CULTURE-LED CITY BRANDS AS ECONOMIC ENGINES: THEORY AND EMPIRICS

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Abstract

Cultural re-imaging through iconic art museums aims to create symbolic capital for a place in the form of creative images, reputation, and associations with innovation. While literature has long identified architectural uniqueness as a potential driver of brand competitiveness, we argue diffusion of that image is equally important. This work draws upon economic concepts from other cultural industries (such as film, music, and art) to develop a framework for understanding how cultural brands are built: how reproducible images of singular architecture accumulate in the media to strengthen a brand. We then test an art brand's impact on visitors. This work aims to offer evidence that the Guggenheim Museum Bilbao brand generates tourism to the city of Bilbao. By understanding how iconic cultural structures create symbolic capital, policy makers may better tailor similar culture-led branding strategies to other places.

JEL codes: Z1Cultural Economics, R1 Urban Economics.

Keywords: Iconic Art Museums, Image Markets, Urban Economics, Branding Effectiveness

1 Introduction

Art has become an important driver in postmodern economic development. From fine art and music to architecture and graphic design, these forms can inspire ideas that may encourage new content to consume, new technologies, and new ways of living. Consequently, art can give way to creative thought and innovation that shape the future.

Cognitive constructs have long been identified as significant forces in economies and societies. Bourdieu (1984) recognized reputation, honor and attention as symbolic capital that could leverage economic and social class advantages for individuals and groups. The influence of this intangible content continues to grow as postindustrial places transition into cognitive-cultural economies (Scott 1997). In these systems, semiotic content and uniqueness add significant value to the inputs and outputs of production. On the consumption side, consumers reacting to Fordist modes of production seek cognitive meaning to complement material goods, and desire distinction over sameness. Modern digital media posits people and entities to be "seen" by wider audiences, but at the same time risks disappearance amidst an excess of information. As such, uniqueness becomes crucial to attracting attention. On the production side, knowledge takes its place as an important input in the production function of post-industrial innovation economies (Hospers 2008). The growth of knowledge relies on cognitive content and capital like reputation, which strengthens the bonds of networking that generate new ideas. Symbolic capital has the potential to add much value to economic processes in postindustrial societies.

For this reason, culture-led place re-imaging continues to play a role in the economic development of cities (Kotler and Gertner 2002). Brands communicate the reputation and uniqueness of a place in order to attract the visitors, residents, and business investment needed to regenerate or diversify an economy. In the case of art museums, public heritage investments in "superstar museums" (Frey 1998) such as the Tate Modern, the Guggenheim Museum Bilbao, the Louvre-Lens, or Pompidou-Metz, draw upon blockbuster exhibitions and superstar architects with the hope of attracting a cultural tourism base and re-imaging a city. The Guggenheim Bilbao stands as one of the most famous examples of such an instrument for urban regeneration for it, along with a package of development strategies, helped turn the polluted, industrial town into a globally connected city. Much work has evaluated the economic impacts of new tourism and surrounding industry development, while other work has tried to explain why some museums become economic engines and others merely devour public funds. Still, there has been less focus on the symbolic value of these structures: precisely how culture-led city re-imaging is generated and how much it contributes to economic activity. Understanding how art museums become valuable branding mechanisms better positions policy makers to implement similar strategies in other places. Quantifying culture-led branding effectiveness positions them to better estimate how many public resources are worth investing into branding strategies.

This paper aims to develop a framework for understanding *how* iconic museums build place visibility (symbolic capital) and then *how this visibility in press* actually impacts economic activity. We, first, review the literature about place branding, specifically within the

context of culture and iconic art museums. We then develop a framework for understanding how art museums create competitive, valuable place brands: reproducible images of unique museum structures are diffused through and reinforced by the media, which attracts visitors and real economic activity (Askoy and Robins 1992; Currid and Williams 2009). Next, we evaluate this framework through a case study that estimates the impact of Guggenheim Museum Bilbao (GMB) driven news items. Drawing upon data from *Google News* about the GMB's presence in online news publications, we employ structural time series models to find evidence that supports our framework: the GMB's image accumulates in the online media, which attracts museum visitors. Our results address the question of the GMB's news visibility in terms of increased visitors to Bilbao. We then discuss the implications of our results for policy makers, the limitations of the method, and make suggestions for future work.

2 Literature Review

Places are complex entities made up of numerous characteristics: environment, urban design, history, culture, politics, etc. A place brand, much like a product or corporate brand, synthesizes these components into an organized, unified image that signals content and differentiability (Kavaratzis and Ashworth 2005). A place brand creates a narrative about a locality in order to make it recognizable to outsiders and to develop a sense of community amongst insiders (Vivant 2011). A brand simplifies and reduces risk in the decision-making process. A brand's economic value rests in its ability to attract the capital and people required to build environments for quality living. Highly skilled professionals and cultural tourists choose where they travel, live or conduct business in part due to the uniqueness, culture, or reputation of a place (Florida 2002). To establish such a brand, policy makers can draw upon a number of tools: associations with celebrities (the Beatles' Liverpool); iconic architecture and signature urban design (Sydney Opera House); event hallmarking (European Capital of Culture or the Olympics), iconic pieces of art such as Picasso's Guernica (Plaza et al. 2013), to name a few (Ashworth 2009).

Our interest here lies in branding through culture, as culture already plays a significant role in economic regeneration (European Commission 2010). Cultural activities are often territorially concentrated (Lazzeretti and Cinti 2009; Scott 2005), which contributes to industry and urban growth. Culture contributes to diversity that fuels innovation as people from different backgrounds collaborate to generate new ideas (Florida 2005; Lazzeretti 2011). Additionally, culture can break up path dependencies and lock-in effects so integral to old industrial operations (Grabher 1993). While cultural branding is not limited to the realm of art museums, these pieces serve as a popular choice among policy makers in part due to the success of a handful of "superstar museums" (Rosen 1981; Frey 1998) that have had significant impacts on local economies. These museums and their branches/franchises distinguish themselves with widely known painters and iconic architecture, and enjoy global prominence and large numbers of visitors every year. The first international branch of such a museum was the Guggenheim Museum Bilbao. In the 1970's and 1980's, Bilbao pursued construction of the GMB as part of a larger scheme to address several local troubles: industry

crisis (Gomez 1998); high unemployment (Plaza 2008); heavy pollution and violence from Basque separatists (Abadie and Gardeazabal 2003; Plaza 2008). Along with several other public policies, the Museum impacted the economy by creating a tourist base (diversification) and re-imaging the city. The new image (or brand) leveraged by such an iconic museum can give a city an advantage in competition for development resources. Among the many efforts required for regeneration and diversification, such as urban planning, industry support, and investment in public services like education, places also stand to gain value from building brands, investing in their images, publicity, and uniqueness.

Just how many resources are worth investing? The GMB alone required 166.02 million € before opening in 1997, which included the cost of construction (73.10 mil. €), land (7.21 mil. €), artwork (32.31 mil. €), payment for the Frank Gehry and executive architect fees (8.70 mil. € and 4.68 mil. €, respectively), the Guggenheim Foundation New York 20-year franchise fee (13.30 mil. €) and other Guggenheim services (4.64 mil. €), taxes (7.21 mil. €), and other operative costs (14.87 mil. €) (Plaza 2006). High initial costs coupled with unpredictable returns make investment in iconic art museums highly risky. Some projects like the GMB have generated enough jobs, related sector development and tax revenues to recoup their initial investments (Plaza 2006; Plaza *et al.* 2011). However, not all cultural institutions have fared as well. Neither the new wing at the Milwaukee Art Museum nor the Los Angeles Museum of Contemporary Art (MOCA) attracted their respective projected numbers of visitors (Grodach 2010; Plaza 2006). Sheffield, England's National Center for Popular Music opened in 1999 and went bankrupt 7 months after falling short of its 400,000 visitor target. Not all cultural investments later evolve into economic drivers.

An important question is: what makes some iconic museums economic engines and others vacuums for public funds? Much work has contributed to answering this question by addressing the causes and effects of constructing iconic museums for urban development (Grodach 2008; Kanai and Ortega-Alcazar 2009; Plaza 2008; Plaza and Haarich 2009; Vivant 2011). Still, this body of work has not yet addressed in depth the symbolic dimension and branding impact of these structures. While most authors agree the GMB has successfully re-imaged the city of Bilbao, and others have a sense that image plays an important role in the economy (Zulaika 2000), fewer discuss it as a mechanism for producing emblematic, though very real economic activity. If harnessing the returns to iconic museums is still a difficult business, this may be partly because their economic returns in the form of brand capital have not yet been fully realized.

3 Framework for Understanding

Before addressing the question of how much, we must understand how iconic museums catalyze valuable brand development. Understanding this process is not only essential to developing a viable method for quantifying branding effectiveness, but also to aiding policy makers in applying similar techniques in other places. Branding begins with a narrative (Vivant 2011) that is constructed both within and outside of a physical place (Power

and Jansson 2011). On the inside, iconic buildings like the GMB draw upon culture and architecture to begin shaping a unique image of place. The narrative constructed by the GMB might be one describing a formerly depressed industrial city's transition into the postmodern era. Aesthetics and symbolic associations evoke notions of technological innovation, creativity and culture as the structure becomes the ultimate synecdoche for all the planning efforts that revitalized and remade Bilbao. This semiotic content is an important input to production of a brand that will attract visitors and residents who value culture, business investors who value innovation, or even media entities that value elegant narratives. The singular architecture inciting this cognitive content is a nonreproducible space, which gives it the required uniqueness.

At the simultaneous creation of this inner-narrative, a place image is further shaped and communicated outside of museum walls and city boundaries through what Power and Jansson (2011) call "brand channels". These channels are made up of numerous but related entities that together project image and influence perception of a brand-generating space. An example of such a brand channel is the media. From artistic and glamour magazines to high profile papers like the *New York Times*, the media serves as "a conduit in image building and distributing information about particular locales" (Currid and Williams 2009, p. 7). The media reflects this inner narrative but also actively shapes it by determining what specific aspects of place to publicize. However, Currid and Williams (2009) also point out that while the media chooses what topics to report on, it makes these decisions facing high demand uncertainty. Photographers and newspaper writers can never be sure what will sell. So, to accommodate some of the risk associated with unpredictable consumer preferences, the media tends to document stories that have sold successfully before. It distributes information about the same topics over and over, so that imagery tends to accumulate. It is this accumulation of images through brand channels that really drives the development of a valuable brand.

Just like movies, music recording, and literature, images of emblematic buildings are reproducible, characterized by strong scale economies at the reproduction stage (Schulze 1998). Though the initial cost of producing a piece of music is high, once it is recorded it is easy and cheap to duplicate. Similarly, once an iconic museum is built, the marginal cost of reproducing its unique image is nearly zero (due to new digital media). In the case of the Guggenheim Museum Bilbao, its image is being reproduced through many mediums: from online news publications and musical video clips to Facebook and Flickr accounts. Thus, reproducible images are not competitive based on cost. Rather, they acquire value through the breadth of the audience they reach. They are competitive through distribution. Authors have similarly argued products in the film (Askoy and Roberts 1992) and music (Power and Hallencreutz 2007) markets compete not only based on the quality endowed from local production processes but also based on their access to larger distribution networks. For example, audiences do not choose what films to watch based on price or production costs. The ticket price at the theater for a $150 million film is the same as the ticket price for a $10 million film. Their choices largely depend on what is accessible to them: what films are showing at the cinema, on television, or in online streaming stores. As Askoy and Roberts (1992) assert at the Cambridge Journal of Economics:

"[The success of a film] depends almost completely on how well the cultural and aesthetic preferences of the consumer are anticipated, nurtured and channeled… [T]he crucial bottleneck in the film business (and in other cultural industries) is to do with building audiences."

When the cost of reproducing images is low, value comes from broadening a consumer base through tapping into preferences and reaching audiences[1]. Whereas uniqueness gives an inner-narrative a competitive edge, distribution on the outside gives images a market advantage.

Still, how can a structure that was new in 1997 still have an impact on public opinion in 2013? Like many cultural goods, reproducible image consumption can be highly addictive. As Stigler and Becker (1977) point out in the case of music, the utility derived from the consumption of music depends on the consumed quantity, as well as the ability to appreciate music, which in turn is a function of past consumption of music. In the case of place branding, the broader the diffusion of images of Frank Gehry's virtuoso architecture, the more often these images enter the public psyche, and the more the public will want to consume these images (Plaza 1999). Modern technology expedites this process, as the Internet and broadband mobile technology have ubiquitously expanded the distribution channels of branding content. Gadgets from computers to smartphones make newspaper articles, photographs, books, music, videos, blogs and "tweets" available at any moment in almost any place, providing cities new kinds of opportunities to communicate with the world.

To summarize, an art museum can create branding capital through the narrative, associations, and images shaped on both the inside and the outside of place. The architecture itself, a non-reproducible piece of art, endows the brand with uniqueness, while brand channels like the media diffuse reproducible images at accelerating rates. The demand for these images increases as consumers absorb them (due to increasing returns to utility). Image accumulation fuels increasing demand for place, which reinforces a brand and ultimately attracts cultural visitors. Within this working framework we may better understand how iconic art museums generate brand value.

At this point, it is also worth mentioning the power of specialized circuits (Sassen 2002) in building value and reducing the high risks associated with culture-led branding. As Currid and Williams (2009) point out, the need to sell to a market characterized by unpredictable demand dictates much of the media's content. Thus, the more connections an iconic museum makes to other images, the more likely the media will document it. In this

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[1] Broadening audiences may also reduce some of the risk involved in iconic cultural projects. Following the same media logic outlined by Currid and Williams (2009), reaching more people increases the likelihood a structure will appeal to consumer tastes.

way, tapping into "global brand circuits" oils the brand channels that drive competitive image distribution. The Guggenheim Museum and Bilbao are links in many different circuits (Plaza and Haarich, 2013): worldwide Guggenheim Museums; worldwide Frank Gehry designs; urban planners (the Norman Foster metro and the Santiago Calatrava bridge); post-industrial cities, etc. When the media publicizes one of these topics, it is likely the GMB (and in turn, the city of Bilbao) will also be mentioned. Connections begin to build, setting off the process of image accumulation. While the methodology presented in the next section seeks to quantify the online news items' impact on the number of visitors without accounting for the influence of different circuits, this would be an interesting direction for future work.

## 4 Does the Museum's image attract visitors to Bilbao?

So far, we have discussed the value and process of cultural branding in the employment of iconic art museums as economic engines. In this section, we develop a method for testing our framework and quantifying the influence mentions in the press about GMB has on attracting visitors to the city of Bilbao, since online press coverage indicates the breadth of the image distribution of the GMB.

4.1 Methodology

The methodology applied to quantify the influence of the news published about the GMB in attracting visitors to Bilbao is based on time series econometrics models. The dependent variable will be the number of visitors to Bilbao and the explanatory variables have to include not only the image of the museum but all the other factors that can affect these visits.

The Basque Statistics Institute provides data on the number of travellers to hotels in Bilbao by country of origin. This enables us to analyze the effect of online press on domestic visitors (*DV*) and foreign visitors (*FD*) separately and compare the results. Figure 1 shows the evolution over time of the dependent variables, visitors to Bilbao by origin. It can be observed that these series display changing trends that may be due to the evolution in general economic conditions, such as income, prices or transportation costs. Besides, both series of visitors present seasonal behavior which is not constant over time. This seasonality is particularly noticeable in foreign visitors.

Figure 1. Travellers to hotels in Bilbao by origin (1992-2012)
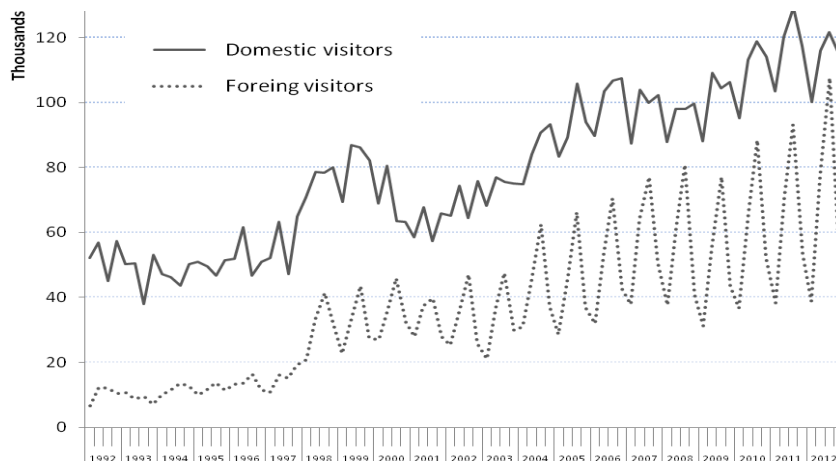
To define the explanatory variables we employ a method developed by Plaza, Haarich and Waldron (2013) to collect data about the amount of images, or keyword references, published online. A preliminary factorial analysis considers several topics, such as the Athletic Bilbao soccer team and the Iberdrola energy company, that may affect Bilbao's online visibility in news and Web 2.0 sites (such as Youtube, Flickr, Facebook, etc.). This analysis identified a relationship between tourist flows and online traffic hits to two main topics: the Guggenheim Museum Bilbao and ETA, a Basque separatist group. With this information, we may gather a more extensive set of data about the number of news articles referencing each topic in *Google News* sources. *Google News* provides data about the number of news items published in worldwide news sources using a certain keyword within a given time period.

We use *Google News* to collect quarterly data from the first quarter of 1992 until the second quarter of 2012 about the number of news items published about the GMB (*GMBN*) and the number of news items published about ETA (*EN*), which will be considered in the model as explanatory variables. It can be observed in Figure 2 that these series display changing trends, with an increase in the rate of growth in news from year 2006.

The non-stationarity of the variables has to be taken into account when specifying the econometric model in order to avoid spurious regression results. The time series econometrics literature offers several approaches to model this kind of time series with non stationary behavior. The framework we propose to study the influence of online news on the visitors to Bilbao is based on Structural Time Series Models (STSM) with explanatory variables (Harvey, 1989). The STSM models belong to the class of unobserved component models and they present several advantages. These models are specified directly in terms of trends and seasonality so they enable us to deal with the non-stationary characteristics of the series without having to transform the data, taking differences for instance. Furthermore, these models specify the unobserved components stochastically so they can evolve over time following the changes observed in the data. Therefore, the STSM provide a general

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framework that includes the traditional models based on deterministic trends and seasonality as a particular case when the variances of the stochastic components are equal to zero. In this way, the results of estimating the model will indicate whether these components are deterministic or not. In short, the STSM framework makes it possible to measure how a series responds to external factors (online news) while at the same time including components, such as time-varying trends and seasonal cycles to capture the non stationary behavior of the series.

Figure 2. News on the Internet (1992-2012)
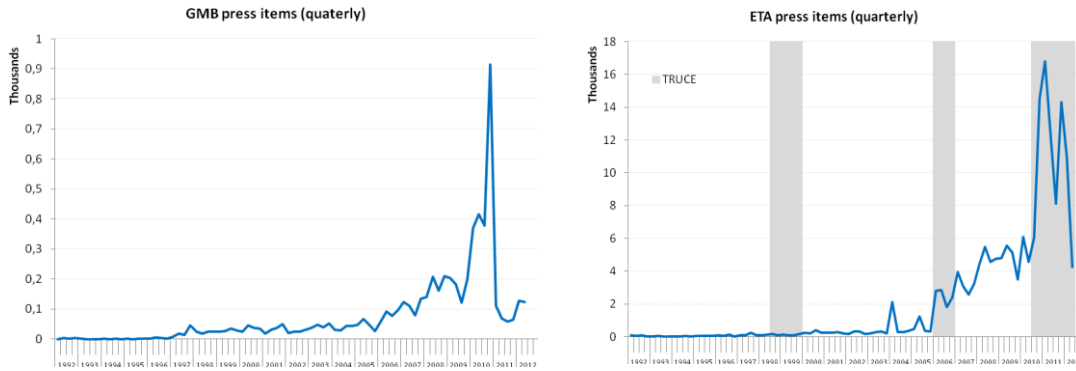
Since the two series of interest, domestic and foreign visitors, are subject to the same overall environment, such as prevailing business climate, world tourism trends, ..., we propose to use a multivariate STSM with explanatory variables where it is assumed that these two series are not subject to any cause-and-effect relationship between themselves. This model is a time series analogue of the seemingly unrelated regression equation model (SURE), so it is usually referred to as a system of seemingly unrelated time series equations, a SUTSE model (Harvey and Shephard, 1993).

The results of the Granger-causality tests performed show that, at the 5% significance level, past visitors (domestic/foreign) values do not influence future values of news about neither GMB nor ETA.

The model we propose for our study is a bivariate Structural Time Series Model that includes trend, seasonality and explanatory variables with finite distributed lags in order to capture the dynamic causal effect of online news on visitors:

$$\ln Y_t = \mu_t + \gamma_t + \alpha_4(L) \ln X_t + \varepsilon_t \qquad \varepsilon_t \sim nid(0, \Sigma_\varepsilon) \qquad (1)$$

$$\mu_t = \mu_{t-1} + \beta_t + \delta\, I_t + \eta_t \qquad \eta_t \sim nid(0, \Sigma_\eta) \qquad (2)$$

$$\beta_t = \beta_{t-1} + \zeta_t \qquad \zeta_t \sim nid(0, \Sigma_\eta) \qquad (3)$$

$$\gamma_t = -\gamma_{t-1} - \gamma_{t-2} - \gamma_{t-3} + \omega_t \qquad \omega_t \sim nid(0, \Sigma_\omega) \qquad (4)$$

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where ln Y_t =[ln DV_t ln FV_t] refers to a vector of log domestic visitors and log foreign visitors to Bilbao. Since the variability of the visitors and news series increases over time (see Figures 1 and 2) a logarithmic formulation is proposed for model (1). Consequently, the parameters of the log-linear model can be interpreted as elasticities.

The factors that explain the number of visitors to Bilbao consist of a trend, μ_t, a seasonal component, γ_t, and the explanatory variables related to the online news, X_t.

The specification of the trend component relies on a stochastic formulation that allows the level, μ_t, and the slope, β_t, of the trend to vary slowly over time (see equations (2-3)). A time-varying trend might respond to the evolution over time in the general economic conditions, such as income, prices or transportation costs (González and Moral, 1995). An intervention variable, I_t, is included in the trend to capture the effect on visitors of the opening of the Guggenheim museum in the last quarter of 1997. This variable takes value 1 for the observation corresponding to the fourth quarter of 1997 and 0 otherwise. Equation (4) specifies the quarterly seasonal component, γ_t, stochastically so that it can reflect the changes undergone by the seasonal pattern of visitors to Bilbao during the sample period.

The explanatory variables are the online news about GMB (*GMBN*) and about ETA (*EN*). Regarding the effect of ETA news on the number of visitors to Bilbao, it could be expected to be different during truce periods (see the grey areas in figure 2). To be able to distinguish between the effect of ETA news in periods of truce and in periods of no truce, we will include in the model an interaction variable, *TEN*, that takes the value *EN* if observation t belongs to a truce period and zero otherwise. Therefore, the matrix X_t includes three explanatory variables *GMBN, EN* and the interaction effect *TEN*. Since the effect of online news on visitors could present some delays, we introduce lags of the explanatory variables in the specification of the model. Thus, $\alpha_4(L)$ is a matrix polynomial in the lag operator of order 4 that applies to all the variables included in X_t.

Finally, we assume that the irregular disturbance in equation (1), ε_t, the level disturbance, η_t, the slope disturbance, ζ_t, and the seasonal disturbance, ω_t, are bivariate white noises mutually uncorrelated and with covariance matrices, $\Sigma_\varepsilon, \Sigma_\eta, \Sigma_\zeta$ and Σ_ω, respectively. In the SUTSE models the two dependent variables are linked together by allowing the various components to be contemporaneously correlated. The link among the series through the off-diagonal elements of these disturbance covariance matrices, might give more efficient estimates than modelling each series in a univariate fashion.

4.2 Estimation results

The sample period chosen for estimating model (1-4) runs from the first quarter of 1992 to the second quarter of 2012. The unknown parameters of the model are given by the regression coefficients in matrix $\alpha_4(L)$, the covariance matrices of the unobserved components, and the vector of coefficients of the intervention variable included in the trend component vector, δ. The estimation of this model is performed using *STAMP8.0^{TM}* (see Koopman et al. 2007), which is a module of *Oxmetrics5.0^{TM}* (Timberlake Consultants Ltd., London, UK).

Preliminary results of estimating model (1-4) show that some of the lagged explanatory variables included in the model are not relevant[2] so they can be excluded from the model. The results of the estimation of the parameters of a simplified version of model (1-4) are shown in table 1, while table 2 shows the following diagnostics: the residual autocorrelation coefficients of order 1 and 4, *r(1)* and *r(4)*, the Box-Ljung statistic *Q(4)* based on the first 4 residual autocorrelations, a heteroscedasticity test *H(23)*, and *JB* is the Jarque and Bera statistic for testing normality. The conventional coefficient of determination, R^2, is not very useful as a measure of goodness of fit when analyzing time series that exhibit strong upwards or downwards trends and/or seasonal cycles. Harvey (1989) proposes a new coefficient of determination, R^2_S, substituting the observations by the first differences of the series around the seasonal means. It can be observed that the diagnostics are quite satisfactory for the estimated model.

The results obtained for the coefficients of the explanatory variables show that the distribution over time and the magnitude of the effect of online news are quite different for each type of visitors. Thus, a 1% increase in the number of articles about the Guggenheim Museum Bilbao published in Google News leads to an immediate increase in the domestic visitors to Bilbao of 0.0444% and a 4-quarter lagged increased of 0.0441%, whereas the number of foreign visitors increases by a 0.057% one quarter after the news publication occurs. Meanwhile, it can be observed that the number of articles about ETA published in Google News affect both the number of domestic and foreign visitors but with different dynamics. A 1% increase in the number of news about ETA leads to a contemporaneous decrease of domestic visitors and to a 2-quarter lagged decrease of 0.0404% for foreign visitors. It should be noted that the estimated impact effect of the articles about ETA on domestic tourism is different depending on the truce periods: a 1% increase in the number of articles about ETA is estimated to decrease domestic visitors that quarter by 0.0387% in periods of no truce and 0.0257% in truce periods, while the truce seems to have no effect on foreign visitors.

The graphs in Figure 3 show the estimates for the trend and seasonal components for the two original series of domestic and foreign visitors. With respect to the trend component, Table 1 shows that the estimation of the variance for the slope component is zero for both series, so we have trends with deterministic slopes but stochastic levels for both series. Furthermore, the level disturbances are also positively correlated (r=0.4446). The intervention variable included in the trend component is statistically significant both for domestic and foreign visitors. This result means that the opening of the GMB had a very positive effect in attracting visitors to Bilbao, particularly foreign visitors. It implies as well that, even disregarding the museum inauguration, the images related to the GMB in the online media are important in attracting visitors to Bilbao. Two clear features could be noted in the evolution of the trends. One is the above mentioned increase in the number of visitors due to the opening

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[2] Besides, when dealing with monthly or quarterly time series, it is usually important to take into account the possible effect of Easter holidays on tourism flows. Model (1-4) has been estimated including an Easter dummy variable but it turned out to be not relevant.

of the Guggenheim museum that is followed by an increase in the number of visitors with higher rates of growth in the case of domestic visitors from 2001. The second one is the change in the trend in the year 2008 due, probably, to the world economic crisis.

Figure 3. Trend and seasonal estimates (1992-2012)
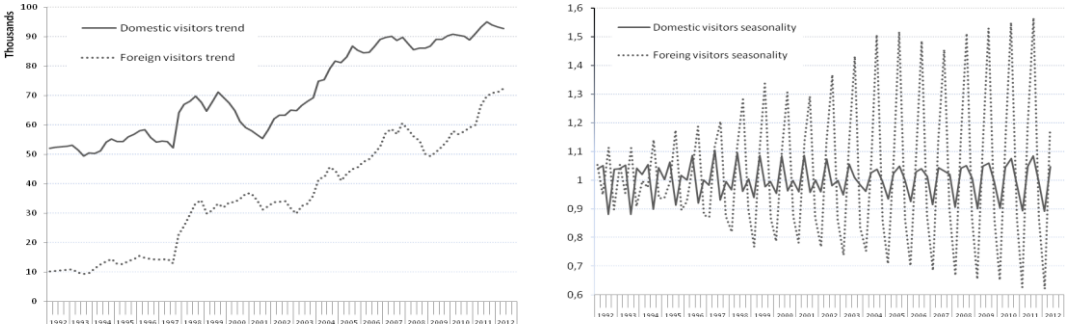
The right hand side graph in Figure 3 shows the differences in the seasonal pattern between domestic and foreign visitors. Foreign visitors seasonality is much more concentrated in the summer quarter and its amplitude has been increasing throughout the sample. On the other hand, the amplitude of the seasonal component of domestic visitors is narrower and there are positive seasonal effects in the spring and summer quarters.

To summarize, newspaper publicity about GMB significantly affects the number of visitors, while publicity about ETA deters potential visitors to Bilbao, though this influence changes slightly during truce periods in the case of domestic visitors. Our model supports the framework developed earlier: images about the GMB in the online media accumulate at an increasing rate, which in turn attracts visitors to Bilbao.

Table 1. Estimation results on visibility on the Internet

Variable	GMB opening	GMB press items			ETA press items		
	δ	$GMBN_t$	$GMBN_{t-1}$	$GMBN_{t-4}$	EN_t	EN_{t-2}	TEN_t
Domestic[a,b]	0.2030***	0.0444***	-	0.0441***	-0.0387**	-	0.0130***
	(0.0637)	(0.0160)		(0.0142)	(0.0147)		(0.0039)
Foreign[a,b]	0.5404***		0.0568**			-0.0402*	
	(0.1070)		(0.0226)			(0.0214)	

$$\hat{\Sigma}_\eta = \begin{bmatrix} 0.0017 & \\ 0.0015 & 0.0067 \end{bmatrix} \quad \hat{\Sigma}_\varsigma = 0 \quad \hat{\Sigma}_\omega = \begin{bmatrix} 0.00007 & \\ 0.00012 & 0.0003 \end{bmatrix} \quad \hat{\Sigma}_\varepsilon = \begin{bmatrix} 0.0001 & \\ -0.0006 & 0.0007 \end{bmatrix}$$

Notes: a. Asymptotic standard errors in parentheses.
b. *, **, ***: statistically significant at 10%, 5% and 1% levels.

Table 2. Diagnostic tests

| Variable	r(1)	r(4)	Q(4)	H(23)	JB	R^2_S
Domestic visitors	0.1064	0.0543	2.6071	0.2617	0.4344	0.5951
Foreign visitors	0.0039	-0.1047	3.5403	0.2848	4.8828	0.6109

4.3 What is the impact of GMB-driven news items on the number of visitors to Bilbao?

The results show evidence that positive changes in online press visibility of the Guggenheim Museum Bilbao accompany positive and relevant changes in tourism to Bilbao. The total cumulative elasticities of online news about the GMB are 0.0885% in the case of domestic visitors and 0.057% in the case of foreign visitors.

Given the results of the estimating model (1)-(4), it is possible to estimate the effect of online news about the GMB on the number of visitors both domestic and foreign for each period of time. Figure 4 shows the comparison between the raw data on visitors (solid line) and the estimated numbers of visitors discounting the effect of the GMB news (dashed line). The gap between the two series is a measure of the contribution of the online GMB news to the number of visitors to Bilbao.

According to parameter estimates, it can be observed that the influence of the GMB news is bigger for domestic visitors than for foreign visitors. This contribution is estimated to be between 25-28% of the total domestic visitors in the period 1998-2005 and between 16-20% of the total foreign visitors. As we saw in Figure 2, the GMB news stories increase rapidly from 2006 until 2010. This behavior leads, obviously, to an increase of the contribution to the visitors to Bilbao, that can estimated at between 35-40% for domestic visitors and between 24-29% for foreign visitors in the period 2008-2010.

Figure 4. Contribution of GMB news to the number of visitors (1992-2012)
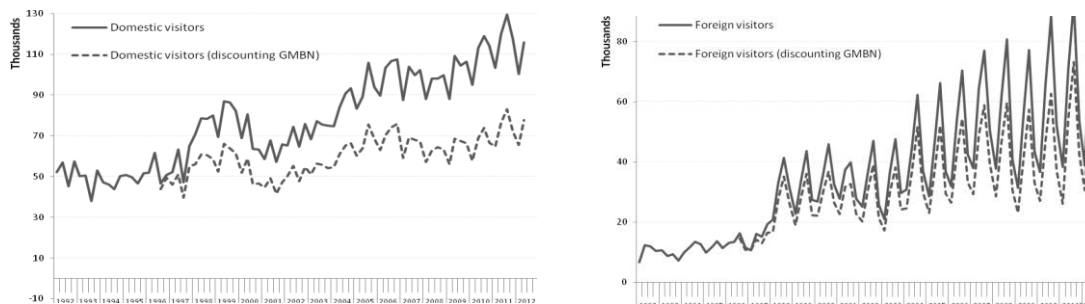
Specifically for the period 1998-2005, between 19,134 and 21,430 visitors out of the total quarterly average of 76,536 domestic visitors to Bilbao, can be attributed to the influence of the visibility of the Guggenheim Museum Bilbao in the online press. With regards to foreigners, between 5,758 and 7,197 quarterly visitors out of the total average of quarterly 35,985 foreign visitors can be attributed to the impact of the GMB in the online press. This contribution increases after the crisis. Thus, for the period 2008-2010, between 37,309 and 42,639 visitors out of the total 106,598 quarterly average of domestic visitors to Bilbao can be attributed to the influence of the visibility of the Guggenheim museum Bilbao in the online press. With regards to foreigners, between 13,911 and 16,809 quarterly visitors out of the total quarterly average of 57,963 foreign visitors can be attributed to the impact of the GMB in the online press in the same period.

In other words, the presence of the Guggenheim Museum Bilbao in the press exerts an important influence on the number of visitors to Bilbao. As has been proved in this article, to an extent, intangible image effects can be valued reliably. These figures denote the positive image (symbolic capital) the museum evokes.

5 Implications for Policy Makers and Researchers

By offering quantified evidence that the GMB has created value for the city of Bilbao in the form of a *symbolic capital*, our results may have implications for policy makers both looking to apply similar cultural branding strategies to other destinations and also working to evaluate the impact of structures which are already standing.

First, our case study quantitatively illustrates that an art brand can have real economic returns. As our framework suggests, uniqueness of architecture and the diffusion of images are two crucial components to building a valuable brand. While the importance of uniqueness has been stressed by marketing academics, policy makers must also consider connectivity when devising a branding strategy. Well-known architects and international museum chains not only endow projects with distinction but also connect places into brand distribution mechanisms. Policy makers might consider the different parties involved in image distribution, such as the media, when devising branding strategies.

In addition to offering insight about the competitive drivers in culture-led brand markets for future projects, this work proposes a method with which to evaluate the impact of the press on economic activity. If the economic value of its symbolic capital was not fully understood before, perhaps we may appreciate it now. Testing the model against other economic measures, such as foreign direct investment, could detect the presence of externalities produced by some cultural institutions. Indeed, other work has already recognized that cultural industries often give rise to externalities (European Commission 2010; Lorenzen et al. 2008). Such assessments are vital to appreciating the full value of cultural branding structures.

Nonetheless, the framework and methodology presented in this work need to be tested against other cases and other cities before such claims are put into practice. The GMB, as the

first international outpost of a world class art collection, not only benefited from a first-mover advantage (thereby attracting more attention), but the Museum also opened around the same time as the Internet boom. The heightened use of new media more than likely leveraged it an additional advantage in the form of more rapid information publication. Another concern is for how long images can accumulate before they level-off or saturate a market. Image-overload could revise consumer preferences and their returns to utility. At what point does this happen, and would it weaken the brand? The developed framework, method, and results provide a constructive springboard for future research and policy analysis.

6 Conclusions

It has long been understood that iconic art museums can help re-image places for economic gains. We have sought to develop an explanation of how and for how much and test this framework with quantitative data. Within a city, an iconic art museum constructs a unique narrative by drawing upon associations with culture, innovation, creativity, postmodernism, etc., which create symbolic value. Beyond place, brand channels like the media diffuse images of a singular piece of architecture and city, further crafting and publicizing the brand narrative. While the GMB itself is a non-reproducible good, its image is reproducible and allows its diffusion to reach a broad audience. The media, drawing upon previously published topics (images), increases supply, while consumers who gain increasing returns to utility from image consumption increase demand. This image accumulation process drives long term branding. The Guggenheim Museum, designed by Frank Gehry, has generated real brand value for the city of Bilbao; real symbolic capital that benefits the regional economy. New methods for realizing the economic value of such intangible items will allow us to more efficiently cultivate culture-led development in the 21st century.

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