressions. Being a maritime destination increases inflows, while the presence of mountains has a negative effect. This reflects the fact that the biggest flows occur in summertime, when sea tourism is more important. A low endowment of natural parks encourages outflows, while a high endowment encourages inflows.

V.   Evidence from the survey in the museums

Despite these very strong results our measure of cultural tourism is not perfect. In order to have a better measure of cultural tourism between April and June 2007 we surveyed visitors to three different museums in Turin: the Museo Nazionale del Cinema (National Cinema Museum), the Museo Egizio (Egyptian Art Museum) and the Palazzo Bricherasio (which hosted a temporary art exhibition – on the Macchiaioli movement at the time). The museums were chosen on the basis of their prominence: the first two are the most famous of Turin, while Palazzo Bricherasio hosted, in the year of the collection of the data, the most important temporary art exhibition of the city.

The cost of running a survey is high, which is why we had to focus on a few museums located in just one city.

People interviewed were asked about where they came from (the city of Turin, other areas of the province of Turin, other areas of the Piedmont region, other Italian regions, other countries), the purpose of their visit (Tourism, Job/Business, Studying, Visiting relatives/friends), the expected length of their stay, the expected number of art exhibitions and museums to be visited during their stay. In total, we collected more than 12,000 questionnaires: 4,498 in the Palazzo Bricherasio, 1,957 in the Museo Nazionale del Cinema, and the rest in the Museo Egizio.

If we divide the visitors according to their type we have that the total number of visitor V, might (*T*) or might not (*O*) be in Turin just because of tourism:

$$V = T + O.$$

Starting from the consideration that all the people who declare to be tourists are almost certainly cultural tourists we can calculate the probability of being a cultural tourist:[4]

$$\Pr_T = \frac{T}{V}.$$

In Figure 1 (Panel A-C) we plot this probability against cultural endowment of the region of origin and find a strong and positive correlation. Regions that supply more culture generate visitors that are more likely to be cultural tourists, which we interpret as additional evidence for the existence of spillovers.

The number of visitors (per capita) (*V*) is also positively correlated with cultural endowment (Figure 1, Panel D-F), mainly driven by the correlation between strictly speaking cultural tourists and cultural endowment.

<Figure 1>

Using more precise measures of cultural tourism based on field data leads to the same results found in Section IV.

VI.   Conclusions

In this paper we analyse the relationship between local supply and foreign demand of cultural goods. We find that the more people are exposed to the arts in their region the more they will travel to other regions to satisfy their need for the arts.

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[4] City tourism is generally "art oriented," and Turin has no sea. The mountains are quite close, but in April it is too late to ski

The strategy we use suffers from not distinguishing between cultural tourism and other forms of tourism, thus requiring the inclusion of controls for explaining the different touristic motivations. Using more precise measures of cultural tourism, based on field work done in three different museums we confirm the previous findings.

Our finding that the local cultural supply stimulates the demand for culture, increasing the demand for outside cultural goods and inducing the residents to spend abroad a part of income that, without the cultural supply, would probably be spent locally in other leisure activities, suggests that a coordination strategy across regions could be beneficial. Moreover our result also brings support to the idea of national funding of the arts. This calls for reverting the current trend towards local funding.

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Table 1. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Log Tourist Flows	400	10.633	1.527	4.691	14.609
Population (divided by 100 000)	400	28.497	22.545	1.195	90.325
Sea (dummy)	400	0.7	0.458	0	1
Mountain (dummy)	400	0.35	0.477	0	1
Income (divided by 100 000)	400	0.707	0.681	0.0394	2.962
Education	400	72.942	2.849	69.11	79.47
Poverty Index	400	13.507	8.901	4.01	31.51
CPI_i / CPI_j	400	1.005	0.104	0.776	1.287
Dependency Ratio	400	50.185	3.331	42.75	56.71
Distance (in km and divided by 100)	400	5.688	3.566	0	16.42
Squared Distance (Km)	400	45.038	51.763	0	269.616
Park (in He divided by 100 000)	400	2.866	3.829	0.0645	17.999
Log Museums	400	4.780	.8724	2.890	5.852
Log Theatrical Performances	400	8.495	1.248	5.303	10.216
Log Concerts	400	6.927	1.175	4.317	8.797

Table 2: A Gravity Model for the Demand of Cultural Goods

Dependent variable:	**Log Tourist Flows**			
(Log) Cultural Endowment	**Museums**	**Theaters**	**Concerts**	**Cultural Index**
$Population_i$	0.024***	0.021***	0.01	0.023**
	(0.006)	(0.007)	(0.006)	(0.006)
$Population_j$	0.040***	0.0508***	0.0316***	0.039**
	(0.005)	(0.006)	(0.006)	(0.006)
ΔSea_j	0.065	0.142*	0.244***	0.07
	(0.086)	(0.084)	(0.077)	(0.086)
$\Delta Mountain_j$	-0.204**	-0.303***	-0.212***	-0.202*
	(0.088)	(0.082)	(0.081)	(0.087)
$Income_i$	0.045	0.038	0.255	0.065
	(0.185)	(0.199)	(0.175)	(0.184)
$Income_j$	-1.210***	-1.473***	-1.128***	-1.206**
	(0.160)	(0.180)	(0.155)	(0.159)
$Education_i$	0.063***	0.0289**	0.0268**	0.06**
	(0.012)	(0.013)	(0.012)	(0.012)
$Education_j$	0.007	-0.015	-0.0259**	0.003
	(0.013)	(0.014)	(0.012)	(0.013)
$Poverty_i$	-0.001	-0.0162**	0.006	-0.001
	(0.007)	(0.008)	(0.008)	(0.007)
$Poverty_j$	-0.007	-0.0323***	-0.002	-0.007
	(0.007)	(0.008)	(0.007)	(0.007)
CPI_i / CPI_j	3.873***	4.052***	4.359***	3.891**
	(0.597)	(0.617)	(0.560)	(0.592)
$Dependency\ ratio_i$	0.024**	0.0422***	0.0401***	0.025*
	(0.012)	(0.012)	(0.012)	(0.012)
$Dependency\ ratio_j$	-0.045***	-0.0345***	-0.0318***	-0.043**
	(0.012)	(0.012)	(0.012)	(0.012)
Distance	-0.324***	-0.347***	-0.315***	-0.324**
	(0.030)	(0.029)	(0.029)	(0.030)
Squared Distance	0.013***	0.0158***	0.0122***	0.013**
	(0.002)	(0.002)	(0.002)	(0.002)
$Park_i$	-0.023***	-0.0195***	-0.0289***	-0.024**
	(0.007)	(0.007)	(0.007)	(0.007)
$Park_j$	0.009	0.0188***	0.004	0.009
	(0.007)	(0.007)	(0.006)	(0.007)
$Cultural\ endowment_i$	0.629***	0.493***	0.670***	0.646**
	(0.064)	(0.046)	(0.054)	(0.063)
$Cultural\ endowment_j$	0.621***	0.310***	0.603***	0.626**
	(0.067)	(0.049)	(0.055)	(0.066)
Constant	-2.884	-0.789	-2.453	-4.271*
	(1.769)	(1.823)	(1.668)	(1.783)
R-squared	0.88	0.869	0.894	0.88

Note: we regress the tourist flows from Italian region (i) to region (j) on three different cultural endowments and on their normalized sum (cultural index). Population, Income (€) and Park (ha) are divided by 100 000; distance (km) by 100. Robust standard errors are in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Figure 1. The Probability to Be a Cultural Tourist and the Number of Visitors Against the Cultural Endowment of the Region of Origin.

Note: All the variables are per 100 000 residents. We eliminate two neighboring regions to Piedmont, Liguria and Valle d'Aosta, because due to the close distance they have a very high number of visitors.

Data Appendix

Variable	Source
Population	Reconstruction of the resident population- Regional demographic balance by gender from 20th October 1991 to 21st October 2001 - ISTAT
Income of the region	ISTAT –2005
Education	Health for all Italia –2006 http://www.istat.it/sanita/Health/
Poverty Index	Health for all Italia- 2006 http://www.istat.it/sanita/Health/
CPI_i / CPI_j	ISTAT
Dependency demographic ratio	Health for all-Italia -Year 2006 http://www.istat.it/sanita/Health/
Distance from the chief city of the regions	Touring Club Italiano, Italian Road Atlas, 2004
Surface covered by reserves	Ministry of Environment and Natural Resources Protection – Direction for the Nature Protection - 2003
Theatrical performances and concert	Data on Performances 2006 — SIAE http://www.siae.it/statistica.asp?link_page=Statistica_BibliotecaDelloSpettacoloDal2006.htm
Museums	Museionline http://www.museionline.it/