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Explaining the World Heritage List: an empirical study

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Abstract The UNESCO World Heritage List is designed to protect the *global* heritage. We show that, with respect to countries and continents, the existing World Heritage List is highly imbalanced. Major econometric determinants of this imbalance are historical GDP, historical population, area in square kilometers of a country, and number of years of high civilization. Surprisingly, economic and political factors, such as membership on the UN Security Council, which should be unrelated to the value of a country's heritage and therefore should have no impact, are shown to have a systematic impact on the composition of the World Heritage List.

Keywords World heritage · Culture · UNESCO · International political economy · International organizations

JEL Classification Z11 · F5 · D6 · H87

1 The UNESCO convention on world heritage

In 1959, UNESCO launched a spectacular and successful international campaign to save the Abu Simbel temples in the Nile Valley. In 1966, UNESCO also

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spearheaded an international campaign to save Venice after disastrous floods threatened the survival of the city. At its 17th session in Paris in November 1972, the General Conference of UNESCO adopted the *Convention concerning the Protection of the World Cultural and Natural heritage*. To date, 190 state parties have ratified this Convention, and the World Heritage List currently has 962 Sites, 745 (or 77 percent) of which relate to culture, 188 to nature, and 29 are mixed combining cultural and natural heritage.[1] The World Heritage List has become very popular, and most World Heritage Sites are major attractions for cultural tourism as well as being icons of national identity (Shackley 2006:85). Many regard the UNESCO List as "the most effective international legal instrument for the protection of the cultural and natural heritage" (Strasser 2002, p. 215).

The List is the result of actions by state parties that nominate the Sites, the *World Heritage Committee* that formally decides on inclusion on the List, and three advisory boards. Member governments must propose sites to be included on the List. Mayors or district governments may only make proposals for inclusion on a tentative list. The official nomination of a Site occurs when a country hands in a complete nomination document. The World Heritage Committee meets once a year and consists of representatives from 21 of the member countries. The General Assembly of the members of the Convention elects this committee for terms of up to 6 years. The intention of the Convention is an equitable representation of the world's regions and cultures. Sites for inclusion on the World Heritage List are selected according to 10 criteria, which are covered in detail in the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO 2005). Nominated sites must meet at least one of the 10 criteria, six of which refer to Cultural and four to Natural Sites. The Committee, which is the final decision-making body, is advised by the International Council on Museums and Sites (ICOMOS), the International Union for Conservation of Nature (IUCN), and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM). It has been claimed, "The scrutiny of these systems … [is] rigorous…" (Cleere 2006:xxii).

Accompanying the increasing popularity of the List, a large social science literature on World Heritage and the UNESCO program has developed (see especially the collections of Leask and Fyall (2006), Harrison and Hitchcock (2005). In economics, there are noteworthy recent contributions by van der Aa (2005) Bertacchini et al. (2011), or Frey and Steiner (2011). General heritage issues are also well discussed in Peacock and Rizzo (2008) or Rizzo and Towse (2002). The contribution most noteworthy within the context of this article is the paper by Bertacchini and Saccone (2012), which focuses on the behavior of states within the World Heritage system. The main findings concern the positive impact of membership on the World Heritage Committee on the nomination activity and the success of an application. Our article intends to broaden this intra-organizational perspective by including political and economic factors within member countries

[1] After the 36th ordinary session of the World Heritage Committee, held in Saint Petersburg on June 24, 2012–July 6, 2012. Only two Sites have been de-listed since the implementation of the List. http://whc.unesco.org/en/list, accessed on January 29, 2013.

and investigating the cultural and natural potential to obtain Sites. Although the relevant literature agrees that the UNESCO List constitutes a great advance, the List also has negative aspects, in particular, the highly unequal distribution of Sites across countries and continents. Other factors than the 10 "objective" and "official" criteria by UNESCO presumably play a role.

Section 2 discusses the unequal distribution over countries and continents of the Sites included on the World Heritage List. In Sect. 3, we show that the number of years a country has been a member of the Convention, the size of a country, the number of years that it has been part of a civilized culture, as well as historical GDP and population size are positively and significantly correlated with the number of Sites a country has on the List today. In Sect. 4, we estimate several models to identify political and economic determinants of getting on the List. The econometric estimates suggest that the relative size of the tourist and the media sectors, federalism, and being a member of the UN Security Council are the most robust determinants of the number of Sites a country has on the UNESCO List. Section 5 concludes.

2 Selection of World Heritage Sites

The World Heritage List is generally considered an excellent contribution to saving the globe's common history in the form of cultural monuments and landscapes worth preserving. The undisputed and well-known positive effects of being on the List relate mainly to the *attention* created and the improved *protection*. Being on the List attracts the attention of the media, the general public, public decision makers, potential donors, and for-profit firms. As long as this additional attention leads to increased funding, it is beneficial in maintaining the Sites. To support the preservation of Sites, UNESCO offers technical but only very limited financial help with a corresponding fund of only $4 million per year for the over 900 Sites listed.

Being on the List is also related to some *negative* aspects (for an extensive discussion of the benefits and negative aspects of the World Heritage List see Frey and Steiner 2011). First, the prominence of the List can contribute to the *destruction* of a Site. A higher number of visitors can accelerate deterioration. The Sites also can become a target in times of war (such as the bridge in Mostar or the city of Sarajevo) or a target for terrorists. Recently, the listing of the Preah Vihear Temple on the World Heritage List caused an armed conflict between Thailand and Cambodia during which the Temple suffered damage.[2] Second, an undesired *substitution* effect may take place when politicians, bureaucrats, and firms reallocate funds from other sites to those on the List. The loss of funds of the non-UNESCO sites may well lead to the overall heritage being less well preserved. Third, the number of Sites on the UNESCO List has grown at an accelerating rate over time. The Convention does not set a numerical limit for the List, and this *overextension* of the List imposes problems whereby the Committee has to monitor the state of conservation and management of the Sites.

[2] http://www.economist.com/node/18119225?story_id=18119225, accessed on February 20, 2011.

Fourth, and most important here, the *selection* of the Sites is questionable because it is subject to rent seeking by experts and politicians. That is, politicians in their respective countries and expert representatives on the advisory groups ICOMOS and IUCN strongly influence the selection of what Cultural and Natural Sites should be on the List. In most cases, the Committee follows the experts' recommendations. Technical experts rely on their knowledge as art historians and conservators, but "the concept … has never been the object of a truly operational definition" (Musitelli 2002:329).

Affluent countries seem to have benefited most from the Convention. According to a Report of the World Commission on Culture and Development, the World Heritage List "was conceived, supported and nurtured by the industrially developed societies, reflecting concern for a type of heritage that was highly valued in those countries" (Olmland 1997). Moreover, many countries do not have the necessary conservation infrastructure that allows them to prepare nominations to the List at a sufficiently sustained pace to improve its representativeness (Strasser 2002). According to the Convention, the state parties must identify and delineate the property (Article 3); in addition, they must ensure the identification, protection, conservation, presentation, and transmission to future generations (Article 4). These requirements put a heavy burden on countries wishing to put a site on the List. In order to avoid a negative decision, state parties often withdraw a nomination if the Committee or its Bureau is likely to decide unfavorably.

Being on the UNESCO List is highly desired by many as it brings prominence and monetary revenue. One may even speak of a "heritage industry" (Johnson and Thomas 1995). As a consequence, the process of getting on the List is subject to rent seeking (Buchanan 1980). It has been highly politicized as many political and bureaucratic representatives of countries consider it a worthwhile goal from which they personally profit. Consequently, the selection is subject to political pressure; it is not determined solely by the 10 official UNESCO criteria deemed to be "objective." Although the goal of the whole project is to protect Sites of central importance for humanity, as expected, national interests dominate global interest. Some countries more actively try to secure Sites to be included on the List. "The rhetoric is global: the practice is national." (Ashworth and van der Aa 2006:148) Twenty-one nations participating in the Convention have a seat on the World Heritage Committee. However, these members nominated more than 30 % of the listed Sites between 1978 and 2004 (Van der Aa 2005:81). Francesco Bandarin, the Director of the World Heritage Centre, acknowledges, "Inscription has become a political issue. It is about prestige, publicity and economic development" (Henley 2001). Bertacchini and Saccone (2012) estimate the factors determining the success of an application by using a dichotomous variable expressing whether a site proposed by a country had been successfully inscribed on the List or not. Being a member of the Committee and having a higher GDP per capita are major determinants for a successful application. However, as discussed above, state parties often withdraw a nomination if there is a chance that the decision might be negative, leading to a distorted selection. To avoid such biases, we do not follow this approach but rather analyze only successful applications.

The questionable selection is reflected in the strikingly unequal distribution of Sites among *continents* (following the UN definition of a continent). Europe has 46 % of the Sites. European predominance is larger for Cultural Sites (53 %) than for Natural Sites (23 %). In contrast, sub-Saharan Africa has <9 % of all Sites, and the Arabian countries have 7 %. The Americas and Asia–Pacific are better represented with 17 and 21 %, respectively (see Fig. 1). Europe also leads the distribution of sites per square kilometer with 19 Sites per million square kilometers, whereas all other continents possess between four and five.

The distribution of Sites across countries is also highly skewed. Some countries in the world have a large number of World Heritage Sites; whereas, other countries have few, and a considerable number have none. Only 10 countries have a large number of 20 Sites or more. On the other hand, there are 38 countries with no Site at all. Some of these countries have been a part of the Convention for a long time (e.g., Guyana since 1977 and Monaco since 1978). However, larger countries such as Jamaica (since 1983) or countries with an important heritage like Bhutan with its Djongs (since 2001) also have been omitted from the List. A more equal distribution could be supported by the argument that every country has equal importance with respect to its contribution to the heritage of humankind. This applies not only to "culture" in the broadest sense but also to "nature:" Each country has Cultural and Natural Sites worth preserving. However, postulating an equal number of Sites per country makes any attempt to compare the "value" of the Sites among countries futile. Clearly, this would be an extreme position because it does not take into account the size of a country as measured by population or geography (for detailed information about the distribution of Sites, Frey and Pamini 2010).

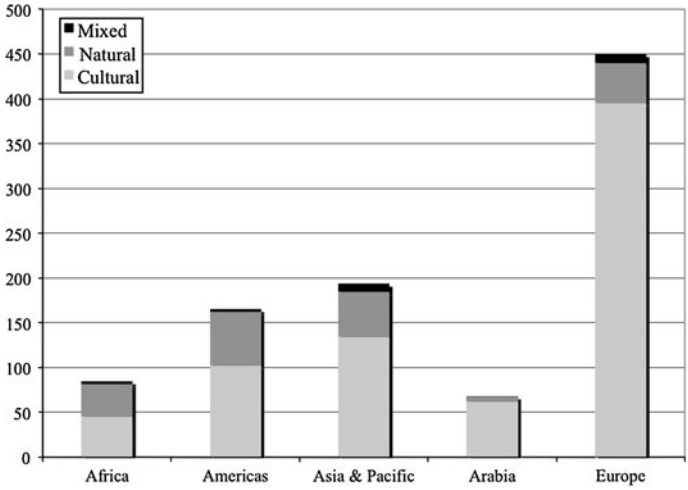

Fig. 1 The World Heritage List according to types of heritage and continents 2012. 21 Heritage Sites go across two countries each, one Site goes across 10 countries. This and all further tables count Sites as many times as the number of countries involvedSource: based on http://whc.unesco.org/en/list (accessed on January 29, 2013)

The imbalance of World Heritage Sites according to continents and countries has been present from the beginning, and it has become a subject of major concern within the World Heritage Commission and Centre, UNESCO, and beyond (Steiner and Frey 2012). The Director of the World Heritage Centre, Francesco Bandarin, even went so far as to call the World Heritage List "a catastrophic success" (as cited in Henley 2001). As a reaction to this imbalance, in 1994, the World Heritage Committee started the *Global Strategy for a Balanced, Representative and Credible World Heritage List*, which intends to raise the share of non-European Sites as well as the share of living cultures, especially "traditional cultures" included on the List. Despite this explicit policy and intended strong action, "the immediate success of these efforts is questionable" (Strasser 2002, p. 226).

An unequal distribution of Sites of course does not necessarily mean that the selection is biased. Nevertheless, a strongly unequal selection suggests that inappropriate aspects may play a role, such as political or bureaucratic rent seeking among the member countries. These aspects are unrelated to the value of global heritage. In the remainder of this paper, we present empirical results of the factors determining the number of Sites on the List by country.

3 Potential to obtain World Heritage Sites

In a first step, we investigate factors explaining why some countries deserve more Sites on the List than others do. The potential of a country to obtain World Heritage Sites can also be regarded as the *supply* side of heritage. The influence of these determinants can be estimated by cross-section regressions because these historical variables do not change over time.

Cultural and Natural Sites differ in their characteristics; therefore, different UNESCO criteria are applied. However, rent seeking can be expected to have the same influence with respect to Cultural and Natural Sites if it provides the same prestige and the criteria allow the same extent of manipulation. In this respect, the distinction between Natural and Cultural Sites is somewhat artificial (Pressouyre 1996). To achieve consistency with the following estimations of the political and economic determinants, all regressions use the total number of Sites in 2007 as a dependent variable (since most of the independent variables in the following regressions are only available up to 2007). In case, there are relevant differences in the determinants between Cultural and Natural Sites, this will be indicated.

Appropriate techniques to explain a dependent variable that only takes natural numbers are a Poisson regression or negative binomial regressions. Table 1 presents the estimated coefficients of a negative binomial regression in order to deal with the so-called overdispersion of the data, that is, a variance greater than the expected value, which the Poisson model is not able to take into account.

As a technical control variable, we use the number of years a country has belonged to the World Heritage Convention because a Site can only be listed if the respective country is a member of the Convention. As expected, the coefficient is positive in all specifications. A country that has belonged to the Convention for a longer period of time has more sites on the List. In most regressions, this coefficient

Table 1 Historical determinants of the total number of sites in the World Heritage List 2007 per country

	Total sites					
	(1)	(2)	(3)	(4)	(5)	(6)
# Years in convention	0.0885***	0.0666***	0.0315*	0.0384**	0.0289*	0.0442***
	(8.838)	(6.739)	(1.728)	(2.418)	(1.874)	(3.055)
Size of country (in million sq km)	0.169***	0.148***	0.0766***	0.0954***	0.0313	0.0527
	(4.250)	(3.895)	(2.590)	(3.033)	(1.051)	(1.515)
Africa	−1.517***					
	(−7.191)					
America	−1.204***					
	(−5.708)					
Asia–Pacific	−0.725***					
	(−3.588)					
Arabia	−1.492***					
	(−5.639)					
Europe	(Reference continent)					
# Years of high civilization		0.000416***				
		(6.414)				
GDP per capita in year 1500			0.00216***			
			(2.903)			
GDP per capita in year 1820				0.00125***		
				(3.679)		
Population in year 1500					1.27e−05**	
					(2.188)	
Population in year 1820						6.25e−06**
						(2.19)

Table 1 continued

	Total sites					
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.212	−0.506**	0.511	0.351	1.647***	0.907***
	(0.917)	(−2.351)	(0.728)	(0.733)	(4.252)	(2.582)
Observations	182	182	32	50	50	87

The dependent is the total number of Sites of a country in 2007. All coefficients are estimated using negative binomial regressions

z values in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The same remarks as for Fig. 1 apply

All regressions refer only to the countries of the World Heritage Convention in 2007

Source: http://whc.unesco.org/en/list. Retrieved on October 30, 2010. World Bank Development Indicators, O'Brien (2007), Maddison (2007)

is highly significant. The coefficients vary around 0.06 (column 2). The size of the coefficients can be interpreted by computing the exponent of the estimated coefficient to get the so-called incidence rate ratio (IRR), which indicates the factor change in the expected count of Sites for a unit increase in the independent variable. In column (3), tenure has, for instance, an IRR $= e^{0.059} = 1.0689$, which means that an increase in Convention membership by 1 year (i.e., one unit in our scale) leads to a relative increase in the expected number of Cultural Sites of IRR-1 = 6.89 %.

With regard to the size of a country, one expects that the larger a country is the more likely it is to find Sites worth including on the List. This argument seems to be more convincing for Natural than for Cultural Sites. The size of a country is a proxy for the potential to obtain Natural Sites: A large country is expected to have different types of landscapes that more appropriately fit the UNESCO criteria. The estimations of the impact of country size (area in million square kilometers) support this hypothesis. The coefficient is always positive and significant. For example, the coefficient of 0.148 in column (2) indicates that an increase in a country's size of one million square kilometers leads to a relative increase in the expected total number of Sites of 15.9 %. When testing the impact of this variable separately on the number of Cultural and Natural Sites, the coefficient for Natural Sites is always larger than the one for Cultural Sites, supporting the use of a country's size as a proxy for natural potential.

Finding an adequate proxy for cultural potential is more demanding. The multiple regression results are consistent with the descriptive statistic. When compared to Europe, all other continents have significantly fewer Sites, even when controlling for tenure and size of the country. This is particularly the case for Cultural Sites. For Natural Sites, the result is somewhat different. When compared to Europe, the Arabian countries have significantly fewer, whereas the Asia–Pacific countries have significantly more Natural Sites.

Although the continental dummies can account to some extent for cultural and historical differences, variables on a country level are more precise. We construct a variable including the great cultures of the world to account for cultural potential (as historical sources we used Debenham 1984; O'Brien 2007). The variable "years of high civilization" reflects the number of years a country has been a part of one of the 16 most important historical cultures.[3] One can expect that the more years a country has experienced such high civilization, the more Cultural Sites it contains. The regression results are consistent with this hypothesis: The coefficient indicating the effect of years of civilization on the number of Sites on the UNESCO List is positive and highly significant. The coefficient of 0.000416 in column (2) indicates that an increase in the period of high civilization by 100 years raises the expected number of Sites by 4.17 %.[4]

To further analyze the impact of the historical development of a country on the number of Sites on the List, we use the historical GDP per capita and population

[3] These are Mesopotamian, Arabian, Phoenician, Persian, Egyptian, Ottoman, Jewish, Greek, Occident, Aegean, Roman, Byzantine, Indian, Chinese, Mongolian, and Japanese.

[4] Testing Cultural and Natural Sites separately, the coefficient for Natural Sites in contrast is statistically not significant, as expected, which supports our approach to use this variable as a proxy for cultural potential.

data developed by Maddison (2007). The range of the data is from year 1 A.D. to 2008 A.D. (year 1, 1000, 1500, 1600, 1700, 1820, and yearly thereafter). However, in the early years, there are many missing values. We selected two points in time (1500 and 1820) with comparatively few missing values but with a substantial amount of time in between to cover different periods. These points in time seemed to be especially appropriate for Cultural Sites since the majority of Cultural Sites stem from the period between the tenth and the eighteenth century (Van der Aa 2005). We use historical GDP per capita to investigate the impact of the development of a certain country at a given point in time. Despite many missing values, the estimated coefficients for GDP per capita on the total number of Sites are positive and statistically significant [Column (3) and (4)].[5]

Considering the role of the size of population, we test the hypothesis whether historical population size has a positive impact on the number of Sites. This implicitly assumes that each person of the world has the same capacity to create cultural goods. The coefficients of the historical population size are consistent with this expectation. The larger the historical population was in 1500 and 1820, respectively, the higher the number of Sites in a country [column (5) and (6)].[6] In the following estimations, tenure is used as a technical control variable and the size of area as a control for natural potential. As the historical data exhibited many missing values, we used the number of years of high civilization as a control for the cultural potential of a country.

4 Political and economic determinants of the World Heritage List

Many actors desire to have sites included on the UNESCO List because it brings prominence and monetary revenue, especially from increased tourism. As a consequence, the process of getting on the List is subject to rent seeking and has been highly politicized. The selection is subject to political pressure and is not solely determined by the 10 criteria deemed to be "objective" according to the Convention. Some countries are more active than others to secure Sites to be included on the List (Van der Aa 2005:81).

Several factors determine the rent-seeking process within a country and on an international level (e.g., within international organizations, such as UNESCO). Possible rent-seeking factors within a country are the size of the tourist sector, the distribution of information via media, economic development, bureaucracy, and federalism. Determinants influencing the nomination at the international level are the power of a country as expressed by GDP, the size of the population, and influence in international organizations. The separation between these three dimensions is not always clear-cut. We therefore order the variables as economic (GDP, GDP per capita, tourist sector) and political (size of population, media,

[5] As expected, the impact of historical GDP per capita is stronger for Cultural Sites. It has no significant impact on the number of Natural Sites.

[6] Again, as expected, the historical size of the population has no significant effect on the number of Natural Sites.

bureaucracy, federalism, and membership on the UN Security Council) determinants. Another factor mentioned above is membership on the World Heritage Committee. Bertacchini and Saccone (2012) found a clear positive and statistically significant correlation of membership in the Committee and the number of Sites. However, we do not include this variable because of the endogeneity problem arising. Countries receive more Sites when they are part of the Committee. This is not only because of the political power to push their Sites through the nomination process, but also because these countries prepared the applications years before and anticipate membership on the Committee.

Assuming that the same prestige is attached to Cultural and Natural Sites, rent seeking can be expected to have the same influence on both types of Sites. The following regressions therefore used the total number of Sites in 2007 as a dependent variable. First, we tested the impact of the *economic* variables, always controlling for tenure, area, and years of civilization. Various economic determinants are introduced in sequence and then simultaneously tested (see Table 2, Column 7–9).

Total GDP is positively and significantly correlated with the number of total Sites. Economically powerful countries that tend to have a higher weight at

Table 2 Economic determinants of the number of total sites in the World Heritage List 2007 per country

	Total sites			
	(7)	(8)	(9)	(10)
GDP	0.000377***			0.000129
	(2.825)			(1.155)
GDP per capita		0.0321***		0.0203**
		(4.361)		(2.379)
Tourists expend/exports			−0.0267***	−0.0216***
			(−4.073)	(−3.411)
# Years in convention	0.0619***	0.0648***	0.0560***	0.0528***
	(6.390)	(6.820)	(5.268)	(5.218)
Size of country (in million km^2)	0.113***	0.144***	0.120***	0.106***
	(3.295)	(4.296)	(3.399)	(3.249)
# Years of high civilization	0.000350***	0.000316***	0.000366***	0.000294***
	(5.467)	(5.293)	(5.935)	(5.054)
Constant	−0.416*	−0.622***	0.204	0.0851
	(−1.953)	(−2.881)	(0.814)	(0.340)
Observations	169	169	146	142

The dependent is the total number of Sites of a country in 2007

All coefficients estimated with negative binomial regressions

z values in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The same remarks as for Table 1 apply

The figures are for 2007 and refer only to the countries of the world heritage convention in 2007

Source: http://whc.unesco.org/en/list. Retrieved on August 30, 2010. World Bank development indicators O'Brien (2007)

UNESCO and other international organizations are able to put more Sites on the List. The GDP per capita is also positively and significantly related to the number of total Sites. Economically, more developed countries have more Sites. They may have a larger number of Sites for historical reasons and/or they may be better able to lobby for inclusion on the List. This also involves being able to prepare the extensive documentation necessary for a successful application (see Strasser 2002). It may be argued that more developed countries are better able to maintain and conserve their Sites. The importance of the tourist sector, as measured by the expenditures of tourists as a share of exports,[7] has a negative statistically significant effect on the number of Sites. Politicians and bureaucrats in a country with low tourist income have higher incentives to lobby for more Sites on the List. In contrast, countries with an already well-developed tourist sector are less dependent on the World Heritage List to promote tourism.

With respect to tourism, the cross-country estimation obviously raises the question of reverse causality. It is well known that after a Site has been nominated, tourist numbers increase significantly.[8] However, a particular Site normally accounts for only a small part of a country's revenue from tourism. We further address this issue in Sect. 5.

Testing all relevant economic factors simultaneously (column 10), the results hold: GDP per capita is positive and tourist expenditures are negative in a statistically significant way related to the number of Sites on the List. The coefficient of GDP, however, is no longer significant.

The first *political* determinant refers to a country's power as measured by today's population size (Table 3, column 11). When using control variables, the population size shows no impact on the number of Sites. The size of a country's area turns out to be a more important determinant for a Site to be on the UNESCO List.

The media plays an important role in the process of getting on the List. It is expected that countries with a higher media density will have a larger number of Sites on the List. When more people are informed about (possible) Sites on the List, politicians and bureaucrats have a higher incentive to engage in order to achieve recognition and profit from the popularity of the List. Possible media channels through which people are informed include newspapers, radio, TV, and the Internet. These variables are highly correlated with each other, but the number of Internet users is documented the best. The number of Internet users is positively related to the number of Sites on the List in a statistically significant way. The more people have access to the news, the higher the incentive for politicians to lobby for putting national Sites on the List.

The general importance of government and its bureaucracy in a country can be captured by the share of government spending in GDP. The higher the public expenditure share the bigger the influence of politicians and the size of bureaucracy

[7] This variable is sometimes also used as a measure for tourist specialization Arezki et al. (2009). Tourism Specialization and Economic Development: Evidence from the UNESCO World Heritage List. *IMF Working Paper.*

[8] As an alternative measure, we also tested the total number of tourists: this variable has a positive and significant impact. However, if accounting for the size of the population by taking the share of tourists divided by the total population, the impact becomes statistically insignificant (not shown in Table 2).

Table 3 Political determinants of the number of total sites in the World Heritage List 2007 per country

	Total sites						
	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Population	0.0657					0.0390	0.0636
	(0.821)					(0.813)	(1.021)
Internet user		0.0150***				0.0120***	0.00806**
		(4.917)				(3.701)	(2.155)
Gvt spending/GDP			0.0319**			−0.0103	0.00348
			(2.033)			(−0.658)	(0.188)
Federalism index				1.460***			0.961***
				(4.678)			(3.348)
# Years UNSC_perm					0.0652***	0.0495***	0.0426***
					(4.378)	(3.376)	(3.077)
# Years UNSC_rotating					0.252***	0.188***	0.130***
					(6.315)	(3.515)	(2.803)
# Years in convention	0.0678***	0.0652***	0.0695***	0.0584***	0.0348***	0.0354***	0.0386***
	(6.883)	(7.038)	(6.576)	(4.505)	(3.738)	(3.515)	(2.861)
Size of country (in million km^2)	0.129***	0.145***	0.137***	0.0464	0.0730**	0.0685**	−0.0326
	(3.192)	(4.315)	(3.836)	(1.020)	(2.226)	(2.253)	(−0.661)
# Years of high civilization	0.000410***	0.000309***	0.000344***	0.000359***	0.000317***	0.000246***	0.000220***
	(6.006)	(5.356)	(5.221)	(4.529)	(6.092)	(4.686)	(3.084)
Constant	−0.527**	−0.755***	−0.902**	−0.797**	−0.217	−0.140	−0.584
	(−2.454)	(−3.455)	(−2.538)	(−2.298)	(−1.155)	(−0.435)	(−1.327)

Table 3 continued

	Total sites						
	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Observations	180	175	153	78	182	150	71

The dependent is the total number of Sites of a country in 2007

All coefficients estimated with negative binomial regressions

z values in parentheses: *** $p < 0.01$, ** $p < 0.05$

The same remarks as for Table 1 apply

The figures are for 2007 and refer only to the countries of the World Heritage Convention in 2007

Source: http://whc.unesco.org/en/list. Retrieved on August 30, 2010. World Bank development indicators O'Brien (2007)

in a country. A higher share is expected to be correlated with a higher degree of rent seeking, but it also means better possibilities to prepare the applications for the List. The estimated coefficient turns out to be positive and statistically significant (column 13). Countries with higher degrees of federalism are expected to have a higher number of Sites on the List. In more federal countries, a larger number of politicians want to profit from the popularity of the List. Although member governments must propose sites to be included on the List, mayors, district governments, or heritage experts can make proposals for inclusion on the tentative list. A measure of federalism is published by the Database of Political Institutions (Beck et al. 2001). By using this index, more than 50 % of the observations are lost. The estimated coefficient is positive and statistically significant: A more decentralized country has more Sites on the List, consistent with the theoretical hypothesis.

The influence of international organizations, especially organizations of the UN, is expected to be reflected in a larger number of Sites being on the UNESCO List. Dreher Sturm, and Vreeland (2009) show that being a member of the UN Security Council is related to receiving favorable treatment from the World Bank and IMF. To test the effect of membership in other important organizations, we count the years that a country has been a permanent or non-permanent member of the UN Security Council since it became a member of the World Heritage Convention. Interestingly, countries that have been members of the Security Council for a longer period of time have a significantly higher probability of having a larger number of Sites on the List.

Controlling for the political determinants simultaneously (column 16 and 17), the main results are unaffected: Media (as measured by Internet users), federalism, and UN Security Council membership (permanent and rotating) are positively and significantly correlated with the number of Sites. However, the size of government spending again becomes statistically insignificant.

As a last step, the influence of economic and political determinants on inclusion on the UNESCO List is estimated simultaneously (see Table 4, column 18 and 19). The main results hold (including statistical significance): Relative tourist expenditures are negatively correlated with the number of Sites; the coefficients of the number of Internet users (as a proxy for the influence of media in general), membership on the UN Security Council, and federalism are positively related. Interestingly, when membership on the UN Security Council is included among the determinants, the coefficient of GDP per capita of a country is much smaller and becomes insignificant. This suggests that the power of a country on the World Heritage Committee is exerted more by its influence on international bodies instead of its level of economic development.

We are fully aware that cross-section regressions cannot rule out reverse causality. However, for most determinants, reverse causality seems to be highly implausible. The number of Sites is unlikely to influence country size, years of past civilizations, membership on the UN Security Council, or the degree of federalism. The only variable where reverse causality seems to be an issue in a cross-section

Table 4 Economic and political determinants of the number of total Sites in the World Heritage List 2007 per country

	Total sites	
	(18)	(19)
GDP	−2.83e−05	1.05e−05
	(−0.373)	(0.173)
GDP per capita	−0.00497	−0.0233*
	(−0.394)	(−1.693)
Tourists expend/exports	−0.0140**	−0.00902
	(−2.267)	(−1.114)
Internet user	0.0119**	0.0151**
	(2.164)	(2.454)
Gvt spending/GDP	−0.0121	−0.0109
	(−0.705)	(−0.550)
# Years UNSC_perm	0.0550***	0.0519***
	(3.390)	(3.618)
# Years UNSC_rotating	0.184***	0.128***
	(4.289)	(2.751)
Federalism		1.221***
		(4.052)
# Years in convention	0.0274**	0.0307**
	(2.532)	(2.401)
Size of country (in million km^2)	0.0643**	−0.0134
	(2.194)	(−0.354)
# Years of high civilization	0.000246***	0.000237***
	(5.126)	(3.894)
Constant	0.370	−0.201
	(1.091)	(−0.457)
Observations	127	61

The dependent is the total number of Sites of a country in 2007

All coefficients estimated with negative binomial regressions

z values in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The same remarks as for Table 1 apply

The figures are for 2007 and refer only to the countries parties of the World Heritage Convention in 2007

Source: http://whc.unesco.org/en/list. Retrieved on August 30, 2010. World Bank development indicators O'Brien (2007)

setting is tourism. It is known that the number of tourists for a Site or region increases after a Site is listed (e.g., Yang et al. 2009). Two aspects tend to mitigate this problem in a cross-section setting. First, the impact of one Site on a country's *total* tourist numbers or expenditure is quite small. Second, substitution effects within a country (sites not listed lose tourists) make the effect on total tourist numbers ambiguous (Arezki et al. 2009).

To address the causality issue, we also conducted pooled cross-section and random-effects panel estimations from 1978 to 2007 using the number of Sites nominated in a given year as a dependent variable.[9] For the relative tourist expenditures, we introduce a 1-year lag. It seems unlikely that a Site's nomination in a given year has an impact on the tourist expenditures in the year before. This effect would only occur if a Site is expected to be nominated. The coefficients of the lagged tourist expenditures confirm the negative and statistically significant correlation with the number of Sites a country obtains in a given year. In general, when controlling for historical, political, and economic determinants, the main results of the cross-section estimations are supported: GDP per capita has a positive effect, tourist expenditures a negative effect, media distribution a positive effect, and being a rotating member of the UN Security Council a positive effect on the number of UNESCO Sites received per year.

5 Conclusion

The implementation of the UNESCO World Heritage List to protect the common global heritage constitutes a great step forward toward preserving one of the most important global public goods on our planet. However, there are also negative aspects related to the List, such as the destruction of Sites (usually by increased deterioration) or the substitution of funds away from sites not on the List. Here, we focus on the striking imbalance of the List. The distribution across continents and countries is highly unequal, which suggests that factors in addition to the 10 official and "objective" UNESCO criteria play a role.

There are historical reasons why some countries have more Sites than others do: The tenure of a country in the Convention, the size of the country, the number of years of high civilization, historical GDP, and historical population size are all found to be positively correlated with the number of Sites. Although size is more important for the number of Natural Sites, historical GDP and population reflecting past development, and the cultural potential of a country are more important for Cultural Sites.

Using these historical factors as controls, econometric estimates are used to identify the determinants of getting on the UNESCO World Heritage List, that is, the total number of Sites in 2007 as a dependent variable. When simultaneously controlling for several factors, media distribution, federalism, and UN Security Council membership have a statistically significant positive effect on the number of Sites on the UNESCO List, whereas tourist expenditures have a significantly negative effect. Panel-data models with lagged tourism expenditures show rule out reverse causality; however, the effect of being a rotating member of the UN Security Council on the yearly number of new Sites obtained is more robust than being a permanent member.

The analysis undertaken suggests that the List is not solely determined by cultural or historical factors but also by political and economic factors. These results are offered here for discussion. We do not normatively judge whether these factors

[9] The results are not shown here, but available from the authors.

should, or should not, have any influence on the selection of Sites on the World Heritage List. However, the claim that inclusion on the List is solely, or even mainly, "objectively" determined by the 10 criteria of the Convention is open to serious doubt. The empirical analysis, which shows that inclusion on the List is systematically correlated with economic and political factors unrelated to what "World Heritage" is claimed to be, suggests that extraneous factors play a significant role. This testifies to the importance of the World Heritage List. Politicians, public officials, and interest groups in the various countries find it desirable to try to influence the selections on the List because the List is considered to be relevant. The World Heritage List should be looked at in this light, and it has to be discussed which economic and political influences are deemed to be legitimate and which are deemed to be unwarranted.

To the extent that such extraneous factors are deemed to be illegitimate when determining the UNESCO List of global heritage, several approaches to reform the List are possible. For example, the role of experts subject to unwarranted influences can be reduced by conducting willingness-to-pay studies of heritage sites or countries with no Sites can be encouraged to apply for the List. The latter strategy, which UNESCO introduced in 1994, has so far not been able to significantly reducing the imbalance of the List.

This discussion is meant to raise our understanding of the political and economic factors that influence the composition of the List. It may help the decision makers involved in deciding about World Heritage issues to take steps to improve the selection of World Heritage Sites that truly reflect "the cultural and natural heritage around the world considered to be of outstanding value to humanity."

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