# "Managing culture heritage thinking to community benefits.
Two innovative methods to quantify impact on tourism and on private properties
in a wider EIM model for Turin"

## Bernardo Bertoldi – Elisa Cerruti – Giuseppe Russo

# Managing culture heritage thinking to community benefits.
# Two innovative methods to quantify impact on tourism and on private properties in a wider EIM model for Turin.

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**Summary** – 1.Introduction and literature review – 2. Methodology and research objectives – 3. Grants and funds to cultural sector and ticketing - 4. Tourism directing demand to the culture and hospitality sectors – 4.1. Attracting incoming cultural tourism – 4.2. Valuing retained outgoing tourism – 5. The indirect and induced effects on the local economy – 6. Property externalities – 7. The result of the research and conclusions

## Abstract

The scientific community and international policy have now acknowledged cultural heritage as a heritage of the community with potential for the development of the territories - not only cultural and social but also - and especially - for their economic development. The literature and analysis methods developed in recent years have demonstrated the economic importance of cultural heritage, establishing its substantial economic contribution to the territories of reference. Excellent cases such as those of Detroit and Bilbao have confirmed that cultural heritage can be at the centre of important city redevelopments. The research hypothesis is that economic reconversion models are also effective for Italian cities and that the development of cultural heritage is in fact also quantifiable in extremely complex realities characterized by a core cultural offer that is not limited to a single and important attraction, as in the case of Bilbao, but permeates the whole urban fabric, as in the case of Italian cities such as Turin, where the entire historic centre has been identified as a tourist attraction. The model (Economic Impact Method - EIM) matching two innovative and integrative methods to estimate cultural tourism impact and increasing in property values confirms the research hypothesis: cultural capital drives the local economy and is capable of producing, in current conditions, a considerable impact in respect of the resources invested in them by public and pri-

vate subjects. Furthermore, an evaluation has been made for the first time of the capacity of the cultural endowment of a territory to retain outgoing tourism and to assess the return of cultural investments for private citizens due to increased real estate values of the redeveloped areas as a result of conservation and restoration.

# 1 - Introduction and literature review[1]

Cultural heritage is internationally recognized as one of the factors of the development and welfare of a territory and the individuals that live within it (CoE, 2005; UNESCO, 1998; Picard et.al., 2003; Porter, 2003; Palmer, 2004; Prahalad et.al., 2004; Evans, 2006). Cultural goods, although artefacts of the past, represent objects around which much of the work of the community is organized and directed, actors who benefit from numerous investments for their conservation and protection, but also historical testimonies through which communities renew themselves and their own culture, as well as representing tools to attract tourism and revive production chains. Therefore, cultural goods present both economic and non-economic values from which territories and communities still benefit today (Andersson, 1985a and b; Dziembowska-Kowalska et.al., 1999, Lloyd et.al., 2001; Pollicino et.al., 2001; DCMS, 2005).

The theories developed over the years have had as their objective to determine the value of the conservation and use of cultural heritage for the community in economic, social and cultural terms. The evaluation approaches and techniques used for cultural goods have their origin in different economic sectors, some of which are still subject to debate by the international scientific community.

It is important to remember that the final value obtained through the different valuation techniques is not representative of the entire and complete value of cultural heritage, which is difficult to quantify because it would presuppose the possibility to also quantify difficult and subjective estimates of aesthetic or historical values and attributes, but represents the value attributed by the community deriving from the use of the cultural heritage by that same community.

Moreschini (2003) identifies the definition of the economic value of a cultural good based on four different components:
1. direct use value: refers to the user's fruition of the goods
2. indirect use value: refers to indirect benefits derived from use
3. option value: is the value that assures a possible future use of the good
4. non-use value: constituted by the cultural value connoting the goods themselves and exists regardless of its use, in this case also definable as the existence value.

These values are used by most cultural heritage evaluation techniques that substan-

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tially distinguish themselves in two branches: on the one side, techniques that use preference surveying and on the other, economic impact models.

The many techniques that are based on preferences belong to the first branch. Methods of preferences declared in real and/or hypothetical contexts. These techniques presuppose direct surveying through interviews or questionnaires that concern a real or hypothetical context:

- WTP (Willingness To Pay) which estimates the curve of individual demand on the basis of the willingness to pay for a good by each individual as a function of the quantity of the good, of income, education and age (Hanley et.al., 1993; Hansen, 1997; Brown et.al., 1999; Bravi et.al., 2000; Causi et.al., 2002; Danielis, 2001). The valuation of the individual demand curve is derived with the following function:

[1] $\quad WTP_i = f(Y_i, E_i, A_i, Q_i)$

This is useful in order to understand how to modify the WTP of every individual to fluctuations of income Yi, level of education Ei, age Ai and the quantity of the goods Qi.

WTP was first applied abroad to, for example, the Royal Theatre in Copenhagen (Hansen, 1997), then in Italy to estimate the value of the Campi Flegrei (Riganti et.al. 1998) and to assess the frescoes of the Basilica of San Francesco d'Assisi (Causi et.al., 2002). One limit of this approach is attributable primarily to the fact that the entrance ticket is only one of the cost items that the user must sustain and can therefore only be considered as a minimum value. Furthermore, it is not applicable in all those cases of cultural goods for which payment of entrance tickets are not required and generally has proved to be a rather unreliable indicator (Moreschini, 2003; Brown et. al., 1999).

CV (Contingent Valuation) was elaborated for the first time in 1947 (Ciriacy et. al., 1947) and is based on a direct survey conducted on a representative sample universe where a scenario of the market is proposed within which everyone must declare the price they are prepared to pay to maintain the good endowed or, to the contrary, to relinquish it. Following the selection of subjects, the individual preferences declared that represent the maximum willingness to pay for the good, indicate the total value of the cultural good in question. This is currently one of the most used methods of evaluation for the cultural sector and is applied to a wide range of cultural goods and activities. The greatest advantage of CV is due to the fact that it is also possible to assess the value of non-use. As regards its applications in the field of cultural goods, it is useful here to cite the study carried out in Norway in 1992 (Navrud et. al. 1992) on the benefits of visitors to the Nidaros Cathedral of Trondheim. Also significant is the research in the UK for Durham Cathedral in which Grosclaude and Soguel estimate the benefits that individuals derive from the maintenance of the historical buildings in Neuchâtel in Switzerland (Grosclaude et.al., 1997). CV has found application in different types of cultural goods

in the entire world: just some examples are Québec (Martin, 1994), Morocco (Carson et. al., 1997), the United States (Morey et. al., 1999; Whitehead et. al., 1998), Brazil (Roche, 1998), Peru (Hett et. al., 2000), England (Maddison et. al., 2001), Finland (Tohmo, 1998), Australia (Throsby et.al, 1982) and Italy (Maggi, 1994; Santagata et.al., 2000; Giaccaria, 2000). Noonan (2002) collected and recorded all the CVM studies carried out at international level. The extensive application of CVM and its popularity was followed by a process of critique, based on both financial and non-economic perspectives, which allowed focusing on the weaknesses and ambiguity characterizing CV. A large part of the debate concerned the alleged distortions to which the use of the method can lead, largely due to hypothetical nature of the research, but this is a common element to all data collection methods based on interviews and questionnaires. Specifically, the main distortions arise from: the strategic behaviour of the respondents, the hypothetical scenario or lack of incentives necessary to give answers consistent with real preferences and lack of information. Since the response is influenced by information on the scenario that is provided by the interviewer it is possible to presume that the greater the pre-knowledge of goods, the fewer the distortions in terms of excessive variance of the estimates of willingness to pay.

CA (Conjoint Analysis) is a methodology developed by Green at the end of the 1970s (Green et. al, 1978 and 1981), elaborated in particular in the transport sector which allows isolating the value of the characteristics of products that are generally offered in combination with others. From the first trials of CA a series of technique were developed – choice experiment, contingent ranking, contingent rating, combined comparison (Mazzanti, 2001 and 2003) – varying techniques yet linked by the limitation from distortion due to strategic responses which characterized CV and the capacity to analyze multidimensional contexts. This is the reason that successive studies of Adamovicz (Adamovicz et. al., 1994 and 1997) and Louviere (1988), who in the 1980s invented the choice based model, presented us with the opportunity to use CA together with other research methodologies.

Preference methods manifested in real contexts. These are techniques using indirect detection of the behaviour of respondents in real and/or hypothetical contexts.

The TC (Travel Costs) method forms part of this technique and estimates the benefits of the use of cultural goods associated to the costs to reach it including the value of the time taken (Clawson et. al., 1966; Danielis, 2001). It is formally used to estimate [2]:

[2] $\quad C_{ij} = f(DC_{ij}, TC_{ij}, F_t)$

where the cost C for the individual i to reach the locality J depends on the distance travelled DC, the time it takes TC and other costs F (entry ticket, meals etc.). This methodology was primarily used to estimate the value of use of large recreational sites and

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and nature parks. In Italy, Corradino et. al. (2000) made use of this method to value the recreational activity of a cultural good: the Castle of Rivoli Museum of Contemporary Art.

The HC (Hedonic Pricing) method, mainly used in the immovable property sector, is based on the principle that the value of each market good is influenced by non-market goods able to increase or decrease the value (Moreschini, 2003). With the availability of sufficient and differentiated data, it is possible to econometrically estimate the ratio:

[3] $\quad P_h = f(S_i, N_i, Q_k)$

called hedonic price function, as the derivative of the price with respect to environmental quality, such as noise for example:

[4] $\quad \dfrac{\delta P_h}{\delta Q_k} = f(S_i, N_i, Q_k)$

and represents the implicit or hedonic price of silence itself, namely the value that individuals attach as a revealed preference to the silence of a dwelling. The second function varies by variation of the first function: the increase of noise increases the correlated hedonic price in the case in question. The last step is to estimate the demand curve that allows calculating the value of a possible reduction of noise, the curve may be expressed as:

[5] $\quad P_i = f(Q_i, Y_i, A_i)$

where the hedonic price of the noise depends, for example, on the level of noise Qi, on income Yi and age Ai (Hanley et. al., 1993). The value of a house will depend on its typological specifications - size, number of rooms, the presence of a garage or a garden, etc. – on the characteristics of the location - accessibility, density, neighbourhood characteristics, proximity to the shops, public transport, parking, etc. - and its environmental quality - noise level, air quality, views, etc.

The RC (Replacement Costs) method is used instead where a cultural good is no longer available to the public, a context in which individuals can decide to buy different goods; the price they are willing to pay for the alternative good is recognized as an approximation of the value that each subject attributed to the cultural good when it was available (Klamer et. al., 1999). The analysis is carried out through the registration of observations made on the behaviour and on the alternative choices of users. The replacement costs method is used particularly in rural and environmental sectors.

The other branch of studies comprises instead analyses that assess the value of cul-

tural goods through the economic impact exercised on the territory, on productive sectors linked to it, on private individuals and on the community. The methodology, used extensively for environmental impact assessments, is applicable to many economic sectors including cultural heritage. It consists of valuing, in the first instance, the direct expenditure generated from the combination of goods and cultural activities, and in the second instance, the flow of indirect costs, induced by the direct costs, on corporations and individuals involved in the productive chain of the cultural goods/activities.

EIM's refer to the economic theory of the sectoral interdependencies developed by W. Leontief in the 1930's (Leontief, 1936 and 1966), born from the aggregate planning needs of the State, based on the observation that each industrial sector – agricultural, textile, steel, automotive, etc. – in order to operate, needs inputs supplied by other sectors.

The first applications to the cultural sector were American (NEA, 1977 and 1981) and focused on individual goods or multifaceted cultural heritage to extend the cultural offer of entire cities (Fleming et.al., 1990; Archer, 1996; Edmonton Arts Council, 1999; Artsmarket, 2001; AA.VV., 2002; Re, 2006; Re et.al., 2007). This feature renders the model versatile and suitable to evaluate complex offers, a difficult objective to achieve with the first branch of techniques.

From the analysis of statistical data, it is possible to calculate the coefficients that link the input aggregates of the sector to the output of the other sectors. The result is a square matrix that has as many rows as the number of industrial sectors analyzed. The number of sectors to be considered varies according to requirements: the economic matrix of a State may require several hundred sectors.

More size-contained matrices were developed, for example, for the economy of Piedmont by IRES (1980) and in more recent times by the Polytechnic of Turin (Russo et. al., 2004 and 2005). This matrix allows estimating – in equal terms – the effects of changes of an input on the economy as a whole, giving substance to the concept of multiplier that is well known in macroeconomics.

The direct impact on the local economy of cultural goods and activities is reduced to five components calculated from the budgetary data of institutions, or by means of questionnaires or interviews. Please note that with a view to assessing the effect of these local expenditures on the economy, it is necessary to distinguish between the goods and services purchased locally and those bought from non-local suppliers. Furthermore, the local and non-local visitor component must also be distinguished. The non-local component – i.e. touristic - corresponds to a greater local expenditure (restaurants, hotels, transportation etc.) and from an economic point of view, generates a revenue stream equivalent to those resulting from exportation.

The local expenditure generates in turn an indirect impact, corresponding to indirect expenditure flows. The effects on the economy generated from expenditure of employees are valued separately, which in turn activate other cycles of expenditure. The vol-

ume of investment made by local suppliers – distinguishing between investments in real estate and those in labour and stocks – and the expansion of credit, produced by cultural goods and activities, are valued independently. The calculation of the flow of indirect expenditure is immediate when the input-output matrix of the local economy is used. The total indirect expenditure is in this way proportional to the components of direct expenditure through the coefficients termed multipliers. As is intuitively obvious, the multipliers are higher the greater the percentage of local provision of direct expenditure. In the same way the impact of wages is greater the more these are spent locally. If the input-output matrix of the local economy is not available, it can be subrogated using the coefficients relating to similar cities or areas for which the matrix is available, and this is the method recommended by the designers of the model. Another group of equations estimates the impact of the goods and cultural activities on the public administration. In this case, it is about assessing the amount of tax generated directly or indirectly and estimating the relevant proceeds of revenues from local administrations, distinguished obviously from direct taxes; value added tax and municipal taxes on real estate.

This last method has been used to develop a model for the city of Turin, as explained in the next paragraph.

## 2 - Methodology and research objectives[2]

The literature analyzed, regardless of the type of techniques adopted, is concordant in affirming that culture has significant economic potential. Our research hypothesis is that this assumption is also valid for medium-sized cities that have taken the path of vocational conversion from industrial city to cultural city. The EIM model was therefore worked out and applied to the town of Turin, which has undergone significant redevelopment and has progressively set strategies and invested resources in cultural goods and activities.

The objective of this model is to calculate the economic value produced from cultural expenditure and investment in the territory of Turin and the 46 municipalities of its hinterland, and to relate this value to the deriving expenditure and investment in culture. For the purposes of this study, the outline of the scope of the research was defined specifically as:

- the destination of the expenditure, both investment in goods and pluriannual activities and current expenditure;

- the conceptual boundary for the delimitation of what is considered, for the purposes of this study, expenditure and/or a cultural investment. The field has been deliberately limited with respect to approaches that include for example, the demand and production of creative sectors with purely commercial objectives;

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- we considered, as the set of originators of expenditure recorded to calculate the value - turnover- of culture, the Municipality of Turin, the banking foundations and other public authorities, local and non local, that spend and/or invest in culture in the territory;

- the survey considered as the geographical boundaries, in addition to the Municipality of Turin, the other 46 municipalities belonging to its hinterland.
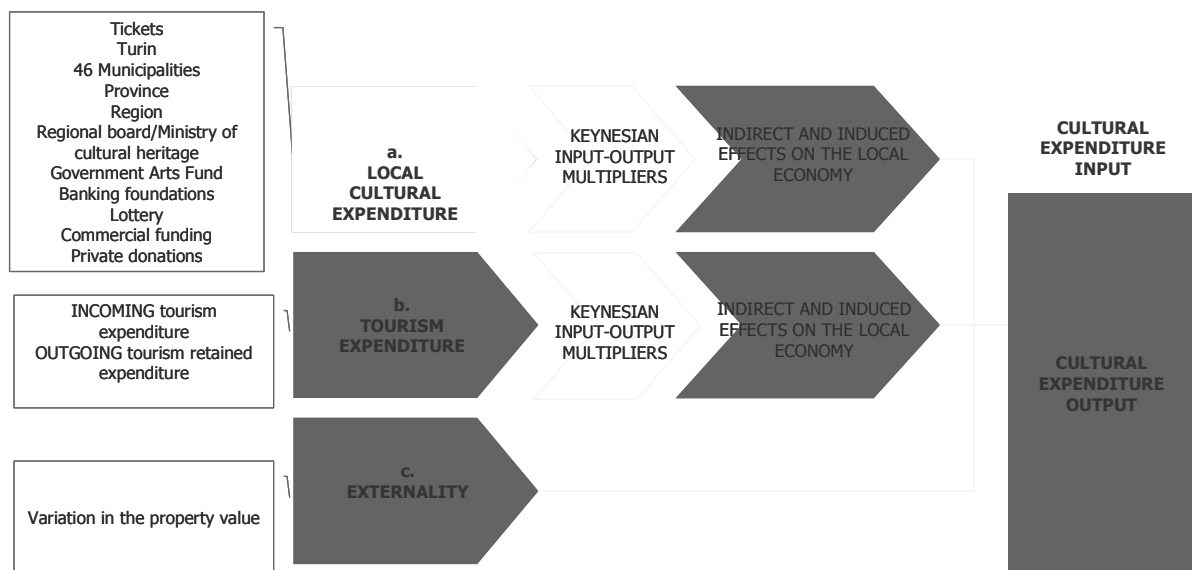
The model adopted also:

- allows to use a multisectoral model linked to an income multiplier model - for the calculation of the induced upstream and downstream values of the various agents.

- explains the effects of the consumption of goods and services on the territory by non-residents attracted by the cultural endowment of the area, as well as having considered the retention effect of external consumption of residents due to the competitiveness of the cultural offer of the area.

interrelates all the above mentioned economic values in a unified scheme, or model, from which the lever-effect of cultural expenditure derive, i.e. the economic value created and appropriated on the territory for each Euro of original expenditure/investment;

*Fig.1 – Extended cultural product evaluation model scheme*



The model adopted has allowed obtaining the measurement of the enlarged cultural product, namely, the economic results of a certain territory - Turin and the 46 municipalities - of the revenue and variations of private wealth linked to the existence and to the support of the restricted cultural sector. To obtain these enlarged cultural product we estimated the values of 6 economic elements:

(a) public and institutional funding of the restricted cultural expenditure, as well as the private cultural contributions received in the area of reference: for the objective of our research, we took into consideration the appropriations for relevant activities of a

set of players explained in the next paragraph.

(b) revenue from ticket sales at museums and cultural events;

(c) expenditure of tourists and excursionists in the same region;

(d) indirect and induced costs generated by the previous drives;

(e) increase in property value, a consequence of expenditure on architectural, monumental and urbanistic heritage for investment or recovery (property externalities).

(f) the quantification of the lever-effect of the institutional operation obtained by distinguishing, within the expanded cultural product, public or direct institutional expenditure essential for the restricted cultural sector, and the economic output, that is, the effects in terms of product flows and positive changes in wealth generated by the cultural sector.

## 3 - Grants and funds to cultural sector and ticketing[3]

The first element  of the enlarged cultural product is the sum of public institutional funds, commercial funding and private donations. Our hypothesis of research is that direct fundings become direct expenditures because the restricted cultural sector is mostly composed by not for profit players which don't produce savings and have an objective of break even. To evaluate the leverage effect of cultural resources some direct fundings have been considered among "input": public and institutional fundings, while commercial fundings and private donations have been considered "output".

To evaluate institutional fundings have been gathered the cultural grants and funds provided  by:

• The Municipality of Turin (surveyed from the financial statement of the cultural department of the city council)

• The 46 hinterland municipalities (surveyed from the financial statement of the cultural departments of the city councils)

• The Province of Turin (surveyed from the financial statement of the cultural department, have been considered only the data related the territory of interest for the research)

• The Piedmont Region (surveyed from the financial statement of the cultural department, have been considered only the data related the territory of interest for the research)

• The Ministry of the cultural goods and activities (surveyed from the triennial financial program, have been considered only the data related the territory of interest for the research)

• The Banking foundations (the Compagnia di San Paolo and the Fondazione Cassa di Risparmio di Torino, only the data related the territory of interest for the research)

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• FUS (Fondo Unico per lo Spettacolo – Performance fundings, only the data related the territory of interest for the research)

• Lotto (only the data related the territory of interest for the research)

Public and institutional fundings surveyed for 2006 worth almost 320 million Euro.

Within the commercial funding, we included in the first instance the cultural sponsorship of private companies. To estimate the amount under this heading in 2006 we selected from among a group of companies sensitive to cultural heritage: the total amount of commercial fundings for 2006 worth for more than 5 million euro.

Among private donations, the following were considered:

• finance granted by the private donors for associations in support of cultural institutions. It has been calculated for a sample of 11 associations operating on the territory and surveying their membership fees. The total value is around 38.500 euro.

• The value of work voluntarily provided free in associations and cultural institutions for the support of direct activity. The data on allocations are estimated. The estimate of the economic value of voluntary services is a little problematic from a methodological point of view. In fact, by definition, voluntary work is provided free of charge and the market price is equal to 0. But this can be assimilated to other forms of donations: it is the way in which many private citizens decide to support the "non-repayable" activities of different agencies and cultural associations. It has thus been linked to its monetization, valuing it at the market price of non-qualified labour. The survey on cultural voluntary in Province of Turin (OCP, 2004) estimates 15.000 voluntary that operate with continuity and an 80% rate of associations out of the city of Turin. We estimated a rate of 30% (4.500 persons) voluntary operating in Turin and the 46 municipality. These 4.500 persons has been valorised at 10.000 euro per year. We even known (OCP, 2004) that for each voluntary operating with continuity there are about 0,77 voluntary that operate occasionally, with an effort of 44 weeks for 4 hours each, valorised at 7 euro per hour. This led to an amount of 50 million euro.

In addition to these sources of funding, non-profit institutions and cultural associations can count on revenue from ticket sales, replacing a measure of public rating of cultural activities subject to ticketing. This item does not present a problem from a methodological point of view either. It has been used as indicator the number of visitors for the metropolitan museum system, 2.281.512 visits in 2006, (ISTAT, 2007; IRES, 2007) and has been used an average value of 5 euro for each ticket sold (the average considers full price tickets, reduced tickets and free entrance). The total expenditures for tickets is of 22,5 million euro.

The direct expenditures for grants, funds and ticketing made by institutional and private subjects worth about 387 million euro. This is the direct components of the model, to pursue at the complete impact of points (a) and (b) of the model will be necessary use the related multipliers as explained in the following paragraphs 5 and 6.

# 4 - Tourism directing demand to the culture and hospitality sectors[4]

To estimate "cultural tourist" expenditure we distinguish between the ability of the cultural system of reference to attract tourism from outside and retain residential tourists from external destinations.

By attraction of incoming tourism, we intend an increase in visits by persons external to the reference area generated by the heritage and by cultural activities of the area. By retention of outgoing tourism, we intend the possibility that residents decide to meet their cultural needs within the area of reference rather than outside of the area, for example, by visiting other cities: for this reason, we also refer to non-outgoing residents. In this respect, it is important to note that, in the face of an adequate internal cultural offer, one possibility may be that people decide to reduce their demand for external cultural consumption. Another possibility is that the internal offer stimulates the overall demand of culture, changing individual preferences. This could even lead to an increase in demand that is directed outside of the area. In the first case, internal consumption and external consumption are substitutable while in the second case they are complementary. With the methodology adopted, it is possible, for the first time, to discriminate between the two cases and evaluate the effect of the existing cultural offer on the expenditure of residents.

## 4.1 - *Attracting incoming cultural tourism*.

The estimate of expenditure of cultural tourists goes through two stages: the estimate of the number of "cultural tourists" and the estimate of how much each tourist spends per stay-type.

The estimate of the number of cultural tourists may be carried out in two ways:

• from the data of tickets sold, with appropriate hypotheses on how to allocate visitors by motivation and time spent in Turin and on the average number of visits per tourist;

• from the data on total tourist flows, with appropriate hypotheses on the share of tourists visiting for cultural reasons.

We note that the first method allows estimating not only the number of tourists with overnight stays, but also the number of excursionists, those on a one-day visit. The second method does not allow estimating the number of excursionist since the data on tourist presences registers only overnight stays. These two methods can give varying results also with regards to the estimation of the number of tourists with overnight stays because not all cultural tourists identified with the second method undertake payment visits and therefore they become visible only to detectors oriented to estimating the number

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with the first method. Cultural tourism may result in simple visits to the urban and architectural landscape: by comparing the results of the two methods we can thus also estimates the number of tourists who do not buy tickets. The estimate of the expenditure of tourists and excursionists is deduced from specific surveys. The economic importance of the existence of cultural activities to be enjoyed, from this point of view, is the ability to attract visitors who then spend on the territory to purchase many other services.

## 4.2 - *Valuing retained outgoing tourism.*

The objective of this, as previously mentioned, is the measurement of the reduction of outgoing cultural tourism due to the capacity of the territory to satisfy the cultural needs of residents. The problem, as seen above, is reduced to the question of whether internal and external cultural consumptions are additions or substitutions, which is essentially an empirical question. By entrusting the response to an empirical model, we accept the fact that the conclusion can change over time, and probably does, since preferences change and are influenced by what public and institutional agents do to change them. To answer this question, we have used two methods of alternative econometric valuations, the 'macro' and 'micro' type. The macro strategy uses data on the geographic origin of tourists in the various regions, which, after checking for many other variables, are placed in relation to a series of indicators on cultural allocations of the region:

[6] $T_{ij} = f(X_i, X_j, K_i, K_j, d_{ij})$

where $T_{ij}$ is the flow of tourists from the region i (origin) to the region j (destination), $K_i$ and $K_J$ are respectively indicators of the cultural endowment of the region of origin and of the region of destination , $X_i$ and $X_j$ are other features of the two regions , and $d_{ij}$ is the distance that separates the capitals of the regions of provenance and those of origin.

Interest is focused on the variable $K_i$: if positive, it indicates that a greater cultural offer in the region of provenance increases outflows and therefore that the internal and external cultural consumptions are complementary; if negative, it indicates that a greater cultural offer in the region of provenance causes a decrease of outflows and therefore that internal and external cultural consumptions are substitutions.

The main problem with this strategy is that the data on tourist presences does not distinguish by reasons of stay. Consequently, it becomes necessary to check for other characteristics such as income and landscape features, aside from the population, in order to isolate the effects of the overall cultural endowment.

If T is expressed in logarithms, and the functional form f is linear in the population of the two regions and quadratic in distance, a gravitational model is obtained, by anal-

ogy with the law of physics describing how the force that tends to bring together two bodies, the flow of tourists in our case, depends directly on the mass of the two bodies – population - and inversely on the square of the distance.

The specification choice for the macro econometric model is a variant of the gravitational model. The micro strategy uses data on the geographic origin of visitors to specific cultural events, gathered through ad hoc questionnaires. For each event, we have:

[7] $Q_i = f(X_i, K_i, d_i)$

where $Q_i$ is the share of visitors from the region I and $K_i$ and $X_I$ measure, as before, the characteristics of the region of providence, while $d_i$ is the distance. Note that all the observations relating to the same event are linked by the same characteristics of the destination (where the event takes place), and we can therefore omit the indicator j and relating characteristics. The advantage of this strategy is that the data collected refers largely to cultural tourists, or rather, people who have chosen their destination for its cultural offering. However, we must keep in mind that a share of visitors can be found in the location for reasons other than a prevailing cultural one, in which case the choice of destination is of course independent of the level of the cultural offer: the people interviewed were therefore asked, in addition to provenance, the predominant reason for the visit .

The two strategies lead to comparable results. Our choice to implement both allows obtaining not only an estimate of the retention effect of outgoing tourism but also an indication of the reliability of the estimate.

Potential expenditure not implemented outside of the area of reference is finally calculated by multiplying the estimated number of potential outgoing tourists by the average stay and thus by the average daily expenditure per tourist. Table 1 shows the results of this section of the research.

*Tab.1 – Tourists and excursionists expenditures*

| | |
|---|---|
| Incoming tourists (n.) | 435.760 |
| Incoming excursionists (n.) | 103.800 |
| Direct expenditures incoming tourism and excursionism (€) | 117.757.755 € |
| Indirect and induced expenditures of incoming t. and e. (€) | 323.833.826 € |
| Retained ougoing tourism (n.) | 118.754 |
| Retained outgoing excursionism (n.) | 30.788 |
| Direct expenditures retained outgoing tourism and excursionism (€) | 71.128.302 € |
| Indirect and induced expenditures of retained outgoing t. and e. (€) | 233.218.760 € |
| Total | 557.052.587 € |

# 5 - The indirect and induced effects on the local economy[5]

What has thus far been illustrated refers to the expenditure of the different actors (the institutions, enterprises, private citizens, visitors, tourists) by offer and services of cultural goods in Turin. "By" means not only effected directly in culture, to finance production, to buy tickets, but also in goods and services such as accommodation and catering services, for which demand is nevertheless ascribable to the primary demand of cultural consumption.

As anticipated this "first round" of expenditure enters into two circuits of wealth creation, the indirect circuit and the induced circuit. Direct spending indirectly involves the purchase of intermediate goods and services and therefore the production of economic activities that produce them.

The economic activities, to satisfy direct and indirect demand, produce income that is reintroduced into the local loop in good part through consumption. This induced circuit permeates throughout the economy: expenditure of some subjects becomes income for others, who in turn use this income to finance their spending, and so forth. However, only a part of all expenditure stays within the territory, or contributes to the creation of income to actors in the territory: another part contributes to the creation of income for other subjects, such as for the wine producer when tourists purchase wine in restaurants or the oil tankers that provide the petrol for taxis to take tourists back to their hotels.

As the aim of this study is to assess how much culture contributes to the economic wealth of the area of reference, it is necessary on the one hand to fully consider the income-expenditure circuit arising from the expenditure in culture (multiplier-effect), on the other hand, restricting it to its local dimension. It is therefore necessary to adopt local multipliers of expenditure, or rather, of the different types of expenditure.

The methodology generally used for calculating the expenditure multiplier makes use of input-output matrices that describe the interrelations between the various sectors of the economy.

These matrices are usually calculated on a national basis. For the province of Turin, however, local input-output matrices exist calculated on the basis of adaptations of national matrices (Russo et.al., 2004 and 2005). This present study uses local multipliers calculated on the basis of input-output matrices estimated in the studies cited.

The use of local multipliers allows:

- to take account of the indirect and induced effects of the different types of expenditure in the economy;

- to grasp how much of the total expenditure (sum of any direct, indirect and induced effects) remains in the local economy

Figure 2 shows the values of the local expenditure multipliers used in this study. We distinguish between expenditure by salary, expenditure for other purchases in current

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[5] Giuseppe Russo, Temporary Professor, Polytechnic of Turin

and in capital accounts.

We note that the highest multiplier is that corresponding to expenditure by salary (3.28). In fact, salaries contribute to finance the generic consumption of those who receive them, which in large part remains within the territory. Capital expenditure (investment) has the lowest value of the multiplier (2.28). This is because the investment goods often come from outside of the area and, therefore, do not activate other more virtuous income-consumption circuits in the territory. Figure 2 summarizes the values of multipliers and their meanings in the context of the model for the impact calculation.

How many times have we heard a decision maker affirm "to realize this public work involves a setback of the economic system equal to two or three times (or more) the value of the investment"? The ratio between the "setback" and the investment is the "multiplier” and the fact that it is mostly greater than the unit is indeed taken as an indicator of a good investment (this belief is only partially correct because there are cases of multipliers <1, and also because any expenditure in reality pays an opportunity cost that is not contained in the multiplier). A "multiplier" is in truth a ratio between output, i.e. a production value of the economic system, and an input expressed by the expenditure of the same system. Provided that the demand is additional, the production value is also assumed to be additional (and this varies, of course, from case to case).

However, the multipliers approach does not account for all the impacts a cultural expenditure may generate. Some impacts are economic in nature, but hardly statistically reportable. A cultural  expenditure may involve the creation of relationship networks that could increase the perspective economic competitivness of the region (Gui, Sugden, 2005). Moreover, the cultural expenditure has an impact on the public happiness (Bruni, Porta, 2005), which economic calculation is not on the scope of this paper. We will refer on economic impacts that are computable in terms of creation of monetary value and they are eventually tradeble. By the way, the multipliers approach we have taken in consideration is enlarged,with respects to the keynesian standard. In fact, our multipliers consider not only the money generation due to the local economic circuit. The multipliers are integrated in a broader model in order to compute the overall “leverage effect” of the public cultural expenditure. The “leverage-effect” introduce a kind of super-multiplier which takes in account not only the income generation due to the economic circuit, but include also some relational effects, such as the money resulting from the increased turistic attractiveness and the money appreciation of the increasing local consumption of cultural goods and events).

Finally, the “leverage effect” include also externalities, even if we consider only externalities reflected in the increasing value of private estates. Our model is obviously open to accept other impact sources, with the constraint that they must be expressed in money values.

How many demand multipliers are there? The answer comes from the model that is used to describe the ratio between input and output of the economic system. Economists

are in agreement that the multisectoral linear models of ratios between input and output are most appropriate to calculate with real numbers: therefore, there are as many multipliers as there are sectors in which demand is divided in the economy. Expenditure in the cultural sector may, of course, be addressed to a basket of sectors and not just to one and this depends on that which investors or traders buy on the market.

*Fig. 2 – The local expenditures multipliers*

| | |
|---|---|
| **Local multiplier of salary expenditure (generic consumption)** | **3,28** |
| **Local multiplier of current account expenditure for other purchases** | **2,51** |
| **Local multiplier of capital account expenditure** | **2,28** |

The synthetic multipliers in figure 2 are therefore valuations of final multipliers (direct, indirect and induced) of a hypothetical payment of salaries (a multiplier of the basket of the average consumer is used, 3.28), of capital investment (2.28) and current expenditure (2.51) taken from a typical public budget. These values serve more than once in the text to generate the expanded cultural product, to be compared with the initial input that ultimately generated it.

# 6 - Property externalities[6]

The last element of the calculation of the expanded cultural product in Turin is the quantification of externalities generated. As already mentioned, in principle, the externalities that culture is able to create in the surrounding territory are manifold: greater social cohesion, greater trade possibilities and thus the movement of information and ideas, perhaps also a greater capacity to attract investment from outside etc. All this can

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translate into greater economic growth, but how to translate probable and intangible effects in terms of quantity?

We have chosen in this work to devote attention to a particular externality of expenditure in cultural heritage, and principally to that aimed at the conservation and increase of the architectural and urbanistic heritage: i.e. the real estate development of the surrounding areas. It is considered that most of the value of intangible externalities is deposited, so to speak, in the increased value of the soil and buildings that, ceteris paribus, become more attractive. Quantifying this externality is not without difficulty, as we must separate the effect of the expenditure in culture from the growth trend of the property market that characterizes, albeit in a different way, the area.

The strategy used was to identify a sort of "natural experiment", characterized by the comparison of:

• an area subject to significant expenditure in conservation and restoration of the architectural heritage, but otherwise untouched by other changes and transformations: the city of Venaria, affected by the restoration of the Royal Palace in the period 2000-2006

*Fig.3 – Property value increments*
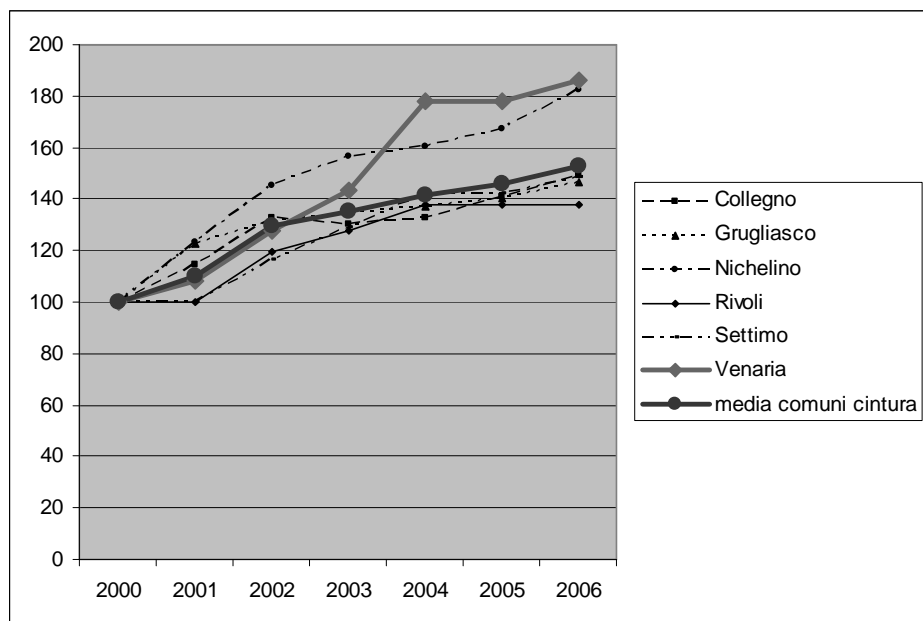


• an area not touched by any particular measures of redevelopment, except those that could be defined as "business as usual and improvement of existing", but also subject to the growth trend of the real estate market: a set of other municipalities of the Turin belt. The evaluation of property externalities was therefore based on a double comparison:

• temporal: the real estate market before the start of the restoration work of the Royal Palace of Venaria and following its conclusion

• geographical: the real estate market in Venaria and in a group of other munici-

palities of the Turin belt.

This allowed us to calculate the increase in value (per square meter) of the buildings surrounding the Royal Palace of Venaria, attributable to the restoration work. From here, we proceeded to calculate, based on data on the consistency of Venaria real estate, the increase of the total value created by the redevelopment operation. By comparing this increase with the cost of the operation, we obtained an estimate of the property multiplier, i.e. a kind of private real estate rate of return from the investment in public cultural capital (the restoration of the Palace of Venaria).

Assuming that this property multiplier is a feature not so much of the location where the redevelopment operation took place, but the nature of the operation itself, we thus applied it to the total investment of the redevelopment carried out in the area of reference, while achieving an estimate of the property externalities created.

## 7 - The result of the research and conclusions

The application of the model confirms the research hypothesis for the reality of Turin: culture is able to generate economic benefits on the territory and to activate productive sectors economically linked to it and able to revitalize the city. Culture, in fact, moved the economy of Turin by over 1.72 billion Euro per year (1,726.2 m €), i.e. a value equal to 4.1% of GDP of the area. This value is not the GDP of culture, as previously explained, but a different value that takes into account various items and is compared to the value of the GDP only to allow an intuitive quantification compared to the total value of wealth created in Turin.

Each euro invested in culture generates wealth on the local economy equal to 5.37 Euro: the leverage-effect of the institutional operation by the municipalities, the province, the region, the ministry and banking foundations in support of culture, overall quantifiable into more than 320 million and therefore equal to 5.37. The expenditure and the public and private investments generated, in fact, a value equal to around 320 million: the cultural sector in a strict sense, consisting of the direct public and private expenditure for the production and consumption of culture and its indirect and induced effects, was "worth" around 400 million (387.3 m. €) in 2006. To contribute significantly to the composition of the expanded cultural property value is the direct, indirect and induced tourism generated by culture and worth around 1 billion Euro: the expenditure of "cultural" tourists in 2006 amounted to a little over 100 million (117.7 m. €). This direct and indirect expenditure activated an income-consumption circuit that generates wealth in the territory of an additional 1050 million (1,050.9 m. of €10 million).

The redevelopment and architectural restoration operations increased the value of the buildings by approximately 100 million in the areas surrounding them: the effect amounted in 2006 to around 100 million Euro (99.1 m. €).

*Fig.4 – Total cultural multiplier*
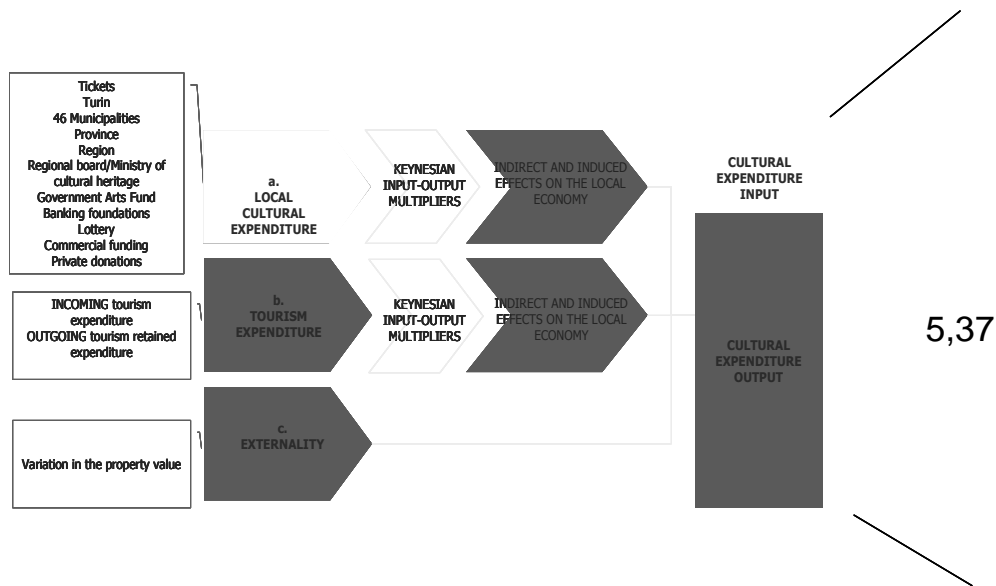


Notwithstanding the upper class value of the "leverage effect" estimated in Turin, we remain convinced that it undervalue the overall economic impact of the cultural expenditure, due to relational effects which estimation was not the purpose of this study and is a challenging environment for future analysis and academic scholars.

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