

MEASUREMENTS AND INDICATORS OF HERITAGE AS DEVELOPMENT

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Abstract. Heritage is increasingly defined as an economic development tool. However, in order to conclusively gauge heritage-related economic impacts, measurements, tools and methodologies must be implemented and evaluated. This paper provides a survey of recent methodological approaches for measuring the economics of heritage as development. Examples of evaluative approaches from academia, practitioners and international institutions are included.

As public and private funds become progressively more scarce, public officials, scholars and anyone whose work involves the built environment are increasingly asking, “what is the economic value of this heritage site or historic building?” For decades, conservationists have claimed that the conservation of historic sites has a positive economic impact, but those assertions were usually not supported by robust analyses or numerical measurements. As a result, the last decade has seen a marked increase in the quantity, quality and diversity of studies and approaches that attempt to quantify the role of heritage in economic development. Some of these measurements have emerged on the hard side of traditional economics including such metrics as jobs creation, tax revenue production, and overall contribution to a nation’s gross domestic product (GDP). Other indices have been developed that measure more qualitative factors such as quality of life, citizen attachment and walkability, drawing on methodologies of behavioural economics. In some instances, approaches from the environmental sectors, such as estimating the value of non-market goods, have been modified to address heritage assets. While the field of heritage conservation economics is still in its fledgling stages, these methodologies and indicators are tools upon which the preservation field can begin to systematically and credibly measure heritage as an economic driver.

Major Measurables and Methodology

Scholars and practitioners have conducted numerous studies that quantify the economic impact of conservation activities. These studies vary in approach, scope, and context, but out

of this research, four primary categories, or “measurables,” of focus have emerged: jobs and household income, heritage tourism, center city revitalization, and property values. In response to contemporary concerns, social impact and environmental impact have also emerged as innovative measurables and are supported with robust quantitative and qualitative methodologies. In the realm of urban economic development, these measurables have proven to be effective indicators of heritage’s role in an economy’s growth or decline.

These categories are commonly measured through the use of tools such as econometric multipliers or models, surveys, public record data, and activity records. The depth of any study is greatly dependent upon how much data is available and while greater quantities of data provide more flexibility in scope, valid and economically-sound studies can still be conducted with limited amounts of data. First, we provide a basic explanation of these tools.

An econometric model is a mathematical assembly of millions of pieces of statistical data that is used to identify patterns of relationships upon which reasonable predictions can be made. Out of these patterns, multipliers emerge – a variable that accounts for the proportional impact of another variable when it changes.

In the United States, major econometric models include IMPLAN and RIMS II (Regional Input-Output Modeling System). The IMPLAN model is owned and maintained by a private sector firm. It contains 440 categories of industries and can be applied to any geographic unit in the US.

It also contains data for Indonesia, China, Japan, Botswana, Italy, and Mexico.¹ RIMS II is created by the US government, Bureau of Economic Analysis, Department of Commerce. It contains 406 categories of industries and can also be applied to any geographic unit in the US.² In both of these models, users input known data points, such as total investment figures for construction, and the model generates resultant numbers for jobs, income, and other figures.

Surveys are often used in the assessment of the economic impact of heritage sites. In conservation, survey techniques range from simple behind-the-scenes observations of visitation and expenditure patterns, to photo documentation, to complex approaches such as the contingent valuation survey and the travel-cost method, both of which identify real and potential visitors' expenditures. The latter surveys entail speaking with site visitors about how much they have or would spend at a site, given certain parameters designed by the surveyor. These surveys assist heritage managers and officials in ascertaining the realized and unrealized economic output of a heritage asset.

Public record data and activity records often include information such as real estate sales and values, hotel occupancy rates, square footage of buildings, and other variables discussed later. While it can be time-consuming to collect, this data often provides the foundation for valuable findings and can also be used for crucial inputs for econometric models. These tools are not mutually exclusive and are often strengthened by being used in conjunction with each other. Some tools, however, are better suited for specific measurables, such as econometric modeling and jobs and household income.

JOBS AND HOUSEHOLD INCOME

A recent report in the US state of Delaware found that \$1 million spent on the rehabilitation of a historic structure created 14.6 jobs within the state. This compares with 11.2 jobs from \$1 million of new construction and 9.2 jobs from \$1 of manufacturing output.³ Figures such as these are developed by calculating values such as output, impact, direct effect, indirect effect, and induced effect. Often, econometric models and multipliers are used to determine these values. Simply put, *output* is the amount of goods or services produced, while *impact* is the set of consequences resulting from the output. Impact is often calculated in terms of jobs, labor income, and effects on other industries. *Direct effects* are resulting jobs, income or other consequent variables that occur within the project itself (such as an auto worker employed on an assembly line). *Indirect effects* are economic activities stimulated by and necessary for the project itself (for example, a steel worker for steel sold to an automobile manufacturer) and *induced effects* are activities within

the economy that result from the project (for example, a haircut bought by an auto worker).

Strengths and weaknesses

The number of jobs and contributions to household income generated by a conservation project is one of the key indicators policymakers understand and look for when determining economic significance. These figures are particularly useful for measuring rehabilitation projects when construction cost is known. The methodology of using econometric models and multipliers is an economic development standard and is common to many other industries, thus lending validity to the process of finding the data and the outcome. Once the researcher has the econometric models in place, determining these figures is relatively easy to apply, though the process through which they are found is not always easy to explain. Adding to the ease of the model, multipliers can be applied on any geographic level, though internationally, not all countries have access to such models or the data necessary to create such a model.

HERITAGE TOURISM

Heritage tourism is one of the most popular ways of thinking about the connections between heritage and economic development. As a global growth industry, heritage tourism is one of the fastest-growing segments of the larger tourism industry, with one recent survey reporting that heritage tourists spent \$994 per leisure trip compared to \$611 by non-heritage tourists.⁴ Many US states report that tourism is one of their largest economic drivers, particularly when measured by number of employees. Another 2006 study in Namibia found that tourism resulted in the direct employment of 18,840 workers and the combined direct and indirect employment of 71,777 workers. The industry contributed US \$256.7 million to the country's GDP, or 3.7% of the total GDP.⁵

Surveys are the most common tool used in measuring the economic impact of heritage tourism and are usually location-based, meaning they focus on the impact of a single site or a network of heritage sites. They are usually conducted by the government, private sector, tourism organization or site manager. Common metrics include the number of visitors, duration of stay, means of transportation, place of lodging, destination(s), visitor demographics, depth of visitor emphasis (how strongly a driver heritage-related activities were for the choice of where to go and what to do), and heritage visitors as percentage of all visitors. This data is then used to determine the expenditure per day or per trip, allocation of expenditures, employment generation, tax generation (sales, income), and relative per-day and per-trip expenditures of heritage visitors as compared to all tourists. Surveys are also often used to shed light on the visitor's experience

of the site with regard to expectations, exhibit quality, learning opportunities, condition of the facilities and gift shop, and training and helpfulness of staff. Taken together, these indicators can provide policy makers and site managers with valuable information about the economic impact of a site in the present and what changes to make in the future.

Most national governments and non-governmental organizations such as the United Nations World Tourism Organization have easily accessible databases that compile the metrics discussed above. In recent years, some governments and tourism organizations have begun creating tourism-specific models for measuring economic impact. The US National Park Service has evaluated the economic impact of park visitors using MGM2 – Money Generation Model. This relatively user-friendly approach requires the park to enter three basic pieces of information: number of visitor nights, visitor segments (based on nature of accommodations), and a choice of multipliers (rural, small metro area, large metro area, or region). Based on this input the MGM2 system will calculate sales, jobs, personal income, and value added, broken down in the twelve industries most affected by tourism expenditures. While the model may not facilitate collection of the data, it simplifies analysis and creates a common methodological basis upon which tourism professionals can base their findings.

Strengths and weaknesses

Despite its popularity as the go-to vehicle for economic development, tourism is one of the more nebulous categories to measure in terms of defining economic impact methodologies. This is due in large part to the difficulty in collecting and obtaining data through survey-based work that has a high potential for bias, and is further complicated by the imprecise definition of who exactly is a “heritage tourist.” Behind-the-scenes data that might measure visitorship collected by entrance tickets or gift shop revenues is usually accessible but not always sortable or easily managed. There is further difficulty in defining a “heritage” site and in isolating heritage’s economic contributions when heritage is one of several activities. Despite these challenges, measuring the economic impact of heritage tourism is necessary because of its popularity as a default source of economic development for many policymakers and practitioners.

CENTER CITY REVITALIZATION

In much of Europe, Asia, the Middle East, and Latin America and the Caribbean, heritage conservation is an integral part of center city, or downtown, revitalization. Traditionally, these urban areas have a high concentration of heritage buildings and are in need of integrated plans for physical, social and economic regeneration. Despite the complexities of this process, separating and measuring

the economic impact of conservation activities can be undertaken depending on the kinds and quantities of data available.

When detailed data is available, the following metrics are often collected and analyzed: amount of public, private and other investment in the neighborhood as a whole, amount of similar investment in heritage buildings, number of net new businesses, number of small businesses, number of business expansions, number of net new jobs, retail sales, sales tax collections (VAT), property tax collections, assessed value of property, number of hotel rooms, hotel occupancy rate, square footage of office space, number of residential units, real estate sales transactions, rent levels, building permits issued, cultural institution attendance, and finally, special event attendance. This list is not exhaustive and can certainly be expanded depending on the availability and applicability of data. These figures are often collected by the government, local community, or economic development organizations. By analyzing these indicators as they change over time and limiting them to historic properties, researchers can create a holistic picture of conservation’s contributions to center city revitalization.

However, there are many situations in which such detailed figures are not available. In these situations, the following measurements may serve as a methodological substitute: building conditions documented via photographic survey, occupancy levels, public and private maintenance, small business occupancy, visitor use, and use for cultural activities or special events. Researchers can also obtain a general idea of the detailed figures listed above by asking experts or other stakeholders about commercial and residential rent levels, vacancy rates, building use, building type, and typical sale prices of vacant land and existing and new buildings. Similarly, through focus groups, residents, store owners and others may be able to provide insight into how the neighborhood has changed over time. Questions would be targeted towards understanding the respondent’s views of the neighborhood’s heritage and the role it has played in the area’s economic health, where they see the neighborhood going, and whether or not heritage is sustainable in the given context. Some aspects of this type of data are obviously more qualitative than quantitative and while it may not provide the same degree of statistical accuracy as using numerical figures, it is nonetheless valuable in creating a general understanding of conservation’s role in center city revitalization.

In the US, the National Trust for Historic Preservation supports a program called Main Street. In simplest terms, it is downtown revitalization within the context of local business activity in historic buildings. Main Street managers track metrics including those discussed above and send them to the National Trust as a means of collecting and aggregating the data to the state or national level.

In the past 30 years more than 2,500 communities (and a hundred or so urban neighbourhoods) have had Main Street programs. It has been called the most cost-effective economic development program in America. In Oklahoma, more than two decades of Main Street activity have created 24,437 jobs, equal to roughly 1.5% of the state's entire non-farm workforce.⁶ While Main Street focuses on small downtowns, larger cities and expansive redevelopment projects have used the same metrics to ascertain the economic impact of conservation activity. In Newcastle, England, the redevelopment of Grainger Town resulted in the creation of 1,506 direct jobs, 800 indirect jobs, and 286 new businesses, while bringing 121 buildings, both historic and non-historic, back into use.⁷

Strengths and Weaknesses

As discussed, the degree to which heritage has contributed to center city revitalization is dependent upon the quantity and quality of data available. In most situations, such revitalization is a concerted effort of many different parties with a vested interest in a project's success. As such, data collection is usually an integral part of the process. A weakness in this methodology is that the data collected can be biased towards proving the project's success.

PROPERTY VALUES

Property values are a powerful tool in demonstrating the connection between heritage and economic impact. While increases in jobs and household incomes speak most strongly to policymakers, data on property values tend to have a significant impact upon individual homeowners and residents. This is largely due to concerns about the sovereignty of individual "property rights" and the regulation implicit in the creation of local historic districts and other forms of historic designation. Opponents of regulation often believe that such policies will have an adverse effect on property values. Historic property owners may also resent being regulated more than their neighbours, when they may have already agreed through their stewardship to devote extra care for a historic resource. Because of these often polarizing arguments, finding ways to measure the impact of heritage on property values has been a necessarily important field of study.

The relationship between heritage and property values is often presented as a comparison of property value before and after designation. It is also measured through comparisons of the value of historic homes with that of residences in similar non-designated neighborhoods and with the overall real estate market. In Philadelphia, houses listed in US National Register historic districts command a premium of 14.3% over comparable properties not in historic districts. Houses in local historic districts command a premium of 22.5% over comparable properties not in

historic districts.⁸ The reason this is significant is that unlike in most countries, listing on the National Register provides virtually no protections (or regulations) for privately owned property. It is through local historic districts that regulations and restrictions are put in place. Consistent with other studies, the Philadelphia analysis demonstrated that *more* regulation in fact resulted in *higher* not lower value appreciation.

A Canadian study that compared the sale-price trends of designated and non-designated properties in 14 Ontario communities found that 59% of the designated properties appreciated faster than the market average, while 15% appreciated at the average rate. The designated properties also held their value better in market downturns.⁹ Other metrics used to determine the impact of heritage on property values have included measuring re-sales of same property, using hedonic pricing methods (techniques that isolate the impact of specific variables that make up a price), and increasing number of annual transactions.¹⁰ Metrics used to determine these values include actual transactions and using assessment data as a proxy for the rate of property value movements. Producing sound data requires using the same unit of comparison through time and good public tax records. However, if such data is not available, property values can be estimated through interviews with real estate professionals, using rents as a proxy for values, using asking prices as upper limits on value, and conducting surveys of property owners, knowledgeable local officials, bankers, local real estate appraisers, and academic researchers.

Strengths and Weaknesses

The strength of this measurable is that the source of data – assessment values, sales data and others – is indifferent to heritage and as such is relatively free from bias, as the assessment of property values is not subject to advocacy goals. Because of this impartiality in the data, the relationship between property values and historic designation can be evaluated in depth and in a multitude of ways. Usually the vast majority of properties in a local assessment area will have parallel value and other information, so the quantity of data far outweighs any minor error that a given property value estimate might include. Additionally, each value estimate does not have to be "right" as to the probable sales price tomorrow as long as there is a consistent ratio between the market value and the assessed value for tax purposes.

Studying property values usually has a local focus for many reasons, most obviously because such values tend to be highly localized and dependent upon geographically proximate factors such as school quality, crime, and local government. In addition, recent regional and local market fluctuations may skew the data, hindering the creation of a baseline figure.

Research is done irregularly and only on local or sample

communities within a state; few countries have property values data on a national level. Despite a surge of interest on the connection between historic structures and property values, measurement approaches vary widely. Despite these challenges, detailing the often-positive connection between property values and historic homes is a compelling argument when reliable quantitative or qualitative data is available.

SOCIAL IMPACTS

In the US, minimal attention has been paid to the collection of data and the creation of measurements that assess the social impacts of heritage conservation. An exception is that many reports identify the number of low- and moderate-income housing units created using (usually in conjunction with other incentives) the Federal Rehabilitation Tax Credit. Elsewhere in the world, particularly in Great Britain and a few countries in Western Europe, there has been some primary research

on the relationship between heritage conservation (and/or heritage conservation-based programs) and social impacts.

Probably the most comprehensive has been the analysis of both the economic and social impacts of the use of lottery funds for heritage conservation in England.¹¹ In the study of the impacts of English lottery funds, citizen surveys and focus groups were conducted to supplement the “hard data” on money invested, leverage of public funds, numbers of buildings rehabilitated, and new businesses started.

The European Union funded a network of five European cities that used heritage conservation as the basis of center city revitalization programs. Their measurements were on both the “hard” and “soft” side and included the categories of Immediate Economic, Strategic Economic, Social, and Environmental.

These indicators and what was measured and how are listed in the table below:

TABLE 1. European Livable Cities Project

European <i>Livable Cities</i> Project		
Indicator	Measure	Technique
Immediate Economic		
Pedestrian activity	People flows	Manual counts, cameras, surveys of special events
More Expenditure	Expenditures (retail, leisure, hotel, on street event)	Interviews, surveys (on street, self-completion, operators)
More uses on street	Number of: cafes, street traders, stalls, events	Before & after survey
More repair/regeneration of sites	Level of activity	Exterior condition surveys, planning applications, repair frequencies, occupier surveys
Increased local distinctiveness	Number of independent shops Number of distinctive events User attitude Image change	Audit of shops Audit of events User surveys Survey of distinctive elements

European <i>Livable Cities</i> Project		
Indicator	Measure	Technique
Strategic Economic		
Improvement in town's performance	Performance of shops Tourism performance Quality of life	National retail rankings National tourism rankings Various surveys
New strategic roles for public space	Role changes	Before & after surveys
Integration of latent economic assets	More effective use	Audit of new economic activity Before & after surveys of vacant sites
Creation of new economic quarters	Diversity	Audit of changes in cultural/social/econ offerings
Improvement in quality of life	Overall quality	User surveys Indicator surveys
Creation of new image Image changes	Image changes	Surveys (user, business, opinion maker, media)
Social		
Reduction in road deaths, injuries	Accidents	Before & after surveys
Wider health and well-being benefits	Health	User surveys General health records
Reduction in actual threat	Crime, anti-social behaviour	Before & after surveys
Reduction in perceived threat	Fear	User surveys
Reduction in social exclusion Engagements	Before & after surveys	Observation (cameras) User surveys
More efficient walking trips	Routing	User surveys, camera surveys, GPS monitoring
Greater community ownership	Sense of civic pride	User perception surveys, plotting of new community initiatives
Environmental		
Reduction in noise pollution	Audible quality	Noise surveys Ambient sound surveys
Reduction in air pollution	Air quality	Air quality surveys
Reduction in vehicle use	Vehicle presence	Flow surveys Parking surveys
Reduction in visual intrusion	Visual quality	Environmental audit User surveys
Reduction in vehicle infrastructure	Infrastructure presence	Infrastructure audit
More sustainable use of urban space	Space use	Before & after surveys Camera surveys

ENVIRONMENTAL IMPACT

The most recent area of significant research is the relationship between heritage conservation and the environment, particularly the contribution of conservation to sustainable development. Although these measures emerge from environmental metrics, they often have a considerable economic consequence, particularly in the area of public infrastructure expenditures. While other measurements of the economic impact of heritage conservation are usually expressed as dollars gained (property values, household income, etc.), the environmental measurements are often dollars saved. For example, a report from Maryland noted that the state's investment in historic commercial properties has "saved" 387,000 tons of material from landfills over the past 12 years. This amount of landfill material is the equivalent of filling a football stadium to a depth of 50-60 feet¹².

In studies conducted to date that contain an environmental component, the measurements have included reduced land fill from buildings being reused rather than razed, savings in infrastructure from buildings being reused rather than razed, the embodied energy¹³ in an existing building that would be lost if the structure were demolished, reduced vehicle miles travelled (VMT) and CO² emissions because existing buildings are reused rather than replaced with new ones, and amount of "greenfield" acreage left undeveloped if existing building are reused as the alternative.

Most of the measurements are of the "what if" variety in a cost-benefit sense. That is to say, what would be the environmental consequences of building a new structure of the same utility and razing an existing historic structure? First, either an actual rehabilitated building or a hypothesized building (assuming a given size, materials, type of construction, and use) is chosen as an example. Then, calculations are made on a variety of environmental metrics.

In the US, the data sources for making these calculations include factors generated by the Environmental Protection Agency, the Urban Land Institute, the Construction Materials Recycling Association, and others.

Strengths And Weaknesses

The innovations in this methodology are valuable because they couch conservation goals and results in terms that environmental advocates can understand. It also shows a demonstrable connection between where development is encouraged (or accepted) and the public costs of accommodating that development, and is therefore a measure of community support. Also, as in other approaches, the source data upon which the calculations are made come from non-preservation sources so the "research by advocacy" criticism is lessened.

To the extent that there is a weakness, it is in the hypothesized nature of the approach – "If this building

had been torn down rather than reused, then...." With measurements such as VMT and cost of infrastructure, the same score would be achieved by tearing down the existing historic structure and building on the same site.

Conclusion

Heritage economics is an emerging field. In recent years, scholars and practitioners around the world have begun defining the qualitative and quantitative methods used to demonstrate the connections between economic development and heritage conservation. Many methodologies have been taken from other allied fields such as environmental economics or infrastructure development and applied to conservation needs. Though no definitive rubric for measuring heritage's economic impact yet exists, trends and common measurables have emerged. Innovative researchers continue to create new measurables that approach the field from different angles, further broadening the scope of heritage economics. Identifying the connection between heritage and economic development has become an increasingly important part of the conservation field. As such, the refinement and development of methodologies, measurements and indicators is and will continue to be a point of innovation and creativity for all whose work involves the built environment.

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- ¹³ Embodied energy is the sum of the energy consumed by extracting raw materials, processing those materials into a finished product, transporting them to the building site, and installing the building components into a structure.