

## Methods for the Economic Evaluation of Urban Heritages’ Valorization Projects: a Sustainability-based Approach

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### Abstract

*The aim of this paper is to propose an operational analysis grid aimed at evaluating the economic interest of rehabilitation or renovation future projects linked to urban heritage. Monetary and non-monetary indicators are both useful for this evaluation. Today, development actors see urban heritage as a resource for their territory, leading them to estimate its economic value when standard tools of economic analysis – only focusing on use values – are unable to provide clear results. We put forward here an operational definition of urban heritage, described as inclusive in that it includes four series of interdependent economic, social, cultural and environmental elements. Moreover, at the heart of the process of patrimonialization is conservation and the transmission of heritage to future generations. As environmental economics put forward an economic definition of sustainability, the question of “strong sustainability” appears particularly relevant for the evaluation of urban heritage. Above certain thresholds the four different dimensions of urban heritage are complementary rather than substitutable and the loss of one of these dimensions would be irreversible. We examine sustainability through the dynamics of accumulation in the four dimensions of urban heritage and conclude by identifying the thresholds and risks which might weigh on heritage rehabilitation or renovation future projects.*

**Key words:** Urban heritage; territorial development policies; economic evaluation; inclusive approach; strong sustainability.

**JEL Classification:** R58; Z10 ; Q01; O22; E01

### 1 Introduction

Heritage is often seen as “a powerful engine of economic development” (World Bank, 2001), as it participates directly in the creation of economic value, for example through tourism activities. Thus the economic evaluation of heritage has become a central dimension in the definition of development policies (Vernières and al., 2012). But any notion of heritage refers to a cultural and historic dimension of which standard economic analysis tools can provide only an imperfect reflection (Vernières and al., 2011). Some works in the field of cultural economics have suggested comparing heritage to a (cultural) capital, *i.e.* a stock of wealth, existing at any time and giving rise to a flow of services over time, thereby generating income (Fisher, 1906) and for which conservation policies aiming at transmitting the heritage to future generation would

represent investment programmes (Throsby, 2001, 2003; OST, 2009). The rest of this paper is structured as follows. Section 2 describes our theoretical framework largely based on the literature review about evaluation of cultural and more specifically urban heritage, putting stress on the contributions of environmental economics in terms of Total Economic Value and sustainability. Section 3 presents our methodology leading to an operational analysis grid aimed at evaluating the economic interest of rehabilitation or renovation future projects linked to urban heritage. Section 4 discusses about how to apply our analysis grid.

## **2 Valuating and Transmitting Urban Heritages**

### **2.1 Valuating cultural and urban heritages**

Heritage, considered as capital combining different assets, demonstrates a use value, which can be more or less perfectly substituted for its unknown exchange value, through the income generated by the goods and services provided by each of these assets. Cultural heritage would differentiate itself from this notion of capital because its cultural dimension covers, in part, non-use values for which a monetary value is difficult to assign. Its dimension raises specific questions and represents a challenge for economic evaluation: culture is also “multi-dimensional, unstable, contested, lacks a common unit of account, and may contain elements that cannot be easily expressed according to any quantitative or qualitative scale” (Throsby, 2003). Furthermore, taking into account the specificity of the urban heritage as a cultural heritage, Vecco (2007) underlines the fact that this cultural dimension would not be taken fully into account in the “total economic value” (TEV) but would also overlap it: “the cultural/historic/monumental capital of a city is an element which contributes, even indirectly, to the stability and resilience of an urban ecosystem and which as such has an intrinsic value insofar as it will contribute to the production of social capital, i.e. to the “glue” which holds the subjects of a community together by reflecting a common history, a collective accumulation of knowledge, creativity and values” (Fusco Girard, Nijkamp, 1997). According to Throsby (2003), we can assume that the cultural value evolves at the same rate as the economic value, although there is no element to confirm the validity of this hypothesis.

Ost (2009) also adopts an approach in terms of Total Economic Value (direct and indirect use and non-use values) more specifically applied to urban heritage for defining the operational indicators and measures of its economic evaluation. This involves an analysis grid which favours the static dimension of urban heritage. In this approach, heritage is defined as a capital and conservation becomes an investment for the future thereby enabling the traditional tools of economic evaluation to be applied. The difficulties associated with monetary evaluation of urban heritage lead to the adoption of a set of non-monetary indicators rather than a synthetic measure in monetary terms. The two approaches are complementary and can be put to beneficial use according to the availability of the data and the characteristics of the urban heritage and the project analysed. The main limitation of this analysis (Ost, 2009) lies in the difficulty in avoiding overlaps in the information provided by the indicators which do not give rise to a monetary evaluation or even a synthetic evaluation.

The question of transposing the evaluation methods used for the environment and natural resources to the urban heritage must also be raised: for both the environment and urban heritage,

the evaluation would appear necessary, if only as an element of the decision concerning the funding and implementation of related projects. As natural heritage, urban heritage may disappear, for example if it is not maintained and falls into irreversible disrepair or if urban renovation (such as reconstruction) is observed. If the allocation is changed or a new use is created during the rehabilitation of urban heritage, the same distributive consequences may be observed as in the case of natural resources. The various methods of evaluating elements of natural heritage, divided into three main categories, could be adapted or transposed to the case of urban heritage.

The particularity of contingent valuation (CV), a direct method, is that it allows non-use or intangible values to be evaluated and has been consequently the favoured method of evaluating natural heritage (Navrud, Ready and al., 2002). Use and non-use values within urban heritage being closely interlinked, we might think that the feasibility of applying CV to urban heritage rehabilitation projects is generally limited. For indirect methods, the nature of the actors (land and house owners) taken into account often prevents the hedonic price method based on property prices from being adopted. By definition, the aim of the travel cost method (TCM) is not to measure non-use benefits, but only benefits of use. It is possible to measure the TEV by combining several methods of evaluation at once, for example TCM (for use values) and CV (for non-use values). Nevertheless, simply adding these two values may lead to overestimation, as CV takes already use values into account. With regard to multi-criteria evaluation methods, the characteristics specific to urban heritage, in particular the intimate mixture of use values and non-use values and its multi-objective and multifunctional nature, plead in favour of multi-criteria methodologies. But we should note that, at present, these remain scarce even in neighbouring fields (Plottu, Plottu, 2010) evaluate a landscape value using a multi-criteria evaluation) and are entirely absent with regard to urban heritage.

## **2.2 An inclusive definition of urban heritage**

Considering that the notion of urban heritage is inseparable from its multidimensional nature (Vecco, 2007), we put forward here an inclusive definition of this urban heritage, which includes four series of interdependent and closely interlinked economic, social, cultural and environmental elements. Its economic dimension incorporates physical assets represented by economic infrastructures (transport), networks, buildings, and collective equipment. Its human and social dimension incorporates the main characteristics (qualifications, and conditions of social life) of the “human capital” of the resident population, which designates all physical and intellectual aptitudes of labour conducive to economic production (Becker, 1964). Natural capital, in the form of parks, landscapes, water... as constituent elements of urban heritage, comprises the natural dimension. The cultural dimension consists of the historic buildings and cultural events in the territory. The different combinations of its four dimensions characterise the nature of each territory’s urban heritage (Vecco, 2007). However, these elements are in part interdependent. This is one essential characteristic of urban heritage which must be taken into consideration in the economic evaluation of any related project.

The “total wealth approach”, another method of valuating natural capital is based on the inclusion of this natural capital in the evaluation of a nation’s wealth and has not been transposed to the direct evaluation of heritage. However, the method itself indirectly offers such an evaluation, as all non-economic and non-natural capital is calculated as a balance between total wealth (evaluated as the present sum of future consumption), economic capital (the net present value of

economic investments) and natural capital. This balance captures all non-evaluated capital, i.e. social capital, including human capital, and cultural capital. All of this capital, estimated as a residual, represents the majority of a nation's total wealth (approximately 75% of a nation's total wealth). By analogy with the treatment applied to natural heritage, the incomes derived from tourist, cultural and recreational activities associated with urban heritage would enable the value of this “intangible” urban heritage to be evaluated, while ensuring that any double recording is avoided. Transposing this approach to urban heritage would probably provide some indication – if only very partial – of the economic importance of the latter, nevertheless limited to use values and only for identified and measured activities.

### **2.3 Transmitting urban heritage: a sustainability-based approach**

The question of sustainability is essential in the case of urban heritage because, as for any heritage, it is a question of transmitting it to future generations. It is precisely the interaction between the four different dimensions of urban heritage (cultural, economic, social, and natural) which enables its sustainability to be defined: transmitting urban heritage to future generations assumes at the very least that its total value is maintained over time. We move away here from a definition where the sustainability of urban heritage would only be defined by the economic attractiveness of a territory: while this can be a necessary condition of sustainability, it is not a sufficient condition. In particular, risks of “disneyfication” or “façadism” may be revealed which are linked to the fact that only economic attractiveness is taken into account.

The question of promoting urban heritage refers to the evaluation of the different components of wealth and the different sources of its value. But how can sustainability be measured? In Hamilton's approach (World Bank, 2006), initially adopted for natural capital, an indicator of sustainability is created by the concept of “genuine savings” (Hamilton, Clemens, 1999) which aims to capture all capital investment and depreciation flows in order to obtain an overview of the evolution of total value and wealth. Transposed from environmental economics to urban heritage, it is then a question of comparing these investment flows with the degradation of urban heritage. The analysis of the sustainable nature of urban heritage must be extended by specifying the sustainability criterion adopted. Using a “weak sustainability approach” (Hartwick, 1977), the economic, social, cultural and natural values included within urban heritage are assumed to be substitutable. The sustainability standard therefore refers to net total investment, which should be positive in total (investment in the economic domain may compensate for a deterioration in the other dimensions of urban heritage, such as a loss of historical value).

There is nevertheless another characteristic of urban heritage, which limits the existence of a perfect similarity between the notions of “heritage” and “capital”: its authenticity value (which would give it a unique character), which makes any loss to a certain extent irreversible. That is why an approach in terms of “strong sustainability” (Daly, 1990) would be preferable: we assume that these different dimensions of heritage are complementary rather than substitutable according to certain thresholds beyond which the loss of one of the constituent dimensions of urban heritage would be irreversible.

In the event of “strong sustainability”, critical thresholds have to be emphasized, as well as the interdependences between the different dimensions of wealth and thus the dynamic dimension of urban heritage. According to a “strong sustainability” approach, the possibilities of monetising the cultural, social and environmental dimensions, as well as the substitutions between the

different dimensions, will be limited. The evolution of the different dimensions of urban heritage can then be approached through accumulation rates, estimated on the basis of inventories and enumeration without necessarily requiring a monetary evaluation. Then, economic evaluation of urban heritage using an inclusive approach must thus consider the multidimensional nature as well as the highly dynamic character of this heritage.

### **3 The “Sustainability Diagram”: the Case of the Island of Saint-Louis in Senegal**

#### **3.1 An economic analysis grid of projects concerning urban heritage**

The contributions and limitations of previous works have provided a source of reflection for the definition of our analysis grid. We selected these works on the basis of an analysis of the studies taking into consideration the multidimensional and sustainable nature of the urban heritage rehabilitation or renovation projects implemented over the past twenty years (Rautenberg, 2003; Ost, 2009). The issue of urban heritage as seen by UNESCO can be distinguished from that of other international bodies (World Bank, for example), as its primary mission is to conserve and protect heritage. Its main interest is not the economic dimension, even if economic and social issues are not entirely absent from UNESCO considerations (in particular through the notion of Historic Urban Landscape). The Inter-American Development Bank (IDB, 2010), adopt an approach similar to that of the World Bank in evaluating projects related to urban heritage. The balance between private and public investments is emphasised here, as is the need to evaluate projects in light of their economic impact. However, IDB (2010) puts forward an approach to rehabilitation and conservation efforts in explicit terms of sustainability, defined by the “capacity of these programmes to maintain the existing activities and to attract a diversified group of new economic activities, residents and users of historic centres”. When urban heritage is sustainable, private investment ensures economic development whereas public investment enables urban infrastructures to be maintained, offsets negative social impacts and even supports private initiatives. This approach to the sustainability of urban heritage enables IDB (2010) to emphasise the importance of the criterion of the economic attractiveness of historic centres. The main advantage of this analysis grid is that it explicitly takes into account the dynamic dimension of urban heritage within a framework of sustainability. However, adopting an approach focussing solely on the economic dimension does not allow the social and environmental dimensions of sustainability to be taken into account, thereby reducing the scope of the analysis.

Our economic analysis grid of projects concerning urban heritage presented here incorporates the main contributions of the approaches of Ost (2009) and the IDB (2010) while adopting a holistic approach to urban heritage and specifying the definition of sustainability. Two criteria are adopted in order to classify the indicators and the relevant information:

- the state of urban heritage, according to the stock characteristics in the four dimensions (cultural, economic, social and natural);
- the evolution of heritage according to the investment and depreciation flows of these stocks (income, spending, costs, etc.).

The information collected for these two dimensions allows urban heritage to be assessed according to two criteria: economic value (according to the methods presented above) and sustainability (with the questions of transmission and threshold).

Economic values and sustainability indicators constitute two standards on which basis urban heritage rehabilitation projects will be assessed, in terms of flows - do the new investments offset the degradation and depreciation?- and in terms of stock - is a threshold reached below which irreversible damage occurs?

In terms of value flows, sustainability therefore implies the existence of investment flows, which increase the heritage stock, and depreciation or degradation flows which reduce this stock. In terms of stocks, it implies the potential appearance of thresholds or risks which will modulate the dynamics of accumulation for the different forms of heritage.

Thus, our analysis grid can be broken down into four types of approach, that is in terms of:

1. stocks
2. flows
3. investments and depreciations
4. existence of threshold effects or risk.

We now focus our analysis on the two last approaches, as they constitute the most innovative dimension of our methodological proposal.

### **3.2 Approach in terms of investments and depreciations: the “sustainability diagram” applied to the island of Saint-Louis in Senegal.**

We define the sustainability of urban heritage as the ability to maintain the different types of capital (or stocks) constituting this urban heritage at least at the same total level. This depends on the investment and depreciation flows exercising a positive or negative impact on the evolution of these different stocks and thus on the total value of the urban heritage. By analogy with the approach in terms of genuine savings (Hamilton, Clemens, 1999), we must identify and evaluate:

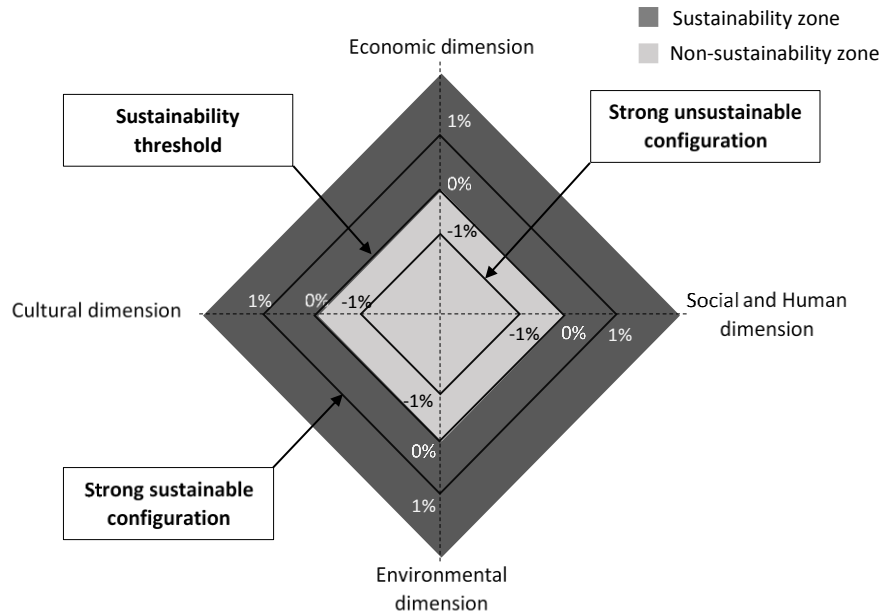
- investment flows, either private or public, increasing the level of urban heritage in these different dimensions. Due to the inclusive definition of heritage adopted, this also means including investments in cultural, human and natural capital in the analysis which must then *ipso facto* be the object of a monetary evaluation which, as already seen, is often problematic;
- depreciation flows: the capital depreciations linked to obsolescence and wear must be added to damage linked to pollution and losses linked to the migration of labour. The solutions used in the economic literature are nevertheless not satisfactory, once again bringing us back to more non-monetary indicators.

In accordance with our inclusive definition of urban heritage, it may be more relevant to evaluate net degradation (or accumulation) directly in the different dimensions of urban heritage using inventories and enumeration (where available). Based on investment and deterioration flows, it is possible to estimate net accumulation rates in the different dimensions of urban heritage, without necessarily applying a monetary evaluation, which could nonetheless have provided us with a single aggregate indicator. We therefore obtain a set of four indicators representing each dimension of urban heritage, which are presented on a sustainability diagram (figure 1) summarising the urban heritage situation in its four dimensions according to thresholds (table 1).

**Tab. 1 Sustainability threshold, simulated sustainability and unsustainability.**

Rate of accumulation	Non sustainability	Sustainability threshold	Sustainability
Economic dimension	-1.0 %	0.0 %	1.0 %
Human and social dimension	-1.0 %	0.0 %	1.0 %
Environmental dimension	-1.0 %	0.0 %	1.0 %
Constructed heritage dimension	-1.0 %	0.0 %	1.0 %

Source: authors.

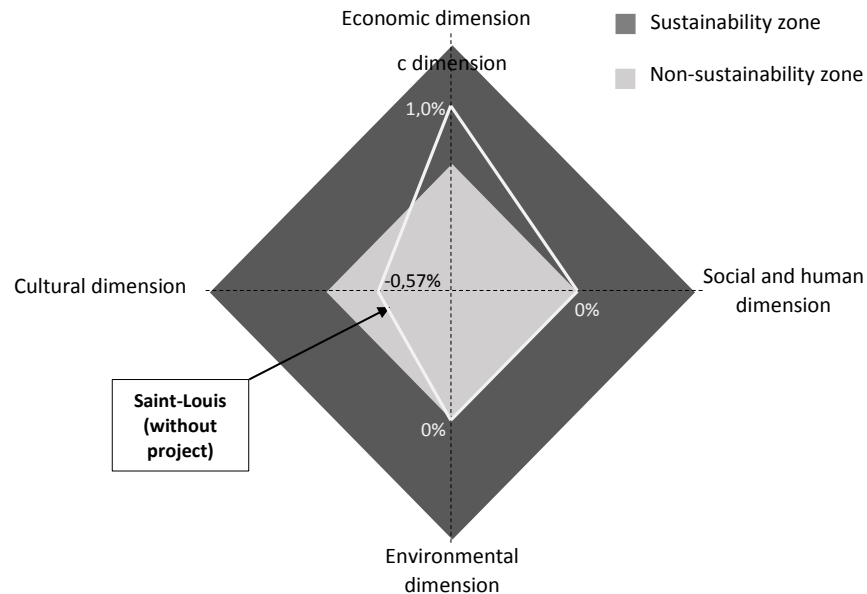
**Fig. 1 The sustainability diagram.**

Source: authors' calculations.

To explain the interest of this type of diagram, figure 1 illustrates the symmetrical cases of strong sustainability and strong non-sustainability showing the foreseeable impact of rehabilitation projects concerning urban heritage. Such rehabilitation projects may well shift the accumulation frontier beyond the sustainability threshold for the different dimensions, although compensations could take effect between the different dimensions of urban heritage.

The examples in figure 1 represent borderline cases for which the condition of sustainability (or non-sustainability) can be established according to a “strong” definition. The real situations refer more to mixed configurations in which not all the rates of accumulation are positive or negative simultaneously in the four dimensions. The question is therefore raised of whether or not the positive accumulation in one dimension offsets the deterioration in the other dimensions. According to a “weak” definition of sustainability, this compensation is possible (thus it would be possible to offset a loss in the environmental dimension by means of an increase in economic capital). To illustrate such a configuration, we present the diagram of sustainability we applied to the island of St Louis (Senegal), in a former study (Vernières and al., 2012).

The situation of the urban heritage on the island of Saint-Louis (figure 2) can be characterised as a situation in which the spill-over effects between the economic, social and constructed heritage dimensions do not enable sustainability to be guaranteed: the economic and social dynamics are too limited to ensure endogenously that constructed heritage is maintained. It corresponds to a scenario qualified as “contested patrimonialization” (Rautenberg, 2003). The involvement of national and international actors in the public and private sectors remains insufficient to prevent the continued deterioration of urban heritage (in terms of both quantity and quality) in its different dimensions. The population of the island is stagnant and tourism is also stagnating (it fell in 2009). The environment is subject to considerable pressure due to pollution and waste.



**Fig. 2 The sustainability diagram: the case of the of the island of Saint-Louis’s urban heritage (Senegal)**  
Source: authors’ calculations.

In analysing urban heritage, where constructed heritage in particular is not considered to be substitutable for the other dimensions, an approach in terms of strong sustainability should be considered.

#### 4 Sustainability and Threshold Effects

The sustainability of urban heritage appraised through sustainability diagrams must be complemented by an analysis of the dynamics which may affect its trajectory over time. The analysis of the threshold effects and risks weighing on this trajectory sheds further light on the sustainability of urban heritage. As illustrated by sustainability diagrams, a crucial question concerning the dynamics of strong sustainability is that of the nature of the interrelations between the different types of capital which are sources of values. Is it possible to substitute one dimension of urban heritage for another? Can an increase in economic capital, for example by means of a rehabilitation project, offset the destruction of natural capital, a loss of social capital (through a process of gentrification, migrations, etc.) or a loss of authenticity of cultural capital?



If this is the case, as most studies conducted by international financial institutions (World Bank, 2001; IDB, 2010) assume, often implicitly, projects with a high element of economic promotion will logically carry the day when the economic potential of cultural capital exists. There is nevertheless the risk that the relationships of substitution between economic capital and the other dimensions of urban heritage can only operate above certain thresholds. Analysing the risks of strong non-sustainability leads to an analysis of the thresholds beyond which the different dimensions of urban heritage might come into conflict with each other, in particular the development of the economic exploitation of heritage running counter to the social, cultural and natural dimensions.

These risks can therefore be analysed in terms of thresholds, irrespective of whether these are irreversibility thresholds (loss of historic buildings, desertification of city centres, etc.) or thresholds concerning the spill-over relations between the different dimensions of urban heritage which would seriously jeopardise the relations of complementarity existing between them. One of the essential issues in evaluating urban heritage rehabilitation projects therefore lies in identifying these critical thresholds in social, cultural, economic and environmental terms. Though it is difficult to evaluate these thresholds directly, it is, however, possible to define them using indirect indicators (health, security, delinquency, population density, erosion, floods, evolution of production techniques, etc.) and their associated manifestations. Thus, Giraud and Loyer (2006) identify an ecological threshold being reached by the increase in migratory flows. These thresholds and risks are rarely as objective as in the case of the destruction of buildings. They are generally linked to the perceptions of the actors within the territory. Determining them is a fundamental objective of development policy.

Rehabilitation projects are implemented in sites which generally (but not necessarily) demonstrate a situation of non-sustainability (both strong and weak), in particular with regard to the central dimension of the project: constructed heritage. The economic evaluation of a rehabilitation project can thus be undertaken using the sustainability analysis conducted by comparing indicators of accumulation in the different dimensions of urban heritage. Supposing a mixed situation where the different dimensions of urban heritage are not all located in the sustainability zone, the question of strong sustainability is raised.

## **5 Conclusion**

Combining different approaches to urban heritage, both socio-historical and economic, we adopted an inclusive definition of heritage highlighting its multidimensional and sustainable nature. On this basis, the economic and social consequences of a heritage-related project can be identified and estimated through an analysis grid which primarily focuses on the notion of sustainability. Thus the sustainability of urban heritage is evaluated in terms of flows (is the territory concerned capable of protecting the existing urban heritage by means of implemented investments?) and in terms of stocks (existence of threshold effects below which the different dimensions of urban heritage cannot fall without the latter being compromised).

However, estimating rates of accumulation in the various dimensions of the urban heritage is complex, while the data are incomplete, and sometimes non-existent. This difficulty is present all

the more in developing countries, where systems of statistical information are less efficient. The analysis of the urban heritage presented here thus has to incite to do more applied economic analysis of various sites.

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## References

- BECKER, G. S., 1964. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. New York: N.B.E.R..
- DALY, H.E. 1990. Towards Some Operational Principles of Sustainable Development. In: *Ecological Economics*. Vol. 2, pp. 1-6.
- FISHER, I. 1906. *The Nature of Capital and Income*. London: Macmillan.
- FUSCO GIRARD, L., NIJKAMP, P. 1997. *Le valutazioni per lo sviluppo sostenibile delle città e del territorio*. Milano : F. Angeli.
- GIRAUD, P.-N., LOYER, D. 2006. *Capital naturel et développement durable en Afrique*, Document de travail n°33, Paris :AFD.
- HAMILTON, K., CLEMENS, M. 1999. Genuine Savings Rates in Developing Countries. In: *World Bank Economic Review* 13. Vol. 2, pp. 333-356.
- HARTWICK, J. M. 1977. Intergenerational equity and the Investing of Rents from Exhaustible Resources. In: *The American Economic Review*. Vol. 67, 5, pp. 972-974.
- INTER-AMERICAN DEVELOPMENT BANK, 2010. *The Sustainability of Urban Heritage Preservation, Seminar September 23-24, Concept document and case studies*. Washington D.C.: the I.D.B. (<http://events.iadb.org/calendar/eventDetail.aspx?lang=En&id=2404>)
- NAVRUD, S., READY, R.C. (Eds.). 2002. *Valuing Cultural Heritage: Applying Environmental Valuation Techniques to Historic Buildings, Monuments and Artifacts*. Cheltenham: Edward Elgar.
- OST, C. 2009. *A Guide for heritage economics in historic cities, indicators, maps and policies*. Los Angeles: Getty Conservation Institute.
- PLOTTU, B., PLOTTU, E. 2010. Multidimensionalité des enjeux du paysage : de l'évaluation à la décision. In : *Revue d'Économie Régionale et Urbaine*. Vol. 2, pp. 293-311.
- RAUTENBERG, M. 2003. *La rupture patrimoniale. À la croisée*, Paris : Bernin.
- THROSBY, D. 2001. *Economics and Culture*. Cambridge University Press.

- 
- THROSBY, D. 2003. Determining the Value of Cultural Goods: How Much (or How Little) Does Contingent Valuation Tell Us? In: *Journal of Cultural Economics*. Vol. 27, pp. 275-285.
- VECCO, M. 2007. *Economie du patrimoine monumental*. Paris : Economica.
- VERNIÈRES, M. (Ed.). 2011. *Patrimoine et développement*. Etudes pluridisciplinaires. Paris : Karthala.
- VERNIÈRES, M., PATIN, V., MENGIN, C., GERONIMI, V., DALMAS, L., NOËL, J.-F., TSANG KING SANG, J. 2012. *Methods for the Economic Valuation of Urban Heritage: A Sustainability-based Approach*. Paris: AFD.
- WORLD BANK. 2001. *Cultural Heritage and Development. A Framework for Action in the Middle East and North Africa*. Orientations in Development Series, Middle East and North Africa Region, World Bank, Washington DC.
- WORLD BANK, 2006. *Where is the wealth of nations? Measuring capital for the XXI century*. Washington DC: The World Bank.