

*Kalòs kai agathòs?*

Government quality and  
cultural heritage in the regions  
of Europe

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## **Impressum:**

CESifo Working Papers

ISSN 2364-1428 (electronic version)

Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH

The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute

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Editor: Clemens Fuest

[www.cesifo-group.org/wp](http://www.cesifo-group.org/wp)

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Abstract

This paper uses panel data on over 200 regions of Europe to study the spatial distribution of UNESCO sites and the capacity of regional governments to conserve heritage, using new designations in the World Heritage List as a proxy. We test whether the location of a region matters by controlling for the stock of World Heritage in the surrounding regions, and if low regional government quality is an obstacle to inclusion of sites into the List. We find some evidence of within-country regional competition for inscription, and of a positive impact of government quality on the chances of having a UNESCO designation.

JEL-Codes: C230, R100.

Keywords: UNESCO World Heritage, quality of government, regions of Europe, spatial analysis.

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April, 2019

## **1 Introduction**

The recent decades have seen growing awareness amongst international institutions, academic circles, and the public at large of the crucial role of good and democratic governance for economic and social development (UNDP, 2014). The United Nations system claims to base its actions on the idea of a governance that “promotes equity, participation, pluralism, transparency, accountability and the rule of law, in a manner that is effective, efficient and enduring, (...) advances development, by bringing its energies to bear on such tasks as eradicating poverty, protecting the environment, ensuring gender equality, and providing for sustainable livelihoods.” (UN, Global Issues), and the World Bank sees good governance as “the capacity of the government to effectively formulate and implement sound policies” (World bank, Worldwide Governance Indicators).

The economic literature has focused on the long-term relationship between the quality of institutions and economic growth, unveiling their historical role in shaping countries’ and regions’ current economic performance (Acemoglu et al. 2001; Rodrik et al., 2004; Tabellini 2010). Contemporary government institutions have been also found to affect the innovative capacity of regions, the effectiveness of their policies, and the return to investment (Rodriguez-Pose and Di Cataldo, 2015; Rodriguez-Pose and Garcilazo, 2015; Crescenzi et al., 2016).

Despite the growing interest in institutional factors, there has been little research so far on how government quality affects the effectiveness of public intervention in complex and multi-dimensional domains such as cultural heritage policy. Cultural heritage is in fact considered an asset owning public good characteristics (Peacock and Rizzo, 2008), whose protection requires the design and effective implementation of appropriate public policies and regulations. For historical reasons, cultural heritage is particularly relevant in Europe and its conservation and support have become major policy issues in the last decades. Although the EU has limited powers with respect to cultural heritage, its relevance has been included in numerous EU Council declarations and EU funding programs. According to a Eurobarometer special report (European Commission, 2018), 91% (87%) of European citizens think cultural heritage is important for their country (region), and 74% of respondents agree that public authorities should allocate more resources to Europe’s cultural heritage.

The question we address here is if the quality of government at the sub-national level throughout Europe is an important ingredient for the protection and promotion of heritage. More specifically, we ask whether the quality of government in the European regions is a relevant factor in explaining the successful selection of their heritage sites into the UNESCO World Heritage List, an event that we consider as a proxy of a regional government’s capacity to effectively protect and promote its heritage sites. In doing so,

we take for the first time a ‘local’ perspective by combining a novel dataset on UNESCO World Heritage designations of European regions for the period 2010-2015 with data on government quality gathered by the Quality of Government Institute at the University of Gothenburg. Moreover, since we deal with territorial units whose spatial location might have potentially important implications, we make explicit use of spatial econometric methods in investigating the determinants of inclusion in the List, in particular by accounting for potential spill-overs from the existence of already listed sites in the regions that are adjacent to a candidate site’s region.

In the European context, regional governments play an active role in heritage policy and in the nomination of sites in the UNESCO World Heritage List. As noted by Rizzo (2004), sub-central government intervention might in fact be optimal in heritage policy when the support to cultural heritage is used with the objective of promoting local economic development (i.e., by enhancing the attractiveness and tourist potential of heritage sites) or of stimulating the local identity and cohesion of communities. Such an instrumental approach to link cultural heritage with local development is not limited to Europe, but has increasingly become a mainstream public policy paradigm in many industrialized countries (OECD, 2005), suggesting the growing importance of a regional and local perspective in the design of heritage policies.

Although the proposal to nominate heritage sites for the World Heritage List remains a prerogative of national governments, the role of local governments in Europe has become crucial for two main reasons. Firstly, after over 40 years of the UNESCO World Heritage Convention, most of European countries have already included in the List the most outstanding heritage sites of national relevance (Frey and Steiner, 2011). New nominations on the World Heritage List, albeit still proposed for their outstanding universal value, are thus more likely to be expressions of cultural heritage with greater local significance. Regional governments might thus be interested in playing a more active role in the preservation and promotion of their cultural heritage through the World Heritage List. Secondly, we argue that the changes occurred in the last decade in the selection process of the UNESCO World Heritage List (UNESCO, 2007), which allow a state party to submit only up to two complete nominations per year, has increased the competition between regions in the same country to propose and have their heritage sites included in the List. As a result, political and institutional differences across regions may have a dramatic influence on the selection process of heritage sites.

The results of our empirical analysis can be briefly summarized as follows. First, estimation of a random effects Probit model suggests that the chances of a region having a heritage site inscribed in the UNESCO list in a given year are positively affected by the quality of the government of the region, particularly when measured in terms of ability to curb corrupt behavior and of quality of public services provided. As far as inter-

regional interdependencies are concerned, we find no significant spill-over on a region from the stock of World Heritage in surrounding regions. However, the number of regions in a country turns out to have a significant and negative impact on a region's success in site inscription, pointing to within-country competition between regions for nominating and inscribing sites in the World Heritage List.

The paper is organized as follows: Section 2 presents the local quality of government indicators; Section 3 discusses the rationale and features of the UNESCO World Heritage List and its recent trends; in Section 4 we show the spatial distribution of World Heritage sites across the European regions; in Section 5 we introduce the empirical models and discuss the results of the econometric analysis; Section 6 concludes.

## **2 Quality of government**

In order to capture the quality of institutions at the regional level, we use the sub-national Quality of Government (QoG) index proposed by Charron et al. (2014, 2015). Developed by the Quality of Government Institute at the University of Gothenburg (Sweden), the index is commonly considered as one of the few sources of data for systematic comparison of government institutions' performance across European regions. It is based on survey data from samples of respondents across countries and regions within the EU and addresses three main dimensions of government quality, namely public sector corruption, impartiality and effectiveness in the provision of three public services (education, healthcare, law enforcement). A region's QoG index is constructed by combining the national score of the Worldwide Governance Indicators (Kaufmann et al., 2009) standardized for the EU sample, with the variation of the QoG index obtained from the regional survey respect to the country average. The index is available for the sub-national regions at the NUTS 1 or NUTS 2 level, depending on the country, and is standardized with a mean of zero and a standard deviation of one, with higher scores implying higher QoG.

Information on the regional quality of government has been published for three years, based on subsequent rounds of surveys conducted in 2010, 2013 and 2017. In 2010, 172 NUTS1 and NUTS2 regions in 18 EU countries hosted surveys of about 200 respondents per region, for a total of 34,000 respondents overall (Charron, 2013). The 2013 index (Charron et al., 2015) is based instead on a larger survey-based dataset (84,000 respondents) of regions from all EU 28 countries, plus Turkey and Serbia, for a total of 236 political units in 30 countries. Finally, the 2017 survey collects the opinions of 78,000 respondents in 202 regions from 21 European countries (Charron and Lapuente, 2018). The regional scores from the three waves of data are not immediately comparable. Due to the process of standardization, adding or subtracting units can impact the scores of other units artificially. However, with each new release, the values of the index from

the previous years have been retroactively adjusted with validated techniques (see Charron et al., 2015; Charron and Lapuente, 2018). The regionalisation of the perceived quality of government institutions unveils interesting patterns that we aim at exploiting here, notably the very large variance of the index in a number of countries including Italy, Spain and Portugal, relative to more homogeneous countries like Denmark, Sweden or the Netherlands.

The QoG index has been used so far to test several research questions, notably how the quality of regional government institutions affect the innovative capacity of regions (Rodríguez-Pose and Di Cataldo, 2015), the rates of small and medium-sized enterprises in the local economy (Nistotskaya et al., 2015), the return of public investments (Rodríguez-Pose and Garcilazo; Crescenzi et al., 2016) and the regional attractiveness to migrants (Ketterer and Rodríguez-Pose, 2015).

Although it is based on perception of local government institutions in three specific areas of public service provision (health care, education, and law enforcement), we contend that the QoG index can be extended to assess the effectiveness of heritage policies at the local level as well. Protection and promotion of heritage can be considered in many respects as a form of government's provision of public goods and services (Throsby, 2010), for the quality of political decision-making and policy implementation influence the outcome of public intervention in this domain. Furthermore, as the regional quality of government is positively associated with higher levels of social trust (Charron et al., 2014), it is very likely that more cohesive communities exhibit stronger preferences for the conservation and support to their heritage assets, being expressions of their local identities.

### **3 The UNESCO World Heritage list**

The World Heritage List is the main implementing mechanism of the 1972 UNESCO World Heritage Convention, an international agreement that seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world that is considered to be of outstanding value to humanity. Inclusion of cultural and natural sites on the World Heritage List is the result of a selection process that occurs during the annual World Heritage Committee sessions. State parties propose, among the national properties previously included in a Tentative List,<sup>1</sup> heritage sites to be nominated in the final List, and these are included if they meet at least one of the 10 criteria defining the outstanding universal value and, additionally, the conditions of uniqueness, authenticity, and integrity (UNESCO, 2017).

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<sup>1</sup> National Tentative Lists are inventories of sites that State Parties submit for possible inscription in the World Heritage List and thus represent the first act of initiative as well as a necessary condition for obtaining the World Heritage designation.

The World Heritage List has become increasingly popular and many have regarded it as the most effective international legal instrument for the protection of cultural and natural heritage (Titchen 1996; Strasser 2002). As of 2016, some 191 countries have ratified the Convention and a total of 1,031 properties have been included on the World Heritage List. In line with the principles of the Convention, the inclusion of a site in the World Heritage List signals the quality of the property and the government's commitment towards the international community for its protection and conservation. As the World Heritage designation does not directly guarantee greater protection or access to financial resources from UNESCO, to ensure the integrity of the selected sites governments have thus to comply through their heritage policies and interventions with international recognized standards. Yet, given the popularity of the List, obtaining a UNESCO World Heritage designation has become also highly desirable as it might attract the attention of donors and for-profit firms, or it can be used to market the sites as tourist destinations (Harrison and Hitchcock 2005; Fyall and Rakic 2006 ).

The List has been long recognized to be unbalanced in the geographical areas of the world that are represented, with the majority of World Heritage being cultural sites located in developed regions, in particular in Europe and North America (UNESCO 2007). While some commentators have stressed as a cause of this unbalance the Western-centered conceptualization of tangible heritage in the design of selection criteria (Musitelli 2002), a growing empirical literature has unveiled political and economic determinants that may have influenced the selection process and led to unbalances in the World Heritage List (Bertacchini and Saccone 2012; Frey et al. 2013; Parenti and De Simone 2015, Bertacchini et al. 2016). Significantly, factors such as a country's income level, economic power, tourism specialization and active involvement on the World Heritage Committee sessions have been found to have an impact on the composition of the World Heritage List.

In order to rectify some of the representativeness gaps, since 2002 new measures to achieve a balanced representation have limited both the nomination capacity of states and the number of proposals examined at yearly Committee sessions. Currently, states can submit up to two complete nominations per year, provided that at least one is a natural heritage site, and the Committee can review up to forty-five nominations each year, inclusive of nominations deferred and referred by previous sessions.

#### **4 The distribution of World Heritage sites across the EU regions**

Studies and statistics concerning UNESCO World Heritage have usually focused on the distribution of sites at the country level, as state parties are the key actors within the UNESCO World Heritage Convention. Conversely, there has been little attention to a regional perspective on UNESCO World Heritage and in particular to the distribution of



World Heritage sites across the European regions. Europe is the area hosting the highest share of World Heritage properties, with some countries, namely France, Italy and Spain, ranking at the top for the number of sites in the World Heritage List. A regional perspective on European World Heritage can thus be useful to verify in a more fine-grained way whether geographical imbalances in the List noticed at the global level and between-countries do occur across European regions too. Further, through this approach it is possible to add insights into the spatial dependence of regions as to the localization of World Heritage sites, overcoming national boundaries.

To obtain the number of World Heritage sites in each region we use the information about heritage properties drawn from the UNESCO World Heritage Center Database (Source: <http://whc.unesco.org/en/list>). The database provides unique GIS coordinates that we use to identify the region (NUTS2 level) in which the heritage property is located. In cases where the UNESCO site area extends over multiple regions, the site is assigned to the region according to the official coordinates.<sup>2</sup>

As for trans-boundary sites (those sites that are recorded in the List as belonging to different countries), we adopt the following approach. For those sites that are located at the border of neighboring regions in two or more countries, we assign them equally to all involved regions. Conversely, we exclude transnational serial properties that are extremely scattered across countries and regions because it is difficult to identify the leading region in the World Heritage nomination process.<sup>3</sup> We do not make any distinction between cultural, natural and mixed properties as defined by UNESCO World Heritage Convention. Differentiating between cultural and natural sites would create difficulties in the European context due to the very low number of natural sites.<sup>4</sup>

UNESCO sites are spread in a relatively homogeneous way through the European continent, with 63.5% of the regions having at least one property included on the List. However, the regions scoring the highest number of sites tend to be located in the Mediterranean area and, in particular, in countries like Italy and Spain that exhibit also the highest number of sites on the List. On the other hand, regions without World Heritage sites are more likely to be found in the United Kingdom and in Central and Eastern Europe.

Figure 1 displays the distribution of World Heritage sites in 2015 across European regions (NUTS2), providing a first illustration of the most visible spatial patterns.

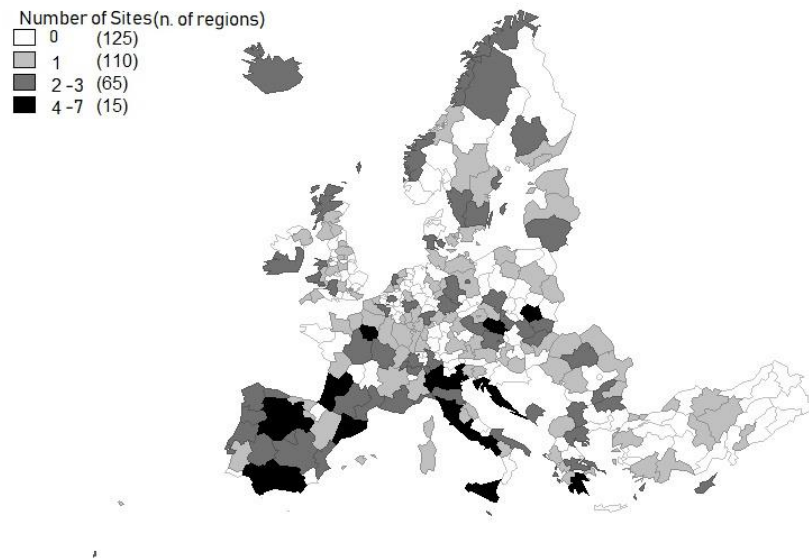
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<sup>2</sup> To give an example, the World Heritage site of the *Dolomiti* in Italy, that extends through both the Veneto and the Trentino Alto Adige regions, has been assigned to Veneto based on the reported GIS coordinates

<sup>3</sup> Transnational serial properties are those where two or more spatially distinct components stretch across two or more neighbouring countries, as individual components if they create a thematic, functional, historic, stylistic or typological series with other, spatially distinct components.

<sup>4</sup> Natural sites are only about 10% of listed properties in Europe compared to about 20% on the whole World Heritage List.

Figure 1: Number of UNESCO World Heritage Sites per region (NUTS2), 2015



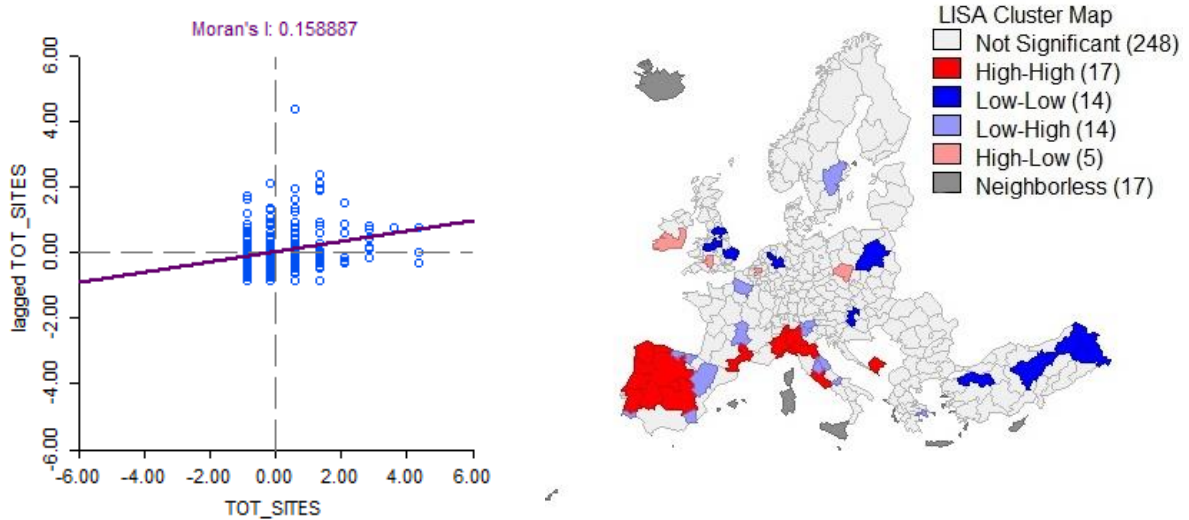
In order to detect spatial dependence of World Heritage sites across the European regions, we first use a global Moran's I statistic as a measure of association, and then local indicators of spatial association (LISA). LISA provide insights at the local level by showing the tendency of observed phenomena to locate or not in neighboring regions and are computed through a local Moran's statistic where the population is a group of neighboring regions depending on a contiguity criterion (Anselin, 1995).

Figure 2 presents the two measures using the first-order contiguity neighborhood criterion, where the set of neighbors of region  $i$  includes all regions sharing a border with it, and where each neighboring region  $j$  is attributed the same weight.<sup>5</sup>

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<sup>5</sup> Because the Queen contiguity weight matrix drops from the analysis 17 neighborless regions (i.e. islands), we also tested a 5-nearest neighbors weight matrix as an alternative approach, obtaining very similar results.

Figure 2: Global and Local indicators of spatial association for World Heritage sites (First order Queen contiguity weight matrix)



(a) Global Moran's I, p-value = 0.001

(b) LISA Map, significant clusters

The spatial association of UNESCO World Heritage sites across European regions measured by the Global Moran's I statistic is positive (0.16), but it is not particularly high.<sup>6</sup> Looking at the Moran scatterplot (Figure 2(a)), this is due to a relatively large number of regions in the upper left and lower right quadrants, which indicate spatial clustering of observations with diverging values. In other words, while some European regions with many (few or none) World heritage sites do tend to cluster in space, there are parts of the continent where regions with many (few) sites are surrounded by neighboring regions with few (many) sites. The map of local indicator of spatial association (LISA) displayed in Figure 2(b) highlights the most relevant local patterns of concentration between regions. Even if a large part of reported local Moran's I statistics are not significant, a look at both the high-high (red) and low-low (blue) clusters confirms the descriptive finding identified in Figure 1. Regions with high number of World Heritage sites tend to be located in Southern European countries, whereas clusters of regions scoring low values of heritage sites are more likely to be located in Central and Eastern Europe (including Turkey).

<sup>6</sup> A deeper inspection of the data indicates a Global Moran's I statistics of 0.23 when considering only the regions in Western European countries (Portugal, Spain, France, UK, Ireland, Italy, Germany and Benelux), while no spatial association (0.07) for the regions in Eastern and Northern Europe.

To explain the geographical distribution of World Heritage Sites across the European Regions, Table 1 presents the estimated coefficients from a cross-sectional linear regressions including as covariates geographical and historical factors that may have determined the potential of a region to obtain a World Heritage designation.<sup>7</sup> The size of the regions is a first rough indicator for the potential of having heritage sites included in the List, assuming that the larger is a region, the higher is the likelihood to host within its borders some outstanding heritage worth to be nominated in the UNESCO List. As expected, the coefficient for this variable is always positive and significant (varying between 5% and 10% significance level, depending on the specification). More interestingly, the number of World Heritage sites is significantly explained by proxies of the cultural potential of the region, based on its historical development. In particular, using Chandler and Fox's data on the geographical evolution of major urban settlements in history (Chandler and Fox, 2013), we construct variables for different historical periods (XI, XVI and XVIII century) reflecting the number of the most populated cities in Europe (top one hundred) located in each region. From an historical perspective, major urban centers have been the loci of the most intense socio-economic activities as well as of the highest achievements in cultural and artistic expression. As a result, one can expect that the more a region has hosted major urban centers during the past, the more World Heritage sites it contains today. As can be noted in Regressions 1-3 in Table 1, the coefficients indicating the effect of the number of major cities in European history on the number of current sites is positive and highly significant, with the distribution of major cities across regions in the XVI century leading to the largest effect on the number of World Heritage sites. This result also points out how most of European World Heritage can be traced back to this specific historical period. The effect of the historical cultural potential of regions also holds when we use a cumulative variable based on the previous three periods (regression 4).

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<sup>7</sup> Following Frey et al. (2013) we have also estimated count data models considering that the dependent variable can only take natural numbers. The results and significance of coefficients are similar in the two settings and for clarity and convenience in interpreting the results we opted for the OLS ones in this case.

Table 1: Determinants of the total number of sites in the World Heritage List 2015

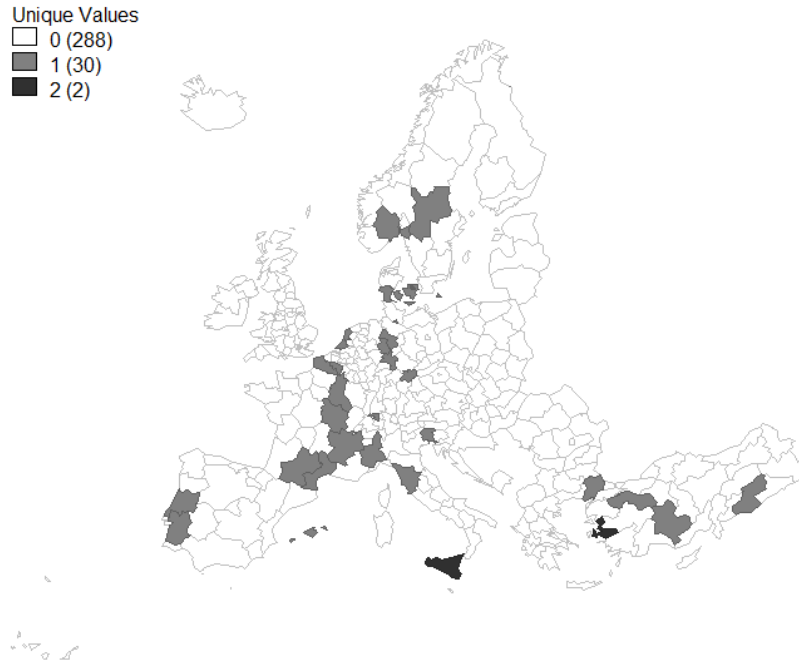
	(1)	(2)	(3)	(4)
SIZEmil	0.00910*	0.00838**	0.0111**	0.00881**
	(0.00451)	(0.00407)	(0.00542)	(0.00411)
XIcen	0.730***			
	(0.192)			
XVICen		0.811***		
		(0.182)		
XVIIIcen			0.687***	
			(0.180)	
TotHistUrb				0.303***
				(0.0674)
Constant	0.842***	0.833***	0.836***	0.796***
	(0.120)	(0.129)	(0.122)	(0.126)
Observations	289	289	289	289
R-squared	0.220	0.242	0.184	0.252
Adjusted R-squared	0.215	0.237	0.179	0.247

Standard errors (clustered at country level) in parentheses: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

As a final piece of evidence, figure 3 presents the distribution of new sites included in the World Heritage List over the period 2010-2015, based on the regional allocation method previously described. With only 25 new listed properties,<sup>8</sup> the relatively low number of inscriptions is mainly the effect of the rules and procedures adopted in the last decade by UNESCO, which have restricted to one (or two in special cases) the number of nominations that can be submitted by state parties for selection. As a result, as shown in figure 3, very few regions have obtained a UNESCO designation in the reference period, with the exception of only two (Sicily in Italy and Izmir in Turkey) with two new listed sites. Interestingly, the regions that have been able to include new sites in the List tend to be relatively clustered in some specific countries (i.e., France, Germany, Portugal, Italy, and Turkey) suggesting that regions' behavior may still be influenced to some extent by group or country factors.

<sup>8</sup> The number of new sites considered here for the period 2010-2015 is lower than the actual number of inscriptions as we excluded transnational serial sites for methodological reasons.

Figure 3: Regions with new sites inscribed in the World Heritage List, 2010-2015



## 5 Econometric analysis

### 5.1 Empirical strategy and variables

To investigate the determinants of the probability of European regions having a site included in the UNESCO World Heritage List we focus on two main channels. First, we consider the regional quality of government as a factor affecting the level of protection and support to heritage and, consequently, the ability of a region to obtain the World Heritage designation. Secondly, we test whether the location of a region matters for the chances of its nominations to obtain the World Heritage designation by controlling for the stock of listed heritage sites that are located in the surrounding regions. In fact, the documented process of spatial concentration of world heritage sites might indicate, after controlling for the quality and stock of the heritage endowment, potential spill-overs across regions in heritage policy and their ability to obtain World Heritage designations.

We use a panel data set of European regions  $r=1,\dots,R$  over six years  $t=2010,\dots,2015$ . The key variable that we observe at the regional level is a binary variable,  $i_{rt}$ , equaling 1 if a region  $r$  has (at least) one new site inscribed into the UNESCO list in a given year

$t$ .  $i_{rt}$  depends in turn on the realization of an underlying (unobserved) score,  $i_{rt}^*$ , with  $i_{rt} = 1$  (0) if  $i_{rt}^* \geq 0$  ( $< 0$ ). The  $i_{rt}^*$  score is modelled in equation (1):

$$i_{rt}^* = \mathbf{x}'_{rt}\beta + \theta QoG_{r\tilde{t}} + \gamma WH_{rt-1} + \delta \sum_j \omega_{rj} WH_{jt-1} + \tau T_{rt-2} + y_t + \varepsilon_{rt} \quad (1)$$

$\mathbf{x}'_{rt}$  in equation (1) is a vector of regional variables at year  $t$ , namely (logarithm transformations of) population, size and income per capita. These covariates have been commonly considered as determinants of countries' ability to inscribe heritage sites in the UNESCO World Heritage List, and we include them to test their effect at the sub-national level.

The Quality of Government index  $QoG_{r\tilde{t}}$  is observed in 2010 and 2013, and:  $\tilde{t}=2010$  if  $t \leq 2012$  and  $\tilde{t}=2013$  if  $t \geq 2013$ .  $WH_{rt-1}$  and  $WH_{jt-1}$  index the stock of World Heritage sites in regions  $r$  and  $j$  at time  $t-1$ , respectively.  $\omega_{rj} \in (0,1)$ ,  $r,j=1,\dots,R$ , is an  $(R \times R)$  set of spatial weights, with  $\omega_{rj} = 1$  if regions  $r$  and  $j$  are adjacent (i.e., they share a common border), 0 otherwise, so that  $\delta$  captures the impact of the total number of listed sites in the neighborhood at the end of the previous period on the probability of having a site listed in a region in period  $t$ .  $T_{rt-2}$  is the number of properties in the UNESCO Tentative List in region  $r$  at time  $t-2$ . As the Tentative List is made of sites which state parties consider to be of outstanding universal value and suitable for inscription on the World Heritage List, this variable is a proxy of the quality and quantity of regions' total heritage endowment not yet included in the List. The two years lag has been chosen in this case, because, according to UNESCO operational guidelines, state parties must submit sites to the Tentative List at least one year prior to the submission of any nomination.

The inclusion of the lagged stock of sites in the World Heritage List deserves some further consideration for potential endogeneity concerns. In fact, one could argue that the same factors that we claim currently influence the new inscriptions of World Heritage sites at the regional level may have equally affected the ability to include sites in the World Heritage and Tentative List by regions in the past. However, it is worth to remind that the stock of World Heritage sites in each region is the result of a cumulative process of inscriptions in the List over more than 40 years, a period during which regions have played a minor role in the nomination and selection process relatively to the period we are analyzing here.

As for the Quality of Government index at the regional level ( $QoG_{r\tilde{t}}$ ), we consider both the global index and its sub components, expressing the quality of public services, impartiality in provision, and control of corruption. We use the values observed in 2010 and 2013 and reported in the dataset released with the 2013 wave, which excludes the observations for the Turkish regions. Previous works (Rodriguez-Pose and Di Cataldo,

2015; Rodriguez-Pose and Garcilazo, 2015; Crescenzi et al., 2016) have adopted the regional quality of government in panel settings, but used only the value observed in one wave. As a result, by using two waves, our approach can capture the within-country evolution of regions' quality of government during the period of analysis.

While we seek to isolate the determinants of the conservation of heritage at the regional level and the ability to include heritage in the World Heritage List, we cannot completely rule out that this outcome can be influenced by some country-level characteristics that may enable or hinder regions' activity depending on the procedures of the UNESCO World Heritage nomination and selection process. As a result, we include in our specification the number of regions of a country to capture the effect of the competition between regions in the same country. Further, we consider two additional dimensions of the activity of a country in the World Heritage system that may affect the actual capacity of its regions to inscribe sites in the List. The variable *Committee* is a binary variable indicating whether or not a country is serving on the World Heritage Committee. Previous works (Bertacchini and Saccone 2012; Frey et al. 2013) suggest that this variable has a positive impact on the inscription of World Heritage sites, as countries that serve the World Heritage Committee in a given year might be more likely to propose and inscribe sites, thus generating a greater chance for the regions within their borders. Finally, we include the total number of years a country has been member of the World Heritage Committee. This variable captures differences in the active involvement of countries in the UNESCO World Heritage system, and may signal the interest of national and local governments in using the World Heritage List as a mechanism for the protection and promotion of their heritage. Table A1 in the Appendix presents the summary statistics of all variables used. We estimate equation (1) by Probit with random effects.<sup>9</sup>

## 5.2 Results

Table 2 summarizes the results obtained by estimating equation (1) under different specifications. First, we consider the spatial effect of the stock of World Heritage sites in neighboring regions on the likelihood of obtaining a new inscription (regressions 5 and 6); next, we include the regional quality of government scores (regressions 7 and 8); finally, we estimate the full model with both effects (regressions 9 and 10). In all instances, we show the results when taking (or not) into account year fixed effects that pick common time factors, i.e., the specific World Heritage Committee behavior and

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<sup>9</sup> A random effects specification is preferable to a fixed effects one in this context because of significant between-group variation in the explanatory variables and little within-group variation (due to the rare occurrence of non-zero outcomes) in the dependent variable.



attitude towards selection of properties to be included in the List in a given annual session.

Table 2: Random-effects panel Probit estimation of having a new site included in the World Heritage List

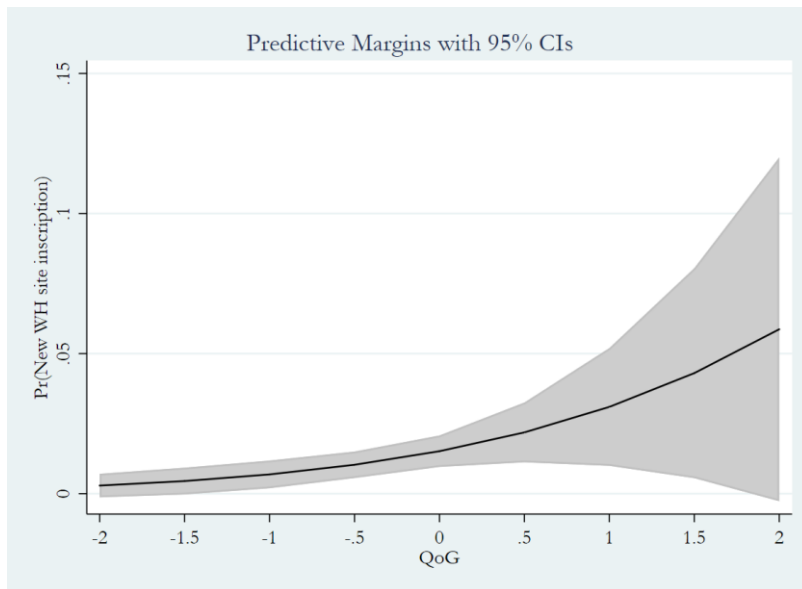
	(5)	(6)	(7)	(8)	(9)	(10)
WH	-0.0238 (0.0637)	-0.0252 (0.0612)	0.0169 (0.0664)	0.0147 (0.0642)	0.0171 (0.0676)	0.0149 (0.0655)
Sites Tentative List	0.107** (0.0502)	0.110** (0.0507)	0.109* (0.0567)	0.113** (0.0578)	0.109* (0.0574)	0.113* (0.0583)
Neighboring WH	-0.00468 (0.0218)	-0.00398 (0.0216)			-0.00449 (0.0253)	-0.00391 (0.0251)
QoG			0.339*** (0.116)	0.349*** (0.116)	0.336*** (0.120)	0.346*** (0.119)
Population (ln)	0.132 (0.104)	0.142 (0.103)	0.204* (0.118)	0.218* (0.117)	0.204* (0.117)	0.218* (0.116)
Size (ln)	0.0555 (0.0753)	0.0497 (0.0743)	-0.0284 (0.0848)	-0.0326 (0.0845)	-0.0210 (0.0879)	-0.0261 (0.0870)
Income p.c. (ln)	0.482** (0.207)	0.446** (0.200)	-0.0388 (0.313)	-0.0862 (0.312)	-0.0286 (0.316)	-0.0770 (0.313)
Num. Regions	-0.00960 (0.00766)	-0.00907 (0.00766)	-0.0149* (0.00825)	-0.0145* (0.00824)	-0.0149* (0.00821)	-0.0146* (0.00820)
Years in WH Comm.	0.0320*** (0.0119)	0.0312*** (0.0114)	0.0442*** (0.0111)	0.0435*** (0.0104)	0.0450*** (0.0126)	0.0441*** (0.0120)
WH Committee	-0.0308 (0.200)	-0.0340 (0.195)	-0.129 (0.206)	-0.133 (0.201)	-0.135 (0.212)	-0.138 (0.207)
Constant	-9.621*** (2.658)	-9.639*** (2.506)	-4.768 (3.348)	-4.762 (3.266)	-4.917 (3.445)	-4.892 (3.344)
Year Dummies	NO	YES	NO	YES	NO	YES
Observations	1,664	1,664	1,606	1,606	1,606	1,606
Number of regions	279	279	269	269	269	269
Log Pseudo-likelihood	-126.5	-125.4	-119.1	-118	-119.1	-118

Note: Robust standard errors in parentheses: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Considering the stock of World Heritage sites in the neighboring regions first (*Neighboring WH*), the coefficient for this variable is never significant under any specification. Thus we can reject the hypothesis that a spatial spill-over impacts the probability to obtain new inscriptions at the regional level. Conversely, the coefficient on the regional quality of government (*QoG*) is estimated to be positive and always significant at the 5% level (reg. 7-10) indicating that local governments that are more accountable are also more likely to protect and support their cultural heritage, leading to a higher chance to obtain the UNESCO World Heritage recognition. Holding all other variables to their means, one unit increase in the quality of government (corresponding to one standard deviation) raises the probability by one region of obtaining a World

Heritage designation in one year by one percentage point. To have a clearer picture of the size of the effect for this variable, Figure 4 displays the predicted probability of inscribing in one year a new site according to variation in the regional quality of government. Regions with a quality of government score equal to 1 (e.g., Vlaams Gevest region in Belgium) exhibit a 3% probability of having a new heritage site included in the World Heritage List during any year, which is five times larger than the corresponding chances of regions where the quality of government score is equal to -1 (e.g., Abruzzo region in Italy).

Figure 4: Predictive probabilities of obtaining a World Heritage Site according to variation in quality of government



As one could expect, a region's capacity to nominate and inscribe site in the World Heritage List is positively affected by the number of sites in the Tentative List. This effect is stable over regressions, even if only at the 10% significance level. At the same time, the results point out that a number of circumstances at the country level play a role. In particular, while being member of the World Heritage Committee by a country does not lead to a significant effect at the regional level, the coefficient of the number of years a country has served to the Committee is positive and highly significant. This finding suggests that the likelihood regional governments have to protect and promote the cultural heritage through the UNESCO List varies based on the historical involvement in the World Heritage system by their country. Additionally, the number of regions in a country turns out significant at the 10% level and with a negative coefficient, indicating

some effect of within-country competition between regions for nominating and inscribing World Heritage sites.

Among the other regional variables, the coefficient of population is statistically significant and with a positive sign. One possible explanation of this result is that more populated European regions tend to have historically more urbanized areas and this may reflect into a larger stock of available cultural heritage. Moreover, the effect of regional income per capita is significant only when the quality of government is not included in the model (reg. 5-6) suggesting that the latter factor is a more robust predictor of regions' capacity in protecting heritage and inscribing sites in the World Heritage List.

The decomposition of the Quality of Government index into its three basic components in Table 3 (Regressions 11-13) displays interesting differences in the link between specific institutional factors and the capacity to inscribe World Heritage Sites at the regional level. In all three cases, the main results obtained in previous specifications hold, with the coefficients for the three sub-indexes being positive and significantly different from zero. Interestingly, the component referring to the control of corruption exhibits the highest significance and largest coefficient value among the three sub-indexes, while government impartiality has the lowest significance and smallest effect. This finding is in line with previous research showing that the level of perceived corruption has the strongest and most significant effect on regional performance in various domains, such as innovation capacity (Rodriguez-Pose and Di Cataldo, 2015) and presence of small and medium-sized enterprises (Nistotskaya et al., 2014). Similarly, since the conservation of cultural heritage strongly relies on the enforcement of regulations and investment in capital assets, the corruption dimension, rather than the quality and impartiality in the provision of public services, is possibly the one that better captures the capacity of regional governments in heritage policy-making and enforcement.

Considering we find no spatial effect for the stock of World Heritage in neighboring regions on the likelihood of inscription of World Heritage sites, in regression 14 we additionally test whether spatial spillovers might occur only within country, due to national institutional factors which might hinder the effect across national borders. For this reason, as alternative specification we employ a spatial weighting matrix that accounts only for within-country adjacent regions. In this case too, though, the stock of World Heritage sites in adjacent regions does not turn out to be a significant predictor, while the other effects hold.

Table 3: Random-effects panel Probit estimation

	(11)	(12)	(13)	(14)
WH	0.00905 (0.0636)	-0.00420 (0.0664)	0.0155 (0.0707)	0.0184 (0.0667)
Sites Tentative List	0.113* (0.0601)	0.112* (0.0577)	0.125* (0.0637)	0.111* (0.0605)
Neighboring WH	-0.00876 (0.0247)	-0.00520 (0.0232)	-0.000241 (0.0267)	
Neighboring WH (within country)				-0.0257 (0.0268)
QoG				0.336*** (0.117)
Quality public services	0.302** (0.125)			
Impartiality		0.225** (0.107)		
Control of corruption			0.433*** (0.121)	
Population (ln)	0.209* (0.112)	0.179 (0.116)	0.230** (0.116)	0.215* (0.113)
Size (ln)	0.00805 (0.0885)	0.0167 (0.0889)	-0.0378 (0.0919)	-0.00596 (0.0818)
Income per capita (ln)	0.0237 (0.300)	0.180 (0.288)	-0.196 (0.319)	-0.0229 (0.298)
Num. Regions	-0.0127 (0.00789)	-0.0144* (0.00863)	-0.0149* (0.00806)	-0.0140* (0.00807)
Years in WH Committee	0.0410*** (0.0115)	0.0402*** (0.0121)	0.0459*** (0.0127)	0.0476*** (0.0118)
WH Committee	-0.145 (0.209)	-0.103 (0.207)	-0.154 (0.205)	-0.170 (0.208)
Constant	-6.044* (3.227)	-7.215** (3.120)	-3.824 (3.493)	-5.537* (3.228)
Year Dummies	YES	YES	YES	YES
Observations	1,600	1,600	1,600	1,606
Number of regions	267	267	267	269
Log Pseudo-likelihood	-118.3	-119.2	-116	-117.5

Note: Robust standard errors in parentheses: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

One peculiar characteristic of World Heritage designation is that the preparation of the nomination until the successful inclusion in the List is a lengthy process that might take several years. One concern in analyzing new World Heritage inscriptions by regions is that a year-by-year perspective within a panel data approach might be too fine-grained to account for the World Heritage designation process. For example, if a region is able to inscribe a heritage site at year  $t$ , the probability of obtaining a new World Heritage designation at year  $t+1$  is possibly lower and conditioned on the previous outcome. To check the robustness of our results against this argument, Table 4 provides estimations using a collapsed dataset to a single period. In this case, we estimate the probability that

European regions obtain at least one heritage site in the period 2010-2015 by exploiting the cross-sectional variance of our explanatory variables.

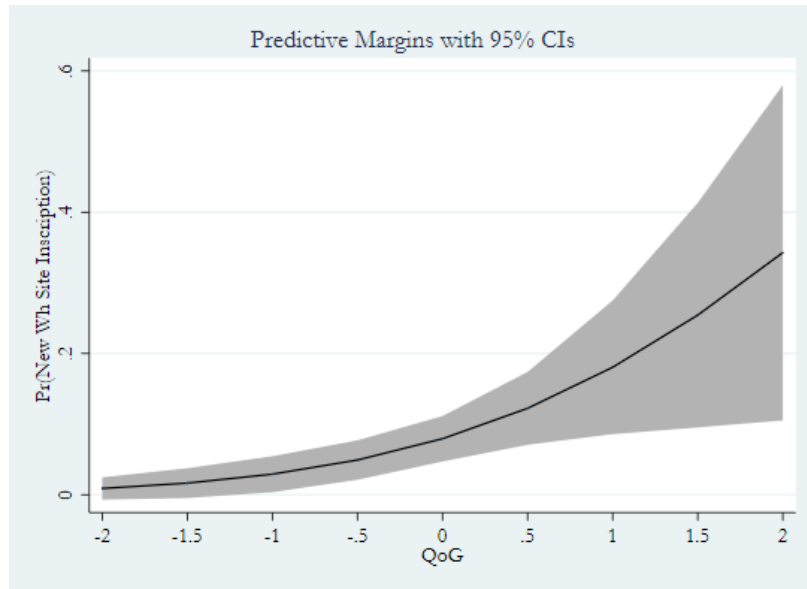
Table 4: Probit on collapsed dataset and Linear Probability Spatial Error Model (SEM)

	(15)	(16)	(17)	(18)	(19)
	Probit	Probit	Probit	Probit	LP SEM
WH	0.0267 (0.0937)	0.0116 (0.0896)	-0.00978 (0.0898)	0.0123 (0.0974)	-0.0026 (0.014)
Sites Tentative List	0.192** (0.0979)	0.201* (0.103)	0.195** (0.0991)	0.224** (0.102)	0.040*** (0.014)
Neighboring WH	0.0114 (0.0451)	0.00357 (0.0457)	0.00752 (0.0426)	0.0166 (0.0458)	0.0002 (0.004)
QoG	0.623** (0.255)				0.061** (0.029)
Quality public services		0.578*** (0.221)			
Impartiality			0.425* (0.223)		
Control of corruption				0.764*** (0.267)	
Population (ln)	0.324* (0.174)	0.313* (0.168)	0.267 (0.169)	0.336* (0.176)	0.0435 (0.027)
Size (ln)	-0.117 (0.103)	-0.0578 (0.0846)	-0.0404 (0.0876)	-0.105 (0.0969)	-0.003 (0.021)
Income per capita (ln)	-0.179 (0.480)	-0.0267 (0.390)	0.260 (0.395)	-0.285 (0.520)	0.0028 (0.068)
Num. Regions	-0.0258* (0.0147)	-0.0249* (0.0142)	-0.0282* (0.0148)	-0.0253* (0.0143)	-0.0025 (0.002)
Years in WH Committee	0.0645*** (0.0234)	0.0570*** (0.0217)	0.0551** (0.0219)	0.0699*** (0.0259)	0.008*** (0.003)
WH Committee	0.0604 (0.0891)	0.0785 (0.0848)	0.0952 (0.0850)	0.0385 (0.0886)	0.0094 (0.014)
Lambda					0.170** (0.081)
Constant	-3.735 (4.589)	-5.561 (4.028)	-7.814* (4.084)	-3.086 (4.854)	-0.592 (0.759)
Observations	267	265	265	265	267
Log Pseudo-likelihood	-66.70	-66.28	-67.51	-64.35	-30.22
R-Squared					0.140

Note: Standard errors in parentheses: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Regressions 15-18 show Probit estimation with robust standard errors using the global index of the regional quality of government and its components. The main results hold in this specification too, with similar level of significance for the coefficients and, expectedly, higher marginal effects. As shown in Figure 5, differences in the regional quality of government scores have a large impact on the success of regional heritage policy: regions registering a regional QoG score of 1 have an 18% chance to inscribe at least one World Heritage site during the period, relatively to a 3% probability of regions scoring -1.

Figure 5: Predictive probabilities of obtaining a World Heritage Site according to variation in quality of government, 6 years period



Finally, in regression 19 of Table 4 we estimate a spatial error model (SEM), that is, a linear regression model that allows for a first-order spatial auto-regressive process in the residuals to test the robustness of our results against unobserved neighboring effects. The results are in line with those obtained with the Probit model, and the coefficient on the spatially correlated errors ( $\lambda$ ) is positive and significant, confirming the presence of spatially correlated unobserved determinants of the chances of a region having its sites included in the World Heritage list.

## 6 Concluding Remarks

This paper has used a newly constructed panel dataset that matches the distribution of UNESCO world heritage sites across over 200 European regions with indicators of quality of government to test whether the characteristics of governments in terms of probity, fairness and ability to provide public services positively affect regions' capacity

to protect and support their heritage, and proxied that capacity by the chances to have heritage sites nominated and included in the UNESCO World Heritage list. The paper contributes to the literature on the political and economic determinants of UNESCO World Heritage by adding a regional and spatial perspective to the analysis. Further, it contributes to the scholarly debate on the effects of the quality of institutions and governance by providing novel insights in the field of heritage and cultural policies. Knowledge of the geographical distribution of sites across the European regions has allowed us to give a fresh picture of the spatial pattern of the existing stock of UNESCO sites in Europe as well as to test for the existence of spill-overs from the presence of heritage sites in a region to the chances of new sites being inscribed in neighboring regions. After controlling for regional and national factors previously used to explain the nomination and inscription activity of World Heritage sites, the empirical analysis unveils that the quality of the regional governments positively influences the chances of a region having a heritage site inscribed in the UNESCO list in a given year. Conversely, we find no significant spill-over impact across regions on the ability to obtain World Heritage designations based on the stock of world heritage sites in neighboring regions. The results of the analysis have relevant policy implications too. They empirically confirm that the effective protection and support to cultural heritage is influenced not only by national heritage policies, but also by indicators of government ‘health’ at the sub-national level that can be considered as proxies of a more general commitment of a local community to protect and promote its heritage. In particular, high levels of corruption emerge as the main obstacle to effective heritage protection policy in the regions of Europe. Additionally, as for the UNESCO World Heritage selection process, the findings suggest that, at least in the European context, the rules adopted to limit the annual number of national sites to be included in the World Heritage List might have partly shifted the competition from states to regions within the same country, making the accountability of regional governments an increasingly relevant factor for obtaining new designations.

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## APPENDIX

Table A1: Summary Statistics

VARIABLES	N	mean	sd	min	max
New Sites (Dependent variable)	1,890	0.0180	0.133	0	1
WH (lag)	1,890	1.108	1.292	0	7
Neighboring WH (lag)	1,890	4.903	4.222	0	24
Site Tentative List	1,890	0.733	1.312	0	9
Number of Regions	1,920	20.42	12.80	1	40
Quality of Government	1,608	0.141	0.957	-2.838	2.639
- Quality public services	1,602	0.142	0.949	-3.273	2.797
- Impartiality	1,602	0.130	0.956	-3.241	2.670
- Control of corruption	1,602	0.124	0.960	-2.836	2.240
World Heritage Committee	1,914	0.219	0.414	0	1
Years World Heritage Committee	1,914	8.617	7.099	0	23
Population (ln)	1,910	14.13	0.848	10.23	16.48
Size (ln)	1,920	9.163	1.330	2.565	12.33
Income per capita (ln)	1,696	10.09	0.394	8.854	12.07